Get the Lead Out

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GET THE LEAD OUT

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AGENDA

1. Effects of Lead
2. Lead & Municipal Water Systems
3. Estimated Problem State & Nationwide
4. EPA & MDEQ Rules
5. Does My Community Have Lead In The System?
6. How Are Other Communities Dealing With Lead?
7. Developing an Action Plan
8. Questions & Discussion
WHEN IN ROME

DON’T

DO AS THE ROMANS DID!
PHYSICAL IMPACT OF LEAD ON HUMANS

- **Brain**
  - Memory loss, lack of concentration, headaches, irritability, depression

- **Body**
  - Fatigue, joint and muscle pain

- **Cardiovascular**
  - High blood pressure

- **Digestive system**
  - Constipation, nausea and poor appetite

- **Kidneys**
  - Abnormal function and damage

- **Nervous system**
  - Damage including numbness and pain in the extremities

- **Reproductive system**
  - Men: Decreased sex drive and sperm count, and sperm abnormalities.
  - Women: Spontaneous miscarriage

- **Children**
  - **Brain**
    - Behavior problems, lower IQ, hearing loss, learning disabilities
  - **Body**
    - Decreased bone and muscle growth
  - **Kidneys**
    - Damage
  - **Blood**
    - Anemia
  - **Nervous system**
    - Damage
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MUNICIPAL WATER SYSTEMS ARE A COMPLEX NETWORK
WATER SOURCE & TREATMENT TYPE

- Not a ‘source’ of lead, however,
  - Water chemistry affects Corrosivity throughout distribution.
  - Treatment needs to consider polyphosphates to prevent leaching
DISTRIBUTION SYSTEM

Lead sources may include:
- Service leads
- Goosenecks
- Plumbing / piping
- Household fixtures
- Solder & flux
WHAT ARE THE ISSUES FOR MUNICIPALITIES?
POLICY ISSUES

At what point does the Public water system become the Private water service?
FINANCIAL ISSUES

- How to deal with public lead services?
- How to deal with private lead services?
- Do you deal with internal plumbing & fixtures?
SAMPLING / TESTING ISSUES

EPA limit is 15 ppb

Inconsistencies in sampling, for example, at a single home in Flint:

- Official Virginia Tech study recorded 158 ppb
- City test at one home 397 ppb
- Virginia Tech test at same home 200 → 13,200 ppb
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ESTIMATED PROBLEM STATE & NATIONWIDE

- Engineering Study:
  - Flint - as high as $216 million
  - Washington DC - spent $400 million on about half; abandoned program
- Currently:
  - Lansing - spent $42 million since 2004
    - Replacing 13,500 services from main to basement/house
- Study:
  - AWWA estimates:
    - 460,000 lead services need to be replaced in MI (only surpassed by OH & IL)
  - The US - as high as $300 billion
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SERVICE LINES & SAMPLING

Lead-Free Definition Under the Safe Drinking Water Act (Amend. 1986)

Current rules prohibit installation or repair of any:

- Pipe
- Fitting
- Fixture
- Solder
- Flux

That is not “lead free”
LEAD & COPPER RULE (LCR) SAMPLING PROTOCOL

- Selection Tier 1, 2 or 3 sites
- Stagnation of at least 6 hours
- Kitchen or bathroom sinks
- 1 liter sample size
- First draw sample
SAMPLING ISSUES

- 1 Liter sample size
  - Interior plumbing only
  - Faucets

- Particulates
  - Aerator/screen trapping particulates
  - Breaking free from interior plumbing

- Excessive Stagnation
  - Bear Lake – 7 Months
  - Intentional Sample Sabotage
MARCH 2016 CHANGES

- No pre-flushing
  - Standard Use
- Don’t remove aerators
- Wide Mouth Bottles
- Confirmation of Tier Status
- Lead goosenecks are now Tier 1 sites
- Emphasis on the public health obligation to notify/educate individual customers when there are high results regardless of the compliance status
PO T E N T I A L C H A N G E S

- Required follow up for any lead samples > 15 ppb
  - Notification of each residence of precautions
  - Notification of DHHS

- Mandate Community Water Supplies (CWS) Replace Entire Service Line
  - No longer to curb stop
  - Give CWS legal control of entire service line
POTENTIAL CHANGES

- Potential State Clarifications of Lead & Copper Rule 28 (LCR) Prior to EPA
  - Optimal Corrosion Control Treatment Evaluation (OCCT) for any source change
  - > 5 ppb actions
  - DWRF changes for lead service replacements
  - Consumer tax credits for fixture replacements
OWNERSHIP ISSUES

- Initial EPA Position
- Court Decision
- Some CWS Liabilities:
  - Lawn & Pavements
  - Foundation
  - Internal Plumbing
- Some Exceptions
  - LBWL
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REVIEW AGE OF THE SYSTEM

- Lead services were common before the early 1950’s
- Lead goosenecks - with and without lead services before early 1950’s
- Lead free solder and flux not banned until 1986 EPA Safe Water Drinking Act Amendment.
- Goosenecks left in place
LEAD PIPE SCRATCH TEST
WHAT PHYSICAL DATA DO WE HAVE?

- Original Construction Drawings
- Old Cards
- Maps
- Sampling Results (proper sampling methods)
- Staff / Operator historical knowledge
- Age of watermain
HAVE WE EVER DUG UP A LEAD SERVICE?

- Did We Map / Locate it?
- What neighborhoods might be affected?
  - Based on age, physical evidence & samples
WHAT ARE YOUR LEAD RESULTS?

- Do we have elevated levels?
  - 5 ppb concern
  - 15 ppb EPA Limit

- Are they concentrated in certain areas?
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CASE STUDY: LANSING BWL

- Municipally-owned utility
- Archives
  - Fairly accurate record of service line materials
  - Asked customers to self-identify LSLs in 2004
- Public Education
  - Brochures, articles, bill stuffers
  - Open Houses
  - Social Media – increased sharing potential
CASE STUDY:
LANSING BOARD OF WATER & LIGHT

- **Cost**
  - $3,500 coordinated with other projects
  - $6,500 alone
LANSING BOARD OF WATER & LIGHT:
SERVICE LINE REPLACEMENT TECHNIQUE
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Priorities

- Replace physically disturbed lead service (dig-ins, excavations, leak repair)
- Schools, day care centers, other sensitive populations
- Sample results are >15 ppb
- CSO replacement or street restorations
- Multiple services within a compact area
- Length of lead pipe present in the service line
CASE STUDY: ANN ARBOR, MI

- Began removing only lead portion (gooseneck) 25 years ago
- About 100 goosenecks removed
- Are not dealt with private portion of services
- 2014 results for 52 sites all below action level
- Have removed all public lead issues
- Allocated $522k from water supply system fund balance to replace 118 galvanized iron service lines containing lead piping.
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TESTING FOR LEAD & ALKALINITY OF YOUR WATER

- Confirm that you are adhering to new Lead & Copper Rule
- Look for upcoming changes to Lead & Copper Rules
DEVELOPING AN ACTION PLAN:

- Organize Staff
  - Confirm with staff what data they have
- Organize Records/Data
  - What do you have?
  - Require all field data is logged
  - Pay attention to water chemistry
- Anticipate Additional Rule Changes
- Form an Action Plan
FINANCING IDEAS

- Where does the service lead typically end?
  - Policy on responsibility
  - Split costs
  - Pay over time
  - Homeowners offered a 0% loan for private service. (Philadelphia)
  - Include in public watermain projects

- What’s inside the customer’s house that affects lead?
  - Incentives to replace lead containing fixtures and plumbing
PUBLIC RELATIONS

- Determine if there are likely to be lead service lines remaining in your service area owned by utility OR customers.
- Gauge extent of lead service line presence in community
- Evaluate current communication materials on lead.
- Obtain organizational support from program and communications about lead service lines
PUBLIC RELATIONS

- Engage your local public health and/or primacy agency
- Create implementation plan Review / develop organization policy and procedures
- Prepare communication materials
- Test communication materials
VIDEOS

• [ERIN BROCKOVICH EXPLAINS THE FLINT WATER CRISIS](#)
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