OCCU-TEC
ENERGY, ENVIRONMENTAL AND SAFETY SOLUTIONS

GET THE LEAD OUT

Presented by OCCU-TEC, Inc.

Missouri Senate -
Bill 681- Section 160.77

Why are we here?

- Learn about lead.
- Discuss "get the lead out" bill
  - How to comply with SB681
  - Develop sampling plan
  - Complete sampling
  - Reporting
  - Funding reimbursement
- How can OCCU-TEC help you?
- Questions?

Who is OCCU-TEC, Inc.

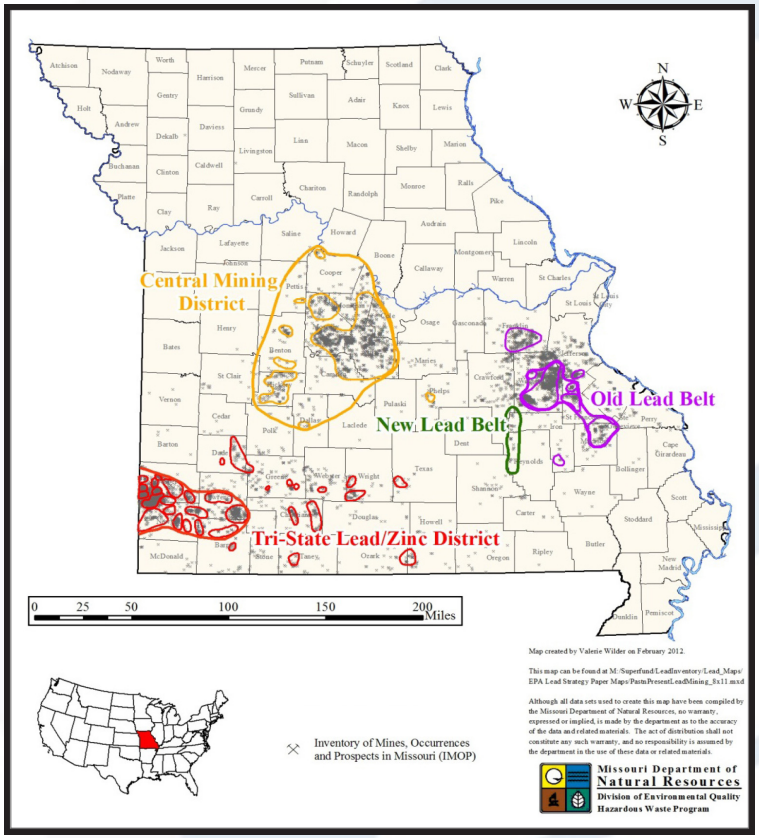
- Environmental consulting firm based in North Kansas City, Missouri, founded in 1983.
- Focus on Environmental Consulting, Safety, and Compliance assistance.
- Worked for numerous School Districts in Kansas and Missouri.
- Contact: Kevin Heriford, Director of Environmental Health and Safety Departments, (816) 825-0628, kheriford@occutec.com

What is Lead?

- Naturally occurring element found in small amounts in the earths crust.
- Ancient Romans used lead for water pipes and lining baths.
- Modern uses include paints, flashing, piping, Electrical equipment

Missouri's Lead History

- Missouri was, at one time, a global leader in lead production.
- Some of the largest lead deposits in the world were located in Southeast and Southwest Missouri
- Oronogo-Duenweg Mining Belt, Viburnum Trend
- Part of the Tri-state Lead and Zinc Mining District



Source: PUB2979 History of Lead Mining in Missouri by County or District; MODNR, May 2021

Picher Oklahoma: Chat Piles (Mine Tailings)

- National center of Lead and Zinc Mining for more than 100 years.
- Mine Tailings contain heavy metals that contaminated town and surrounding streams.
- Estimated 34% of children in Picher suffered from lead poisoning.
- Currently a Ghost Town
- Pitcher, OK – Treece, KS – Cardin Oklahoma are part of the Tar Creek Superfund Site

Source: https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0601269

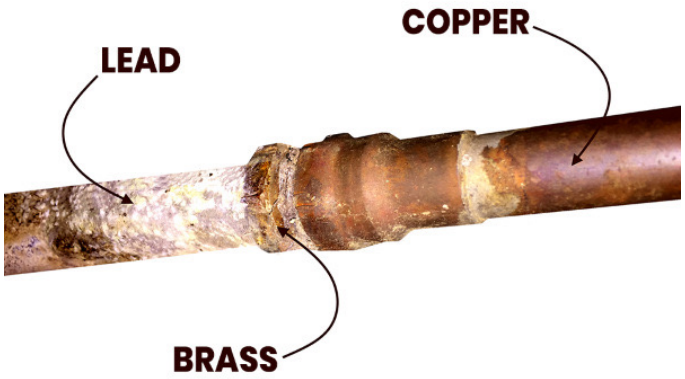
Flint Michigan

- In April 2014, Flint, Michigan, switched water source from treated Detroit water to the Flint River.
- Officials, in an attempt to save money, failed to apply corrosion inhibitors.
- Lead from aging water pipes leached into the water.
- Between 6,000 and 12,000 children were exposed to drinking water with high lead levels.
- Victims were awarded a combined $600 million settlement.

Source: Flint Water Crisis; Encyclopedia Britannica, Dec 2022

How does lead get into Drinking Water?

- Lead enters the water supply due to corrosion: leaching from lead piping and lead solder.
- Lead levels increase with higher water acidity/low mineral content.
- Brass or chrome-plated brass components w/ Lead in Solder, Lead supply lines.
- Lead can increase the longer the water stays in the pipe (lack of use or stagnation).


COPPER
LEAD
BRASS

Effects of Lead on Humans

- Children with elevated blood-lead levels can potentially lead to:
  - Behavior/learning problems
  - Lower IQ/hyperactivity
  - Slowed Growth
  - Hearing Problems
  - Anemia

Source: Learn About Lead; EPA Website; www.epa.gov/lead

Effects of Lead cont.

For Pregnant Women:

- Reduced growth of fetus
- Premature birth

For Adults:

- Cardiovascular effects
- Decreased kidney function
- Reproductive problems

Source: Learn About Lead; EPA Website; www.epa.gov/lead

Missouri Senate Bill 681

- Signed by the Governor on June 20, 2022.
- Drinking Water In Schools (Section 160.077)
- Title "Get the Lead Out of School Drinking Water Act."

Source: Get the Lead Out of School Drinking Water Act; CCS#2/HCS/SS/SCS/SBs 681 & 662; June 2022

General Overview

- Requires "all schools to provide drinking water with lead concentration levels below **5 parts per billion (ppb)**….."
- Requires inventory of all potential drinking water outlets and all outlets used for food preparation and used for cleaning of cooking equipment and eating utensils in each of the schools' buildings.
- Develop a plan for testing each outlet inventoried and make the plan available to the public.
- Sample all outlets identified as "first draw" worst-case samples.
- Prioritized for early childhood education programs, kindergartens, and elementary schools.
- Testing is required to be completed by August 1, 2024.
- Remediate Sources above 5 ppb.

Source: Get the Lead Out of School Drinking Water Act; CCS#2/HCS/SS/SCS/SBs 681 & 662; June 2022

EPA's "3 Ts" for Reducing Lead in Drinking Water in Schools

Training	Training: Train school officials to have awareness of occurrences, causes and health effects.
Testing	Testing: Test drinking water in schools.
Telling	Telling: Tell students, parents and staff about programs, potential risks, testing results and remediation.

Source: EPA 815-B18-007 3Ts for Reducing Lead in Drinking Water in Schools and Child Care Facilities; EPA; Oct 2018

Inventory

- Provide water source information/description
- Location Description
- Photograph
- Manufacturer (if available): check fountains against the EPA list of known lead-containing fountains.
- Sample date and time
- Recommended action.

Source: Get the Lead Out of School Drinking Water Act; CCS#2/HCS/SS/SCS/SBs 681 & 662; June 2022

Types of Sources

- Drinking water outlet is defined under SB681 as: "A potable water fixture that is used for drinking or food preparation" and includes the following:
  - A water fountain, faucet, or tap that is used or *potentially* used for drinking or food preparation and,
  - Ice-making and hot drink machines.
  - Dishwashing equipment
  - Bubbler and water bottle filler (2 sources)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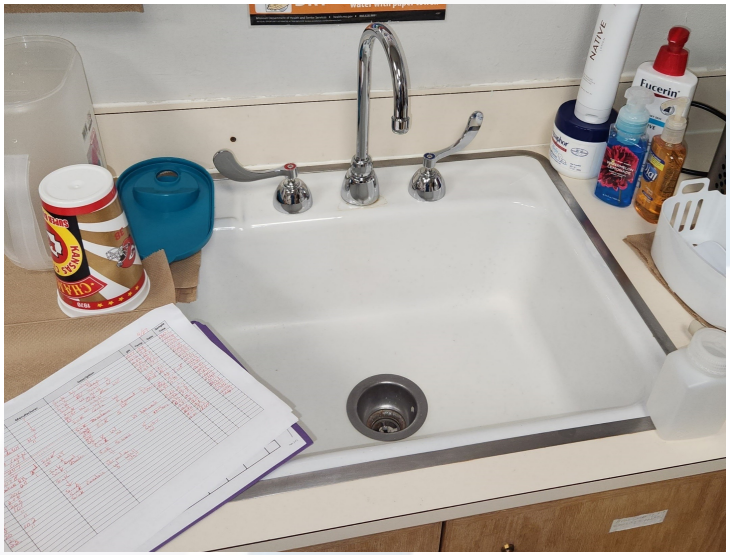

Fucerin


Pathways
ECOLAB


154-RRE
-01


CAUTION
CAUTION
CUIDADO
ATTENTION
PUSH
PUSH

Determining What to Sample

- Once you have defined a source, you must determine what you will sample. Things to remember:
  - Bubbler and Bottle filler on a combined unit get sampled separately.
  - Ice machines may require disconnection
  - Sinks should include classroom sinks, lab sinks, breakroom sinks, kitchen sinks, etc.
  - Exterior water spigots should be sampled if used to fill water bottles.

Develop a Sampling Strategy

Focus on	Determine	Plan	Determine
Focus on Early Childhood Education Programs, Kindergartens and Elementary schools first.	Determine number of sources. •School Staff can do and reduce time/control cost for third-party sampling by assisting in the initial inventory.	Plan to sample prior to school start or during a scheduled out-of-session period for the school (summer, spring break, etc.). Required due to "first draw" being defined as "no use for 8-hours".	Determine record keeping process and responsibility for annual scheduling for compliance.

Source: Get the Lead Out of School Drinking Water Act; CCS#2/HCS/SS/SCS/SBs 681 & 662; June 2022

EPA List of Lead Containing Known Fountains

- Halsey Taylor. Model numbers: WMA-1, SWA-1, S3/5/10 C&D, S300/500/1000D, SCWT/SCWT-A, DC/DHC-1, HWC7/HWC7-D, BFC-4F/7F/4FS/7FS. Coolers with cusp connection: 5656 FTN, 5800 FTN, 8880 FTN, W/ Lead Lined Tanks: WM8A, WT8A, GC10A, GC10ACR, GC5A, RWM13A
- Ebco (Oasis, Kelvinator, Aquarious): Model numbers: CP3, CP3-50, CP3H, CP5, CP10, CP10-50, 7P, 13P, 13PL, DP20, DP20-50, DP3R, DP3RH,8DP8A, DP8AH, DP13A, DP13A-50, DP14A-50/60, DP10X, C10E, WFE10, PX-10, DP12N, DP15W, DP5M, DP7M, DP7MH, DPM8, DPM8H, DP13M, DP13M-60, DP14M, DP15M, DP16M, CP3M, CP5M, DP15MW, DP5S, DP7S, DP13S, DP14S, DP7SM, DP13SM, DP7WM, DP7WMD, DP5F, DP10F, EP5F, EP10F, WTC10, WEEC03, WEEC05, WEEC07, WEEC10, WEEC13, WEEH03, WEFC03, WEFC08, WEFC10, WEFC13, WEFC15, WEFC20, WEFC13-OX, WEFC20-OX, WEFC05-OX, WEFH03, WEFH08, WEKC03, WEKC05, WELC05, WELC07, WELC08,WELC13, WELC14, WELC15, WELC16, WELH07, WELH08, WEMC07, WEMC13, WW07T, WEFH03, WEFH08, WEPC05, WERC05, WERC07, WERC13, WETC05, WETC10, WEWC07, WEEC03-OX, WEEC10-OX

Source: EPA 810/F-90-021 Fact Sheet: Lead In Drinking Water Coolers; US EPA Office of Water; February 1990

EPA List of Lead Containing Known Fountains Cont.

- Bubbler Water Coolers Shipped between 1962 and 1977
- Bottled Water Coolers shipped between 1962 and 1977 with model numbers: CBI (H) and DB1R(H)
- Bottled Water Coolers shipped between 1978 and 1981 with model numbers: DB3 and DB1R(H)
- Sunroc Bottled Water Coolers with model numbers: USB-1, USB-3, T6 size 3, BC and BCH

Source: EPA 810/F-90-021 Fact Sheet: Lead In Drinking Water Coolers; US EPA Office of Water; February 1990

Overview of Sampling Process

- Inventory, photograph, sample, analysis, and reporting.
- Contractors may have different methods of inventory.
- OCCU-TEC collects photos of each source, record location and descriptor, manufacturer, type of source, etc.
- Samples are "first draw" – with the faucet or source not used for at least 8 hours.
- 250 ml Sample volume.
- Samples analyzed by MDNR approved laboratory.
  - https://dnr.mo.gov/water/business-industry-other-entities/certified-laboratories/chemical
- Report will include results, inventory, and recommendations for corrective action.

Source: Get the Lead Out of School Drinking Water Act; CCS#2/HCS/SS/SCS/SBs 681 & 662; June 2022

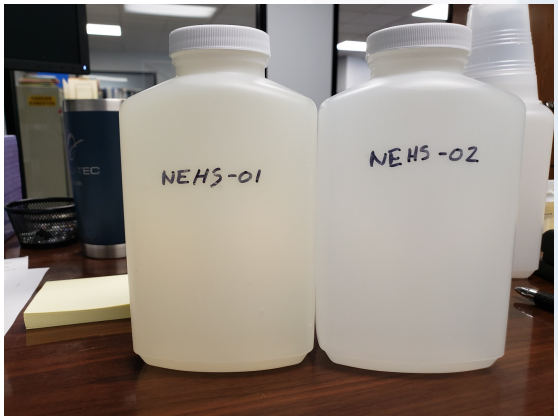
After Inventory and Testing

- Remove and replace any drinking water coolers or drinking water outlets that the EPA has determined are not lead-free under (federal lead contamination control act of 1988).
- Not required to replace outlets that test under 5 ppb.
- If testing indicates sources coming into the building above 5 ppb – Install filters at each point water enters the building and filters that reduce lead at each water outlet inventoried to ensure results below 5 ppb.
- If testing indicates internal building piping is causing the contamination – Install filters and provide purified water at each outlet inventoried.

Source: Get the Lead Out of School Drinking Water Act; CCS#2/HCS/SS/SCS/SBs 681 & 662; June 2022

Interpretation of Results

- Determining if Lead is in facility piping or entering the facility with high lead
  - If Water is coming in elevated, all samples will have lead above 5 ppb.
  - If lead is from pipes and solder in the building, sources will vary, with some below and some above.
    - Collecting Flush samples will assist in determining if lead is coming from a fixture or internal piping.



Remediation

If testing indicates water coming into the building is above 5 ppb:

- Install filtration system where water enters building.
- Install filters at each water source or provide purified water at each water source.

If testing indicates lead piping components or fixtures are source.

- Replace fixtures with non-lead containing components
- Until fixtures are replaced
  - Provide purified water at each source, or
  - Install filtration at each water source

Source: Get the Lead Out of School Drinking Water Act; CCS#2/HCS/SS/SCS/SBs 681 & 662; June 2022

Ongoing Sampling

- Before August 1, 2024, or the first day on which students will be present in the building…..Until all sources have been remediated and indicate results below 5ppb, first draw and flush sampling of a random sampling of at least 25% of sources remediated.
- Every source should be tested after remediation to prove the source has been remediated.
- Sampling shall be conducted annually
- If no drinking water sources are found that test above 5 ppb, retest every five years.

Source: Get the Lead Out of School Drinking Water Act; CCS#2/HCS/SS/SCS/SBs 681 & 662; June 2022

Communication

- Schools are required to develop a plan for testing each outlet and make that plan available to the public.
- Upon request, provide general information on the health effects of lead contamination and additional information resources for employees and parents of children at each school.
- IF results indicated concentrations exceeding 5 ppb:
  - Contact parents and staff via written notification within seven business days after receiving the test results.
  - Should include test results and summary of results
  - Remedial Actions taken
  - Health effects of lead contamination and community-specific resources
- Annual testing results shall be submitted to DHSS.

Funding Will Be Available

- Disclaimer.
- State of Missouri has 27 million dollars in funding to reimburse districts for sampling and remediation.
  - Letters should be going out to districts in the coming weeks.
- Funding allotment amounts will be higher for districts with Greater than 70% of students on free or assisted lunch programs.

Disclaimer: Information contained in these slides are based on conversations with state officials. Information may vary when final state guidance is issued.

Funding Will Be Available Cont.

- Allotment is not payment….
  - Districts will have to maintain records of all costs incurred for sampling and remediation.
  - All costs will be submitted with the reimbursement application due by August 1st, 2024.
  - Districts should maintain invoices/records for outside contractors, supplies purchased, labor incurred, etc.
  - Keep all costs, even if they exceed the allotment amount.
    - DHSS intends to take any money not used by districts and redistribute it to districts that costs exceed allotment.

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OCCU-TEC Service Options

- Turn-Key Option
  - We will complete the sampling plan, sampling, and reporting.
- OCCU-TEC assisted sampling
  - We provide the sampling plan, inventory forms, field sampling forms, training/guidance, sample containers, shipping labels, laboratory analysis, and final reporting.
  - District provides staff for inventory, sample collection, completion of field documentation.

OCCU-TEC's Take-Aways Thus-far

Questions?

Thank You!

If you require assistance with your drinking water sampling, please feel free to contact us at:

- Shane Gordon:
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  816-304-5917