Ohio EPA Update
Lead and Copper in Drinking Water
April 11, 2017

Beth Messer
Acting Chief
DDAGW
Outline

• Lead background
• HB 512
  – Notification
  – SMPs
  – Mapping
• Ohio rule revisions
  – Interim notification
Lead Basics

• Lead can enter drinking water when service pipes that contain lead corrode, especially where the water has high acidity or low mineral content that corrodes pipes and fixtures.
• The most common problem is with service lines, brass or chrome-plated brass faucets and fixtures with lead solder, from which significant amounts of lead can enter into the water.
Lead service lines

Sandvig et al., 2008
Corrosion

- Galvanic corrosion
- Direct connection between two dissimilar metals
- ‘gooseneck’
- Partial replacement (PLSLR)
- Localized, but high

Figure: Matthew Ray/EHP, adapted from Triantafyllidou et al.; photographs: Michael DeSantis/Pegasus Technical Services
To address corrosion of lead and copper into drinking water, EPA issued the **Lead and Copper Rule (LCR)** under the authority of the SDWA. One requirement of the LCR is corrosion control treatment to prevent lead and copper from contaminating drinking water. Corrosion control treatment means utilities must make drinking water less corrosive to the materials it comes into contact with on its way to consumers' taps.
Timeline of regulatory actions LCR

- June 1991: Original LCR promulgated
- January 2000: LCR Minor Revisions promulgated
- 2017: LCR Long-Term Revisions (projected)
- June 1986: SDWA Amendments signed
- August 1996: SDWA Amendments signed
- October 2007: LCR Short-Term Revisions promulgated
- August 1988: Deadline to meet lead ban
- August 1998: Deadline to meet new "lead-free" definition
- January 2011: Reduction of Lead in Drinking Water Act (RLDWA) signed
- January 2014: RLDWA takes effect
- December 2013: Community Fire Safety Act signed
Lead Free

• Homes built before 1986 are more likely to have lead pipes, fixtures and solder.

• The Safe Drinking Water Act (SDWA)
  – 1986: “lead-free” -- <8% pipe and fittings, <0.2% solder flux.
  – 2011: “lead-free” -- to be a weighted average of 0.25% calculated across the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures and 0.2% for solder and flux.
Shared Responsibility

• Because lead contamination of drinking water often results from corrosion of the plumbing materials belonging to water system customer, a treatment technique rather than an MCL for lead was set.

• A treatment technique is an enforceable procedure or level of technological performance which water systems must follow to ensure control of a contaminant.
Health Effects

• Young children, infants, and fetuses are particularly vulnerable to lead

• US EPA estimates that drinking water can make up 20% or more of a person’s total exposure
  – Infants who consume mostly mixed formula can receive 40-60% of their exposure to lead from drinking water

• Reduced growth of the fetus

• Premature birth
LCR as Treatment Technique

- Take further steps to optimize their corrosion control treatment
  - pH, alkalinity adjustment, inhibitor, etc.
- Educating the public about lead in drinking water and actions consumers can take to reduce their exposure to lead
- Replacing the portions of lead service lines owned by the PWS
Compliance: LCR Sampling

• Used to calculate 90\textsuperscript{th} percentile action level $\geq 15$ ppb during monitoring period

• 1L first draw
  – Minimum 6h stagnation
  – Regular use faucet
  – Do not remove aerator
  – Full flow-wide mouth

Low flow rates, aerator removal
NO Pre-flushing!
Shorter stagnation
Finding the lead
NOT for compliance with LCR

• Lead source investigation
  – Sequential Sampling
    • Several 1L samples (10+)
    • Determine location of leaded fixtures or LSL
    • Plumbing volumes
  – 3T’s
    • Overnight stagnation
    • 250 mL bottle FIRST draw
    • Follow up if >20 ppb
Sequential sampling

Pb ppm vs. Liter

Ohio Environmental Protection Agency
HB 512
(ORC 6109.121)
The federal framework that guides states in protecting the public against exposure to lead in their drinking water is flawed and the Kasich Administration is working with Ohio’s congressional delegation to seek changes in Washington. Here at home, the governor’s Mid-Biennium Review proposes new funding mechanisms to help communities replace lead water lines and help schools replace old drinking fountains and other lead-based fixtures. Stronger state standards – backed by tighter deadlines and administrative fines – will make public water systems notify and educate the public in a much timelier manner.
House Bill (HB) 512

- Sponsored by Timothy E. Ginter
- Passed the House 5/11/2016 unanimously
- Passed the Senate 5/25/2016 unanimously
- Signed 6/9/2016 in Columbiana
- Bi-Partisan support
- OEC gave Proponent Testimony
HB 512

- Lead Free adopted
- Effective September 9, 2016
- Some requirements effective September 9, 2016
- Some requirements for water systems 6 months after effective date
HB 512

• Submit map to Ohio EPA
  – ODJFS and ODH

• Tier 1 sites being used and contact information for owner and/or occupant (SMPs)
  – Part of notification requirements

• Update map every 5 years
HB 512

• Mapping – Due March 9, 2017
  – 100% state-wide compliance

• CWS – identify and map areas likely to have lead service lines and identify characteristics of buildings that may contain lead piping, solder or fixtures

• NTNCWS – identify and map areas with lead piping, solder or fixtures in building
Maps

http://epa.ohio.gov/ddagw/pws/leadandcopper/map.aspx

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<tr>
<td>OH3848112</td>
<td>3M ASSOCIATES, LTD. PLANT PWS</td>
<td>WEAVER, GIDEON</td>
<td>(330) 674-9646</td>
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<tr>
<td>OH5500312</td>
<td>A AND R RECK MOBILE HOME PARK</td>
<td>RECK, ALEX</td>
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Uses for Lead Maps

- Prioritize areas for lead service line replacements
- Identify areas for additional lead and copper sampling sites when replacements are needed
- Provide information to the public
- Provide information to the HD and ODJFS
  - HD use in household assessments
  - JFS use for licensing
Lead Maps 2022

• Collect service line information from customers
• Color coding
• Down to street level
• Make them more useful to the public, ODJFS and ODH
• Likely require rules
Be Proactive

• Work on water quality evaluation in areas of potential concern
• Find lead and copper problems before they find you
• Optimize corrosion control to prevent future problems
• Require a new or updated corrosion control treatment study and plan not later than eighteen months after if:
  – Change or addition of source.
  – Substantial change in water treatment.
  – Operate outside of acceptable ranges for lead, copper, pH, or other corrosion indicators.
  – Any other event determined by the director to have the potential to impact the water quality or corrosiveness of water in the system.
Optimal Corrosion Control

• Defined as: corrosion control treatment that minimizes the lead and copper concentrations at user’s taps while ensuring that the treatment does not cause the water system to violate any national primary drinking water standard
Ohio EPA Guidelines

• Guidelines for Determining When Source or Treatment Changes Trigger New Optimal Corrosion Control Evaluation

• Developed based on U.S. EPA’s Optimal Corrosion Control Treatment Evaluation Technical Recommendations for Primacy Agencies and Public Water Systems

• Research has shown that corrosion is dependent on many water quality parameters (WQPs) and that treatment or source water changes can have a significant impact on lead release
Water Quality Parameters

• Understanding the water quality conditions that impact the release of lead and copper in drinking water can help owners and operators of public water systems make effective treatment decisions to comply with the lead and copper rule. As a general best practice, the following parameters should be measured prior to making any source or treatment changes:

  alkalinity, pH, dissolved inorganic carbon (DIC), corrosion inhibitors (as applicable), calcium, magnesium, hardness, buffer intensity, dissolved oxygen (DO), oxidation-reduction potential (ORP), ammonia, chloride, sulfate, natural organic matter (NOM), iron, aluminum, manganese
Water Quality Parameters

• These parameters can also be used to show similar water qualities between different sources

• Understanding the pH and DIC range throughout a distribution system is an important part of maintaining corrosion control and minimizing the release of lead and copper
Ohio EPA Guidelines

- Specific examples of what types of changes would require plan approval are listed in the guidance.
- If treatment is installed per OAC rule 3745-81-81 paragraph (D) or paragraph (E), the system will be required to complete two 6-month periods of WQPs and lead and copper monitoring.
HB 512

Individual tap results:
• PWS provides notice within 2 business days of individual tap results to consumer;
• Verify notification to Ohio EPA within 5 business days
  – “Verification of Lead Consumer Notice Issuance” form on DDAGWs reporting web page
Individual tap results (cont):

- Director to perform notification if not done by the PWS in 10 business days
- Establishes penalties for failure to notify consumers
Additional PWS Requirements for Individual Tap Results over 15 µg/L

• Provide consumer with information on health screening and lead blood level testing in 2 business days
• Provide results to the local health department in 2 business days
• Include results in CCR
• NTNCWS – immediately remove the fixture from service
Lead Action Level Exceedance (ALE):

• PWS has 2 business days provide notice to all customers

• Verify performed within 5 days to Ohio EPA
  – “Verification of Lead Consumer Notice Issuance” form on DDAGWs reporting web page

• PWS has 5 business days provide information on tap water testing to customers likely to have lead service lines, pipes or solder
HB 512

Lead Action Level Exceedance (cont.):

• Director to perform notification if not done by the PWS in 10 business days

• PWS has 30 business days provide public education
  – BLL testing info

• Establishes penalties for failure to notify consumers
Electronic Reporting by Lab

• Outreach to Labs via Webinar
• PWS must provide detailed location information with sample submission
  – Specific, full mailing address in “Collection Address” field
  – Phone number and email address of resident in “Comments” field
  – Sample Monitoring Point IDs for each specific Pb and Cu sampling location, linked to a specific address
    • Similar to TTHM/HAA5 (DS201, DS202, etc)
The director shall provide financial assistance from the drinking water assistance fund established under section 6109.22 of the Revised Code.

WSRLA offers 0% loans for 20 years for the replacement of lead service lines, nominations accepted at all times.

Planning loans are available for corrosion control studies, 0% for 5 years.
Lead Plumbing Fixture Replacement Assistance Grant Program

• Established in HB 390 to provide $12,000,000 in funding to eligible schools to reimburse for the sampling and replacement of drinking fountains, water coolers, plumbing fixtures, and limited connected piping

• Schools built before 1990 can apply for reimbursement up to $15,000

• [http://ofcc.ohio.gov/ServicesPrograms/LeadFixtureReplacementGrants.aspx](http://ofcc.ohio.gov/ServicesPrograms/LeadFixtureReplacementGrants.aspx)
School Lead Program

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OEPA LCR Rule Revisions

• Goal to incorporate HB 512
• Improve parts of current rule
  – Based on new research
  – Tighten notification timeframes
  – Change monitoring frequency
  – Special purpose samples --2 day CN
• Make corrections/clarifications
Filters/Notification of line replacement

• Requires filters to be provided to customers in areas of LSL
• Requires notification to customers for any line replacement
• Miami Valley Hospital
• Depressurization Rule connection
Interim Lead Notification

- Notification that can be issued by the system to warn public of corrosive conditions in drinking water that may be of concern for lead exposure prior to the end of the monitoring period, but not yet an actual ALE determination

- Health effects language in the Interim Lead Notification will be very similar to ALE public notification
  - No public education requirements - mailing

- A PWS may decide that they would rather declare an ALE
Revised Lead Rules

• Completed Interested Party Review 3/17/17
• Reviewing comments
  – Some corrections
  – Some need discussion
• Propose Rule
• JCARR
• Effective Date
Lead - USEPA

- Proposing rule 2017
- Interim requests to Governors and Directors
- Tracking all ALEs
- Posting all results
- Sampling protocols
- Tier 1 sample determinations
- WIIN Act 12/16/2016
DDAGW lead page

http://epa.ohio.gov/ddagw/pws/leadandcopper.aspx
Questions