

# **Kentucky Lead Workgroup** **Findings, Best Practices** **and Recommendations**

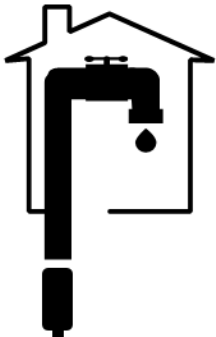


**Greg Heitzman**  
**BlueWater Kentucky**

**2017 Water Professional Conference**

**July 11, 2017**

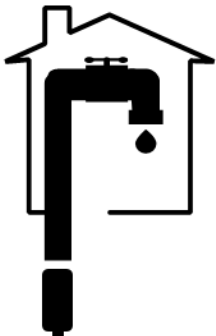
**Lexington, Kentucky**



# Kentucky Lead Workgroup

## Members

- Jennifer Burt, Kentucky Health Department
- Obe Cox, Carroll County Water District
- Tom Gabbard, Kentucky Division of Water
- Mike Gardner, Bowling Green Municipal Utilities
- Greg Heitzman, BlueWater Kentucky
- Ron Lovan, Northern Kentucky Water District
- Brad Montgomery, GRW Engineers
- Bill Robertson, Paducah Water
- Tom Rockaway, PhD, University of Louisville
- Justin Sensabaugh, Kentucky American Water Company
- Rengao Song, PhD, Louisville Water Company
- Brian Thomas, Marion Water Department



# Kentucky Lead Workgroup Resources

- Peter Goodmann, KY Division of Water
- George Haynes, Florida Gateway College
- Samantha Kaiser, KY Division of Water
- Susan Lancho, Kentucky American Water
- Gary Larimore, Kentucky Rural Water
- Kay Sanborn, KY-TN AWWA
- Kelley Dearing Smith, Louisville Water Company
- Victoria Wilhoite, KY Division of Compliance Assistance



# Kentucky Lead Workgroup

- First meeting held April 20, 2016
- Workgroup meets monthly on third Wednesday
- Meetings open to the public
- Sub-teams established in the following areas:
  - ✓ Public health impacts of lead
  - ✓ Kentucky compliance record with Lead and Copper Rule
  - ✓ Treatment/corrosion control
  - ✓ Distribution infrastructure
  - ✓ Financing lead replacement
  - ✓ Future lead regulations and legislation
  - ✓ Communications/Education

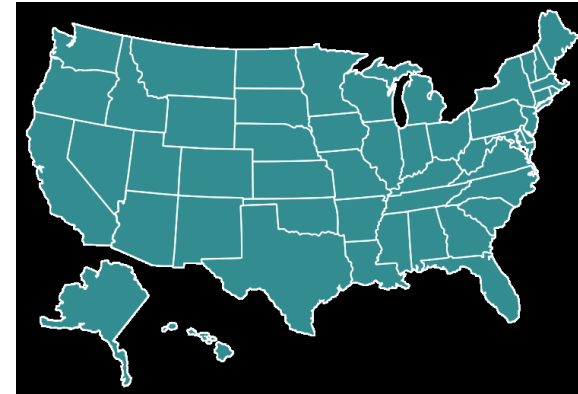


# Kentucky Lead Workgroup

- Expect work to be completed by Fall, 2017
- Deliverables:
  - ✓ Power point presentations on each topic area
  - ✓ Briefing report by each sub-team/topic area
- Workgroup report will provide the following:
  - ✓ Summary of Kentucky's compliance with EPA's Lead and Copper Rule
  - ✓ Best practices for treatment of lead in drinking water
  - ✓ Best practices for removal of lead pipes, fixtures, etc.
  - ✓ Preparation for future regulatory changes (lower action levels)
  - ✓ Best practices for sharing lead information and educating consumers
  - ✓ Financing practices to fund replacement programs
  - ✓ Recommendations to State Agencies, Utilities, and Industry Associations

# What Have We Learned?

## US Lead Service Line Inventory



- AWWA/EPA estimates 6.1 million public Lead Service Lines (LSL) in U.S. (range of 5.5 to 7.1 million LSL)
- Includes full and partial LSL (public and private)
- Largest density is with systems serving 10,000 to 50,000 Population.
- Generally utilities transitioned from lead to copper between 1930 and 1960
- National cost estimate of \$18 to \$30 billion for 6.1 million LSL, assumes \$3,000 to \$5,000 per LSL replacement costs

# What Have We Learned?

## Kentucky Lead Service Line Inventory



- AWWA/EPA estimate 53,000 Public LSL in Kentucky
- Replacement Cost Range of \$1,500 to \$3,000 each
- Estimate of \$79.5 to \$159 million for public portion
- Estimate 13,000 Private LSL in Kentucky
- Replacement Cost Range of \$1,000 to \$2,000
- Estimate of \$19.5 to \$26 million for private portion
- Total Kentucky Estimate for removal of Public and Private LSL of \$92.5 to \$185 million



# How does Kentucky Compare?

- **United States Survey Data:**

- US 2015 Population 320 million people
- 293 million people served by Community Water Systems (92% served)
- 97.7 million household connections (assumes 3 people per connection)
- 6.1 million Lead Service Lines (AWWA Journal Article June 2016)
- Estimate 6.2% of US Houses have full or partial Lead Service Lines

- **Kentucky Survey Data:**

- Kentucky 2015 Population of 4.4 million
- 4.2 million people served by Community Water System (95%+ served)
- 1.4 million household connections (assumes 3 people per connection)
- 53,000 Lead Service Lines (AWWA Journal Article June 2016)
- Estimate 3.8% of KY Houses have full or partial Lead Service Lines

- **Kentucky Compares Favorably to Nation Average**





# Best Practices Emerging

- On-line lead service GIS database
- Free water sampling for lead
- Lead education materials
- Proactive lead replacement programs (public and private)
- Lead replacement subsidy or finance program for homeowner's portion of lead piping
- School partnerships for lead testing and lead plumbing replacement
- Optimized water treatment for corrosion
- Best practices for sampling and monitoring



# Regulatory Possibilities

- Reduction in Action Level below 10 ppb
- Possibly a MCL for Lead or a Household Action Level
- Change in sampling methods (cycles, size, frequency, locations)
- Strict water sampling protocol for lead
- Mandatory replacement programs (XX % per year)
- Mandatory lead education materials provided to for consumers, including health risk info.
- Private lead line replacement requirements for homeowners
- Specific lead action steps for schools, daycares and public facilities





# Kentucky Lead Workgroup

## State Level Recommendations (6)

1. In collaboration with utilities, develop protocol and guidance for evaluation of treatment process changes under the following conditions:
  - a. a new water source is introduced (including interconnects with utilities);
  - b. the water source is changed;
  - c. the water treatment process is changed
  - d. lead sampling is near or exceeds the EPA Action Level (currently 15 ppb);
  - e. an emergency or interim supply is needed.

The protocol for treatment process or source water changes should use the guidance provided by US EPA in the report titled **Optimal Corrosion Control Treatment Evaluation Technical Recommendations for Primacy Agencies and Public Water Systems**, published March 2016.



# Kentucky Lead Workgroup

## State Level Recommendations (6)

- Establish protocol and reporting requirements for utilities to use for customer requested lead samples and special lead samples.
- Update the estimate of lead service lines (public and private) in Kentucky and update cost estimate for replacement.
- Revise the criteria for prioritization of state-wide water projects to include lead service lines replacement. Include input from water industry on priority and weighting criteria.



# Kentucky Lead Workgroup

## State Level Recommendations (6)

- Develop a portfolio of funding sources for utilities to finance lead service line replacement (public and private) and lead abatement, including KIA, Rural Development, SRF funding, and State appropriations.
- Develop a lead training curriculum in partnership with utilities, state and local health departments, and water industry associations. The training should include corrosion control treatment, lead service line replacement and repair practices, flushing practices and customer communications.



# Kentucky Lead Workgroup

## Utility Recommendations (11)

Utilities should conduct Corrosion Control Evaluation and develop a Corrosion Control Plan for water treatment and distribution operations following the the guidance provided by US EPA in the Report on Optimal Corrosion Control Treatment Evaluation (OCCTE) Report, published in March 2016. The Corrosion Control Plan should be developed under the following conditions, when:

- a new water source is introduced (including interconnects with utilities);
- the water source is changed;
- the water treatment process is changed (including chemical additives);
- lead sampling is near or exceeds the EPA Action Level (currently 15 ppb);
- an emergency or interim supply is needed.

This is a complex analysis that should be conducted by qualified water quality professionals to assure optimal water quality is achieved and regulatory compliance is maintained. The Corrosion Control Plan should be developed in coordination with Kentucky Division of Water, as recommended by EPA.



# Kentucky Lead Workgroup

## Utility Recommendations (11)

Utilities should review their current lead sampling protocol and methods and adopt the EPA recommended guidelines for lead sampling.

Utilities should prepare for a reduction in the Lead Action Level from 15 parts per billion (ppb) to less than 10 ppb.

Utilities should prepare for more frequent sampling cycles and more diverse sampling locations for LCR compliance in the future.



# Kentucky Lead Workgroup

## Utility Recommendations (11)

Utilities should adopt a policy or practice to remove lead service lines whenever exposed during excavation and communicate the discovery of any private lead plumbing to the homeowner/occupant. This should include communication to homeowners regarding responsibility for private plumbing, flushing and the associated impacts of lead from plumbing fittings and fixtures.

Utilities should proactively investigate where lead service lines are located using various methods (historical records, maps, construction plans, field surveys, excavations, home age, etc.) and add the service line information to the water distribution inventory, maps, and records (include material, age, condition, etc.).





# Kentucky Lead Workgroup

## Utility Recommendations (11)

- Utilities should consider providing customers access to an on-line database of lead service line locations (public portion).
- Utilities should consider adopting a long term (5-20 year) goal to replace all lead service lines, with the schedule based on local conditions and financial capability.
- Utilities should make available consumer education materials on lead in drinking water in partnership with industry associations, regulators, public health officials and utilities and provide these materials to consumers through available channels (Consumer Confidence Reports, websites, social media, bill stuffers, door hangers, etc.). The communication materials should identify the homeowner responsibility for private service lines and plumbing fixtures.



# Kentucky Lead Workgroup

## Utility Recommendations (11)

- Utilities should conduct training of field personnel in techniques to identify, locate, repair, replace lead service lines and lead-containing fittings.
- Utilities should monitor state and national best practices on managing lead and after careful review, implement these practices where feasible and practical .



# Kentucky Lead Workgroup

## Industry Association Recommendations (3)

- Identify key stakeholders and develop lead communication tools, web site links and templates for utilities to use in communicating with customers. Utilize existing resources from national and local partners. The materials should include information on the homeowner responsibility for private lead service lines and plumbing fixtures that may be sources of lead.
- Develop a utility training curriculum for communication to customers/media; lead treatment (corrosion control); water sampling protocol; system assessment for lead; lead inventory; lead service line repair; lead service line replacement (public and private) and the potential source of Lead from homeowner plumbing fixtures.



# Kentucky Lead Workgroup

## Industry Association Recommendations (3)

- Engage stakeholders into discussion and education regarding lead in drinking water, including the public health community, medical professionals, regulatory agencies, education officials, engineering professionals, building trades and other organizations that are impacted or establish policy regarding lead in drinking water. .



# Kentucky Lead Workgroup

## R & D Recommendations (5)

1. Development of technology to identify buried lead service lines (non-destructive).
2. Identify industry best practices among utilities for replacement of lead service lines (public and private) and guidance on partial lead service line replacement (public portion only).
3. Develop a Manual of Practice for utilities to determine optimal corrosion control to minimize levels of lead in the distribution system, service lines and home plumbing.



# Kentucky Lead Workgroup

## R & D Recommendations (5)

1. Conduct research on the impact of lead in drinking water on human health to assist in identifying an appropriate action level for lead in drinking water.
2. Evaluate the cost effectiveness of point of use (POU) and point of entry (POE) treatment for lead removal as an alternative for utilities to deploy as an alternative to treatment changes or lead service line replacement to meet the Lead Action Level (currently 15 ppb).



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