



# Lead

The Science Behind the Sampling

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## Topics to Discuss

1

Lead and Copper Rule Overview

2

How lead gets into your drinking water

3

Sampling procedures and recommendations

4

Understanding your results and providing consumer notices

5

Voluntary testing of schools and daycares

6

Resources and options for your consumers



## What is the Lead and Copper Rule (LCR)?

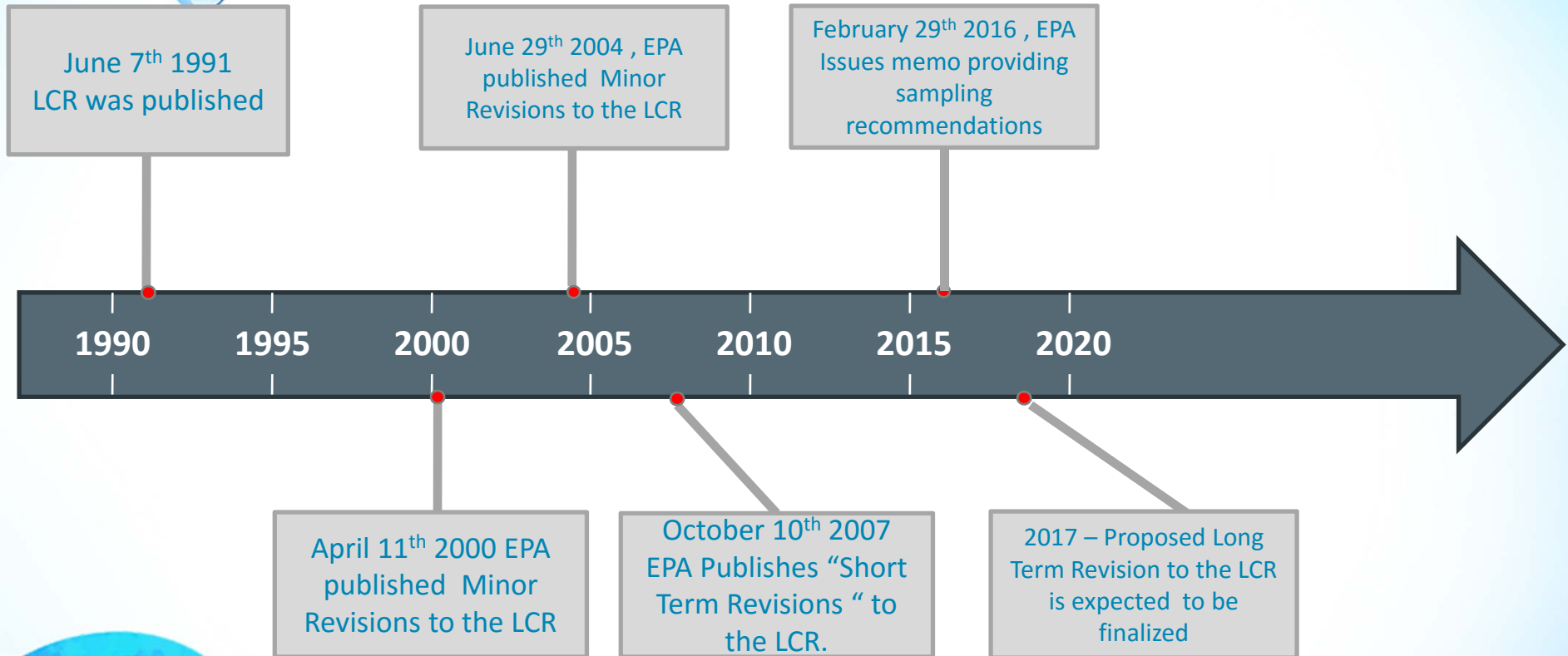
In 1991, EPA published the LCR to minimize lead and copper in drinking water for Community (CWS) and Non-Transient Non-Community (NTNC) Water Systems.

### **The LCR has four basic requirements:**

1. Require water suppliers to optimize their treatment system to control corrosion in customer's plumbing;
2. Determine tap water levels of lead and copper for customers who have lead service lines or lead-based solder in their plumbing system;
3. Rule out the source water as a source of significant lead levels;
4. If lead action levels are exceeded, require the suppliers to educate their customers about lead and suggest actions they can take to reduce their exposure to lead through public notices and public education programs.



# History of the Lead & Copper Rule

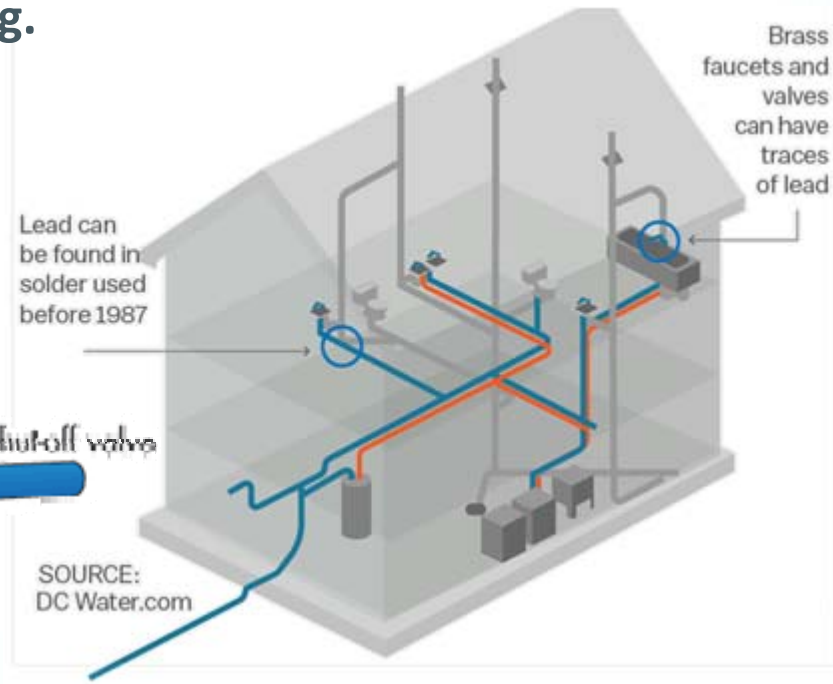
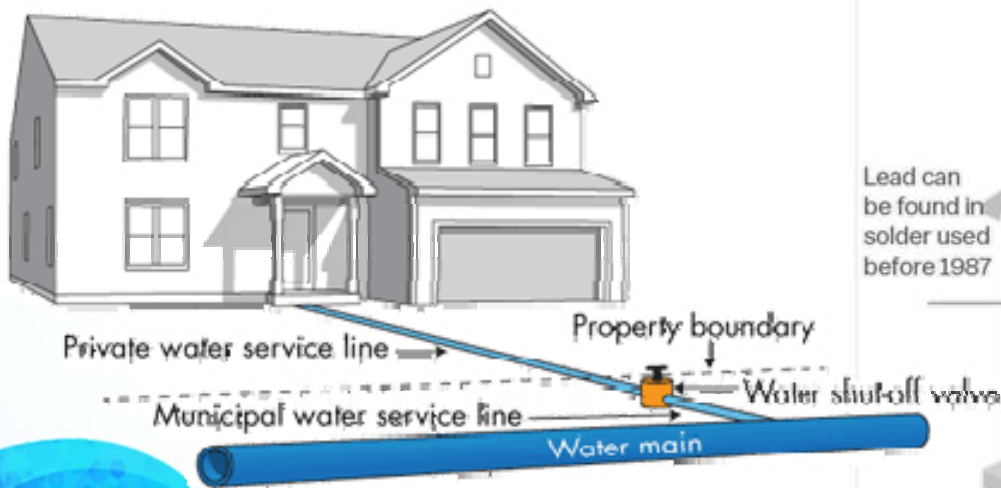




# Where does the lead come from?

Water in the State of Maine is lead-free when it leaves the wells, lakes or reservoirs that provide public water for our residents.

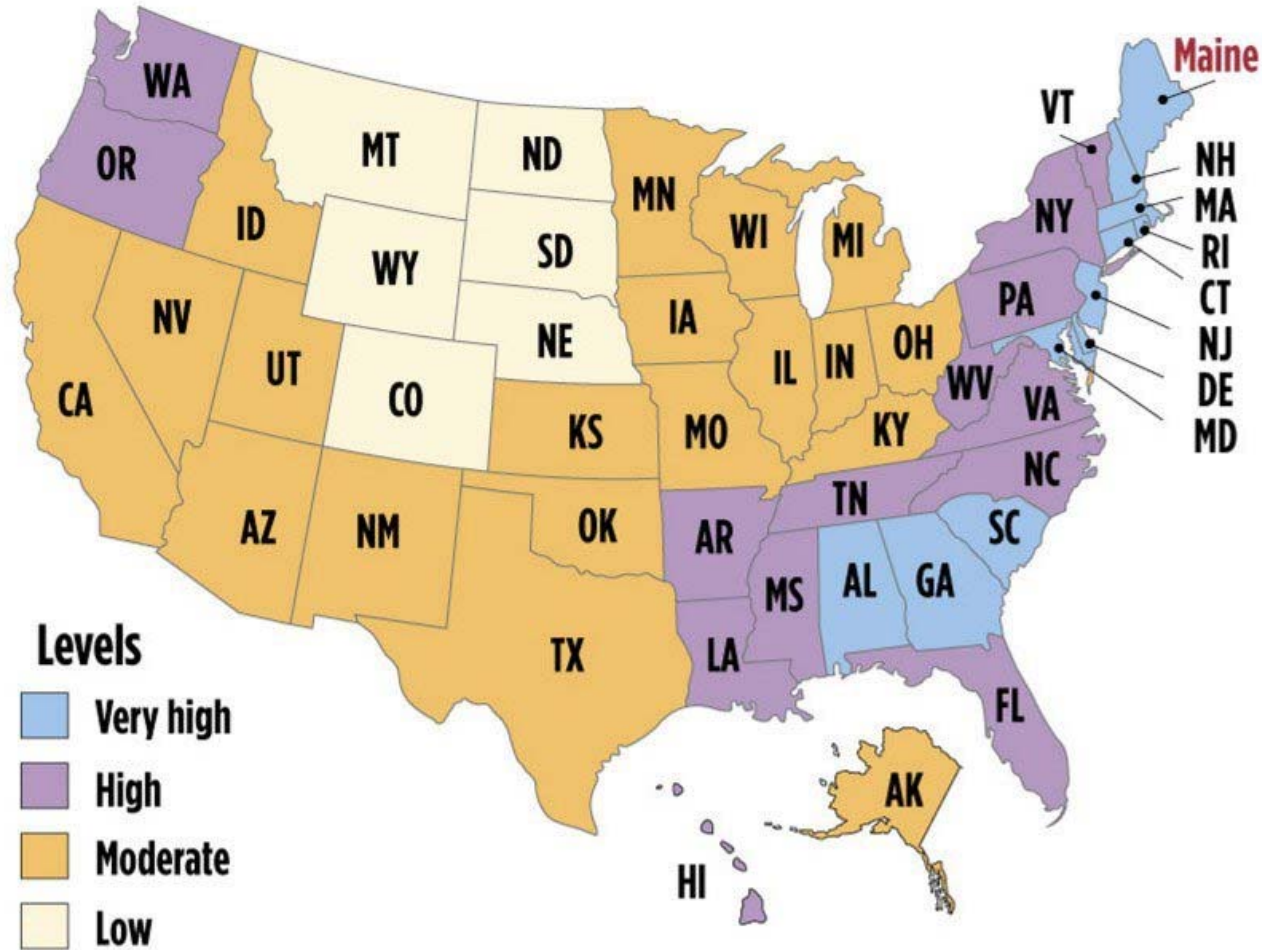
Lead can get into water through, lead water mains, a lead service line or household plumbing.





## Corrosive groundwater in the U.S.

Maine is one of 11 states with very high levels of water corrosive enough to leach lead out of older plumbing systems.



SOURCE: United States Geological Survey (USGS)

STAFF GRAPHIC | MICHAEL FISHER



## LEAD/COPPER SAMPLE SITE LOCATIONS

- ✓ Sites for lead and copper testing must be locations generally used for drinking water consumption. (Kitchen, bathroom sinks, breakroom sinks, drinking fountains etc...)
- ✓ DO NOT collect lead and copper samples from mop sinks, outside faucets, etc.
- ✓ If you are a COMMUNITY system, you should be collecting from SINGLE FAMILY HOMES or MULTI- FAMILY HOMES – NOT from post offices, public buildings, etc.
- ✓ DO NOT collect lead and copper samples from vacant buildings, empty apartments or trailers, etc.



# SAMPLE BOTTLES

1 Liter in volume



Wide Mouth Opening





## LEAD/COPPER SAMPLING TECHNIQUES

✓ Allow fixture to remain unused for a minimum of 6 hours.

- No Pre-stagnation flushing: Do Not intentionally flush the water line before the start of the 6 hour period.
- Do not remove any aerators prior to collecting the sample
- Try to collect the sample within 6-10 hours after the fixture has been turned off.

✓ Collect a 1st draw sample

- Place the bottle under faucet before turning it on
- Open the cold water tap fully
- Fill the 1 Liter bottle to the base of the neck

✓ 1st draw means 1st draw for EVERY sample.





## A & L LABORATORY

*a division of Granite State Analytical Services, LLC*

155 Center Street, Building C, PO Box 1507, Auburn, ME 04210





<http://www.allaboratory.com/> - (207) 784-5354



### CERTIFICATE OF ANALYSIS FOR DRINKING WATER

**DATE PRINTED:** 08/15/2016  
**CLIENT NAME:** Local Water District  
**CLIENT ADDRESS:** P.O. Box 00  
Town, Maine 04000

**SAMPLE ID#:** 1608-00000-001  
**SAMPLED BY:** John Smith  
**SAMPLE ADDRESS:** 123 Main Street  
Anywhere, ME 04000

**LOCATION:** Employee Breakroom

**Legend**  
Passes   
Fails EPA Primary   
Fails EPA Secondary   
Fails EPA Proposed Limit   
**DATE AND TIME COLLECTED:** 08/05/2016 5:30 AM  
**DATE AND TIME RECEIVED:** 08/10/2016 9:45 AM  
**ANALYSIS PACKAGE:** A & L Lead & Copper  
**RECEIPT TEMPERATURE:** 15 CELSIUS  
**CLIENT JOB #** PWSID#: ME00000000

| Test Description   | Results | Test Units | Pass /Fail  | DQ Flag | RL    | EPA Limit  | Method    | Analyst | Date-Time Analyzed |
|--------------------|---------|------------|---|---------|-------|------------|-----------|---------|--------------------|
| First Draw Copper* | 0.0423  | mg/L       |   |         | 0.001 | 1.3 mg/L   | EPA 200.8 | BB-NH   | 08/12/16 3:37 PM   |
| First Draw Lead*   | 0.0542  | mg/L       |  |         | 0.001 | 0.015 mg/L | EPA 200.8 | BB-NH   | 08/12/16 3:37 PM   |



## Calculating the 90<sup>th</sup> Percentile

Rank samples from lowest to highest value

Multiply total number of samples by 0.9

That sample result is the 90<sup>th</sup> Percentile

If it is over 0.015 mg/L for Lead you have exceeded the limit

0.0014  
0.0028  
0.0051  
0.0061  
0.0066  
0.0069  
0.0072  
0.0116  
0.0139  
0.0182

$10 \times 0.9 = 9$   
9<sup>th</sup> sample = 0.0139  
 $0.0139 < 0.015$

**No Exceedance**

0.0014    0.0071  
0.0028    0.0076  
0.0051    0.0077  
0.0052    0.0079  
0.0059    0.0082  
0.0060    0.0096  
0.0061    0.0146  
0.0064    0.0196  
0.0066    0.0286  
0.0069    0.0310

$20 \times 0.9 = 18$   
18<sup>th</sup> sample = 0.0196  
 $0.0196 > 0.015$

**Exceedance**



# Lead and Copper Public Education and Notification



*Provide results of each sample to the customer that collected it within 30 days of receiving the results.*

*Complete, sign and Submit Certification form to DWP*

*If results are above the 90<sup>th</sup> percentile – conduct a Public Education Program within 60 days.*

*Optimize Corrosion Control Program if needed.*



# Voluntary Testing of Schools and Daycares

## Sampling Changes

- ✓ All water samples collected should be **250 milliliters (mL)** in volume.
- ✓ The water should sit in the pipes unused for at least **8 hours** but not more than **18 hours** before a sample is taken
- ✓ Limit increased to 20 ug/L.

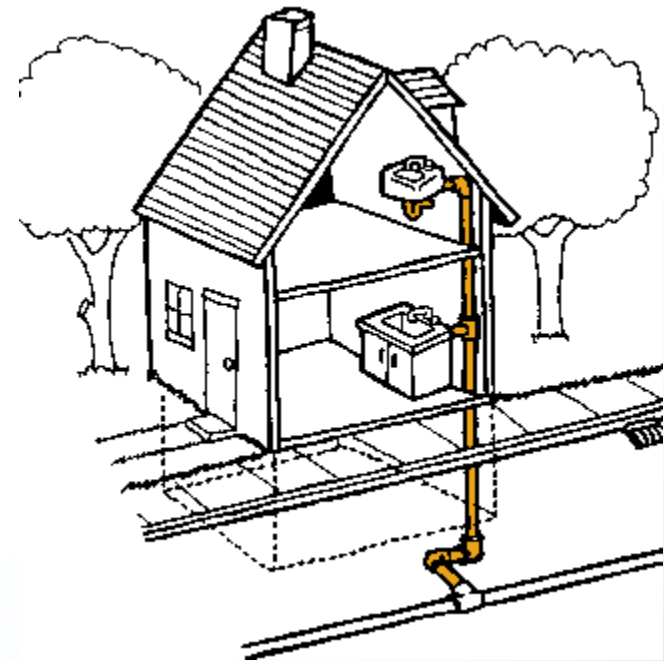
## Two-Step Sampling Process

- ✓ Initial samples are collected to identify the location of outlets providing water with elevated lead levels
- ✓ Follow-up flush samples are taken only from outlets identified as problem locations.



## Resources for your Consumers

- ✓ Public Education Program
- ✓ Local Laboratory
- ✓ Encourage individuals to test their own tap.





**Do you have  
any questions?**

