



Portsmouth Water System

LEAD: Sources, Monitoring, and Management
&
US EPA Lead & Copper Rule Revisions

Sources of Lead

- **No Lead** in Portsmouth/Pease Groundwater and Surface Water Supplies
- **Plumbing**
 - Solder & Flux
 - Fixtures (brass & bronze)
 - Fittings (couplings, unions, valves, etc...)
- **Service Lines** (pipes connecting city water mains to homes and businesses)

Lead Use Restrictions

- June 1986 – Safe Drinking Water Act (SDWA) Amendment
 - Prohibiting use of pipes, solder or flux that are not “lead free” (solder and flux: <0.2% lead, pipes: <8% lead)
- 1996 SDWA Amendment
 - Lead leaching standards
 - Prohibiting sale of pipe, fittings and fixtures that are not lead free
 - Effective date: 1997
- January 2011 - Reduction of Lead in Drinking Water Act (RLDWA)
 - “Lead free” definition for pipes, fittings and fixtures to 0.25% lead
 - Effective date: January 2014

Lead Use Restrictions

1986
Lead Free
Solder (<0.2%) &
Pipes (<8%)

1997
Lead Free
Fittings &
Fixtures (<8%)

2014
Lead Free
Pipe, Fittings &
Fixtures (<0.25%)

1980's

1990's

2000's

2010's

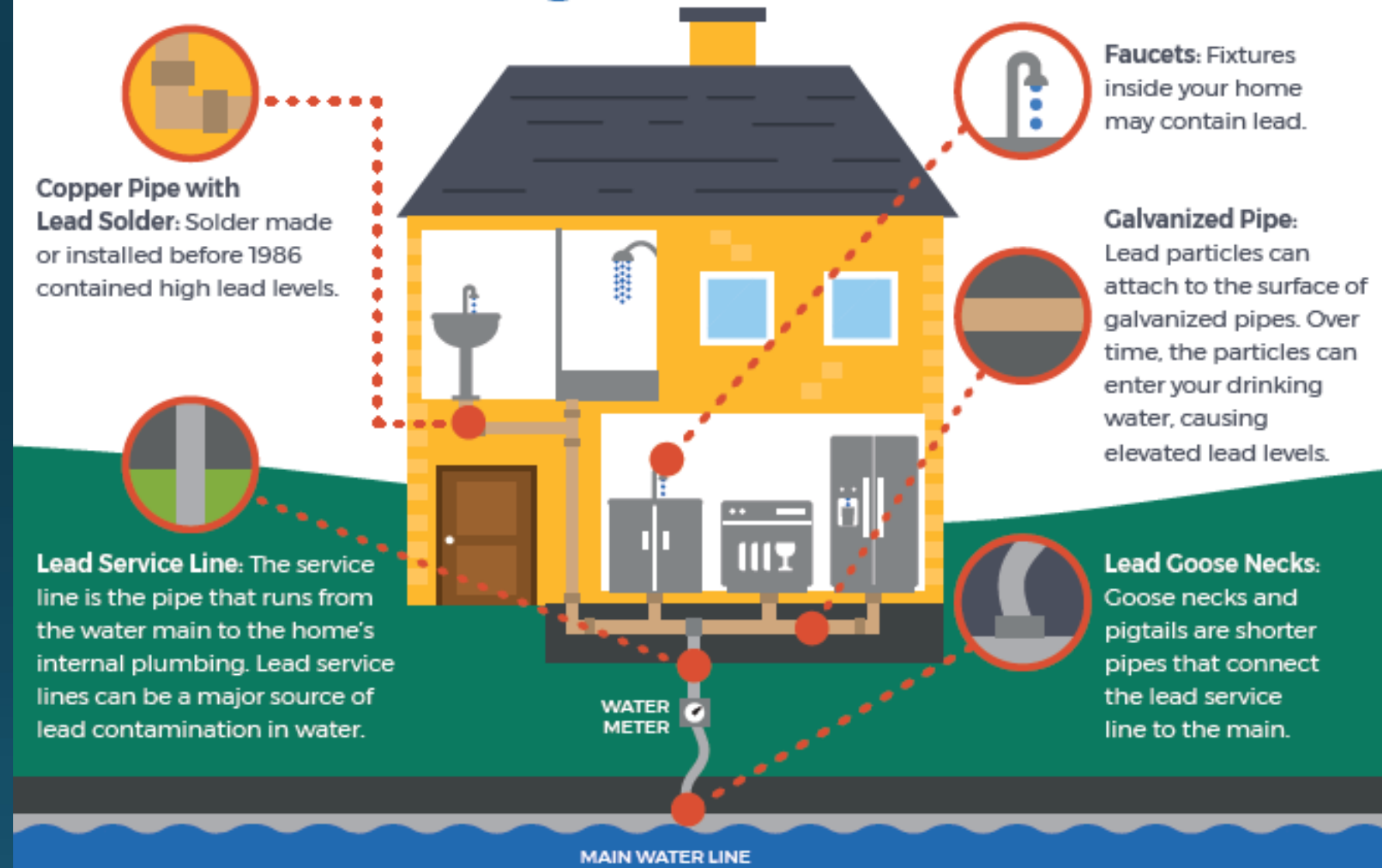
2020's



SOURCES OF LEAD IN WATER

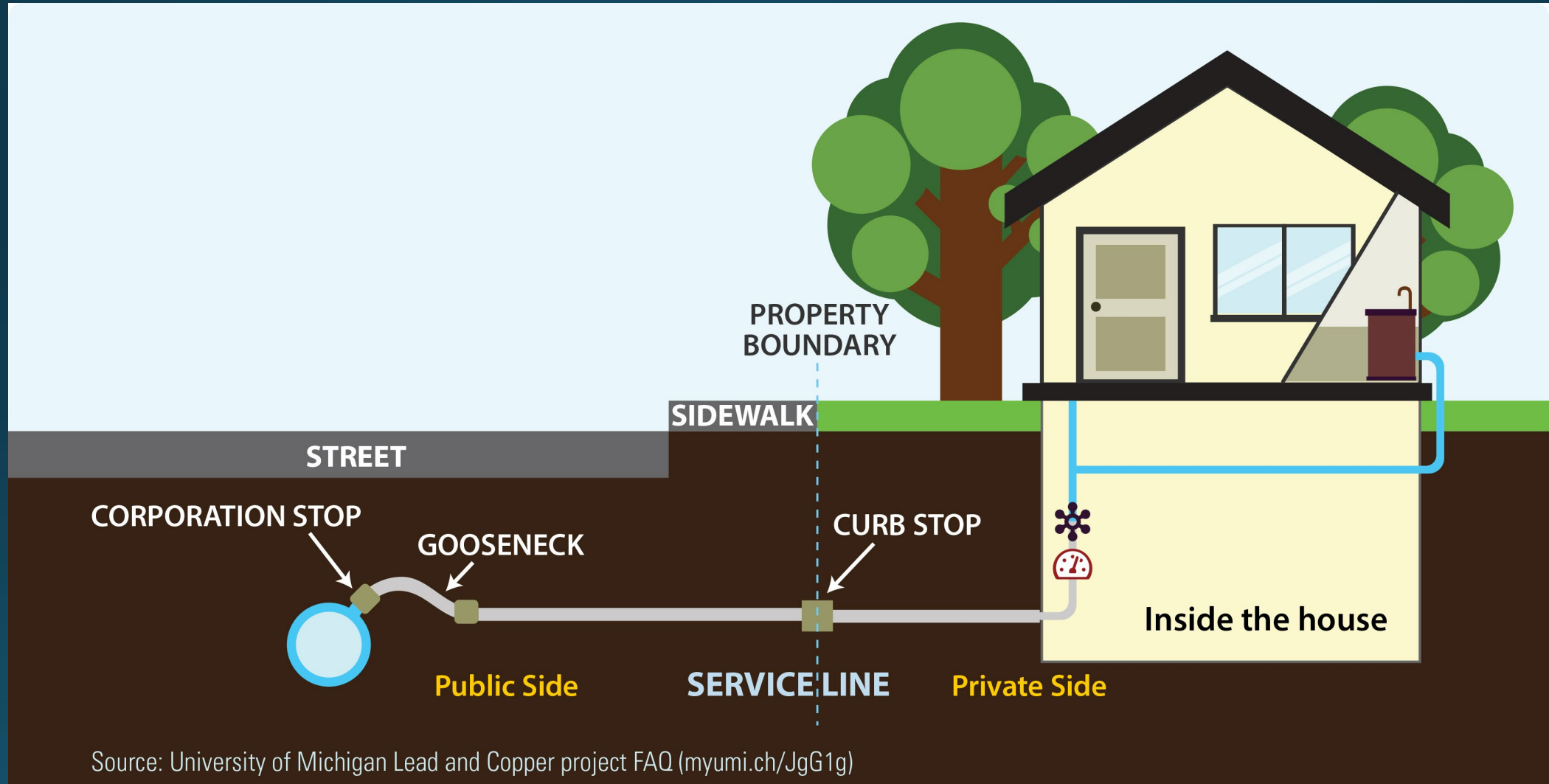
Lead is rarely found in water *before* it enters your home, but the plumbing in your home could be contributing lead to the water you drink. Lead is most likely to be found in your water first thing in the morning after the water sits in the pipes all night, or any length of time where it sits more than six hours.

Sources of **LEAD** in Drinking Water



Source: US EPA "Concerned about lead in your drinking water?"

Service Lines



Lead Service Lines



Galvanized Pipes / Service Lines

- Zinc coated steel
- 20 to 40 year life
- Prone to corrosion
- Reduced flow/pressure
- Poor water quality
(rusty, metallic taste)



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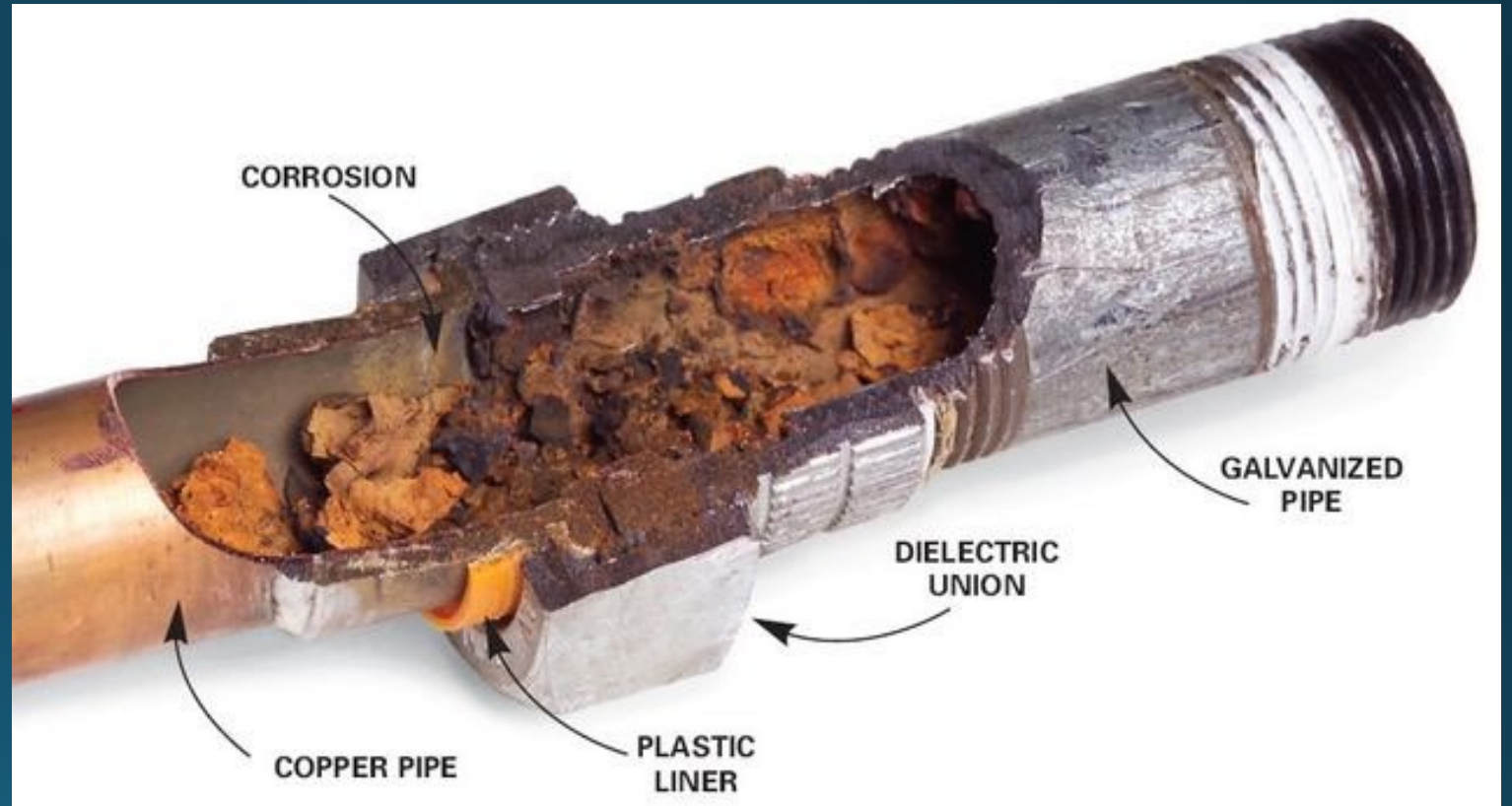


photo credit: <https://www.joetheplumber.net/galvanized-pipes-what-that-means-for-your-home-and-health>

Identifying Pipe Materials

Pipe Material	Scratch Test	Magnet Test	Hardness
Copper	color of new penny	not magnetic	moderate
Galvanized	grayish-silver color	magnetic	hard
Lead	shiny silver color	not magnetic	soft
Plastic	blue, white or gray	not magnetic	soft

Brief History of the USEPA Lead & Copper Rule

- Purpose: “to protect public water system customers from exposure to lead and copper in drinking water” (EPA Fact Sheet, 2007)
- Original Rule Published in 1991
- Rule revisions: 2000, 2004, and 2007
- 2021 Revision Published: March 16, 2021
- 2021 Revision Compliance Date: October 16, 2024

Brief History of the USEPA Lead & Copper Rule

- Sampling from taps of highest risk customers
- Response Requirements to Action Levels (AL)
 - >10% exceeds AL (90th percentile)
 - 15 ppb Lead
 - 1.3 ppm Copper
- Corrosion Control Treatment (CCT)
- Water Quality Parameter (WQP) Monitoring
- Public Education
- Lead Service Line Replacement (LSLR)

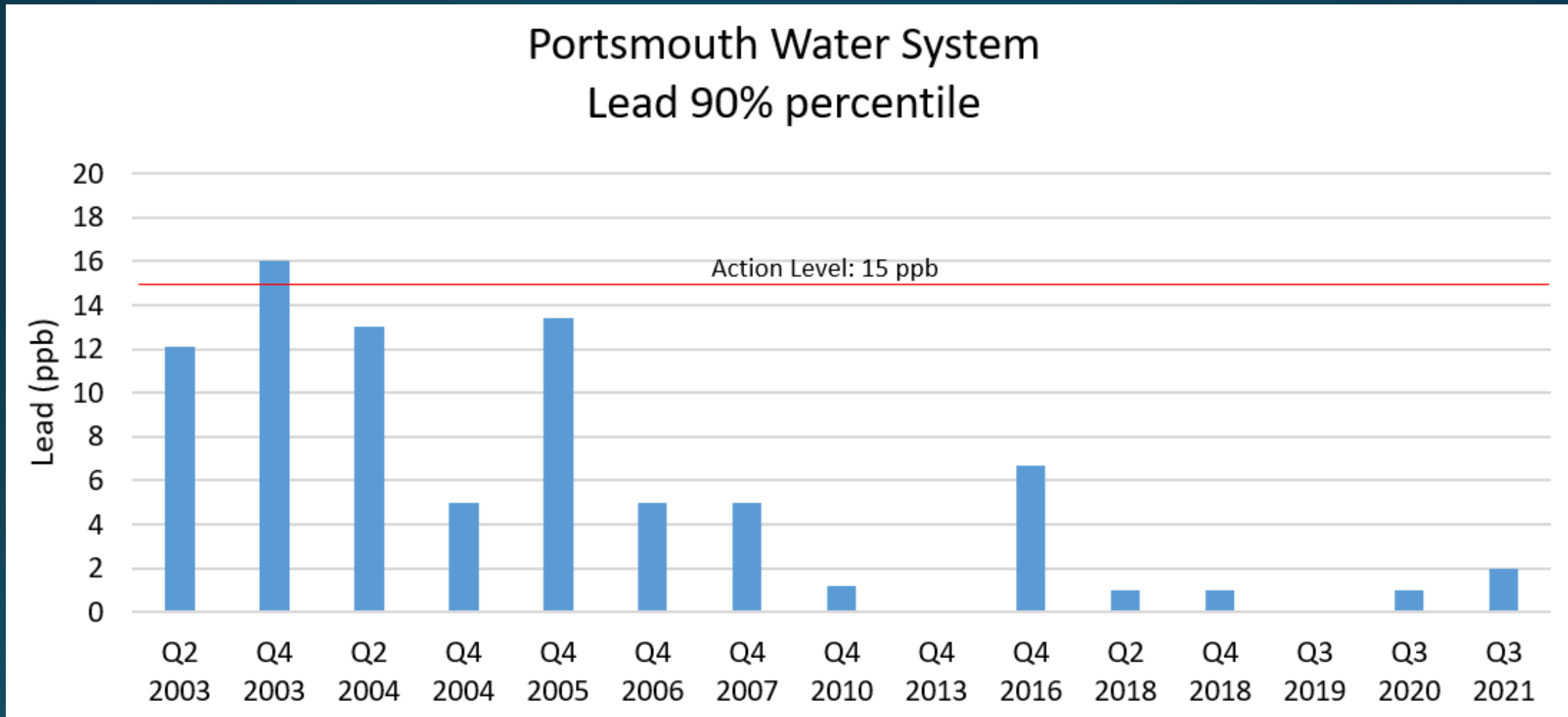
Corrosion Control

- Portsmouth Corrosion Control Studies (1995 & 2017)
- pH management
 - Madbury Supply: Sodium Hydroxide for pH adjustment
 - Groundwater in city has ideal pH: 7.2 – 7.5
- Ortho-phosphate
 - Create coating on pipes to reduce chemical interaction between water and metal in pipes
 - Added at all sources
 - Target 1.0 mg/L

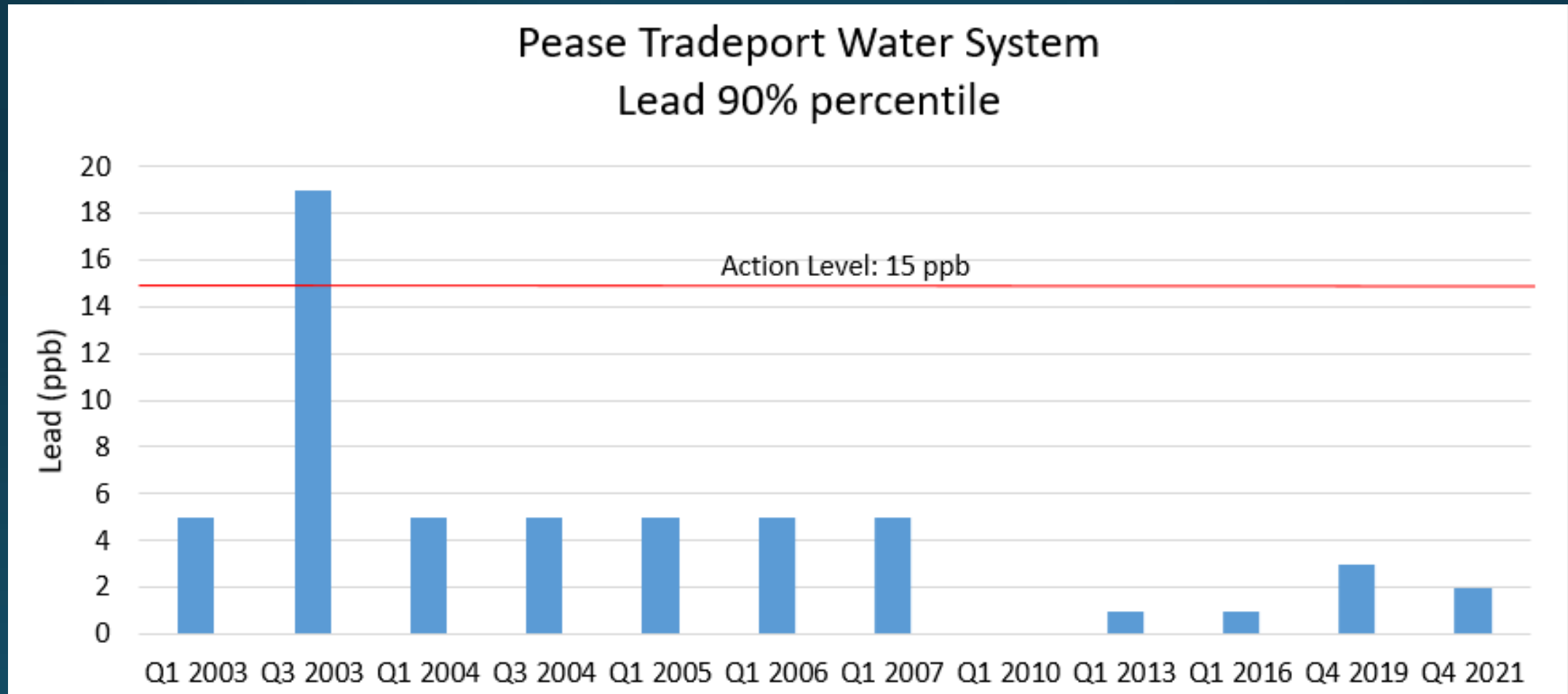
Lead & Copper Sampling

- Dependent upon willing customers
- Priority sample sites
 - Known lead or higher likelihood of lead
- State approved sampling sites
- First flush sample after 6 hour of stagnation
- Portsmouth: 30 sites (60 sites if 10% of sites are > AL)
- Now annual sampling cycle

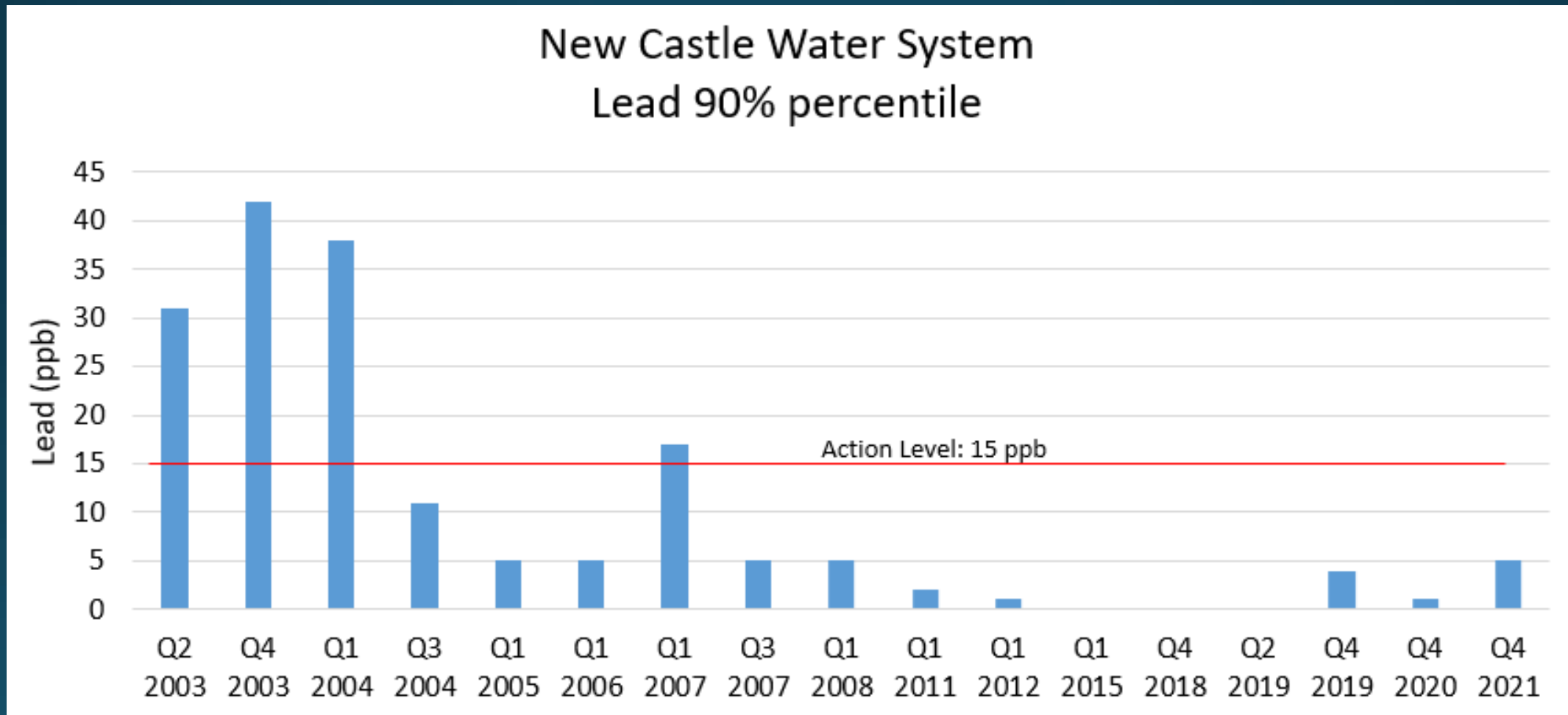
Summary of Portsmouth Lead Sampling Results



Summary of Pease Lead Sampling Results



Summary of New Castle Lead Sampling Results



Revised Lead & Copper Rule

- Inventory of material in all water mains and service lines
 - Unknown materials assumed to be lead on compliance date
 - Public access to inventory
- Notification to all services with lead or galvanized service lines
- Sampling site to prioritize lead and galvanized service lines
 - “Find and Fix” for >15 ppb sites
 - First and Fifth Liter samples
- Trigger Level for 90th percentile >10 ppb
- Replacement of lead and galvanized service lines
 - Customer responsibilities / City responsibilities
 - Pitcher filters

Schools and Daycares

- Revised Lead & Copper Rule
 - 20% of elementary schools
 - 20% of daycare facilities
 - Secondary schools as requested
 - Every year for the first 5 years (2024-2029)
 - As requested thereafter
 - Waiver from requirement if state has program that meets provisions of the rule

Schools and Daycares

- NHDES School & Daycare Sampling Program
 - SB 247 (February 2018)
 - 2016 voluntary sampling
 - 2018-2019 required sampling
 - HB1421 (currently in committee)
 - parent notification & result submittal
 - HB1642 (currently in committee)
 - mandatory blood testing for school attendance
 - SB452 (currently in committee)
 - 3 samples between January 2016 and June 30, 2024
 - All “outlets”/ applicable fixtures used for drinking water
 - >1 ppb parent and guardian notification
 - Remediation plan within 120 days of notification
 - Test results submitted to NHDES

Know your plumbing system

- What is your service line made of?
 - Copper Galvanized metal Lead Plastic
- How old is your plumbing, pre-1986?
- How old are your fixtures/faucets, pre-1997 or pre-2014?
- Do you know where your water meter and shut-off valves are?
- Do you have water treatment?
 - What is it designed for?
 - Is it NSF/ANSI certified? Standard 53 for lead reduction?
 - Maintain your treatment system!

Know your lead risk

- Test your water for lead
 - First flush (faucet fixture and solder)
 - Fifth liter or when you would typically begin use (cold water)
 - From all taps you use for drinking water
- What if you detect lead?
 - Resample and other taps
 - Manage with flushing
 - Identify and replace source, if feasible
 - Treat drinking water with filter certified to remove lead

Online Information

NHDES Lead in Drinking Water Information

<https://www.des.nh.gov/water/drinking-water/lead-drinking-water>

NH Health & Human Services

Healthy Homes and Lead Poisoning Prevention Program (HHLPPP)

<https://www.dhhs.nh.gov/dphs/bchs/clpp/index.htm>

US Environmental Protection Agency

Basic Information about Lead in Drinking Water

<https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water>

Questions?

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