**Catalfo, Carole (EEC)**

| | |
|---|---|
| **From:** | Catalfo, Carole (EEC) |
| **Sent:** | Tuesday, April 19, 2016 12:32 PM |
| **To:** | Burt, Jennifer A (CHS-PH); 'ocox@carrollcountywater.com'; 'mgardner@bgmu.com'; 'Gregory Heitzman'; 'Gary Larimore'; 'rlovan@nkywater.org'; 'bmontgomery@grwinc.com'; 'brobertson@pwwky.com'; 'rockaway@louisville.edu'; Justin.Sensabaugh@amwater.com; 'Kay Sanborn'; 'rsong@lwcky.com'; 'Brian Thomas' |
| **Cc:** | Goodmann, Peter (EEC); Gabbard, Tom (EEC); Brown, Whitley (EEC); Scott, R. Bruce (EEC); Graham, Kristie (EEC) |
| **Subject:** | Meeting Notice - Lead in Drinking Water Workgroup |
| **Importance:** | High |

***Sent on behalf of Peter T. Goodmann, Director:***

We understand that several members of the Workgroup did not receive otice for tomorrow's meeting (see below), which will take place here at the Division of Water at 1:00 p.m. Directions to the Division of Water are attached. We apologize for any inconvenience.

Best regards,

**Carole J. Catalfo, Esq.**
**Internal Policy Analyst III**
**Division of Water**
**(502) 564-3410 x. 4963**

**From:** Brannock, Lanny (EEC)
**Sent:** Friday, April 15, 2016 2:59 PM
**To:** Brannock, Lanny (EEC)
**Subject:** Meeting Notice - Lead in Drinking Water Workgroup

**Commonwealth of Kentucky**
Energy and Environment Cabinet

**Matthew G. Bevin, Governor** **Charles G. Snavely, Secretary**

# MEETING NOTICE

**Contact: Lanny Brannock, 502-564-2150**
**Lanny.brannock@ky.gov**

## Lead in Drinking Water workgroup To Meet on April 20, 2016

**FRANKFORT, Ky. (April 15, 2016)** - The Lead in Drinking Water workgroup will meet April 20, at 1:00 p.m. EDT at
200 Fair Oaks, Frankfort, KY, in conference room 204A.

The meeting is open to the public.

Draft Agenda:

1. Call Meeting to Order and Introductions
2. Introduction of Guests
3. Purpose and operation of workgroup
4. Discuss KY DOW letter to EPA
5. Presentation on Health Impacts from Lead
6. Discuss Assignments and Timeline
7. Deliverables
8. Public Comment
9. Next Meeting

# Lead in Drinking Water Work Group
# Division of Water, 200 Fair Oaks Lane, Conf. Room 204A
# April 20, 2016

## Draft Agenda

1. Call Meeting to Order and Introductions
2. Introduction of Guests
3. Purpose and operation of workgroup
4. Discuss KY DOW letter to EPA
5. Presentation on Health Impacts from Lead
6. Discuss Assignments and Timeline
7. Deliverables
8. Public Comment
9. Next Meeting

# Kentucky Lead Workgroup
# Draft Ground Rules
# 4-20-16

1. Workgroup Governance:
    a. The Kentucky Lead Workgroup consists of 13 appointed members and A quorum is established by attendance in person by at least 7 members.
    b. Workgroup members may conference in to meetings by phone, but will not be able to vote by phone.
    c. Meeting notice and draft agenda will be delivered to group members at last 3 business days in advance of the meeting
    d. Public meeting notice will be made at least 24 hours in advance of meetings
    e. Workgroup meetings will be open and accessible to the public and meeting materials are subject to open records.
    f. Minutes of the Workgroup meetings will be kept and made available to the public upon approval.
    g. The workgroup may assign individual members with tasks for the purpose of gathering information and educating workgroup members.
    h. All communications to and from the media should be directed to the Energy and Environment Cabinet or to the Workgroup Chair.

2. Workgroup members will:
    a. Make effort to attend majority of meetings.
    b. Let the Chair know at least 24 hours in advance if he/she can not attend the meeting
    c. Come prepared to meetings, listen attentively and not have side conversations
    d. Actively participate and respect the input of others during meetings
    e. Actively work towards consensus for the benefit of public health, safety and welfare.
    f. Be assigned tasks as necessary
    g. Silence their phones during the meetings, and excuse themselves from the meeting if they must make or take a phone call.

3. Decision making and Recommendations of the workgroup:
    a. The minutes and agenda will be reviewed and approved at the beginning of each Workgroup meeting
    b. Chair will work to gain consensus of all Workgroup members for recommendations and action items.
    c. Decisions and final recommendations of the Workgroup must be approved by a simple majority of Workgroup members in attendance at the meetings.
    d. Decisions, recommendations and action items will be recorded in the minutes.

4. Workgroup Attendees (guests, media, liaison, resources, presenters))
    a. Workgroup attendees silence their phones during the meetings, and excuse themselves from the meeting if they must make or take a phone call.
    b. Each meeting will have a public comment period where attendees may address the workgroup.
    c. Each attendee will be provide up to 5 minutes to address the group, and the time may be extended at the discretion of the Chair.
    d. The Chair may call for input from liaisons, resources or presenters during the course of the meeting.

5. Ground rules may be amended by a majority vote of the Workgroup members in attendance at any meeting of the Workgroup.

# Kentucky Lead Workgroup
## Sub-Group Members
## DRAFT 4-20-16

| Workgroup Members | Organization | | Representing | | | | | |
|---|---|---|---|---|---|---|---|---|
| Greg Heitzman - Chair | BlueWater Kentucky | | Water Industry | | | | | |
| Jennifer Burt | KY Public Health | | Public Health | | | | | |
| Obe Cox | Carroll County Water | | Medium Systems | | | | | |
| Tom Gabbard | KY EEC | | KY DOW | | | | | |
| Mike Gardiner | Bowling Green Municipal Utilities | | KMUA/Medium Systems | | | | | |
| Ron Lovan | Northern KY Water District | | Large Systems | | | | | |
| Brad Montgomery | GRW Engineers | | ACEC/Engineering | | | | | |
| Bill Robertson | Paducah Water | | Large Systems | | | | | |
| Tom Rockaway | U of L Engineering | | Academic | | | | | |
| Justin Sensabaugh | Kentucky American | | Private Systems | | | | | |
| Rengao Song | Louisville Water | | Large Systems | | | | | |
| Brian Thomas | Marion Water Department | | Small Systems | | | | | |
| | | | | | | | | |
| Liasons: | | | | | | | | |
| Gary Larimore | Ky Rural Water | | | | | | | |
| Kay Sanborn | KY AWWA | | | | | | | |
| Peter Goodmann | KY EEC | | | | | | | |
| Bruce Scott | KY EEC | | | | | | | |
| | | | | | | | | |
| Recorder: | | | | | | | | |
| Carole Catalfo | KY EEC | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Sub-Group | Report Out | Chair | Member 2 | Member 3 | Member 4 | Member 5 | Resource 1 | Resource 2 |
| | | | | | | | | |
| Public Health | April | Jennifer Burt | Justin Sensabaugh | | | | Matt Rhodes | |
| Regulatory/Legislative | May | Tom Gabbard | Ron Lovan | Justin Sensabaugh | | | Kay Sanborn | Tom Fitzgerald |
| Treatment/Corrosion Control | June | Rengao Song | Brad Montgomery | Bill Robertson | | | | |
| Distribution/Piping | July | Bill Robertson | Tom Rockaway | Mike Gardiner | Rengao Song | | | |
| Training | August | Obe Cox | Brian Thomas | Tom Gabbard | | | Gary Larimore | |
| Finance | September | Mike Gardiner | Ron Lovan | Greg Heitzman | | | | |
| Communication/Education | October | Greg Heitzman | Ron Lovan | Brad Montgomery | Mike Gardiner | | kelley Dearing Smith | |

**Drinking Water Advisory Council**
**Lead in Drinking Water (LIDW) Work Group**
**Meeting Minutes**
**April 20, 2016**

In attendance: Greg Heitzman, Chair (BWK), Jennifer Burt (DPH), Obe Cox (CCW), Gary Larimore (KRWA), Bill Robertson (PWWKY), Thomas Rockaway (UofL), Kay Sanborn (KYTN-AWWA), Rengao Song (LWC), Brian Thomas (MWD)
Absent: Mike Gardner (BGMU), Ron Lovan (NKYW), Brad Montgomery (ACEC)

Division of Water (DOW): Peter Goodmann, Director; Tom Gabbard, Asst. Director; Carole Catalfo, Internal Policy Analyst

Dept. of Environmental Protection (DEP): Bruce Scott, Commissioner; Larry Brannon

Public/Liaison Attendees – Amber Agee (DPH), Mark Campbell (LWC), Tom Kutcher (City of Murray), Susan Lawson (DPH)

The meeting began at 1:05 p.m.

Introductions

Chair Greg Heitzman led the roll call, work group introductions, and introduction of guests.

Purpose and operation of LIDW Work Group

Greg Heitzman explained that the phone call on March 23 was organizational only, and that this was the LIDW Work Group's first official meeting. All meetings are open to the public, and the work of the group will be available as a public record through FOIA requests. All members are volunteers. The work group was formed due to recent publicity and issues surrounding lead in drinking water prompted by the Flint, Sebring, and Jackson events. The Division, Cabinet, and water providers wanted a coordinated effort by a diverse panel to examine where Kentucky currently stands, where future action might need to be taken, and eventually develop recommendations. Kentucky is not reacting to a crisis, all of its systems are in SDWA compliance and the state as a whole is in very good shape. However, Kentucky wants to stay ahead of the curve as regulations get tighter, and to work collaboratively towards regulatory compliance and public education. The information regarding lead issues is already available, but needs to be collected, processed, and presented in a useful format to potentially develop guidelines, best practices, and/or recommendations. The work should take about 4 – 6 months.

Presentation on Health Impacts from Lead

Susan Lawson, RN, from the Dept. of Public Health, gave a Power Point presentation regarding how lead is ingested, stored, and excreted in the body, and the long-lasting effects of lead poisoning. There is no kinetic model or baseline metric for the rate of lead transmission/excretion because a host of variables, such as an individual's size, age, diet, surroundings, the amount of lead ingested, etc. influence how lead is metabolized. Damage caused by lead ingestion is irreversible; the emphasis is on catching exposure early and treating the patient to excrete lead which is stored in the musculoskeletal system, and can leach out into the bloodstream at any stage of life, usually initiated by injury. Ms. Lawson stated that so far there have been no incidents of lead poisoning from water in Kentucky; the usual sources are lead-based paint in older homes and natural lead content in the soil. Usually once the source of lead in the home is

mitigated, lead blood levels decrease and there is no need to test the water.

The group discussed the events that lead to blood testing (Medicaid and Head Start require blood testing), the level that triggers home inspections (15 µg/L), costs ($17 for capillary tests; $36 for venous), and reporting mechanisms (private doctors vs. health departments).

The group discussed the importance of partnering with schools, and the successful program that the Louisville Water Company has in place with Jefferson County Public Schools. There may be some areas for the group to work on, including developing guidelines via best practices from other states, the latest research, regulations, and financial resources.

Kentucky DOW letter to the EPA

Peter Goodmann explained that the EPA had sent the letter to each state. The Flint situation has exponentially increased the attention placed on lead in drinking water, and though the Lead & Copper rule is 25 yrs old and has some shortcomings, it appears the EPA is reinterpreting it to some extent. Infrastructure replacement would take decades with many funding obstacles, but corrosivity and treatment can be dealt with more immediately.

The Kentucky response points out that Kentucky systems are primarily small and medium, rather than large like Flint, and discusses the challenges for those systems to achieve compliance with very limited resources. Since 2007 a collaborative effort by the informal drinking water advisory group has resulted in increased compliance with the SWDA, and the formation of the LIDW work group to further examine and improve Kentucky's specific status and program oversight.

A copy of the EPA letter and Kentucky's response will be sent to the work group members, and made available to the public by FOIA request.

Assignments and Timeline

Greg Heitzman distributed a draft list of subgroups, which can acquire whatever resources and expertise it needs to carry out their work. Subgroups have no decision-making authority but are meant to share information and education, and if a subgroup is less than a quorum of the Work Group, then it is not subject to the open meetings requirements. an open meeting. He requested that each work group member serve on two sub groups.

Changes to subgroup membership: Obe Cox indicated his interest in Communication/Education and Regulatory issues subgroup.. Justin Sensebaugh indicated his interest in Treatment/Corrosion Control rather than Regulatory subgroup. Tom Rockaway indicated an interest in Public Health subgroup. Rengao Song suggested creation of an Early Warning/Monitoring subgroup for which there may be crossover with Public Health.

The new subgroup (Early Warning/Monitoring) was placed ahead of the Communication/Education subgroup on the timeline for reporting back to the Work Group. This will give the new subgroup more time to develop and present information.

The Regulatory/Legislative subgroup will report on the status of the current Lead and Copper Rule, and on Compliance, at the next LIDW meeting. The legislative activity of this subgroup may be warrant a separate subgroup if EPA or the State purpose new lead regulations.

Deliverables

Greg Heitzman stated that subgroup information will be presented via the Power Point "ASCE report card" model, i.e., background, current status, best practices, recommendations, resources/references, acknowledgments. He will develop a draft template that everyone can use. The summary and recommendation portions can always change since this is work of a subgroup rather than the LIDW Work Group as a whole.

Greg Heitzman also distributed and briefly discussed a draft set of ground rules for the LIDW Work Group. He asked members to review the ground rules for discussion and adoption at the next meeting.

Public Comment

No public comments were made.

Next Meeting

The group reached concensus that meetings will be held on the 3rd Wednesday of each month at least until October. The location of meetings after June 1 will be TBD due to the Cabinet's move to a new building at the beginning of June.

The next meeting will be Wednesday, May 18, at 1:30 p.m. EST at the Division of Water, 200 Fair Oaks Lane, Conf. room 204A, Frankfort, KY.

Adjournment

The meeting adjourned at 3:10 p.m.

**Energy and Environment Cabinet Creates Group to Keep Lead Out of Kentucky's Drinking Water**

Posted on March 31, 2016by KYDEP

**FRANKFORT, Ky. (March 29, 2016)** – Kentucky's public water systems consistently provide high quality water to the public in compliance with the Safe Drinking Water Act. Today, the Kentucky Energy and Environment Cabinet, Division of Water, has announced that it has proactively created a workgroup whose main goal will be to prevent lead from entering the state's drinking water.

Thirteen experts from a broad spectrum of Kentucky's water infrastructure have agreed to join this effort. The group, which began its work last week, will review existing protocols, lead/copper rules, service line replacement programs and compliance monitoring activities, as well as all public education and outreach to customers. The group will develop a report and present recommendations to the Division of Water.

"Following the events at Flint and elsewhere, we determined to look at what we are doing at the Division of Water and at public water systems in Kentucky and whether our protocols and procedures would avert similar issues here and whether there are areas for improvement," said Pete Goodmann, director of the Division of Water. "I am very pleased that the individuals on this workgroup are willing to take this on."

The work group is chaired by Greg Heitzman, P.E., with Blue Water Kentucky, and formerly of the Louisville Water Co. and Louisville Metropolitan Sewer District.
In addition to Heitzman, other members include: Gary Larimore, Executive Director of the Kentucky Rural Water Association (KRWA); Kay Sanborn, P.E., Executive Director of the KY/TN Section of the American Water Works Association (AWWA); Tom Gabbard, Assistant Director of the Division of Water; Ron Lovan, P.E., of the Northern Kentucky Water District and the Association of Municipal Water Agencies; Thomas Rockaway, PhD, of the University of Louisville, Civil Engineering Department; Brad Montgomery, P.E., of GRW Consultants, Louisville; Mike Gardner, P.E., of Bowling Green Municipal Utilities; Bill Robertson, P.E., of Paducah Water Works; Obe Cox, of Carroll County Water District #1; Brian Thomas, of the Marion Water Department; Rengao Song, PhD, of the Louisville Water Co.; and Jennifer Burt, Public Safety Branch of the Kentucky Department of Public Health.

Energy and Environment Cabinet Secretary Charles G. Snavely said the group will advance the cabinet's understanding of the issue and help develop additional safeguards. "We place a lot of importance on keeping Kentuckians healthy and free from lead contamination in our water supply," he said.
Public water systems supply more than 95 percent of the drinking water to Kentuckians. Water quality data submitted to the Division of Water from Kentucky's water supplies indicate that lead levels in Kentucky's drinking water are consistently within ranges considered safe by the U.S. Environmental Protection Agency.

Over the past four years, the 409 Kentucky public water systems subject to the federal Lead and Copper Rule have collected, tested and reported approximately 10,380 water samples for lead at households and businesses. More than 77 percent of these samples had no lead detected, while approximately one percent of these samples exceeded the action level of 15 parts per billion established by EPA in the Lead and Copper Rule.

The three systems that exceeded the federally established action level for lead at a frequency requiring action took the appropriate actions to notify the public, conduct additional and broader water quality monitoring at the treatment plant and in the distribution system, and developed and implemented a plan to reduce lead levels. All have returned to compliance.

Currently all of Kentucky's public water systems are in compliance with the federal drinking water standard for lead.

**Charles G. Snavely**
Secretary

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE, 4TH FLOOR
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-3410
FAX (502) 564-0111
www.dep.ky.gov

**R. Bruce Scott**
Commissioner

**Peter T. Goodmann**
Director

March 14, 2016

Mr. Greg Heitzman, P.E.
Blue Water Kentucky
625 Myrtle Street
Louisville, KY 40208

Dear Mr. Heitzman:

Subject: Lead in Drinking Water Workgroup

I am writing to ask you to serve on a workgroup to evaluate Kentucky's processes for managing lead in drinking water systems, including corrosion control, sampling, notification to participants, and making information available to the public regarding lead in drinking water.

While data reported and evaluated from Kentucky public water supply systems currently indicates compliance with the Safe Drinking Water Act, the agency believes there is opportunity to further enhance our drinking water program. In light of the situations regarding lead occurrence in drinking water in Flint, Michigan, Sebring, Ohio, Jackson, Mississippi and elsewhere in the United States, the Kentucky Division of Water is convening a stakeholder workgroup to ensure that a similar situation does not occur in Kentucky. As stated previously, this is a proactive effort to further enhance Kentucky's existing drinking water program.

I am asking this workgroup to begin discussions on March 23, 2016 and address a broad array of topics related to lead in drinking water as outlined below. My hope is that the work of this group will be compiled in a report with conclusions and recommendations to the Division of Water regarding how to move forward regarding managing lead in drinking water.

Scope of Work

- Review approval protocols and public availability
- Review lead service line replacement programs and compliance monitoring activities
- Review effectiveness of optimizing corrosion control
- Review Lead/Copper Rule, Guidance, and National Drinking Water Advisory Council recommendations to EPA
- Discuss Public Relations/Education regarding lead in drinking water and associated risks
- Present recommendations to the Division of Water

The work group will convene via conference call on March 23, 2016 at 4 p.m. EDT. The workgroup will be chaired by Greg Heitzman, P.E. with Blue Water Kentucky and formerly of Louisville Water Co. and Louisville Metropolitan Sewer District. Other invited members of the workgroup are listed on the attached sheet.

I appreciate your willingness to serve on this workgroup and concern for the safety of drinking water in the Commonwealth of Kentucky. Please do not hesitate to contact me with any questions or recommendations. I would very much appreciate it if you would confirm by email or phone your intention to serve on this workgroup. I can be reached at (502) 564-3410 or at Peter.Goodmann@ky.gov. I look forward to hearing from you soon.

Best Regards,

Peter T. Goodmann, Director
Division of Water

c: R. Bruce Scott, Commissioner

ENERGY AND ENVIRONMENT CABINET

Matthew G. Bevin
Governor

Charles G. Snavely
Secretary

DEPARTMENT FOR ENVIRONMENTAL PROTECTION
300 FAIR OAKS LANE
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-2150
www.dep.ky.gov

April 1, 2016

Mr. Joel Beauvais
Deputy Assistant Administrator for Water
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W. 4101M
Washington, DC 20460

Dear Mr. Beauvais,

Thank you for the opportunity to discuss Kentucky's experience with implementing the Safe Drinking Water Act, generally, and specifically our experience with the implementation of the Lead and Copper Rule (LCR).

A primary mission of the Kentucky Department for Environmental Protection (DEP) is to ensure that safe and reliable drinking water is delivered to the citizens and businesses of the Commonwealth. Kentucky's public water systems consistently provide high quality, safe water to the public in compliance with the Safe Drinking Water Act to an estimated greater than 95% of the citizens of Kentucky.

Kentucky is a rural state, predominated by small and medium size public water systems where many of the communities have economic challenges. Because nearly all Kentuckians are on public water, Kentucky's public water systems have extensive distribution system infrastructure that must be monitored and maintained. Of Kentucky's 409 community public water systems, 52% serve fewer than 3,300 people. Some of these communities are experiencing flat or negative population growth. Many of these systems are challenged to sustain their drinking water infrastructure while facing increasing costs and declining revenues. These communities may also face other environmental and economic challenges such as compliance with the Clean Water Act (CWA).

In light of these challenges, since 2007 the agency has periodically worked with an informal drinking water advisory workgroup, made up of representatives of small, medium and large public water systems, the Kentucky/Tennessee AWWA, the Kentucky Rural Water Association, the Kentucky Municipal Utilities Association, the Kentucky League of Cities, the Kentucky Association of Counties, the Kentucky Association of Area Development Districts, the Kentucky Rural Community Assistance Partnership, ACEC of Kentucky, the Kentucky Public Service Commission, the Kentucky Division of Compliance Assistance, the Kentucky Division of Plumbing, and the Kentucky Department of Public Health. This informal group has worked with the agency on regulation development and implementation, engineering and technical challenges relating to treatment, engineering specifications for water line extensions and

distribution system infrastructure, capacity development, data submittal protocols, and other important efforts related to drinking water. One of the results of these efforts has been improved compliance with the increasingly more complex requirements of the Safe Drinking Water Act (SDWA).

In light of the circumstances regarding lead occurrence in the drinking water in Flint, Michigan, the agency convened an additional stakeholder workgroup in March 2016 to evaluate our current program oversight and how best to ensure that a similar situation does not occur in Kentucky. Experts from a broad spectrum of Kentucky's water infrastructure have been asked to voluntarily participate in this workgroup, whose main focus will be to conduct a comprehensive review of Kentucky's implementation of the LCR and provide input to the Division of Water. Because management of a community public water system today is a complex operation that requires balancing a number of the local community's local public health challenges, seeking input from an advisory group of local operators and experts is essential to developing solutions. This collaborative effort is both proactive and necessary.

The agency anticipates that the efforts of the workgroup will result in Kentucky strengthening our current program oversight to further ensure that the LCR is being properly implemented. This workgroup was provided your letter of February 29, 2016. They also have been provided the report and recommendations of the National Drinking Water Advisory Council (NDWAC) and the NDWAC's Lead and Copper Working Group. Primary among the Kentucky workgroup's tasks is to identify any potential enhancements to the implementation of the LCR and to provide input to the agency on improvement opportunities that they agency may pursue. Attached is a copy of the invitation letter to the workgroup members. The scope of work outlined in that letter addresses the concerns raised in your letter regarding appropriately addressing lead action level exceedances, optimizing corrosion control, providing effective public health communication and outreach, and evaluating approaches to managing infrastructure, including lead service lines.

The agency recognizes that the public health concerns in Flint were primarily the result of the failure to conduct appropriate and adequate corrosion control. It is critically important that federal and state drinking water agencies continue to focus on this primary challenge, to ensure that the appropriate guidance is available to water systems and that protocols are followed at public water systems via appropriate oversight provided by state programs and EPA. Given the practical reality that the removal of lead from plumbing is years away, the need for a continuous focus on effective corrosion control is essential.

The agency has initiated near-term actions to ensure the public that we are appropriately addressing risks from lead in drinking water. For example, the agency has made publicly available all of the lead monitoring data for the past four years and provided on our website a summary of the results (attached) of the monitoring data and the LCR compliance history in Kentucky over that period.

As stated above, the workgroup will be reviewing the agency and water systems protocols and procedures for implementing the LCR, as well as EPA LCR implementation guidance. This includes sampling and corrosion protocols. The workgroup will be evaluating methods to ensure the public has transparent access to LCR sampling protocols, Tier I site locations, and LCR compliance sampling results. The workgroup is also evaluating how water systems currently make LCR compliance sample results available to homeowners and other consumers.

Additionally, both the agency and the workgroup are reviewing the LCR and applicable guidance regarding the obligations of public water systems to provide an inventory of their infrastructure and provide updates regarding materials occurring in that infrastructure, including lead service lines.

The agency shares EPA's interest and commitment in this issue and its efforts to assist states and water systems with implementing the LCR, including EPA's guidance on various related issues, including

sampling guidance, corrosion control guidance, as well as its efforts related to data and information management.

The agency agrees with EPA that more can be done to ensure that adequate and sustained investment in drinking water infrastructure, particularly in communities that are challenged to sustain existing infrastructure. In that light, the agency encourages EPA to take a systematic approach in assessing and managing the risks from lead within the distribution system. The fiscal impact of rule changes, for example, on these systems and their customers must be considered prior to commencing new and unfunded or under-funded initiatives.

With respect to transparency, the agency agrees that making drinking water quality data information available sooner and more transparent to the public and especially affected families, is important and necessary to protect public health and to sustain the public's confidence in drinking water systems. More can be done locally and by state programs, especially given the tools of modern communication. The agency will be working with public water systems to develop tools for communicating information to a broad diversity of customers and public audiences. The agency strongly encourages EPA to fully commit to completing and bringing on line a modern drinking water data system (i.e. SDWIS Prime) that provides for timely, electronic submittal of error-free compliance data that will be transparently available to the public.

We appreciate the opportunity to inform you about Kentucky's ongoing efforts to ensure the LCR is being properly implemented and how we may improve upon those current efforts. We are aware that EPA recognizes that states and water systems are fully committed to providing safe drinking water and to being transparent with information about the quality of drinking water. We look forward to sharing with you the results of the efforts of our ongoing actions.

If you have any questions, please do not hesitate to contact Peter Goodmann, Director, Division of Water, at (502) 564-3410 ext. 4012 or reach him at Peter.Goodmann@ky.gov.

Sincerely,

R. Bruce Scott, Commissioner
Department for Environmental Protection

# Kentucky Childhood Lead Poisoning Prevention Program

Kentucky Public Health

## WHAT IS LEAD?

- Lead is a heavy metal. It is a naturally occurring chemical element in the carbon group with symbol Pb and atomic number 82. Lead is a soft, malleable and the heaviest non-radioactive element. Lead has been utilized since before 3500 B.C.

## WHY IS LEAD A PROBLEM?

- Lead is a potent neurotoxin and affects almost every system of the body, especially the developing brain and nervous system of a fetus and children < 6 years of age. Because of size and charge similarities, lead can substitute for calcium in bone stores. Young children are especially susceptible to lead because developing skeletal systems require high amounts of calcium and will mistakenly pull lead in instead.

Cabinet for Health and Family Services

## HEALTH EFFECTS OF LEAD

"Lead interferes with the normal functioning of just about every cell in the body because it chemically displaces elements that are essential to daily life, such as calcium, zinc and iron. So lead can botch up the elegant way red blood cells carry and deliver oxygen, how one moves his muscles or her limbs, and, perhaps most importantly, the transmission of electrical messages by the brain. Because the brains and bodies of young children are still developing and growing on a daily basis, lead is especially harmful to youngsters". Dr. Herbert Needleman

Cabinet for Health and Family Services

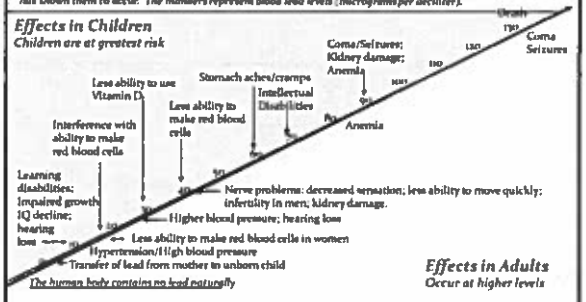
## HEALTH EFFECTS OF LEAD

- CDC studies have shown that blood lead levels (BLLs) as low as 5 micrograms per deciliter (µg/dL) may result in adverse pregnancy outcomes, including spontaneous abortion, premature birth, stillbirth, birth defects, and decreased intellect and/or behavior problems in the child.
- There is NO normal amount of lead in the human body!

Cabinet for Health and Family Services

## EFFECTS OF LEAD POISONING

*The damage caused by lead poisoning depends on the amount of lead in the body and on how long that lead stays in the body. The effects shown here list the lowest amount of lead at which research has shown them to occur. The numbers represent blood lead levels (micrograms per deciliter).*




## WHO IS AT-RISK?

While socioeconomic status may play a part in determining those populations most at-risk, anyone, wealthy or poor can be a victim of lead hazard exposure.

Children < 6 years of age and a developing fetus are at greatest risk of the detrimental effects of elevated blood lead levels (EBLLs). This is due to the rapid neurological and physical development, immature blood brain barrier of small children and the irreversible adverse effects lead can have on their brain and central nervous system.

Cabinet for Health and Family Services

## WHO IS AT-RISK?

- Small children are close to the ground and windowsills where lead based paint chips, flakes and dust are easily accessible.
- Small children have normal hand to mouth exploration behavior.
- The developing fetus of a pregnant woman who has a history of lead hazard exposure or elevated blood lead level.
- Adults and older children may be at risk for lead hazard exposure through a lead based hobbies or work.

*See Lead Poisoning Verbal Risk Assessment

Cabinet for Health and Family Services

## ROUTES OF LEAD EXPOSURE

**Primary Routes of Exposure**

- **Ingestion** – Primary route for young children
  - Hand to mouth, teething, hygiene, etc.
- **Inhalation** – Primary route for adults (fastest route leading to elevated blood leads)
  - Occupational exposure, hobbies, smoking, etc.
- **Dermal Absorption** – Rare but possible
  - Conjunctival absorption of Kajal, eye makeup used on children, common in Afghanistan
  - Chemical compounds containing lead can enter blood through open cuts and scratches

Cabinet for Health and Family Services

## DETECTING LEAD IN THE BODY

- Lead is detected in the body through a blood lead test. A venous sample over a capillary is preferred as it is considered uncontaminated.
- Capillary samples are at risk of being contaminated through improper collection techniques.
- Lead is measured in the blood in micrograms per deciliter (µg/dL).

Cabinet for Health and Family Services

## Neurological & Cognitive Effects of Childhood Lead Poisoning

- Learning Disabilities
- Decreased IQ
- Decreased Attention Span
- Hyperactivity
- Impaired Hearing
- Decreased Growth

## WHAT IS CONSIDERED AN EBLL

**Historically, CDC and the U.S. Public Health Services has made updates on what they consider an EBLL.**

| Year and Reference | BLL (µg/dL) |
|---|---|
| • 1971 (Surgeon General) | 40 |
| • 1975 (CDC) | 30 |
| • 1978 (CDC) | 30 |
| • 1985 (CDC) | 25 |
| • 1991 (CDC) | 10 |
| • 2012 (CDC) | 5 |

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## CDC's Advisory Committee on Childhood Lead Poisoning Prevention (ACCLPP)

In May 2012, the Centers for Disease Control and Prevention's (CDCs) ACCLPP recommended that CDC eliminate the use of the term "blood lead level of concern" based on the compelling evidence that low BLLs are associated with IQ deficits, attention-related behaviors, and poor academic achievement. ACCLPP recommended that the terminology "level of concern" should be eliminated from all future agency policies, guidance documents, and other CDC publications, and (b) current recommendations based on the "level of concern" be updated according to the recommendations contained in this report.

## CDC 2012 UPDATE on BLL GUIDELINES

In May 2012, CDC amended its recommendations to use a childhood BLL reference value based on the 97.5th percentile of the population BLL in children aged 1–5 years (currently 5 µg/dL) to identify children living or staying for long periods in environments that expose them to lead hazards. This changed the BLL that initiates interventions in helping to decrease childhood lead hazard exposure and reduce BLLs, for children <72 months of age and pregnant women, from ≥ 10 µg/dL to ≥5 µg/dL.

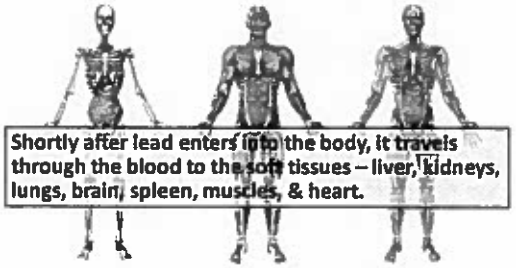
## EFFECTS OF LEAD POISONING (cont.)

- ➢5µg/dL- Low BLLs are associated with IQ deficits, attention-related behaviors, and poor academic achievement.
- ➢10µg/dL – Child will have learning disabilities; impaired growth; IQ decline and some hearing loss.
- ➢20µg/dL – Interference with ability to make red blood cells.
- ➢30µg/dL – Less ability to use vitamin D; higher blood pressure & hearing loss.

## EFFECTS OF LEAD POISONING *(cont.)*

- ➢40µg/dL – Less ability to make red blood cells. Nerve problems develop (decreased sensation, less ability to move quickly, infertility in men, kidney damage).
- ➢60 µg/dL – Stomach aches/cramps.
- ➢70 µg/dL – Intellectual disabilities.
- ➢90 µg/dL – Seizures, coma, kidney damage & anemia.
- ➢130 µg/dL & up – Seizures, coma & death.

## LEAD IN THE BODY



Shortly after lead enters into the body, it travels through the blood to the soft tissues – liver, kidneys, lungs, brain, spleen, muscles, & heart.

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## LEAD IN THE BODY

- If lead is not quickly eliminated, it will seek out storage sites that normally bind calcium. If the body does not have a sufficient amount of calcium, lead will more readily absorb and bind into those empty binding sites.

## ELIMINATION OF LEAD

- Lead that is not stored is eliminated in the urine and feces.
  - 60% loss in urine
  - 30% loss in feces
  - 10% loss in hair, nail growth, & sweat
- About 99% of lead taken into the body of an adult will leave in the waste within a few weeks, but only about 32% will be eliminated from a child.

## PRENATAL

In prenatal patients, lead which has been previously stored in mom's bone may become mobilized as the body's need for calcium increases. Once free in mom's system, an elevated blood lead level may cause fetal neurodevelopmental problems as well as lead to other health concerns such as nephrotoxicity, neurotoxicity, and hypertension. If the pregnant woman has current lead hazard exposure, she is also at risk of an EBLL.

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## Blood Lead Levels (BLLs)

The damage caused by lead in the human body depends on the amount of lead in the source and how long it stays in the body.

*Children with EBLLs do not always look sick!!*

## Children Run Better Unleaded

## Contact Information


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Kentucky Public Health

# FWICC Policy Subcommittee

## Lead and Copper Rule Recommendations

April 15, 2016

# Lead and Copper Rules - Background

- As Michigan has worked to resolve this water crisis, it has become evident that what happened in Flint is not an isolated occurrence, and the rest of the nation needs to pay close attention to water quality standards.
- We have had red flags before – from Washington, D.C. as far back as 2001, to Chicago in 2011, and to more recent cases in Philadelphia and Newark.
- The AP recently performed an analysis of ERA data and found that nearly 1,400 water systems serving 3.6 million Americans across the country exceeded the federal lead standard at least once between 2013 and 2015.
- The results are staggering. The water crisis in Flint has given the entire country a reason to re-evaluate the way we measure the safety of water for our children and families to drink. It's raised questions about how the federal lead and copper rule has been implemented.

# Lead and Copper Rule – FWICC Role

- By executive order, Governor Snyder created the FWICC to bring together a wide range of experts to work on long-term solutions to the Flint water crisis.

- Through close collaboration between state and local government, and subject matter experts, the focus of this subcommittee is to ensure safe drinking water for Flint and the entire state by having more stringent lead-level regulations than what federal rules require.

# Current Federal LCR Issues

- Utility centric – allows utilities to operate, promoting that they meet federal standards, which are not health based, and do not protect citizens.
- Shared responsibility model – except most citizens don't know they were given this responsibility, assume utilities keep them safe.
- Fails to even address stated purpose – minimization of lead in water at consumer taps. Per water industry, up to 70% of PWS with lead service lines would **not** pass action threshold with appropriate sampling.
- Leaves underlying problem – doesn't replace lead pipes (or only replaces them partially), other lead-bearing plumbing, or other infrastructure damage (galvanized iron, etc.) that may be there for decades more.
- Disasters – D.C., Flint, etc.
- History – since 1991, multiple reform efforts have failed, leaving the public still vulnerable to disasters.

# Changes Proposed - Overview

**Overarching Goal: To develop a national model that maximizes consumer protection and ensures transparency and public education at all times - thereby preventing additional water crises.**

- **Goal 1:** Make the LCR Citizen Centric and make consumers informed participants in the LCR's shared responsibility model.
  - Citizen Centric LCR oversight with public panels required at both the department and local level to ensure active public participation and awareness.
  - Stringent notifications to assure prompt and accurate notice to impacted residents when the Lead Action Level is exceeded as well as robust public education on the risks and dangers of lead at all times.
  - Require collaboratively developed robust public education programs.
- **Goal 2:** Achieve the stated purpose of the rule by minimizing lead in water at consumer taps.
  - Elimination of gaps in sampling and testing protocols to assure that high risk homes are included and tested in transparent and scientifically valid methods.
- **Goal 3:** Remove the underlying problem.
  - Aggressive lead pipe inventory and analysis requirement with remediation strategies that include a complete ban on partial lead pipe replacements and full system replacement.
- **Goal 4:** Enforce the rule.

# Exceeding Federal Standards
# Goal 1: Citizen Centric - Oversight

- Creates a statewide Advisory Commission on Drinking Water Quality to assure citizen membership, input, and access. The new Commission will be charged with continuously assessing science, testing, monitoring protocols, and water treatment and corrosion control. The Commission will and provide advice and counsel to the Governor, the Legislature, and impacted state and local agencies on implementation of the act, areas for improvement, and best practices to optimize the protection and safety of drinking water.

- Requires the establishment of Water System Advisory Councils for each Public Water System (PWS) to assure citizen membership, input, and access, to oversee the enforcement of the LCR, to develop plans for community outreach and education, and to collaborate with community groups to assure correct implementation of the LCR. The Council will assure access to information regarding corrosion control, testing results, remediation processes, educational efforts and general water safety. Allows systems serving under 500 customers to utilize collaborative councils with other PWSs or delegate their responsibilities to the Advisory Commission.

- Require the Advisory Commission to lead annual training on lead in water, the health effects of lead, and the LCR. Training would be targeted toward federal, state, and local staff, and local Water System Advisory Councils. Training must include active participation and input from local community groups and representatives.

# Exceeding Federal Standards
# Goal 1: Citizen Centric - Stringent Public Notifications

- Require lead disclosure statements on interior plumbing as a part of all home sales and all home rental contracts.
- Reduce Lead Customer Notice requirement for notice to individual customers that their test results exceed the LAL from 30 days to 2 business days.
- Where a PWS exceeds the LAL, the system will be required to complete a public system-wide notification within two business days and then complete a more in-depth public education in 30 days (the current requirement is 60 days).
- Expand the information required where a PWS exceeds the LAL.
- Where a PWS exceeds the LAL, require notices to all billed customers as well as public notices to all schools, community centers, and child care centers.
- Establish State Household Action Level of 40 ppb that requires strict notifications and access to blood lead testing.

# Exceeding Federal Standards
# Goal 1: Citizen Centric - Robust Public Education

- Require delivery of robust public education campaign regardless of whether a PWS meets or exceeds the LAL.
- Based on the parameters adopted by the Advisory Commission on Drinking Water Quality, require each PWS to collaboratively develop a public education campaign with the local Water System Advisory Council on the dangers of lead and copper at all times.
- Require the public education campaign to include (1) specific information on the potential adverse health effects of lead contamination on infants, children, and fetuses, (2) the potential sources of lead, (3) the PWS compliance history on lead including most recent testing data, (4) the cost and availability of replacement fixtures, and (5) contact information for medical assistance.
- Require the public information campaign to include accurate and up-to-date information on the PWS system inventory.
- Require the public education campaign to be targeted to both the general population and any diverse population groups, including non-English speaking, within the PWS service area.
- Require the public education campaign to be delivered on a regular basis by multiple media including print, internet, and community and neighborhood forums.

# Exceeding Federal Standards
# Goal 2: Achieve Stated Purpose of the Rule

- Lead Action Level: Phase in a reduction in the Lead Action Level from 15 ppb to 10 ppb by 2020 to align with the standards currently used by the World Health Organization.
- Corrosion Control Treatment: Require comprehensive lead and copper analysis prior to any significant change in water source or treatment by a PWS and require all CCT to be performed under the guidance of a licensed engineer and under the supervision of the Agency.
- Compliance: Eliminate mechanisms that permit PWSs to meet LCR requirements within water quality ranges and, instead, deem compliance to have occurred only when a Lead Action Level is met or approved corrective action is put in place.
- Additional, Supplemental Testing Requirements: Require annual testing of state facilities involving children and fragile adults including schools, day care facilities, nursing homes, health facilities, and adult foster care facilities. Facilities exceeding standards will be required to take remedial action.

# Exceeding Federal Standards
# Goal 2: Achieve Stated Purpose of the Rule

## Sampling

- Remove current LCR gaps to ensure that testing and sampling captures worst-case lead in high risk homes.
- Require a phased in system inventory for all PWS including analysis of composition, estimated age, and length of system components.
- Require annual sampling – eliminate variations currently afforded based on size and history of system.
- Remove exceptions for reduced sampling and define sample bottle size and require wide-mouth openings.
- Require state and local advisory council oversight of site sampling selection criteria.
- Require site sampling selection criteria to prioritize based on (1) length of lead service line, (2) homes with less water use than normal, (3) homes with higher water age, and (4) homes with galvanized iron after a lead pipe.
- Require two sample draws and specifically prohibit any diversion from specified protocol, including preflushing and aerator cleaning/removal prior to sampling.
- Require that annual sampling occurs in summer months unless alternate schedule is approved based on explicit knowledge that problems are worse in the PWS in other periods.

# Exceeding Federal Standards
# Goal 3: Remove the Underlying Problem

- Prohibit partial lead service line replacements both during LCR remediation and during system maintenance.
- Require secondary notification to homeowners and neighbors during the replacement process to warn of physical disruption dangers.
- Require each PWS to adopt a full LSL replacement program within 10 years unless a longer period is specifically authorized by the Agency.
- Clarify the duty and ability of a PWS to replace lead service lines up to the resident's or business's meter.
- Prioritize replacement based on estimated length and age of service line, history of high lead water and high lead blood results, vulnerable populations, and where other distribution system improvements, such as water main replacements, provide opportunity for LSL replacement.

# Exceeding Federal Standards
# Goal 4: Enforce the Rule

- Establishes state fines for violations of state rules to assure accountability and transparency.
- Clear and understandable fine parameters will be established based on the type of violation with automatic increased fine levels for repeat violations.
- Fine revenue will be deposited in the Drinking Water Revolving Fund.
- Require regulatory history – including any fines imposed – to be included in bold in all customer billings.

# Current and Proposed

| Topic | Current | FWICC Policy Committee Proposed |
|---|---|---|
| Action threshold | 10% at/over 15 ppb | Recommend reduction to 10 ppb by 2020. |
| Sample selection criteria | Residences with LSLs or lead plumbing | Supplemental sampling of schools and public places involving children and fragile adults recommended for immediate annual testing. Sites with previous partial replacement testing, including galvanized iron connections to home, should be considered once inventory is completed. |
| Sample size | For large systems - 100 to 60; 60 to 30 | Retain current sample size but permit no reductions. Include locations with elevated lead in bloods and samples from neighbors of over 15 ppb, but included those as supplemental samples only. |
| Sample frequency | Annual; Triennial; (every 9 years for small systems) | Annual sampling without exceptions based on compliance history or system size. |
| Sample draw | First draw after at least 6 hour rest; no preflushing and aerator cleaning permitted | Two draws required. No preflushing or aerator cleaning within a defined period prior to sampling. Bottle configuration specified with additional specificity on size and configuration of test sample bottles. No diversion of any sort permitted from sampling protocols. |
| Sample site location | Required to be based on worst case homes but gaps in that determination | Sample site selection recommendations to be approved by state commission and local council. Systems required to provide documentation that targets homes meeting tiering conditions. In the sample site selection process, preference will be given to longer LSLs, homes with less water use than normal, homes with higher water age, and homes with galvanized iron after lead pipe. |
| Action level required on high lead sample households | None | Establish a Household Action Level at 40 ppb requiring heightened notice and education, household water system diagnostics, and access to full blood lead testing for all residents. |

# Current and Proposed (Cont.)

| Topic | Current | FWICC Policy Committee Proposed |
|---|---|---|
| Public education requirements | With water bill; At risk groups; Press release | Recommendations include two tiers (state and PWS specific) advisory council structure, heightened public education and notification requirements, and real estate disclosure forms. Requires robust public education campaign whenever a PWS meets or exceeds the LAL. Public education campaigns shall include targeting to fragile and hard to reach populations and shall include multiple media usage. |
| Lead service line replacement | Only when above action level; 7% per year; allows partial replacement | Inventory and physical replacement plan required for all PWSs. No partial replacement. Clarification of control of lead service lines on private property required. Notification requirements must be strengthened and additional neighborhood and individual notifications should be mandated on the dangers of physical disruption. Database should be maintained of refused access into homes. Lead analysis (similar to radon testing) required for home sales. |
| Water quality parameters | In compliance by meeting parameters | Decouple. |
| Corrosion control | Optimize with extended time period for sampling and implementation | Increased specificity on CCT optimization, CCT analysis required within set time parameters when PWS shifts water source. Evaluation and adjustment of CCT must take into account all the factors in a given system that could contribute to high lead release. Complete transparency required on every requirement of rule. |
| Citizen oversight | Not required | Two-tier approach with Advisory Commission on Drinking Water Quality required on the state level and each PWS required to have a Water System Advisory Council. |
| PWS inventory | Not required | Regardless of LAL adherence status, each PWS will be required to complete a full system inventory including details on all parts and materials used. |
| Required notifications | | Expand content and targets of notification requirements. Include neighbors and community centers in notice requirements. Reduce Lead Customer Notice period from 30 days to 2 business days. |
| Enforcement | Tied to federal penalty scheme | Separate state fine and enforcement system built around unique state requirements. Fines tiered based on offense and doubled for multiple offenses. Mandatory notification to customers in bills and separate outreach for certain violations. |

LEAD IN DRINKING WATER WORK GROUP
Kentucky Division of Water, Conf. Room 204A
April 20, 2016
PUBLIC SIGN-IN SHEET

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LEAD IN DRINKING WATER WORK GROUP
Kentucky Division of Water, Conf. Room 204A
April 20, 2016
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