



# MI's Lead and Copper Rule: Changes and Results

Ottawa County Water Quality Forum

November 21, 2019

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# Agenda



**Lead and Copper Basics**

**Federal Lead and Copper Rule**

**Michigan Lead and Copper Rule**

**LCR Changes**

**LCR Results**

**Summary and Questions**

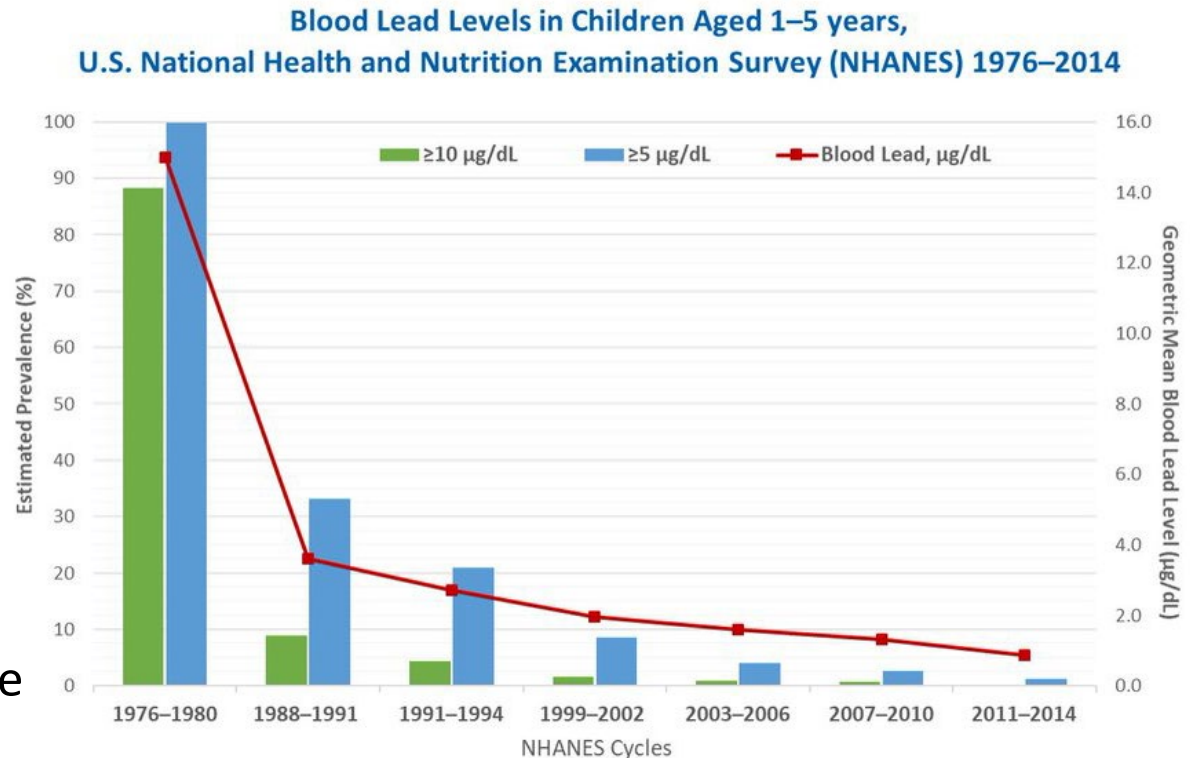
# Lead, Copper & Environmental Health

- Why do we care about lead?
  - No level of lead in the blood is safe
  - Lead is a potent irreversible neurotoxin
  - Lifelong multigenerational impacts
  - Health effects from acute and chronic exposures
- Why do we care about copper?
  - Small amounts of copper are essential for health, BUT
  - High exposure can result in gastrointestinal and liver problems

Sources: World Health Organization; Centers for Disease Control and Prevention; Agency for Toxic Substances and Disease Registry

# Sources of Lead

- Leaded gasoline  
(phase out 1974-1991)
- Leaded paint  
(pre-1976)
- Sources in drinking water
  - Lead plumbing/service
  - Brass fixtures and valves
  - Galvanized pipe



Source: National Center for Environmental Health, Division of Environmental Health Science and Practice

# Why have Lead and Copper Rule?

- To minimize lead and copper in drinking water
- Lead and copper are indicators used to help determine if the chemistry of the water is causing excessive corrosion
- The LCR is a treatment technique rule
- Action levels are based on the practical feasibility of reducing lead through controlling corrosion (per EPA)



Source: EGLE Michigan Lead and Copper Rule Workshop for Drinking Water Operators

# Federal Lead and Copper Rule

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- 1986 – Federal Lead Ban (lead in copper solder, effective 1988)
- 1991 – Lead and Copper Rule
- 2004 – Lead and Copper Minor Revisions
- 2007 – Lead and Copper Short-term Revisions
- 2012 – Reduction of Lead in Drinking Water Act (2014)
- 2020? – Long-term Lead and Copper Rule revisions



# Michigan Lead and Copper Rule

- 1991 – Adopted original EPA rule
- June 2018 – Michigan’s LCR revisions promulgated
- Major Changes
  - Definitions
  - Materials Inventory
  - Sampling Pools
  - Tiering criteria
  - Sampling
  - Action Level
  - 90<sup>th</sup> Percentile Calculation
  - Lead Service Line Replacement
  - Continuity of Source/Treatment
  - Transparency and Public Education
  - Water Advisory Councils



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# Definitions

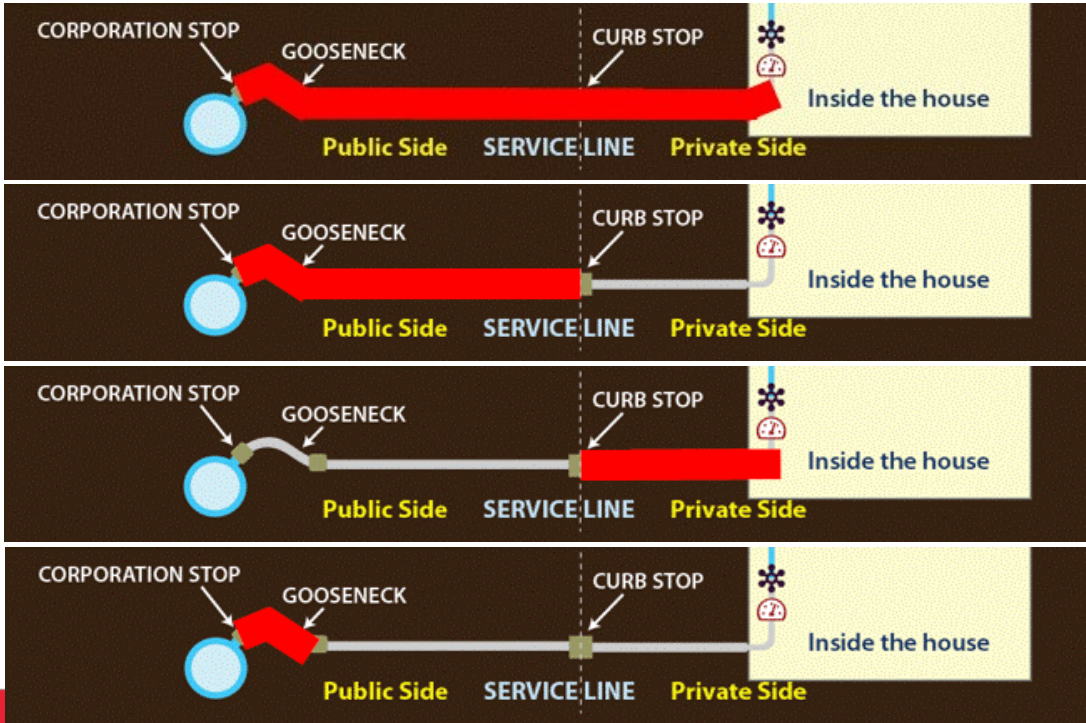
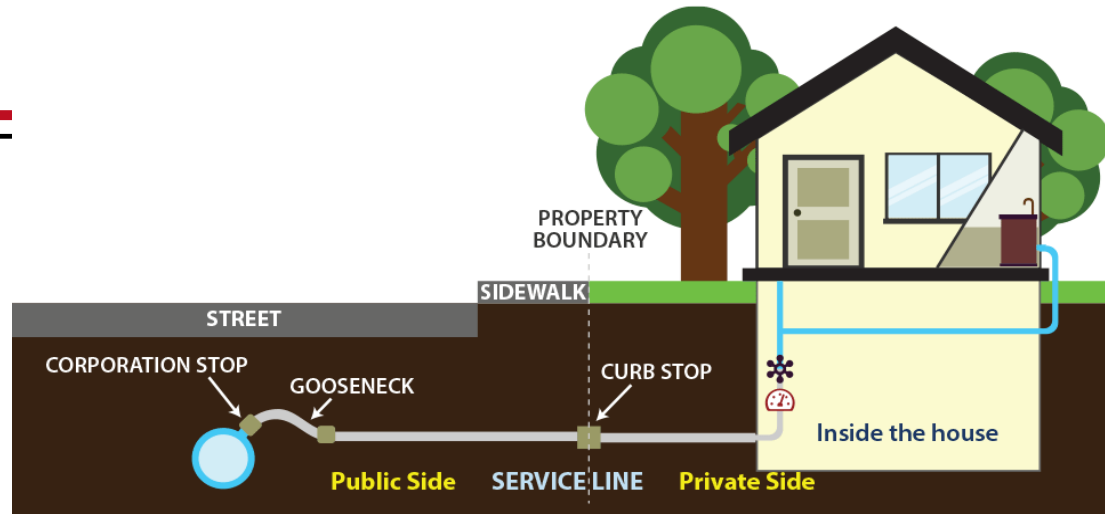
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**“Service Line”** – Pipe from corporation fitting to customer site piping or building plumbing at the first shut-off valve inside the building or 18 inches inside the building, whichever is shorter.

**“Lead Service Line”** – Includes lead lines, or those containing a lead pigtail or lead gooseneck or any lead fitting that is connected to the service line or both.

# Service Lines

## Service Line



Full LSL

Partial LSL

Partial LSL

Lead gooseneck

# Distribution System Materials Inventory

- Complete updated distribution system materials inventory
  - Preliminary due 1/1/2020
  - Complete verified inventory due 1/1/2025
- Annual update on status of LSL replacement
- Notify customer if serviced by LSL within 30 days of determination or when new account is opened
- Make summary information available to public
- Update every 5 years
- Prioritization of LSL replacement incorporated into asset management plan



# Sampling Pools and Tiering Criteria

- Original sampling pools designated in 1990s and not submitted
- Sampling pools must be reviewed and/or updated based on current inventory and submitted by 1/1/2020
- Emphasis on sampling at sites with
  1. Lead service lines
  2. Lead interior plumbing
  3. Copper plumbing with lead solder installed 1982 to 1989

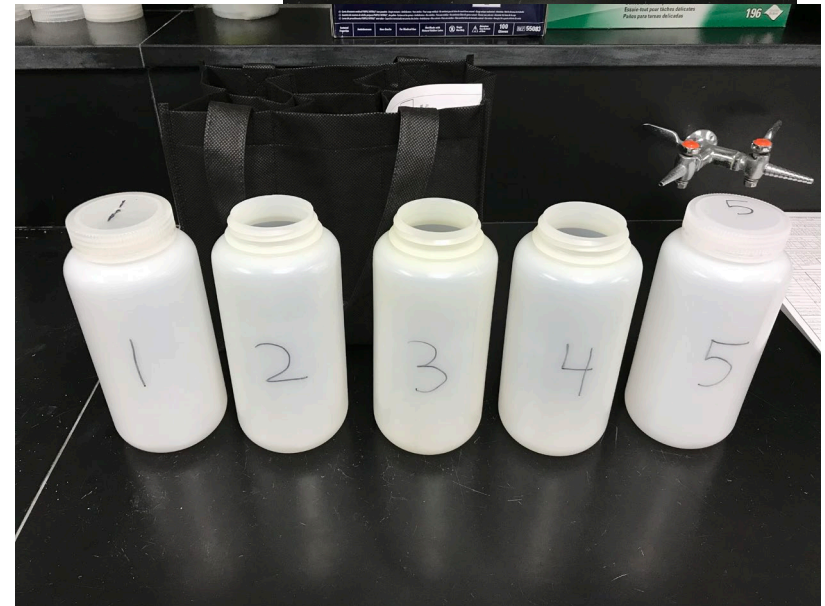
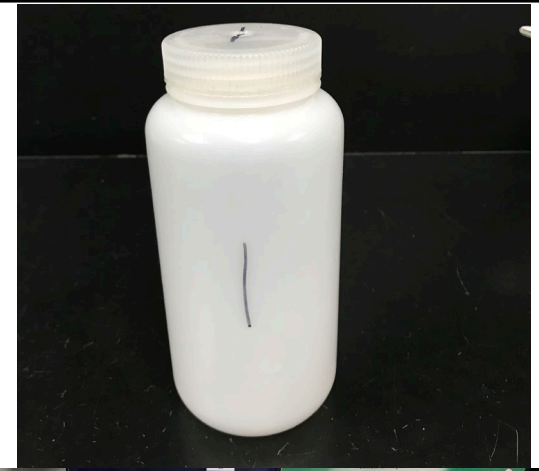
# Sampling – Tap Sampling

## ➤ Change

- Collect two samples at sites served by a lead service line. The 1<sup>st</sup> and 5<sup>th</sup> liters of water are tested.
- No systematic flushing or aerator removal/cleaning prior to testing

## ➤ Results

- 5<sup>th</sup> liter collected to more likely represent water in service line
- Reduces risk to public health
- Additional cost and complexity



# Action Level

- Action Level (AL)  $\neq$  Maximum Contaminant Level (MCL)
- AL is screening tool for determining when treatment technique actions are required
- ALs are set based on the practical feasibility of reducing lead through controlling corrosion
  - Lead AL = 0.015 mg/L (15 ppb)
  - Copper AL = 1.3 mg/L (1,300 ppb)
- Maximum Contaminant Level Goals (MCLG)
  - Lead MCLG = 0 mg/L (0 ppb)
  - Copper MCLG = 1.3 mg/L (1,300 ppb)

Source: EGLE Michigan Lead and Copper Rule Workshop for Drinking Water Operators

# Action Level

## ➤ Lead Action Level

- 15 parts per billion (ppb) → 12 ppb effective January 1, 2025

## ➤ Results

- Lower risk of exposure for customers
- More supplies may/will require actions triggered by exceedance
  - Additional communication with public
  - Source review and sampling
  - Increased monitoring frequency
  - Increased LSL replacement, if applicable
  - Corrosion control treatment steps (study, install, demonstrate)



Visit  
[Michigan.gov/MILeadSafe](https://Michigan.gov/MILeadSafe)

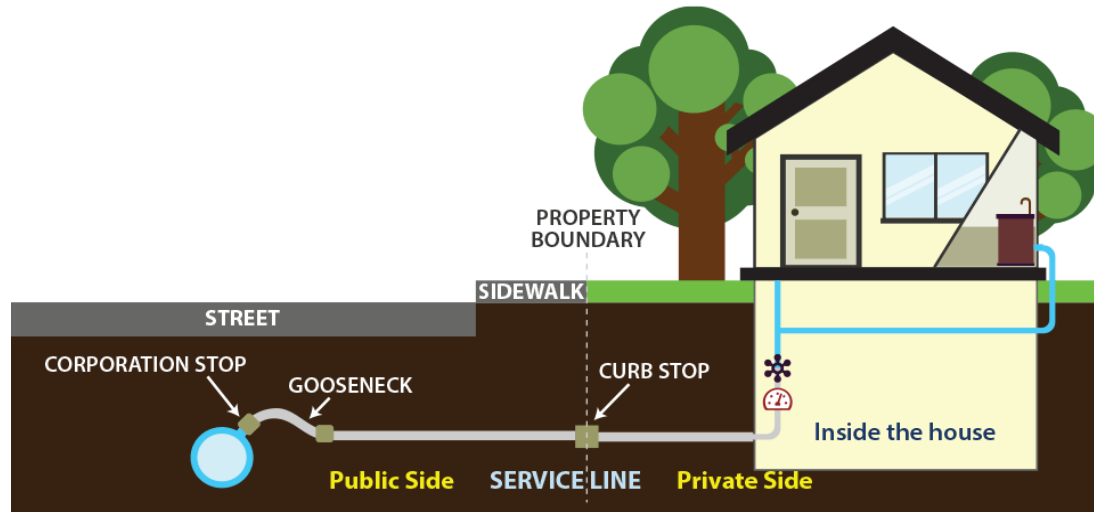
# 90<sup>th</sup> Percentile Calculation

- Previously, all valid compliance samples used to calculate lead and copper 90<sup>th</sup> percentile values
- Now, only use highest result of valid compliance samples taken at a site to calculate lead and copper 90<sup>th</sup> percentile values

	1 <sup>st</sup> Liter		5 <sup>th</sup> Liter	
	Lead (ppm)	Copper (ppm)	Lead (ppm)	Copper (ppm)
125 Oak St	0.001	0.60	ND	0.04
112 Maple St	0.001	0.20	ND	ND
135 North Ave	0.002	0.01	0.010	ND
159 Third St	0.002	0.02	0.002	0.03
248 Elm St	0.002	0.01	0.012	0.02



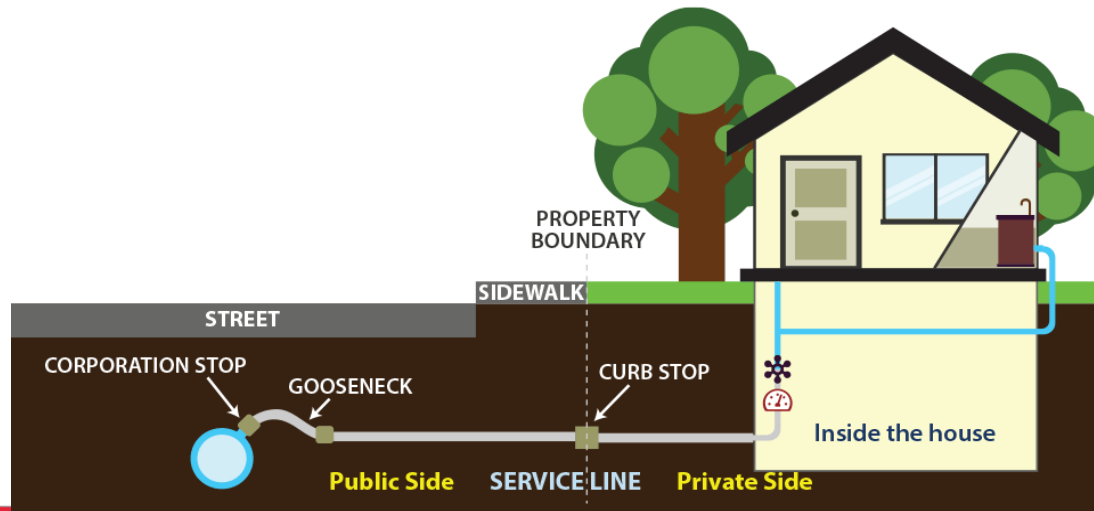
# Lead Service Line Replacement



- Supplies with AL exceedance and optimized corrosion control treatment (OCCT) already in place must conduct lead service line replacement at 7% per year (unchanged)
- Starting January 1<sup>st</sup>, 2021, **all supplies** with LSLs or galvanized that is or was connected to a LSL, must conduct replacement at an average rate of 5% per year, not to exceed 20 years

# Lead Service Line Replacement

- Full lead service line must be replaced at water supply expense, regardless of ownership
- Partial LSL replacement no longer allowed, except for emergency repair. Testing required within 72 hours after partial repair.



# Sampling – Water Quality Parameters

## ➤ Change

- Expanded to include chloride and sulfate
- WQP sampling is now required for all supplies with OCCT, including small and medium systems
- WQP monitoring can reduce to annual if criteria met, but can no longer be reduced to triennial monitoring

## ➤ Results

- Better monitoring of corrosion control treatment = operational improvements and protection of public
- Additional monitoring costs

# Sampling – Consecutive Sampling

- EPA rescinded approval for consecutive and modified consecutive sampling arrangements
  - Consecutive Arrangements: Seller and customer supplies sampled as a whole with one overall 90<sup>th</sup>
  - Modified Consecutive Arrangements: Seller and customer supplies conduct own sampling and have own 90<sup>th</sup>, but customers sampled a pro-rated number of sites
- Most increasing lead/copper to 6-month standard monitoring because there is no individual 90<sup>th</sup> history for each system
- Some consecutive systems never sampled under a consecutive sampling arrangement

# Continuity of Source/Treatment

- Clarified that supplies providing or supplying water with OCCT must maintain OCCT, including supplies purchasing water from a supply with OCCT
- Clarified that EGLE may require new or updated corrosion control studies when a supply changes source or treatment, or at any other time as appropriate

# Transparency and Public Education

- Consumer Notice of Results must now include copper
- Additional Public Education for lead AL exceedance
  - Added specific language
  - Adds community centers and adult foster care facilities to “at-risk” facilities
  - Requires utilities serving more than 1,000 people rather than those serving more than 100,000 people to post information on their website
- Notify existing customer or new account holder of a LSL within 30 days of determination
- Annual Consumer Confidence Report (CCR)
  - Lead and copper reporting
  - Lead service line reporting



# Water Advisory Councils

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- Created a Statewide Advisory Council to generate lead and public awareness campaign materials.
- Required larger cities (> 50,000 population) to create Local Advisory Councils to advise on distribution of educational materials in their community

# Summary

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**Michigan Lead and Copper Rule**

**LCR Changes**

**LCR Results**







**Thank You**