PFAS In Our Communities
MassDEP Perspective

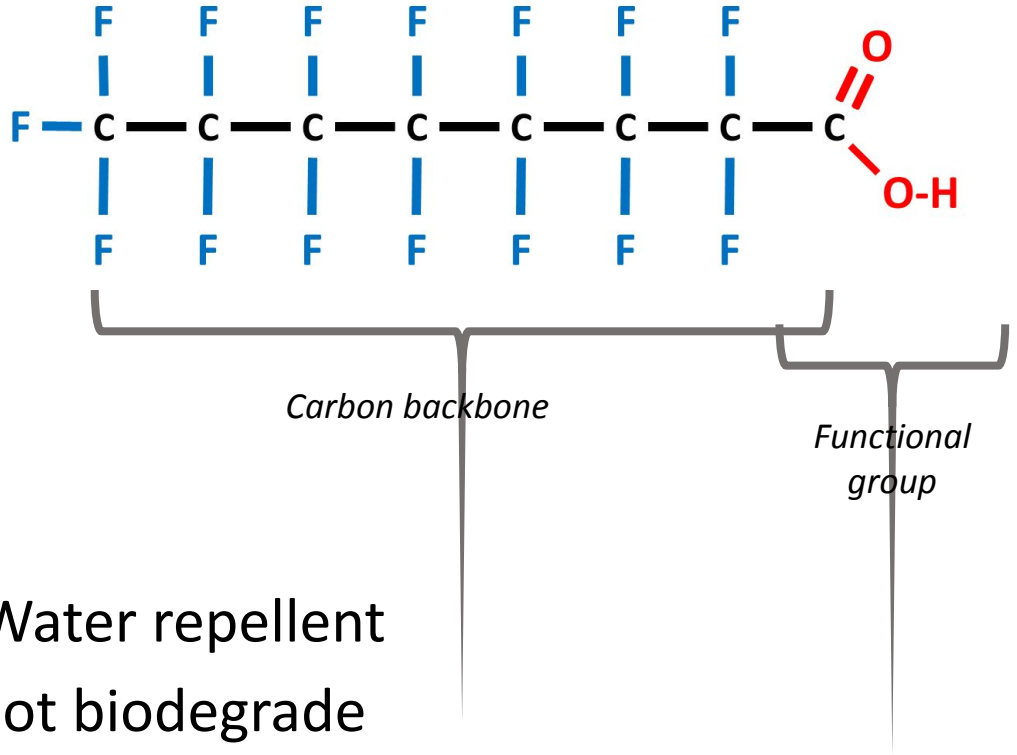
Paul Locke, Acting Deputy Commissioner
MassDEP – Operations

Paul.Locke@Mass.Gov
(617) 777-1392

What Are PFAS?

Poly- and per**f**luoro**a**lkyl **S**ubstances

A family of thousands of compounds with varying structure



- **Extremely stable** – Heat & Stain Resistant, Water repellent
- **"Forever chemicals"** - Very persistent, do not biodegrade
- **Water Soluble**
- **Some are very toxic**
  - Slowly excreted from the body – half lives of years (1-8+ for longer-chain)
  - Developmental risks to fetus/infants
  - Endocrine disruption, effects on immune system
  - Possibly cancers (kidney, teste, pancreas, liver)

MassDEP

For Today's Talk:

Focus on six (6) specific PFAS compounds:

- Perfluorodecanoic acid (PFDA)
- Perfluoroheptanoic acid (PFHpA)
- Perfluorohexanesulfonic acid (PFHxS)
- Perfluorononanoic acid (PFNA)
- Perfluorooctanesulfonic acis (PFOS)
- Perfluorooctanoic acid (PFOA)

aka "PFAS6"

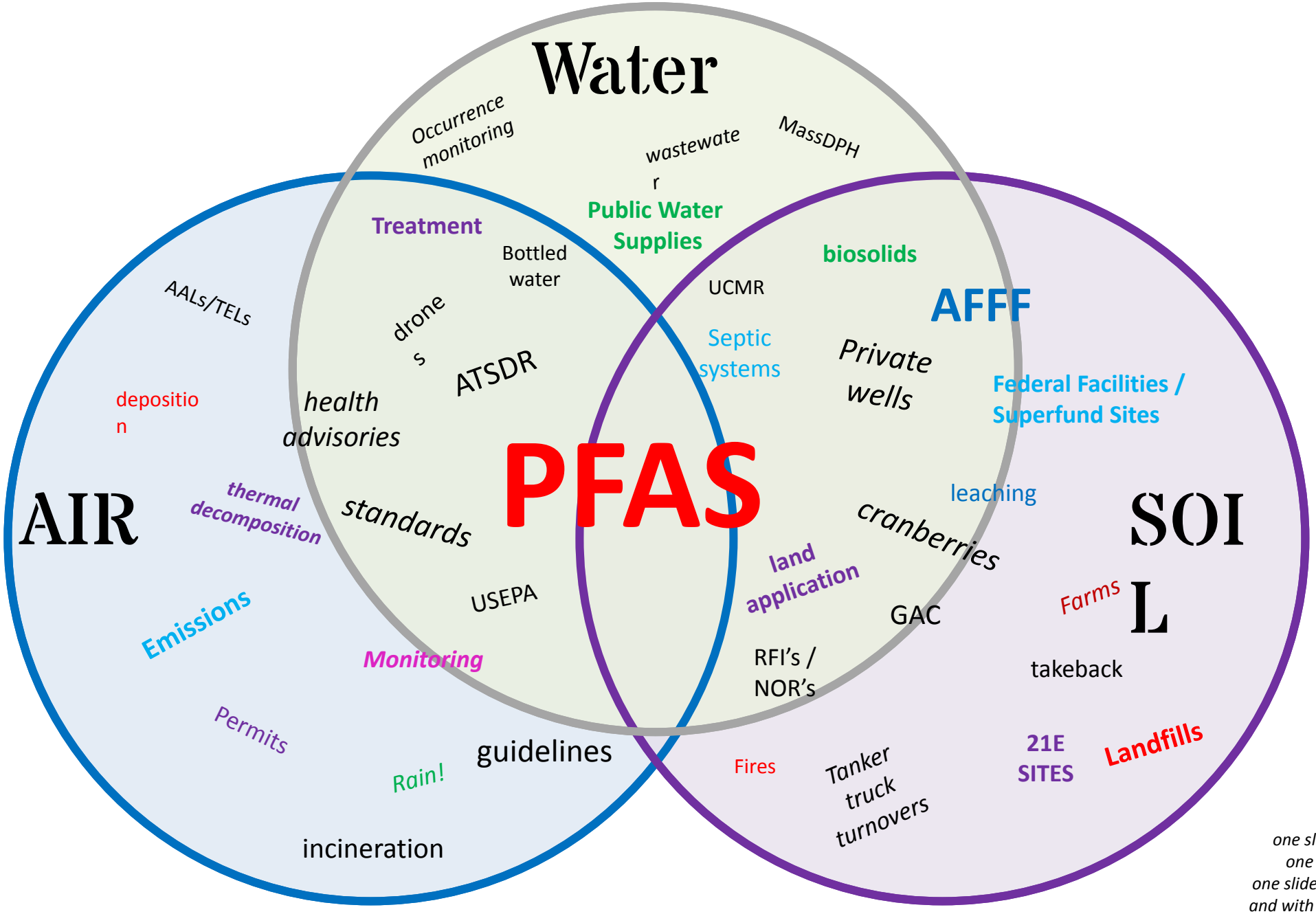
Common Uses of PFAS Since the 1950s

- Textile treatments: stain resistance/ water repellency
- Paper coatings: grease resistant
- Waxes: some floor, car, ski
- Hairsprays
- “Waterproof” down
- Manufacturing
- Aqueous Film-Forming Foam (AFFF)

Most Americans are exposed to some levels of PFAS through use of consumer products

MassDEP

Where is PFAS an Issue?



one slide to list the issues
one slide to find them
one slide to highlight problems
and with the fluorine bind them

What Is A Major Exposure of Concern for PFAS?

Sensitive groups – *including pregnant women, nursing mothers and infants* – drinking (and cooking with) contaminated water in a residential setting ***(sensitivity – concentration – frequency)***

Water uses that pose (relatively) *less* concern include:

- Water use by someone *not* considered in "sensitive group"
- Non-residential water use – *restaurants, workplace, schools*
- Water use for other purposes – *bathing, washing vegetables*

Ways people may reduce potential exposure:

- Drink and cook with bottled water
- Use a home water treatment system

Where Does Your Water Come From?

Public water supply wells: serve 25 or more people each day, even if privately owned

Private wells: fewer than 25 people, even if publicly owned

Massachusetts Regulation of PFAS

2018 **Interim Guidance on Sampling and Analysis for PFAS at Disposal Sites Regulated under the Massachusetts Contingency Plan**
("MCP", 310 CMR 40.0000 – regulation for waste site cleanup

2019 MCP PFAS soil and groundwater Reportable Concentrations, Reportable Quantity & cleanup standards for **PFAS6**
e.g., GW-1 Standard = 20 ng/L (or *parts per trillion*, ppt) for ΣPFAS6

2020 Maximum Contaminant Level for **PFAS6** promulgated for Public Water Supplies
MMCL = 20 ng/L for ΣPFAS6

2021-22 Public & Private Well Sampling Programs
Free sampling **ran through June 30, 2022**

And You Should Be Aware…


epa.gov

EPA United States Environmental Protection Agency

MENU

Search EPA.gov

News Releases: Headquarters | Water (OW)

CONTACT US

EPA Announces New Drinking Water Health Advisories for PFAS Chemicals, $1 Billion in Bipartisan Infrastructure Law Funding to Strengthen Health Protections

Agency establishes new health advisories for GenX and PFBS and lowers health advisories for PFOA and PFOS

June 15, 2022

On June 15, 2022, USEPA issued an Interim Drinking Water Health Advisory for PFOS (0.02 ppt) and PFOA (0.004 ppt), a 3,500- and 17,500-fold REDUCTION from the previous 70 ppt HA for each chemical.

- Well below the analytical detection limits, generally of 2 ppt (Massachusetts) or 4 ppt (USEPA).
- USEPA on track to issue a proposed MCL for PFOS and PFOA (at least) by December 2022.
    - Following USEPA protocol, the proposed MCLs would be no lower than the Method Detection Limit (4 ppt). It *could* be higher, considering technical and financial feasibility, which are explicitly part of the standard development process.
    - As a delegated state (implementing USEPA's rules), MassDEP would be expected to at least match EPA's MCL. We could issue a mores stringent standard, but not less stringent.
    - A federal standard, new state MCL, or just the toxicity values on which the Interim Health Advisories are based, would also have profound impacts on other programs, such as Waste Site Cleanup.

MassDEP

Massachusetts Regulation of PFAS

2018 **Interim Guidance on Sampling and Analysis for PFAS at Disposal Sites Regulated under the Massachusetts Contingency Plan**
("MCP", 310 CMR 40.0000 – regulation for waste site cleanup

2019 MCP PFAS soil and groundwater Reportable Concentrations, Reportable Quantity & cleanup standards for **PFAS6**
e.g., GW-1 Standard = 20 ng/L (or *parts per trillion*, ppt) for ΣPFAS6

2020 Maximum Contaminant Level for **PFAS6** promulgated for Public Water Supplies
MMCL = 20 ng/L for ΣPFAS6

2021-22 Public & Private Well Sampling Programs
Free sampling **ran through June 30, 2022**

PFAS Sampling in Public Water Supplies

- **Following the MCL promulgation, PWSs required to sample for PFAS by specific dates** (based on population served and type of PWS)
- **MassDEP offered free PFAS sampling to PWSs** (Not all PWSs took advantage of this)

Results

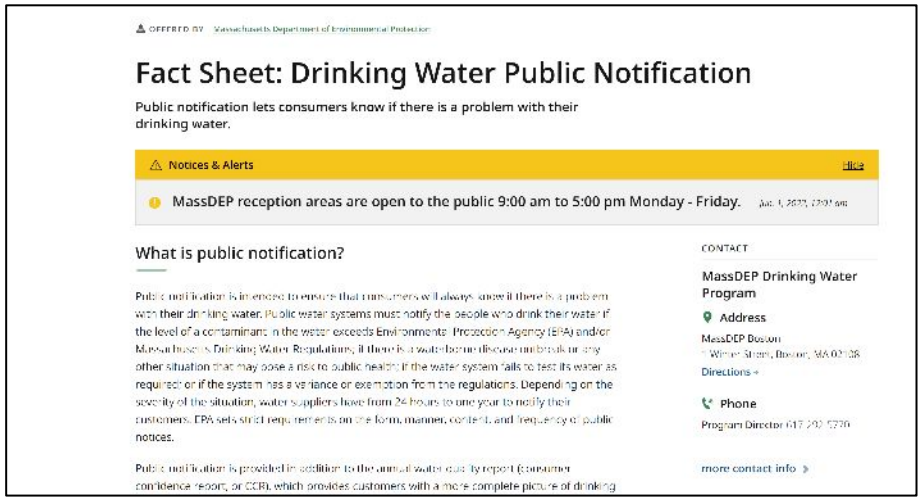
- 1,344 PWS out of the 1,425 (non-consecutive systems) have sampled to date
- 161 PWS (12%) detected PFAS6 > 20 ppt in one or more of their finished water sources (80 Community PWS)
- 47% of PWS detected one or more of the PFAS6 compounds in their water. A detection is a result greater than 2 parts-per-trillion.
- PFOS and PFOA the most common

Actions

- New treatment (most common is GAC but also Ion Exchange Resin being used)
- Shutting off wells
- Interconnections to other PWS
- Blending water from several sources
- New water mains
- New wells
- BWSC conducts source discovery

Communication: Public Notices & Making Data Available Online

https://www.mass.gov/service-details/fact-sheet-drinking-water-public-notification



Fact Sheet: Drinking Water Public Notification

Public notification lets consumers know if there is a problem with their drinking water.

Notices & Alerts

MassDEP reception areas are open to the public 9:00 am to 5:00 pm Monday - Friday.

What is public notification?

Public notification is in effect to ensure that consumers will always know if there is a problem with their drinking water. Public water systems must notify the people who drink their water if the level of a contaminant in the water exceeds Environmental Protection Agency (EPA) and/or Massachusetts Drinking Water Regulations, if there is a waterborne disease outbreak or any other situation that may pose a risk to public health, if the water system fails to test its water as required, or if the system has a variance or exemption from the regulations. Depending on the severity of the situation, water suppliers have from 24 hours to one year to notify their customers. EPA sets strict requirements on the form, manner, content, and frequency of public notices.

Public notification is provided in addition to the annual water quality report (consumer confidence report, or CCR), which provides customers with a more complete picture of drinking

CONTACT

MassDEP Drinking Water Program

Address

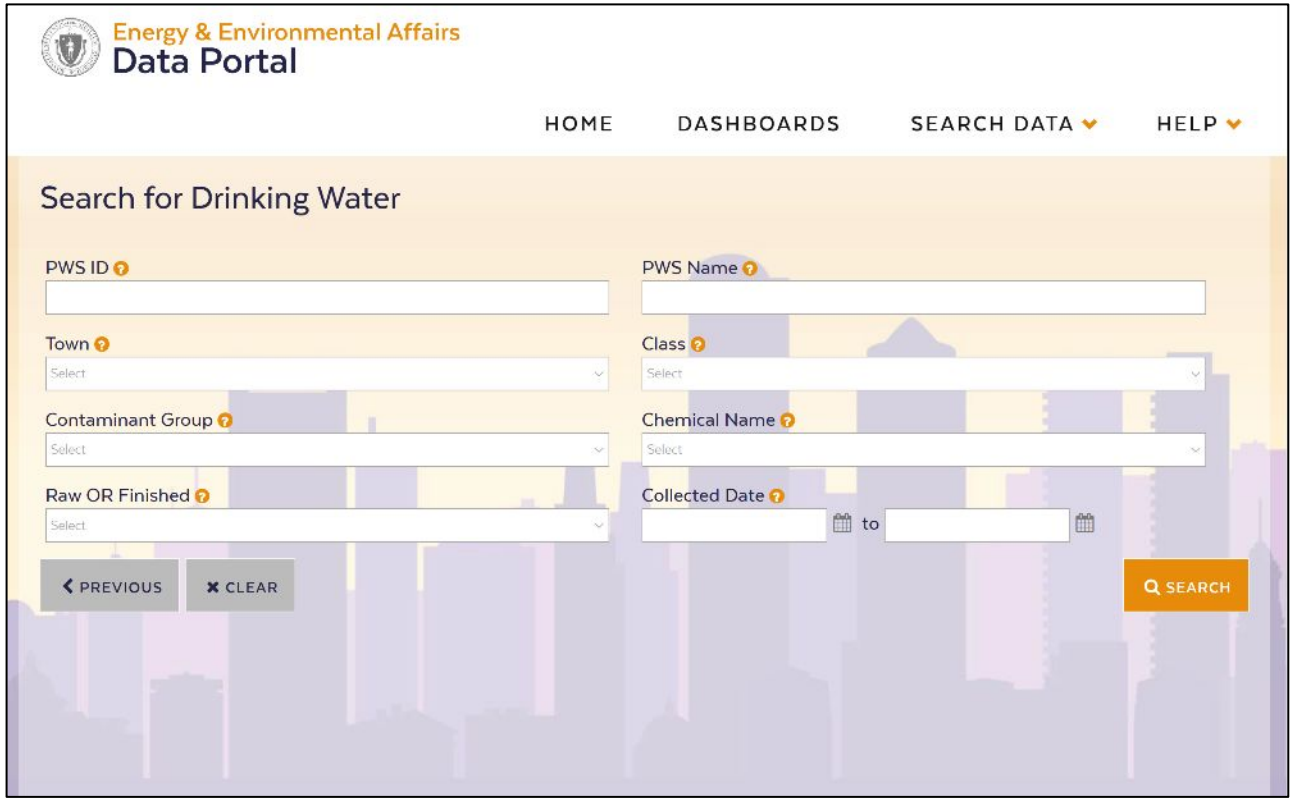
MassDEP Boston

Directions

Phone

more contact info

https://eeaonline.eea.state.ma.us/Portal/#!/search/drinking-water



Energy & Environmental Affairs
Data Portal

HOME DASHBOARDS SEARCH DATA HELP

Search for Drinking Water

PWS ID

PWS Name

Town

Class

Contaminant Group

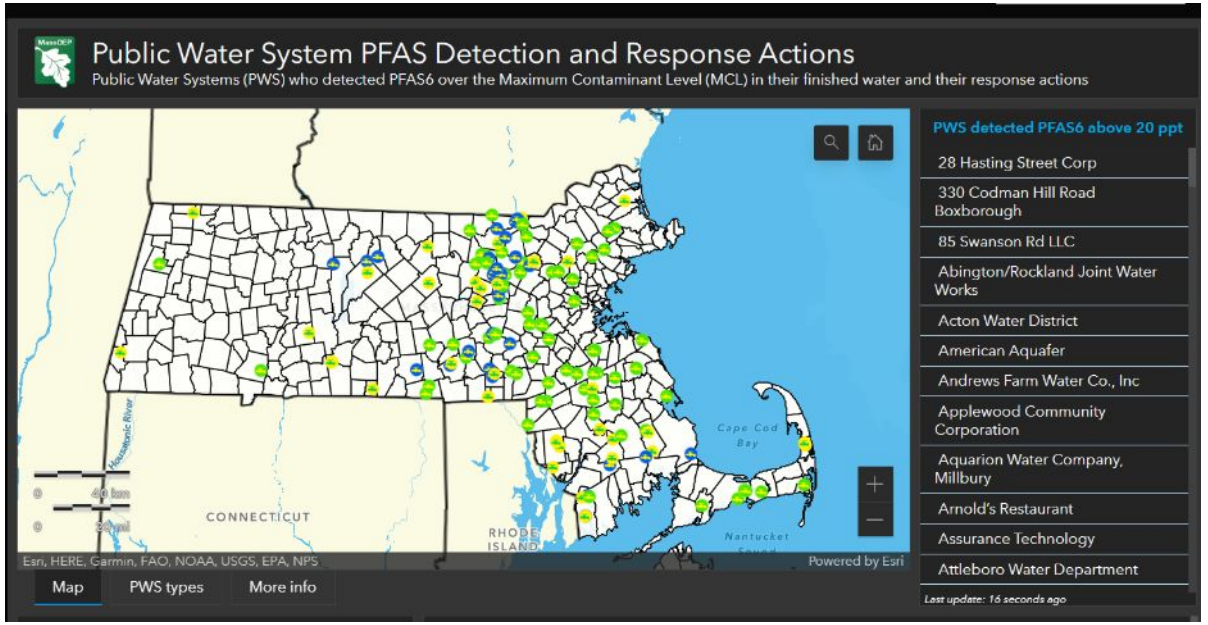
Chemical Name

Raw OR Finished

Collected Date

to

PREVIOUS CLEAR SEARCH



Public Water System PFAS Detection and Response Actions

Public Water Systems (PWS) who detected PFAS6 over the Maximum Contaminant Level (MCL) in their finished water and their response actions

PWS detected PFAS6 above 20 ppt

- 28 Hasting Street Corp
- 330 Codman Hill Road Boxborough
- 85 Swanson Rd LLC
- Abington/Rockland Joint Water Works
- Acton Water District
- American Aquafer
- Andrews Farm Water Co., Inc
- Applewood Community Corporation
- Aquarion Water Company, Millbury
- Arnold's Restaurant
- Assurance Technology
- Attleboro Water Department

Last update: 16 seconds ago

CONNECTICUT RHODE ISLAND Cape Cod Bay Nantucket Sound

Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS Powered by Esri

Map PWS types More info

https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas#pfas-detected-in-drinking-water-supplies-in-massachusetts-

Financial Investment

- $10 million in grants awarded to PWS for the design and planning of treatment
- $100 million in zero interest loans/loan commitments issued through the DWSRF to PWS for construction projects to address PFAS
- 25 more PWS have applied for loans this year
- $1 million in lab analysis for the free sampling program ($300/sample)
- Some of the treatment facilities paid for by **a third party responsible for the contamination**, but often the source of PFAS is unidentified and the cost is falling on our PWS

(See Liz Callahan's presentation)

PFAS Sampling in Private Water Supplies

- **MassDEP offered free PFAS sampling to selected private well owners** (program ended June 30, 2022)

- **Meetings/outreach were held** with town and state officials in the 85 selected communities with > 60% residents served by private wells.

Results

- MassDEP contracted with UMass to help administer the program
- 1,668 homeowners participated in the sampling
  (There are approximately 200,000 private wells in Massachusetts serving 600,000 residents.)
- 95% of the wells tested were below the MCL
- 73% were Non-Detect
- 10 private wells had results above 90 ng/L (considered an Imminent Hazard under the MCP)
- Results inform future policy & program development

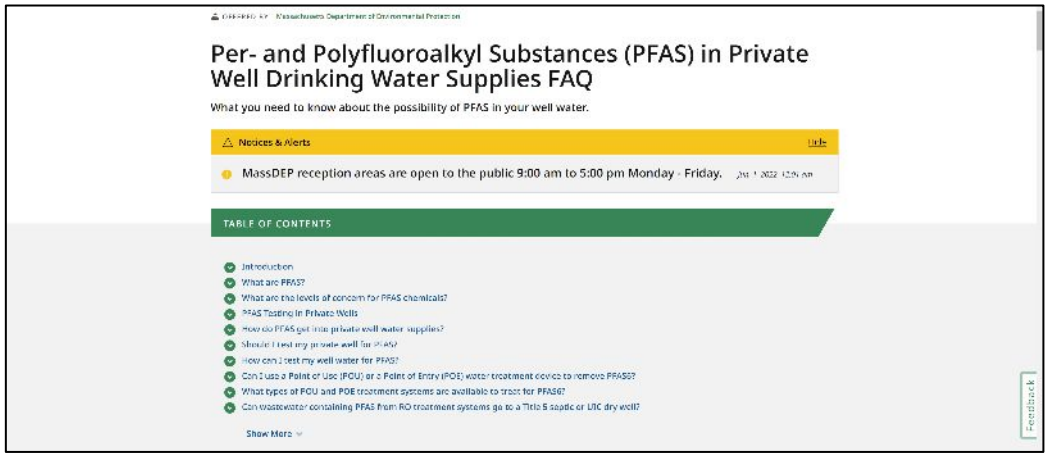
Actions

- Imminent Hazards referred to Waste Site Cleanup for exposure elimination (bottled water then POETS)
- BWSC conducting source discovery activities
- Outreach and technical assistance to residents with detectable levels

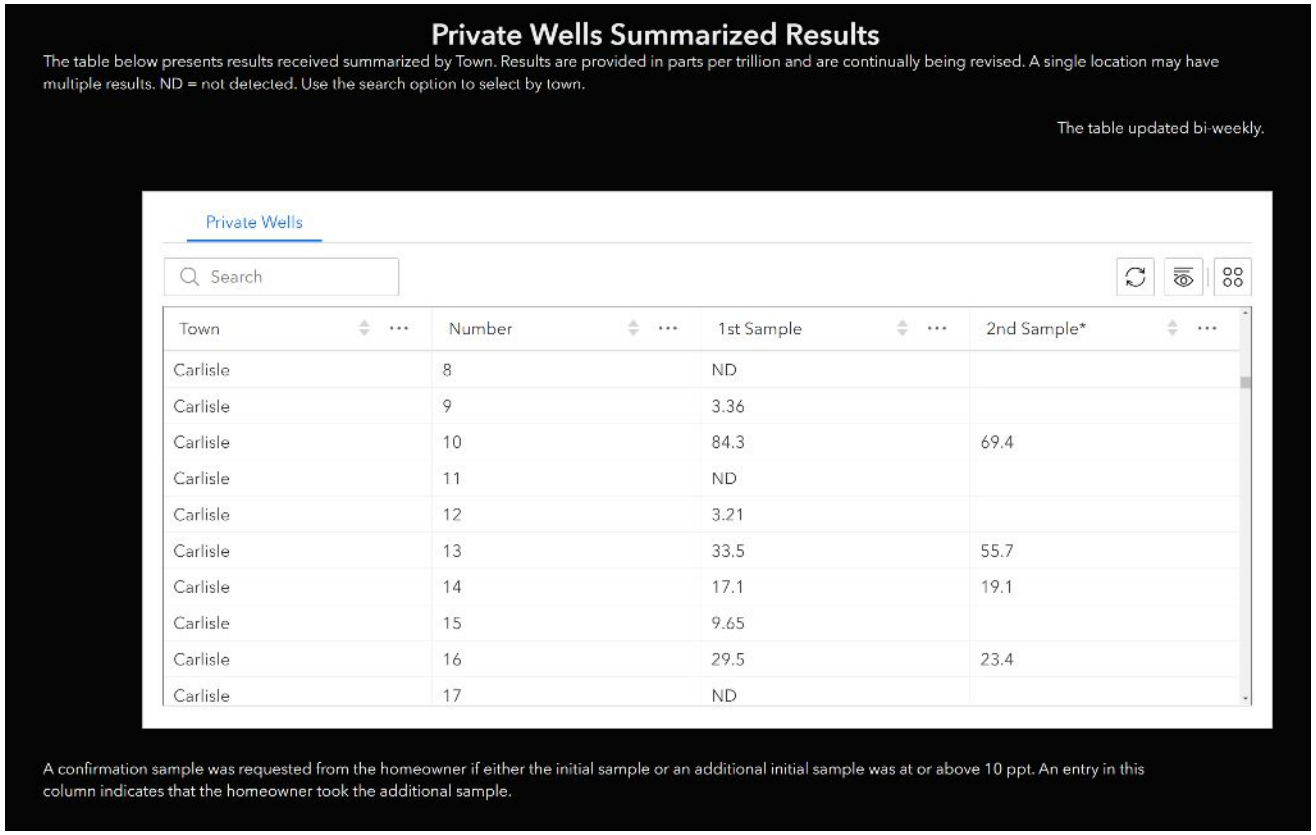
MassDEP

Communication: Direct Outreach & Summary Data Online

https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas-in-private-well-drinking-water-supplies-faq



https://experience.arcgis.com/experience/2faa37dd769d4facb30da8e5952e08e6/



https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas-in-private-well-drinking-water-supplies-faq#pfas-testing-in-private-wells-

FOLLOW-UP:
Source Discovery in the Waste Site Cleanup Program

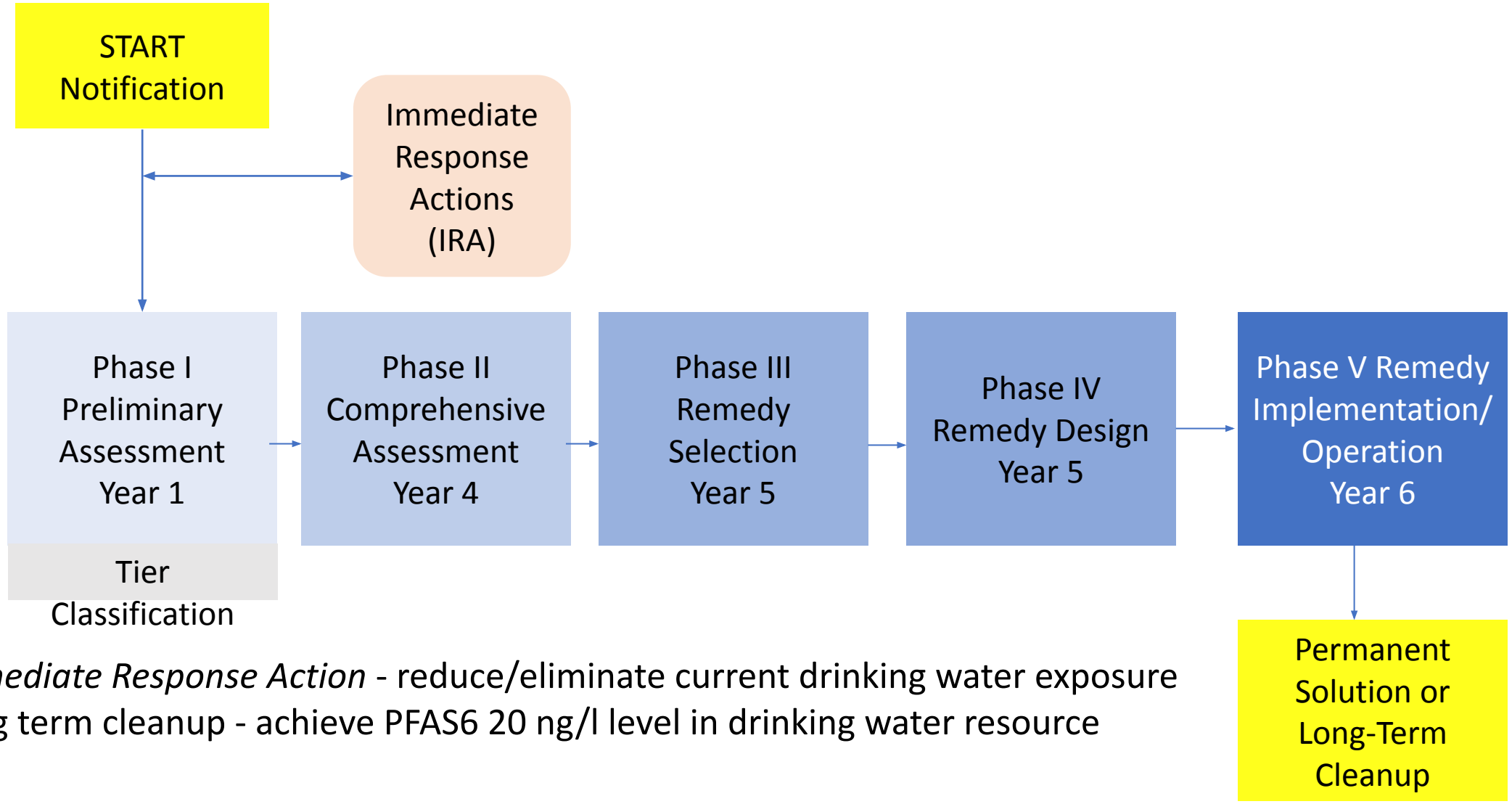
Contamination Site Cleanup:
General Laws Chapter 21E + 310 CMR 40 (MCP)

- Any location where hazardous materials were deposited, stored, placed, disposed of, or have otherwise come to be located is a "Site"

- The owners, operators, persons who brought hazardous materials or arranged for materials to go to a Site are responsible to clean up to a condition of No Significant Risk

- Privatized program requires Potentially Responsible Parties (**PRPs**) to hire a Licensed Site Professional (**LSP**) to implement the cleanup subject to review by MassDEP

Assessment & Cleanup Process is being followed



- *Immediate Response Action* - reduce/eliminate current drinking water exposure
- Long term cleanup - achieve PFAS6 20 ng/l level in drinking water resource

PFAS – Typical Short-Term Actions

- **In the absence of a PRP, MassDEP will:**
  - Ensure elimination of any *Imminent Hazard* (PFAS6 > 90 ppt in drinking water), including provision of bottled water, install Point-of-Entry-Treatment-Systems (POETS)
  - Provide technical assistance, as needed
  - Conduct source/site discovery activities identify PRPs

- **A PRP, when identified, is obligated to:**
  - Eliminate any *Imminent Hazard*
  - Eliminate or mitigate any *Critical Exposure Pathway*, where feasible
  - Conduct site investigation and cleanup per Waste Site Cleanup regulations

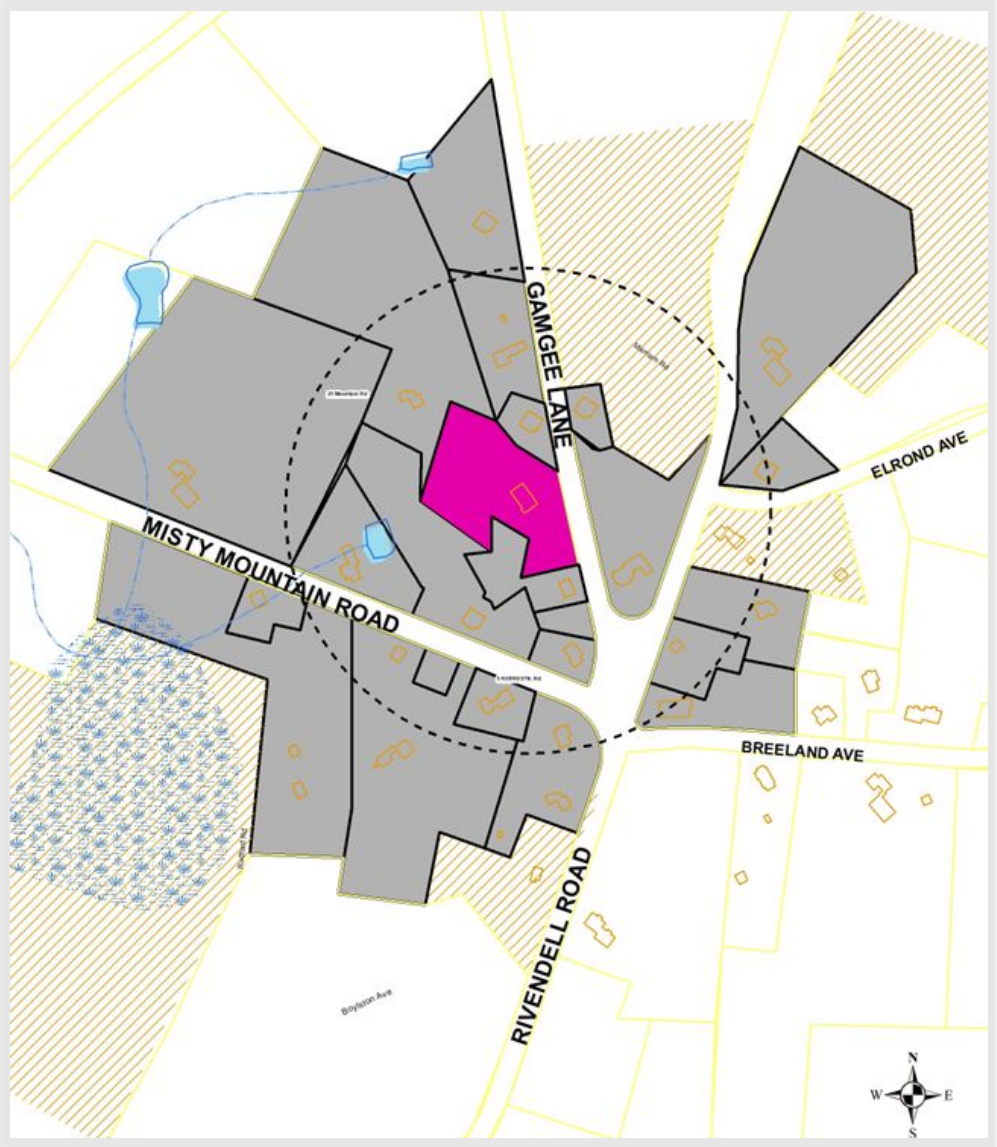
PFAS – Waste Site Cleanup Response To-Date

- Approaching 100 PFAS-related sites (RTNs)
- PRPs conducting majority of Imminent Hazard responses
- MassDEP has installed & is maintaining 37 POETs

PFAS – Site Discovery

PFAS sites generally identified through:

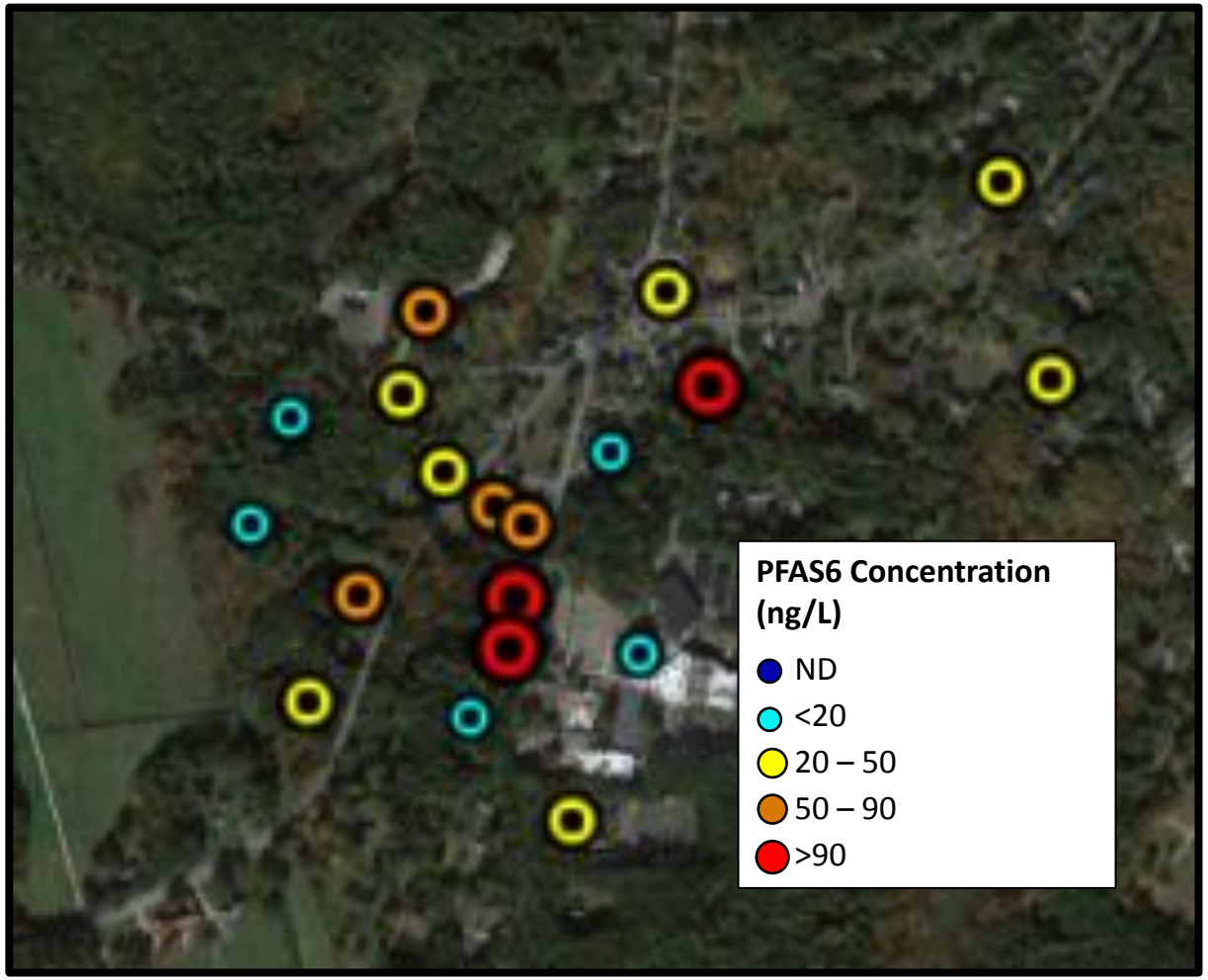
- PWS or Private Well sampling results
- Known sites start sampling for PFAS and find it
- Property use and/or incident indicate potential PFAS.
  D*ue diligence* sampling confirms PFAS



Notification to MassDEP initiates site investigation/cleanup.
A Release Tracking Number (**RTN**) is assigned.

PFAS – Typical Site Discovery Steps by MassDEP

- Desktop review of potential sources
- Meeting with municipal officials, Health Agent
- RFIs – Request for Information
- Negotiate Access with homeowners/facilities
- Sampling existing wells, surface water, soil
- Data review and interpretation
- NORs – Notice of Responsibility
  Potentially Responsible Party continues investigation



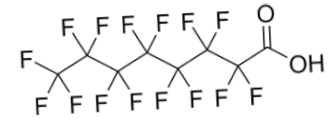
PFAS Site Discovery -- Predominant Sources

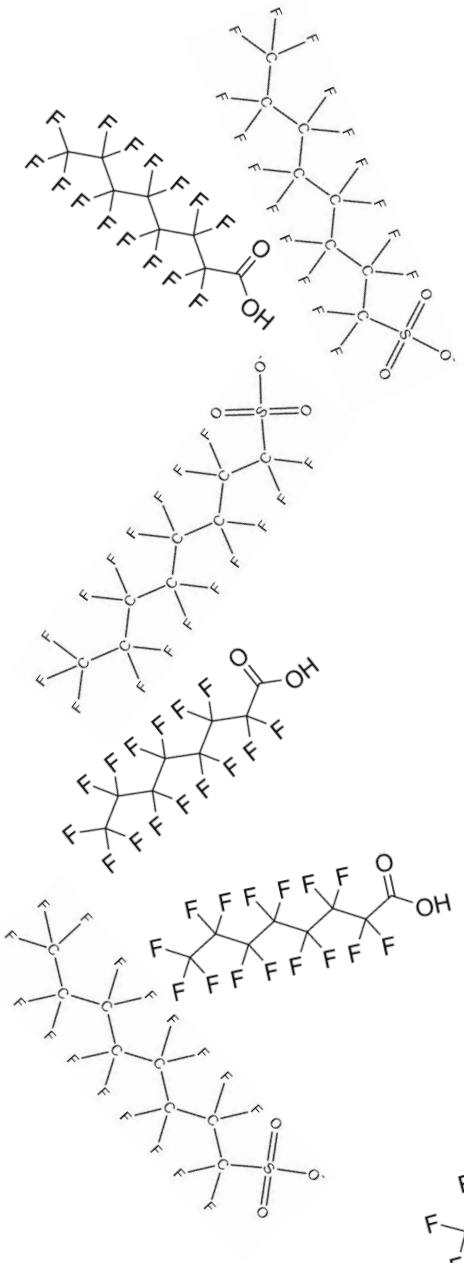
Barnstable Fire Training Academy

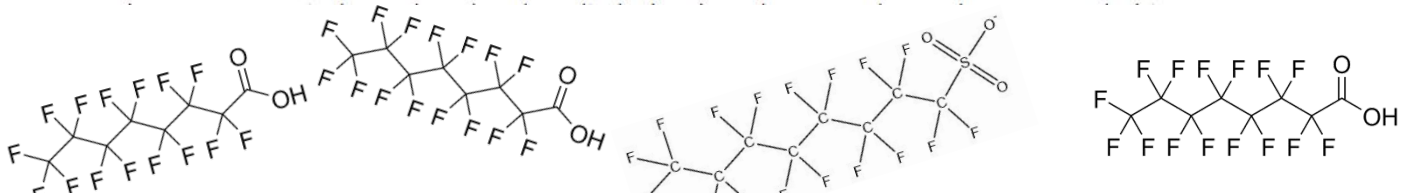
Source: CapeCodFD.com

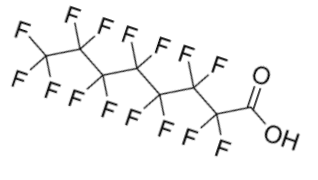
- AFFF (DoD sites, Fire Training Facilities, Airports & Incident Response Locations)
- Commercial/Industrial Sources
- Landfill leachate
- Unknown… TBD

Mass Dept of Public Health









OFFERED BY Environmental Toxicology Program | Bureau of Environmental Health | Department of Public Health

Per- and Polyfluoroalkyl Substances (PFAS) in drinking water

See frequently asked questions and answers.

This fact sheet answers frequently asked questions about the detection of Per- and Polyfluoroalkyl Substances (PFAS) in drinking water. It includes information about a drinking water standard (referred to as a Maximum Contaminant Level, or MCL) for PFAS, finalized by the Massachusetts Department of Environmental Protection (MassDEP) in October 2020.

FAQ

What are PFAS?

Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals manufactured and used in a variety of consumer products and industries throughout the world. Two of these PFAS chemicals, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS), have been

CONTACT

Environmental Toxicology Program

Address

250 Washington St., 7th Floor, Boston, MA 02108

Directions

Phone

(617) 624-5757

TTY (617) 624-5286

more contact info

Feedback