

2016 Flint Water Crisis

Presentation

Northern Kentucky

**Water Training
Seminar**

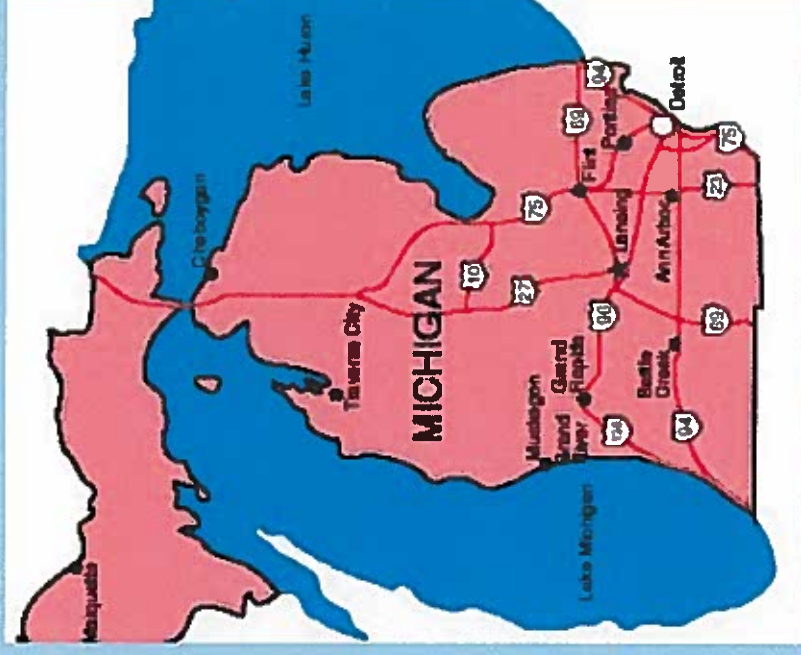
May 4, 2016

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BlueWater Kentucky**



Flint, Michigan

- Population of 100,000 (down from 200,000 in 1970)
- 55% Black, 35% White, 10% Other
- 14.6% unemployment (2014)
- Median Household Income of \$24K; Michigan is \$48K
- 42% living below poverty level (2nd highest in nation)
- Median Home Value of \$29,000
- 10% with college degree



Flint Water Crisis



- Failure of water utility
- Failure of local government
- Failure of state government
- Failure of environmental regulator
- Major breach of public's trust in tap water



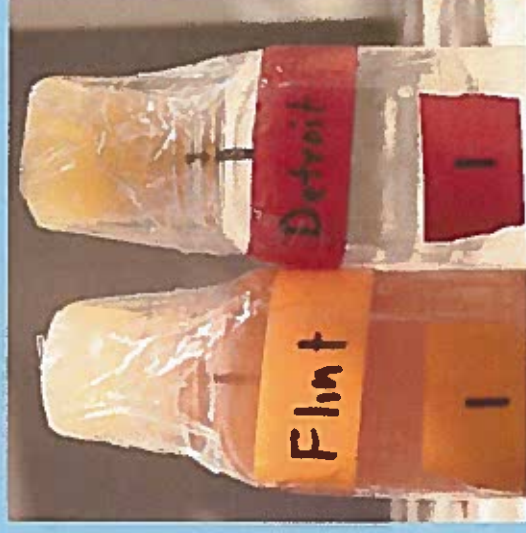
Flint Water Crisis

- City in receivership, under Emergency Management of State of Michigan
- Detroit supplied water to Flint since 1967
- Decided in 2013 to switch water supply from Detroit to the Karegnondi Water Authority (KWA) in order to avoid Detroit rate increases.
- Requires a pipeline to KWA to be complete in 2016
- In the interim, Flint reactivated their 1967 water treatment plant until pipeline is completed Lake Huron reactivate a 1972 water treatment plant to save money
- Discontinued Detroit Water Supply in April 2014
- This plan was approved by the State's Emergency Manager



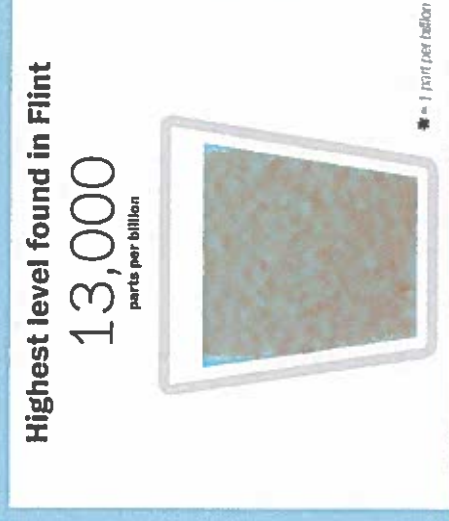
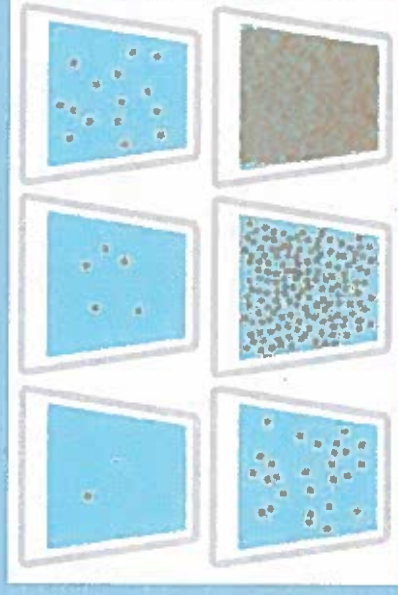
Flint Water Crisis

- In April 2014, water is treated by the Flint Water Plant with source from the Flint River
- Flint River is high in chlorides (corrosive)
- Flint did not treat for corrosion; Detroit used Ortho-phosphates for corrosion control
- Discolored tap water in Flint shows up, water was declared safe to drink by Michigan Regulators
- Flint cited for not meeting Disinfection By Products Rule (high THMs) in 2014



Flint Water Crisis

- High blood lead levels discovered in 2015, after research study by Hurley Medical Center in Flint
- Source determined to be Flint Tap Water
- Estimated 6,000 to 12,000 children affected
- Lead levels in tap water exceeded 13,000 ppb, 800 times EPA action level of 15 ppb
- Flint returned to Detroit Water in October 2015
- March 2016, samples in Flint still exceed 100 ppb (15 ppb is action level)



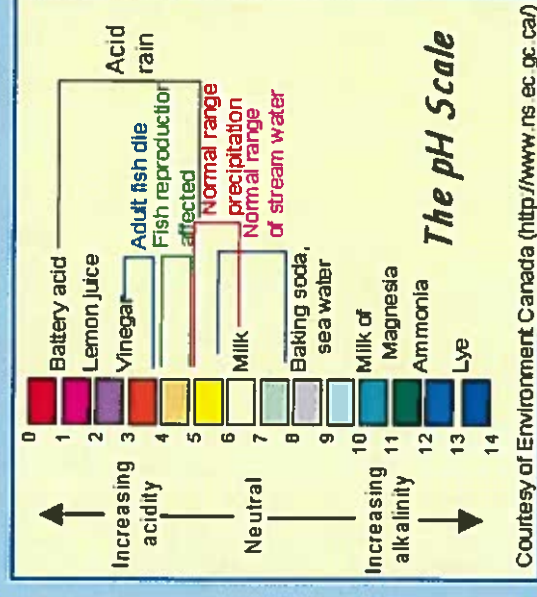
Water Comparison

Detroit Water:

- Source is Lake Huron, a stable, clean source
- Water exceeded EPA regulations
- Practiced corrosion control with ortho-phosphate treatment to coat metallic pipes
- Wholesaled water to Flint and other Michigan cities

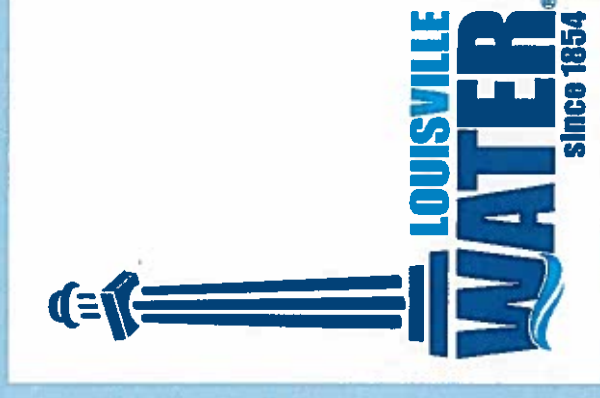
Flint Water:

- Source is Flint River
- "Flashy" source water (high turbidity, industrial waste)
- Lower pH, more acidic than Detroit water
- No corrosion treatment to buffer water
- Dissolved the protective coating inside of lead pipes and plumbing fixtures
- Lead levels exceed 13,000 parts per billion (EPA action level at 15 ppb)



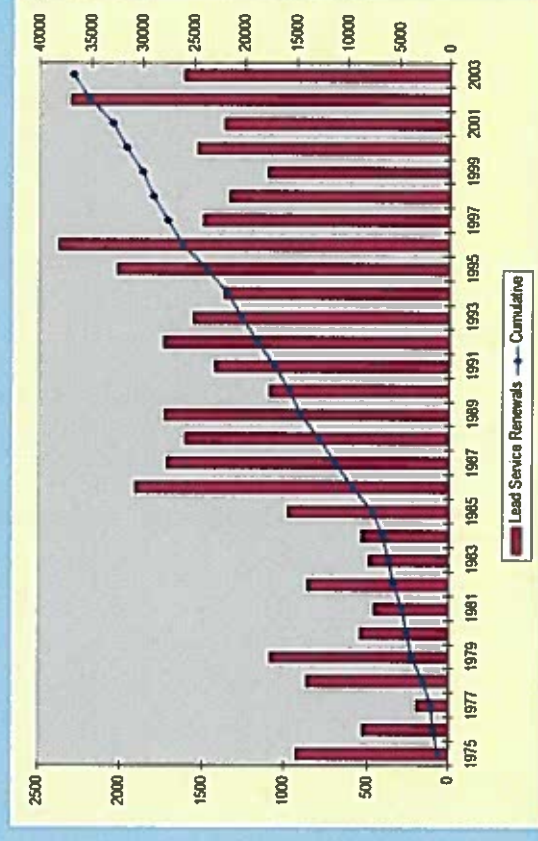
Louisville's Tap Water

- Louisville Pure Tap exceeds all EPA Drinking Water Regulations
- Consistently voted among the best Tap Waters in the United States (1982, 2008, 2013, 2015)
- Treats Ohio River Water (flashy river source like Flint)
- Adjust pH to 8.0 (slightly basic), using lime with a moderate calcium carbonate hardness (150-160 mg/l) to provide protective layer and corrosion control.
- Louisville has always complied with the 1991 EPA Lead and Copper Rule (< 15 ppb)



Louisville's Lead Program

- In 1935, Louisville had approximately 75,000 lead service lines
- Louisville phased out lead service lines beginning in 1937, replaced with copper tubing from water main to meter set to tail piece
- A proactive lead service line replacement program began in 1985, with a goal to replace 1,000 to 1,500 lead service lines each year.
- A lead service line inventory was conducted in 1987 to identify lead pipes from construction records, home age, field surveys and excavations.



Louisville's Lead Program

- In 1985 a policy was adopted to replace any lead service line whenever discovered (leak, main replacement, excavation), or when customer requested replacement
- Approximately 7,500 lead service lines remain, goal to eliminate by 2025, estimated cost at \$18 to \$20 million
- Less than 10% lead service lines on public side have lead on private side of meter
- LWC has an on-line database for customers to ID lead pipes at www.louisvillewater.com



The screenshot shows a news article from The Courier-Journal. The article title is "Louisvillians can now look up lead water lines" by James Bruggers, dated March 18, 2016. The article features a map of Louisville, Kentucky, with red dots indicating the locations of lead service lines. The map is titled "Location of lead service lines in Louisville". The article also includes a photo of a person working on a pipe and a logo for "the BUILDING BETTER" program. The Courier-Journal logo is visible in the top right corner of the screenshot.

Louisville's Lead Program

- An active public and consumer education program was developed by LWC, including web site information, fliers, postcards, letters.
- Following the Lead Containment Control Act of 1988, Louisville Water began a partnership with public and private schools for:
 - ✓ Lead sampling
 - ✓ Water coolers/fountains that contained lead line tanks or fittings
- Partnership with schools continues today
 - ✓ Lead
 - ✓ Cross connection
 - ✓ Boil water

Louisville Water Company replaced its lead service line with a new copper line near your home.

When we finished, we flushed your water lines for 60 minutes.

Now, for the next 30 days we need you to flush the lines for help ridges each morning or after an extended period of no water usage. Flushing a toilet twice or running a shower or bath will flush your lines. Allow the cold water line to run for two minutes before using water for cooking or drinking.

30 days

2 minutes

before

after

We also recommend you: Remove any faucet aerators and clean them of any particles that may have accumulated. (The aerator is usually at the tip of most faucets and can be screwed on and off.) Discard two cycles of tea from automatic tea makers.

Because we've realized you to flush your lines, you will receive a credit on your next water bill.

For more information on our lead service replacement program, please visit LouisvilleWater.com or call 502.583.6610.

Louisville Water

For the next 30 days, flush the lines for two minutes each morning or after an extended period of no water usage. Flushing a toilet twice or running a shower or bath will flush your lines. Allow the cold water line to run for two minutes before using water for cooking or drinking.

2 minutes

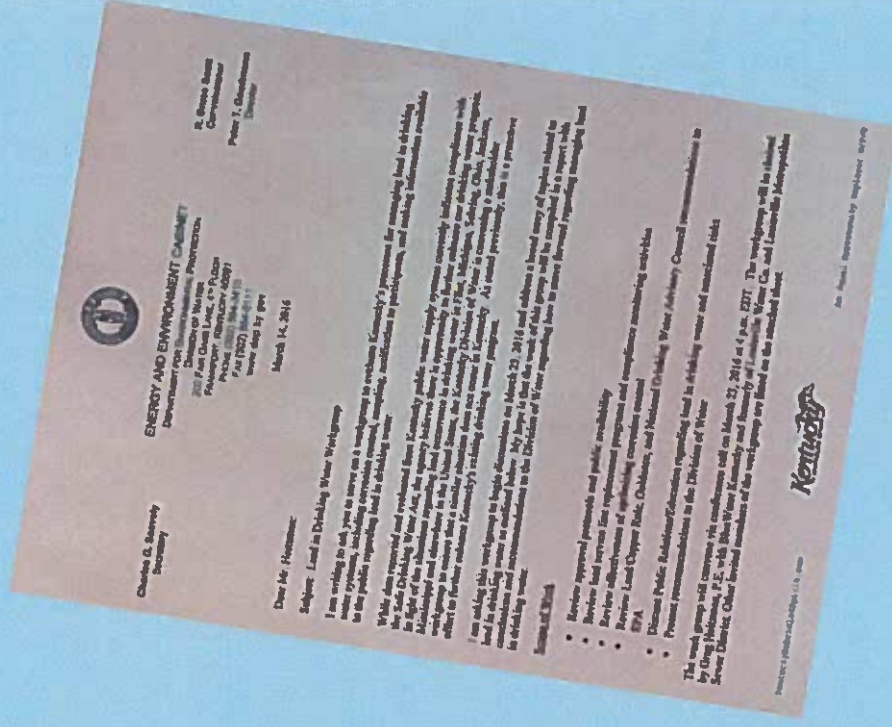
30 days

If you have questions about the work we did contact us at **502.583.6610** and ask to speak with the Project Manager or send an email through our web site: LouisvilleWater.com.

Public health is our number one priority and your drinking water meets all Environmental Protection Agency standards for lead. Louisville's drinking water does not contain lead when it leaves the treatment plants and we treat the drinking water to minimize potential corrosion of plumbing lines. To learn more about lead, go to LouisvilleWater.com and click on "water quality." Or visit the Environmental Protection Agency's consumer web site at: <http://water.epa.gov/whr/info/lead/index.cfm>

Kentucky Lead Workgroup

- Kentucky established a Lead Workgroup in March, 2016
- Diverse representation:
 - ✓ Small, medium and large utilities
 - ✓ Regulators
 - ✓ Academic
 - ✓ Engineering
 - ✓ Public Health
 - ✓ KY-TN AWWA, KY Rural Water, KMUA



Kentucky Lead Workgroup

- First meeting held April 20, 2016
- Workgroup meets monthly
- 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 December, 2016
- Deliverables:
 - ✓ Power point presentations on each topic area
 - ✓ Briefing report by each sub-team/topic area
- Workgroup report will provide the following:
 - ✓ a 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

Best Practices Emerging



- On-line lead database
- Free water sampling for lead
- Lead education materials
- Proactive lead replacement programs
- Lead replacement subsidy or finance program for homeowner's portion of lead piping
- Optimized water treatment for corrosion
- School partnerships for lead testing and lead plumbing replacement

Regulatory Possibilities:

- Reduction in Action level below 15 ppb
- Possibly a MCL for lead
- Change in sampling (cycles, size, frequency, locations)
- Strict water sampling protocol for lead
- Mandatory replacement programs (xx% per year)
- Mandatory lead education materials provided to for consumers
- Private lead line replacement requirements for homeowners
- Specific lead action steps for schools, daycares and public facilities



Questions ???

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BlueWater
Kentucky

Sources for Presentation:

- Wikipedia
- Louisville Water Company
- Kentucky Lead Workgroup
- Courier Journal and on-line media reports