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# Testing for Lead in Drinking Water In Schools and Childcare Facilities

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Date

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# Presentation Overview

- Health Effects of Lead
- Public Water Systems and LCR
- Background on corrosion and Lead
- Governor's Directive
- Developing a sampling plan
- Sampling
- Communications

# Health effects of Lead

- Lead gets into a body's bloodstream, organs and bones, and primarily affects the central nervous system (brain)
- No safe blood lead level has been determined
- Children aged 6 and younger are at higher risk due to increased absorption of lead and hand-to-mouth activity
  - Ages 9 months to 2 years at highest risk

# Health effects, continued

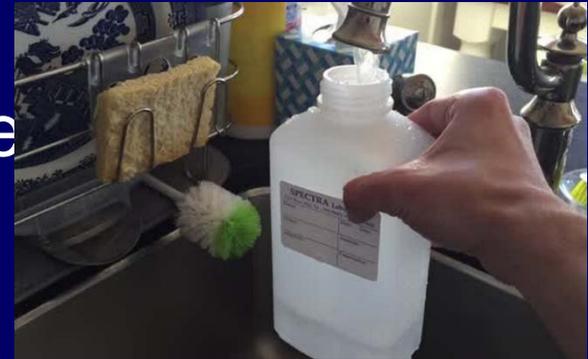
- Low blood levels (<10ug/dL) can cause
  - reduced IQ and attention span,
  - learning disabilities,
  - behavioral problems,
  - impaired growth, and
  - hearing loss
- High blood levels (>70 ug/dL) can cause coma, convulsions, and possibly death

# Lead exposure

- Frequency, duration, dose
- Susceptibility factors (nutrition)
- Common sources (paint, dust, air, soil, consumer products)
  - Paint ban: 1978
  - Gas ban: 1978
  - Solder ban: 1984 in Oregon
- “Lead free:” 8% in 1988; 0.25% in 2014

# Lead and Copper rule requirements - SDWA

- Oregon has 189 schools with their own water system and 21 child care facilities
- There are 197 school districts in the state
  - Most are on a PWS
  - Many school buildings are decades old
  - SDWA testing rules do not apply

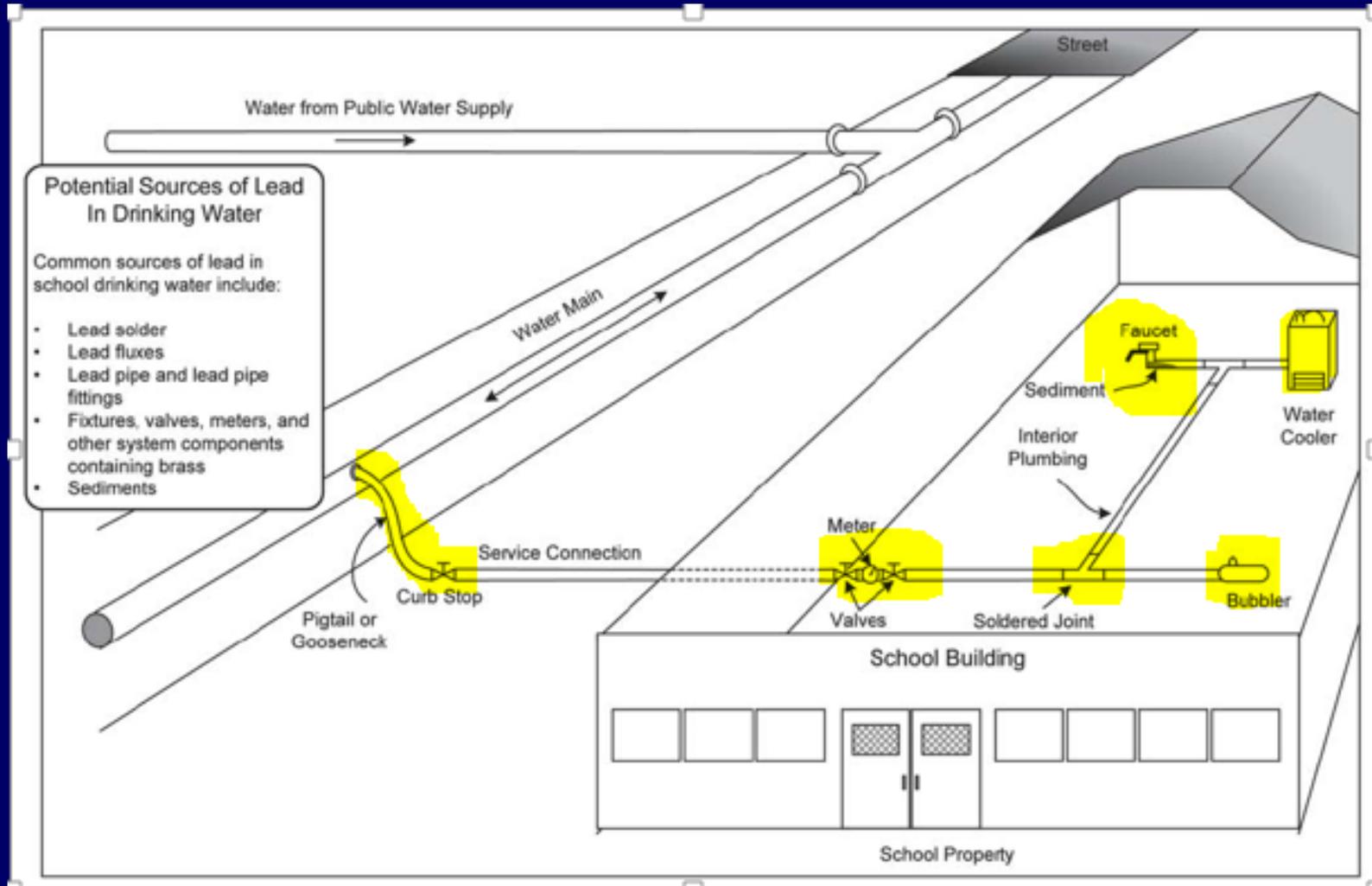


# How does lead get into drinking water?



- Lead is rarely present in source waters
- Lead can leach into water from pipes, components, or plumbing materials containing lead
  - The more corrosive the water is, the more lead may leach into the water
  - Corrosion chemistry is complex: factors include pH, alkalinity, mineral content, and temperature
  - The longer water sits in a pipe, the more lead can leach

# Potential sources of lead in school drinking water



# Governor's Directive

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## **Statewide plan for reducing student exposure to lead in drinking water: Information for schools and childcare facilities**

In April 2016, The Governor directed the OHA and the Oregon Department of Education (ODE) to review existing programs and create a plan to address the problem of lead in school water. In response, OHA and ODE will:

- Recommend all school districts and childcare facilities to test for lead in buildings.
- Recommend schools and childcare facilities to use accredited drinking water testing labs to process water samples for lead.
- Develop a database and method for transferring lead test records from accredited labs to OHA as a reportable test result.
- Provide drinking water technical expertise from OHA to schools and childcare facilities as needed to support them as they test water in their buildings.

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# Another Governor's Directive



## Governor Brown Directs Action to Address Environmental Health in Oregon Public Schools

June 21, 2016

*Parents and students must be assured greater transparency and accountability, Governor says*

Salem, OR—Governor Kate Brown today issued the following statement regarding her directive to the Oregon Department of Education to take action to ensure school districts and public charter schools fulfill, with greater transparency, their responsibilities to ensure the health and safety of students in school facilities.

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Healthy and Safe School Facilities plan must address:  
Lead testing in water, lead paint, radon, and pest management.

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# Testing for Lead in schools



## 3Ts for Reducing Lead in Drinking Water in Schools



[https://www.epa.gov/sites/production/files/2015-09/documents/toolkit\\_leadschools\\_guide\\_3ts\\_leadschools.pdf](https://www.epa.gov/sites/production/files/2015-09/documents/toolkit_leadschools_guide_3ts_leadschools.pdf)

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## Action Levels: 15 versus 20 ppb

- Public water systems: 15 ppb
  - 1 liter samples, taken from high-risk homes
  - Identify if system-wide problem
  - If >10% of homes are high, treatment is needed
- Schools: 20 ppb
  - 250 ml sample
  - Pinpoint specific fountains and outlets that require remediation
- *Note: there is no “safe” blood level of lead – reduce it where possible!*

# Before you start

- Assign roles
- Review any previous monitoring efforts / results
- Review public water system's Consumer Confidence Report or contact supplier
  - Corrosion control treatment?
  - Compliance with SDWA lead testing?
  - Presence of lead components in the system?
- Review 3T guidance!

# Developing a plumbing profile

- Which plumbing materials were used in building?
- Service connection material?
- Pipe and solder?
- Faucets, aerators?
- Any tanks?
- Water coolers / fountains / ice makers?
- Any visible signs of corrosion?
- Electrical grounding to water pipes?

# Where to sample?

- Ideally, sample at each location where water is used for drinking or food preparation
- If needed, prioritize locations based on plumbing profile in areas that:
  - contain lead pipe or solder
  - were recently reconstructed and lead solder was used
  - where plumbing is used to ground electrical circuits
  - contain brass fittings and/or fixtures
  - include any water coolers banned by EPA

# Preparing to sample

- Develop a sampling plan
- Use a ORLAP-accredited lab:
- <http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Documents/AllLabsDWMatrix.pdf>
- Be sure to use 250 mL bottles



## 2-step sampling process

- Initial (faucet):
  - First-draw samples from locations where water is used for drinking or food preparation
  - Stagnant in pipes / faucet for 8-18 hours
- Follow-up (plumbing):
  - For taps with results are over 20 ppb, conduct flushed sampling
    - Water is stagnant in pipes for 8-18 hours
    - Let water flow for 30 seconds, then collect sample

# Aerators

- If the faucet has an aerator and results are greater than 20ppb:
  - Disconnect aerator
  - Remove debris
  - Reinstall
  - Resample



# Routine Control Measures

- Aerator cleaning maintenance program
- Use only cold water for drinking and food preparation
- Instruct users to run the water before drinking, or have staff flush faucets before students arrive
- Put signs on faucets where water is not intended to be consumed

# Short-term control measures

- Flushing
- Provide bottled water
- Shut off problem taps



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# Permanent Remedies

- Replace problem faucets and / or piping
- Point-of-Use treatment
- Check grounding wires
- Manual flushing
- Automatic flushing
- Bottled water
- Shut off problem taps

# Communication Strategy

- Recognize the sensitive issue it is: parents are concerned about their children's health
- Be transparent. Provide information:
  - Before sampling begins
  - After results are obtained and remediation method has been decided, or results are low
  - In response to periodic interest

# Communication Strategy: Content

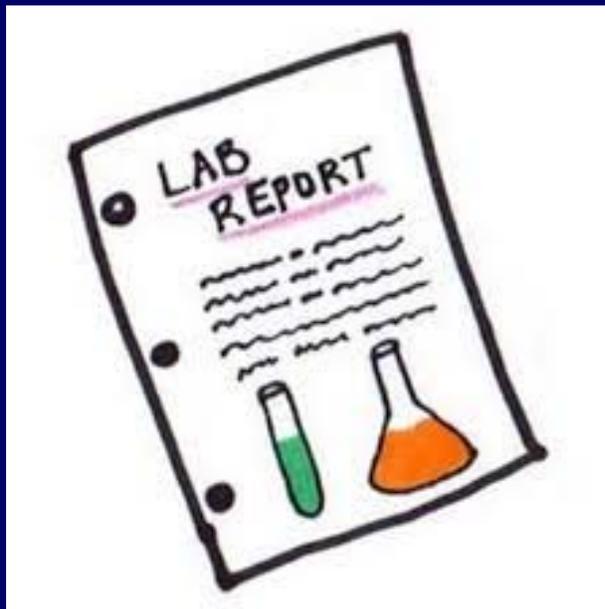
- Include the following minimum information in all communications:
  - Sampling program details
  - Results, mitigation plan
  - Health effects information
  - Awareness of other sources of lead
  - Other available resources
  - Blood-lead level testing information
  - Consultation with physician if needed

# Effective communication tips (for schools)

- Get your message out before the media does
- Always be honest, accurate, and comprehensive
- Express empathy
- Speak with one voice
- Be positive, transparent, and proactive
- Provide frequent updates to building users

# Stay Tuned...

- Database of all lead in schools results
- [www.healthoregon.gov/healthyschools](http://www.healthoregon.gov/healthyschools)
- Healthy and Safe Facilities Plan



Create Search Definition Cancel Save

Name

Label

URL

Additional query parameters

Additional config parameters

Field definition:

Label  Suggestion  Key

[add field](#)

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# Contact Us!

For technical assistance, contact

Oregon Health Authority  
Drinking Water Services  
971-673-0405