Lead Mitigation in Schools
A Case Study

ACE 18
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Presented by:
John Donahue, CEO
Crystal Draffkorn, Field Services Supervisor
“No Safe Blood Lead Level in Children Exists”
Governor Signs PA 99-0922

• Effective January 16, 2017
• Lead Testing Requirements for Schools & Day Care Facilities
• Inventory and Notification Requirements for CWS
Public Act 099-922

Schools MUST:

• Test all water sources used for cooking and drinking
  • Pre-K through 5th grade
  • Built before January 1, 2000

• Mitigate any fixture that exceeds the detection level (minimum 2.0 ppb)

• Notify parents of any exceedances
Sampling Protocol for Drinking Water in Schools

A Guidance Document for Drinking Water Testing

Available at ISAWWA.org
99-0922 –SCHEDULE- SCHOOLS

Schools constructed prior to 1/1/1987 complete sampling by 12/31/2017

Schools constructed after 1/1/1987 through 1/1/2000, complete sampling by 12/31/18

Schools constructed after 1/1/2000 no testing required
Sampling protocol shall consist of 2 consecutive samples

The first 250 ml sample shall be a first draw sample. Water must sit for minimum of 8 hours and maximum of 18 hours.

Second sample is 250 ml 30 seconds after the first. Allow water to run entire time between 1st and 2nd sample.
Schools must provide IDPH with sample results within 7 days of receipt of sample results to DPH.leadh2o@illinois.gov.

Schools must use an IEPA accredited drinking water laboratory.

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DO NOT SAMPLE ON SUMMER BREAK!!!
Schools - TESTING AND NOTIFICATION OF RESULTS

Testing and Notification of Results

Schools must provide IDPH with sample results within 7 days of receipt of sample results to leadh2o@illinois.gov.

Schools must use an IEPA accredited drinking water laboratory.

Water must sit a Min. of 8 hrs. and a Max. of 18 hours.
If sample result exceed 5 ppb of lead, school must notify all parents of students.

Location of sample tap exceeding 5 ppb and test result at the location.

Hazards of lead in drinking water (USEPA website).

Ways to mitigate risk.
SCHOOLS - TESTING AND NOTIFICATION OF RESULTS

NOTIFICATION OF RESULTS

If sample results less than 5 ppb:
GENERAL NOTIFICATION REQUIRED
Schools shall use school website at a minimum to notify parents of results

If sample result exceed 5 ppb of lead:
DIRECT NOTIFICATION REQUIRED
School must notify all parents
SCHOOLS - TESTING AND NOTIFICATION OF RESULTS

If sample results are less than 5 ppb:
GENERAL NOTIFICATION REQUIRED

Schools shall use school website at a minimum to notify parents of results.

If sample result exceeds 5 ppb of lead:
DIRECT NOTIFICATION REQUIRED

School must notify all parents.

If a sample exceeds the detection limit, the fixture must be replaced!!!!!
IDPH Interpretation of Compliance

• No Federal mandate for lead in water exists at this time, except the 15 ppb lead action level ... LCR

• CDC has said “NO SAFE LEAD IN BLOOD LEVEL EXISTS FOR CHILDREN”

Therefore ...

• Any drinking water or faucet for cooking MUST be below detection level.
NPPWD Outreach Program

NPPWD to Assist with:

- Mitigation Strategies
- Sampling
- Reporting
NPPWD Outreach Program

- Sampling
  - Reviewed school layout to identify sampling locations
  - Scheduled sampling prior to school day

- Reviewed Results
- Assisted with sample collection
NPPWD Outreach Program

Mitigation

- Schools Replaced Water Fixtures > 5 ppb
- Schools Implemented Water Quality Management Plan
Sampling Results Overview

- 5 School Districts
- 19 Schools
- 844 Samples Collected
- 2 = 200-250 ppb
- 44 > 15 – 200 ppb
- 258 = 2-15 ppb
- 542 = ND
Sampling Results
Water Fountain

1st Draw Sample
• 209 – water fountains
• 73% - zero detects
• 19% - 2 - 5 ppb
• 8% - 5 – 15 ppb
• 0% - > 15 ppb
2nd Draw Sample

- 209 – water fountains
- 91% - zero detects
- 6% - 2 - 5 ppb
- 1% - 5 – 15 ppb
- 0% - > 15 ppb
Sampling Results
Food/Kitchen Prep

1st Draw Sample
• 74 – Food/Kitchen
• 20% - zero detects
• 35 % - 2 -5 ppb
• 30% - 5 – 15 ppb
• 15 % - > 15 ppb
Sampling Results
Food/Kitchen Prep

2nd Draw Sample
• 74 – Food/Kitchen
• 82% - zero detects
• 14% - 2 -5 ppb
• 4% - 5 – 15 ppb
• 0% - > 15 ppb
Sampling Results
Other (Nurse, Staff, Misc.)

**1st Draw Sample**

- 164 – Other
- 20% - Zero detects
- 33% - 2 - 5 ppb
- 31% - 5 – 15 ppb
- 16% - > 15 ppb
Sampling Results
Other (Nurse, Staff, Misc.)

2nd Draw Sample
• 164 – Other
• 81% - zero detects
• 15 % - 2 -5 ppb
• 3% - 5 – 15 ppb
• 1 % - > 15 ppb
Sampling Results Overview

• Worst results in Early Childhood Learning Center
• Most high results in classroom and kitchen faucets
• 86% were <2 ppb after 30 second flush
Develop

“Water Quality Management Plan”
WQMP - School Breaks

- Schools often experience extended break periods
  - Summer
  - Spring
  - Long weekends
  - Holiday’s

- Water can become stagnant very quickly

- Be sure to have them flush before students return
Flush, Flush, Flush
5 Steps to a Water Quality Management Plan (WQMP)

1. Select your team
2. Understand your facility layout
3. Understand your facility schedule
4. Develop your plan
5. Implement your plan
Select your Team

- Administrators & Faculty
- Facilities & Maintenance Staff
- Parents & Students
- Water Suppliers
Water Quality Management Plan

- Replace Fixtures
- Mechanical Flushing
- Manual Flushing
Mechanical Device

Solenoid Valve

Water Source

Mechanical Device
Replace Fixtures

- Replaced ALL fixtures that exceeded detection limit
- Some drinking fountains replaced with bottle filler
Mechanical Flushing

- Evaluate school plumbing layout
- Identify key location(s) for mechanical flushing
Manual Flushing – Elementary School

- Water Patrol Program
- Meet with students
- Provide vests
- Flush fixtures each week
Manual Flushing – Middle School

- Water Quality Teams
- Cl2 test kits
- Stop watches
- Calculate water age
- Flush to keep water age down
2nd Round
Sampling Results Overview

- 110 Samples Collected
- $0 = 200-250 \text{ ppb}$
- $3 > 15 – 200 \text{ ppb}$
- $21 = 2-15 \text{ ppb}$
- $86 = \text{ND}$
2nd Round Results
Water Fountain

1st Draw Sample

- 5 – water fountains
- 100% - zero detects
2nd Round Results
Water Fountain

2nd Draw Sample

- 5– water fountains
- 100% - zero detects
2nd Round Results
Food/Kitchen Prep

1st Draw Sample
• 10 – Food/Kitchen
• 10% - zero detects
• 30 % - 2 -5 ppb
• 30% - 5 – 15 ppb
• 30 % - > 15 ppb
2nd Round Results
Food/Kitchen Prep

2nd Draw Sample
• 10 – Food/Kitchen
• 80% - zero detects
• 10% - 2 -5 ppb
• 10% - 5 – 15 ppb
• 0 % - > 15 ppb
2nd Round Results
Other (Nurse, Staff, Misc.)

1st Draw Sample
• 40 – Other
• 75% - Zero detects
• 12% - 2 -5 ppb
• 13% - 5 – 15 ppb
• 0% - > 15 ppb
2nd Round Results
Other (Nurse, Staff, Misc.)

2nd Draw Sample
• 40 – Other
• 92% - zero detects
• 3 % - 2 -5 ppb
• 5% - 5 – 15 ppb
• 0 % - > 15 ppb
Eddy welcomes students!
Summary

• Schools eager to comply with PA 099-922
• Many not sure where to start
• Mitigation is where the real work begins!
• Help schools develop Water Management Plans
• Flush, Flush, Flush
What’s Next

• Establish WQMP
• Continue Flushing Plan
• According to IDPH, WQMP does not have to be interrupted during resample
  • Schools do not have to meet the 8-18 hour stagnation period during retest if they have a WQMP in place.
Lead at any level in the environment is bad, especially for children!

We must do all we can to get the lead out.
Questions

Contact Information:
John Donahue
Chief Executive Officer
North Park Public Water District
jdonahue@northparkwater.org

Contact Information:
Crystal Draffkorn
Field Services Supervisor
North Park Public Water District
cdraffkorn@northparkwater.org