

An update on PFAS in drinking water and CDC/ATSDR health study

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Ayer Board of Health, November 9, 2020



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Researching the Environment and Women's Health



In the news

- In October, Massachusetts Department of Environmental Protection finalized the state's PFAS drinking water standard
- This standard is among the strictest in the U.S.

State regulators issue new restrictions on 'forever chemicals'

By [David Abel](#) Globe Staff, Updated September 24, 2020, 6:57 p.m.



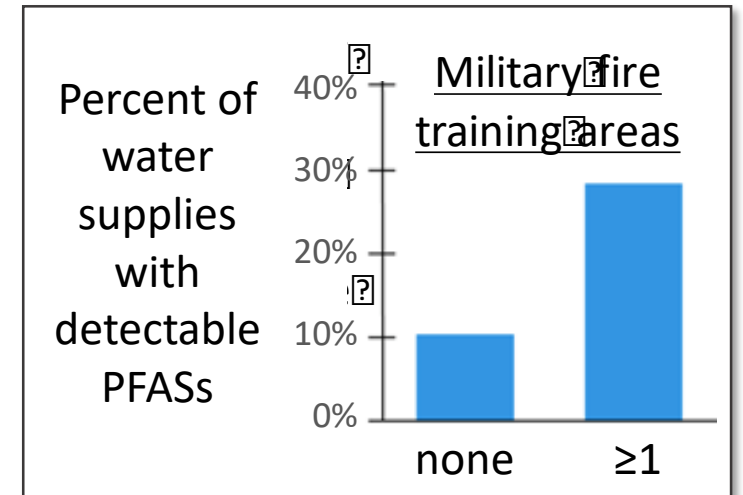
Under the new rules, the state will require communities to take action to clean up their drinking water if the total concentration of six of the more common PFAS chemicals reaches 20 parts per trillion. DAVID L. RYAN/GLOBE STAFF/FILE 2019

Sources of water contamination

- Aqueous film forming foam (AFFF) for fighting fuel fires
- Chemical manufacturing and other industries
- Wastewater discharges and biosolids (sludge)
- Landfills



Public water supplies close to major sources are more likely to detect PFASs

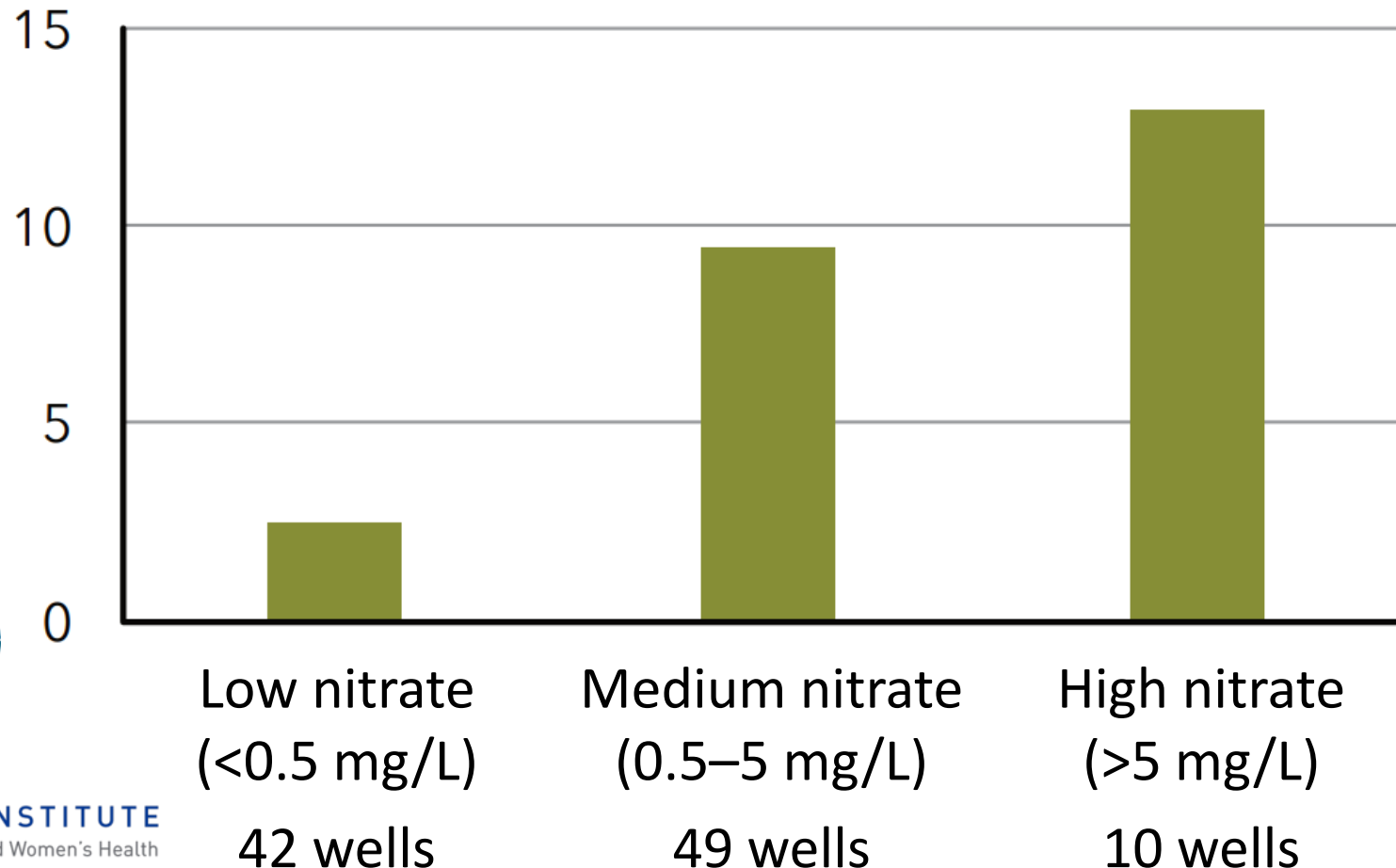


Hu et al. 2016. *ES&T Letters*. 3(10):344-50.

Septic systems may also be a source

Private wells with higher nitrate had higher PFAS

Average total
PFAS
concentration
(parts per
trillion)



Note:
97% of private wells we tested on Cape Cod were below MassDEP's new standard

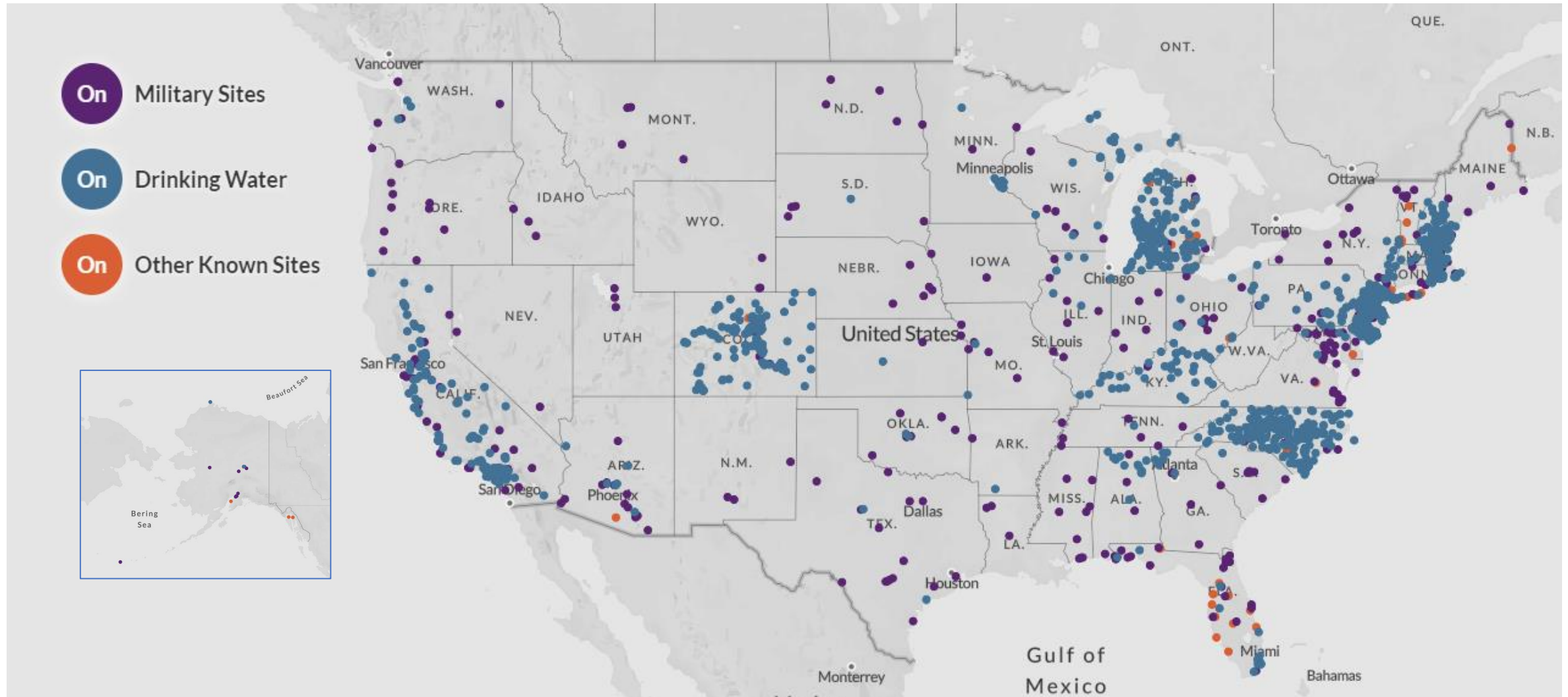
STEER

Sources, Transport, Exposure & Effects of PFASs
UNIVERSITY OF RHODE ISLAND SUPERFUND RESEARCH PROGRAM

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EWG: 2,230 contaminated sites in 49 U.S. states

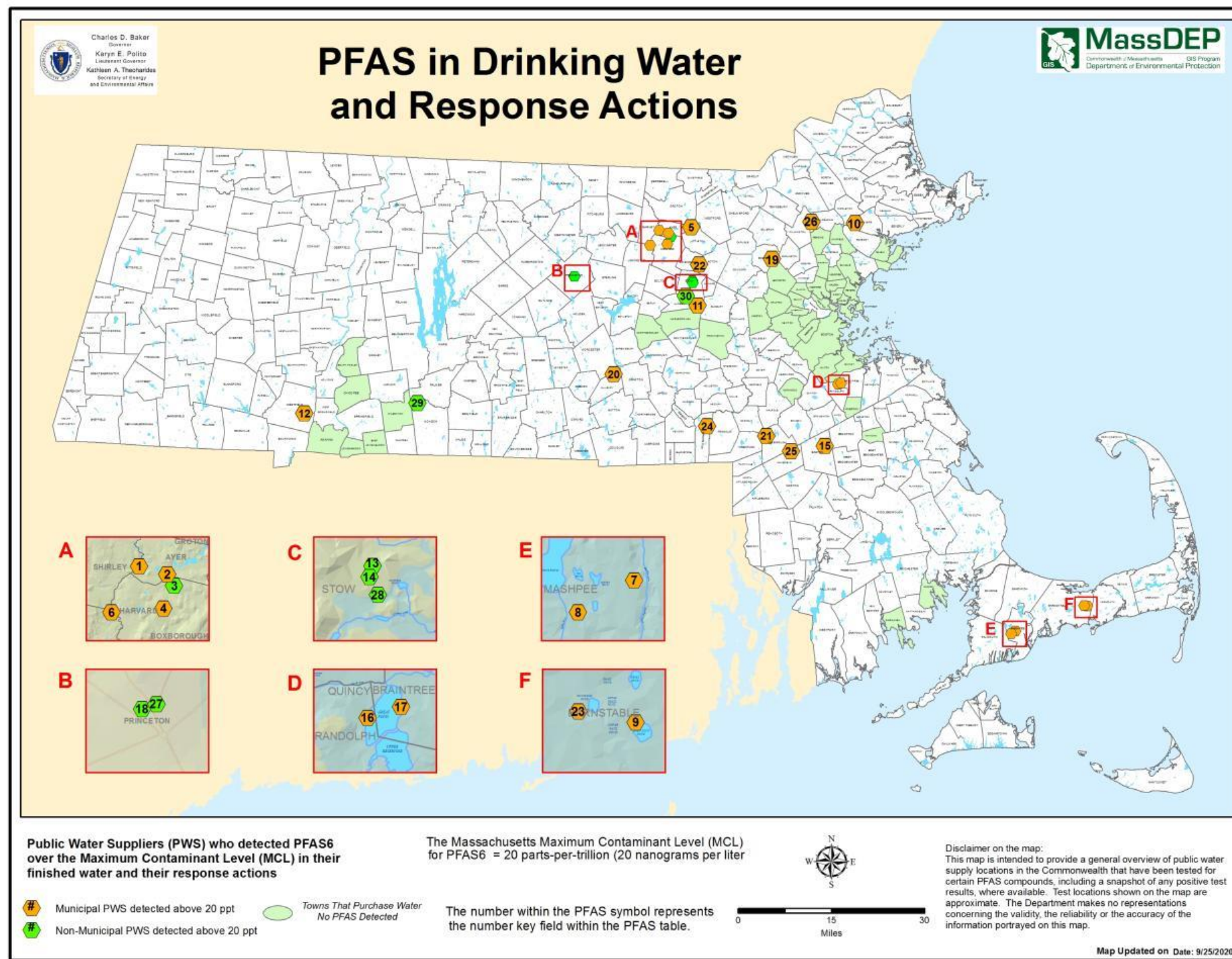
Over 110 million Americans with PFAS in drinking water



Massachusetts public water supplies

- 30 public water supplies above 20 ppt
- More will likely be discovered

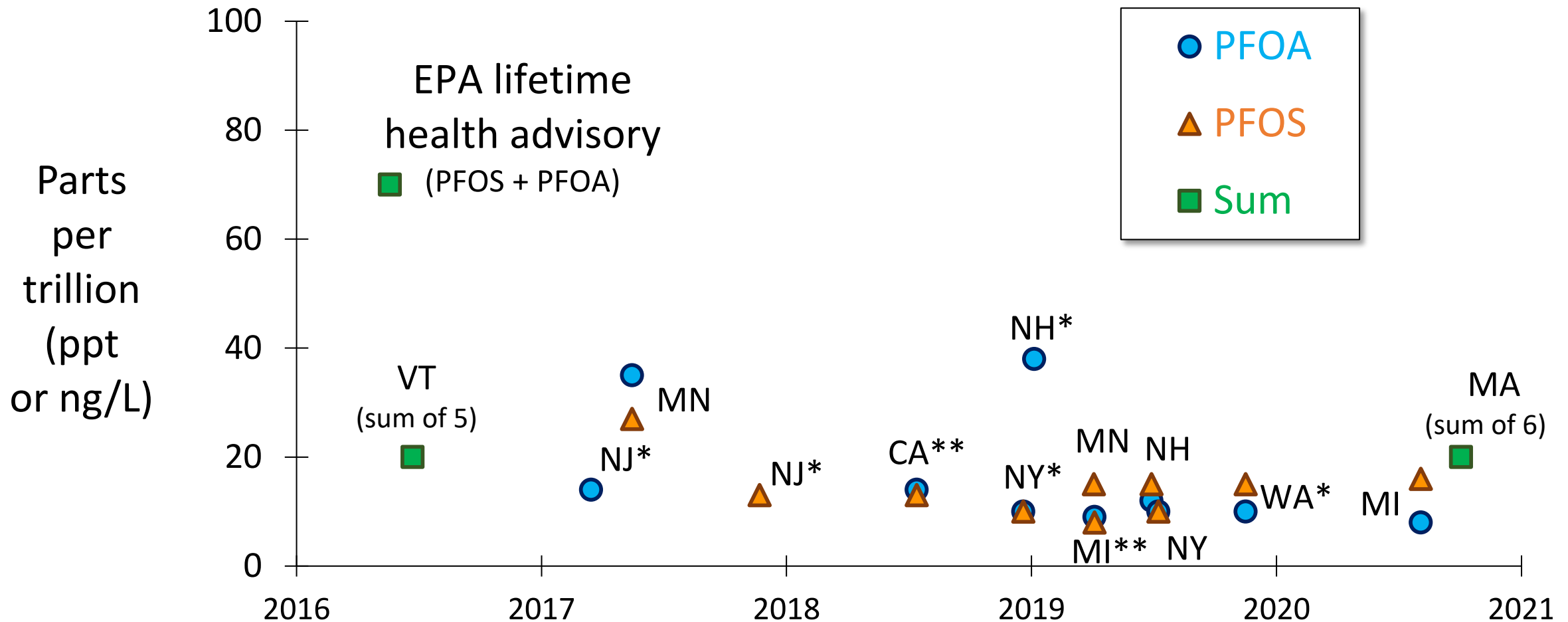
<https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas>



There are currently no Federal enforceable drinking water standards (MCLs) for PFAS.

Some states, including Massachusetts, have developed guidelines or standards for PFOS, PFOA, and a few other PFAS.

Most recent guidelines are in 10-20 parts per trillion range



MassDEP responses

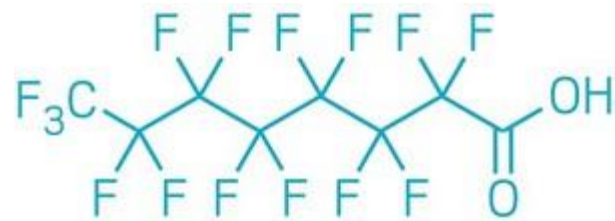


- June 2018: Public health guideline (ORSG)
70 ppt for sum of 5 PFAS chemicals
- Oct. 2018: Petition from CLF and Toxics Action Center
- Jan. 2019: Public hearing, comments on petition →
- April 2019: Launched process to develop standards
- June 2019: Draft GW-1 standard (current or foreseeable drinking water)
20 ppt for sum of 6 PFAS chemicals
- Dec. 2019: Draft MCL standard (public water supplies)
20 ppt for sum of 6 PFAS chemicals
- Oct. 2020: MCL adopted

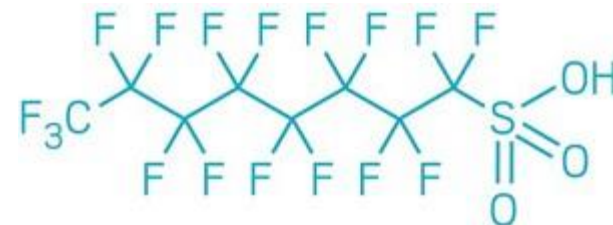


New Massachusetts MCL

- Restricts total amount of six PFAS chemicals to 20 parts per trillion (ppt, or ng/L)
 - PFHpA (C7)
 - PFOA (C8)
 - PFNA (C9)
 - PFDA (C10)
 - PFHxS (C6)
 - PFOS (C8)
 - PFOS (C8)

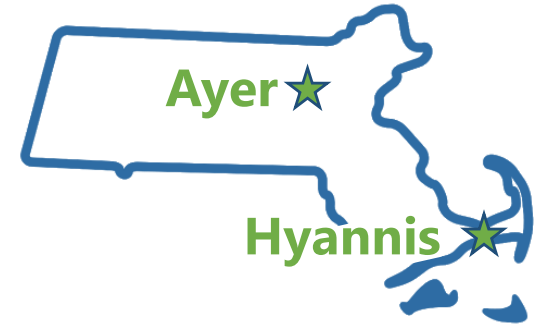


PFOA



PFOS

Mass. PFAS and Your Health Study



- One of 7 projects funded across the U.S.
- Funded by CDC/Agency for Toxic Substances and Disease Registry
- Partners:
 - Silent Spring Institute
 - Harvard T.H. Chan School of Public Health
 - Eastern Research Group
 - Massachusetts Breast Cancer Coalition
 - People of Ayer Concerned about the Environment

Scope of study



PFAS exposures and markers of health effects



- Cholesterol and lipids
- Thyroid hormones
- Liver and kidney function
- Neurobehavioral effects (children)



1000 adults and 300 children total (both communities)

- 300 adults and 100 children in Ayer



Phase 1: Hyannis (starting in spring 2021)

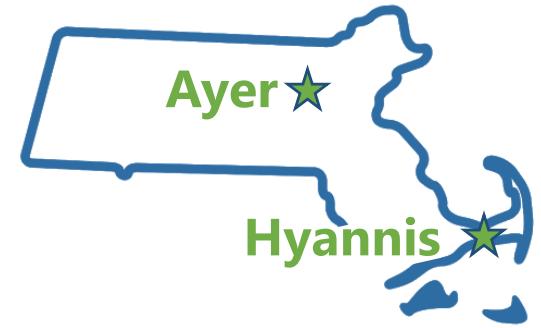
Phase 2: Ayer (starting late 2021)

Studying health effects



- Study will improve our understanding of links between individual PFAS chemicals and some PFAS mixtures with some markers of illness and some health conditions
- Study not well-suited to address
 - Rarer diseases like cancer
 - Exposures to newer PFAS

Reconstructing past exposures



- Identifying potential sources
- Modeling movement in groundwater
- Modeling mixing in the distribution system
- Estimating drinking water consumption

Firefighters battling 4-alarm blaze in Devens

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Smoke billows Monday morning from Devens Recycling Center, a 60,000 square foot steel building filled with 20-foot-tall piles of rubbish. T&G Staff/Rick Cinclair

By Scott O'Connell / Telegram & Gazette Staff

Posted May 18, 2015 at 8:05 AM

Updated May 18, 2015 at 10:14 AM



DEVENS – Firefighters this morning were battling a massive overnight fire at the Devens Recycling Plant.

The four-alarm blaze was initially reported via a box alarm around 9:30 p.m. on Sunday, according to the Devens Fire Department. Fire crews from at least six other towns were called in to assist.

The cause of the fire is still unknown. Nobody was inside the building at the time.

As of 7:45 a.m., some fire crews were being released, but remaining firefighters were still dealing with several hot spots at the building, the Devens fire department said.

The Devens plant, which is located at 45 Independence Drive at the former Army base, is one of the largest recycling centers in the state.

Return to telegram.com for more on this story.



AYER FIRE, EXPLOSION CONT.

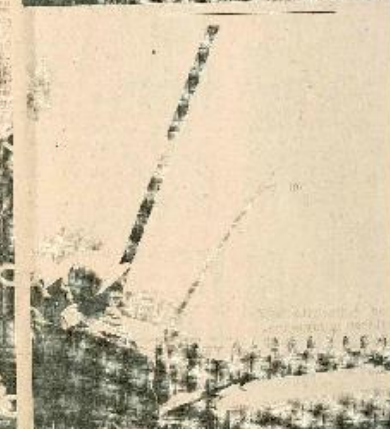
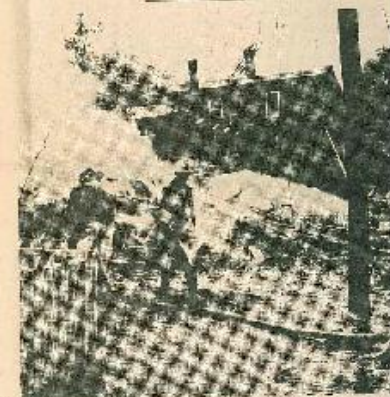
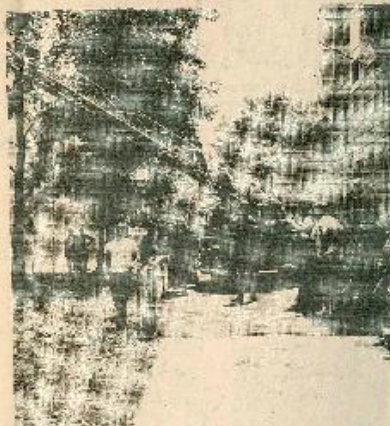
lomed by the fire. The company officials appeared on the scene to conduct their own investigation about whether a spark from the gas company would have caused the explosion. The fire department had been in the area at the time of the blast.

Police Chief Parker J. Hruska reported he had just walked out the side door of the police station along with Officer Robert Haskin when the explosion took place before their eyes about a thousand feet away. The Chief's stomach hurt and Officer Haskin was thrown to the ground. They then advanced help to the area. Officer Whitcomb was treated at the hospital for a dog bite and cat scratches, received while attempting to rescue these animals from one of the burning houses. He returned to duty to assist at the scene after treatment.

ROOFERS SAVE ROOF

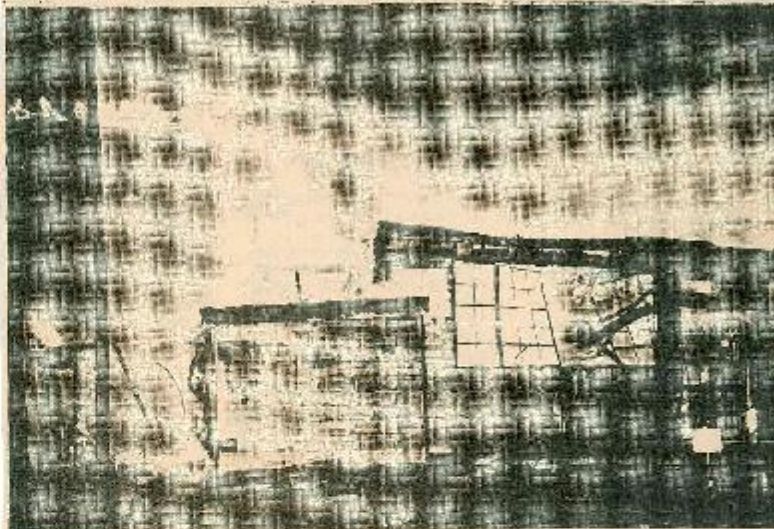
AYER - The Hardy brothers, John, Jr. and Bob, with John Lohmes, all of Pepperell, were roofing the home of Arthur Sawdust on Pleasant Street when they heard an explosion and saw smoke from what developed into yesterday's disastrous house fire.

John Hardy and Lohmes, who are new members of Pepperell's volunteer fire department, were among the first to arrive at the scene. They immediately took a hose and ladder from the fire truck and climbed to the roof of a three-story house next to the burning building. After their first hose was destroyed by fire, they found another and spent the duration of the fire shielded from the heat by a chimney, directing a stream of water to save the roof of the building.



Thursday, June 4, 1970

REMAINDER OF TANNERY BURNS



THE LAST OF IT - What was left, is no more, following a spectacular fire that swept the remaining relic of the Hartnett Tanning Company, most of which was destroyed by fire about nine years ago. The Sunday night fire brought spectators from Ayer, Groton and Shirley before the inferno was put out. (Photo by Curway).

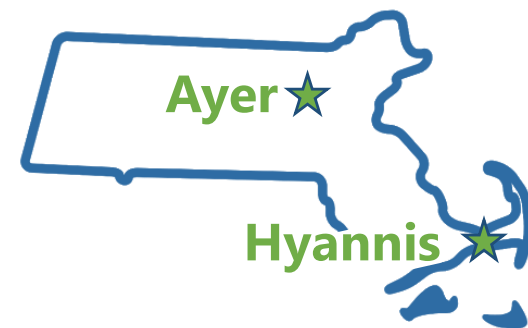
AYER - The former hide house of the Hartnett Tanning Company, which escaped extensive damage in the multi-million dollar fire that swept the tannery in June 1961, was ravaged by flames late Sunday night, destroying the building, as hundreds of spectators watched, being drawn to the scene by the alarms and fire engine sirens, as well as the glow that lit up the sky around the area. With the townspeople well aware of that frightful night of June 6, 1961, when the tannery, rope factory, wire and cable company, freight office, and several nearby homes were destroyed in a \$5-1/2 million holocaust that ripped through the area south of the Ayer depot, many went to the scene this week, as the three-story building was a raging inferno as the fire department arrived

at the International Purchasing Company, just a short distance away, and attention was given to this area to insure that sparks from the blaze did not ignite the rope. A section of the roof of the building collapsed from the intense heat of the fire. A report of a fire near the USG building in Depot Square was checked during the height of the blaze, but no fire was located there. Several small grass fires along the railroad

trucks reportedly were also quickly extinguished.

Cause of the fire in the abandoned building is under investigation by the Fire Chief and all indications according to the chief, are that the fire was set. Damage is expected to amount to several thousands of dollars, but the exact figure is rather hard to determine at this time, due to damage from the original fire in 1961.

What can we do now?



- Start letting residents know about the study
- Raise awareness through community events and online resources
- Establish community advisory board

TO LEARN MORE:

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email: schaider@silentspring.org

website: www.silentspring.org

PACE (People of Ayer Concerned about the Environment)

facebook.com/PACEayer/

Ayer DPW PFAS information

www.ayer.ma.us/water-department/pages/pfas-drinking-water