PFAS Interagency Task Force

June 1, 2021

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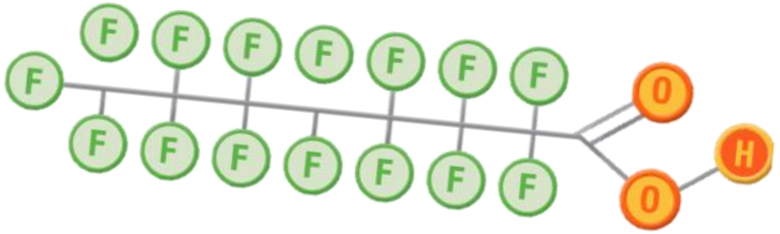
Commissioner
Massachusetts Department of Environmental Protection

What are PFAS?

PFAS are Per- and polyfluoroalkyl substances:

- Man-made chemicals
- Used in stain-resistant, water-resistant, and non-stick products, firefighting foams, food packaging, outdoor clothing, carpets, leather goods, ski waxes, and more.
- Persistent in the environment, leaching into groundwater from spills, landfills, air deposition.
- Linked to health risks, particularly in immuno-compromised individuals, women who are pregnant or nursing, and infants



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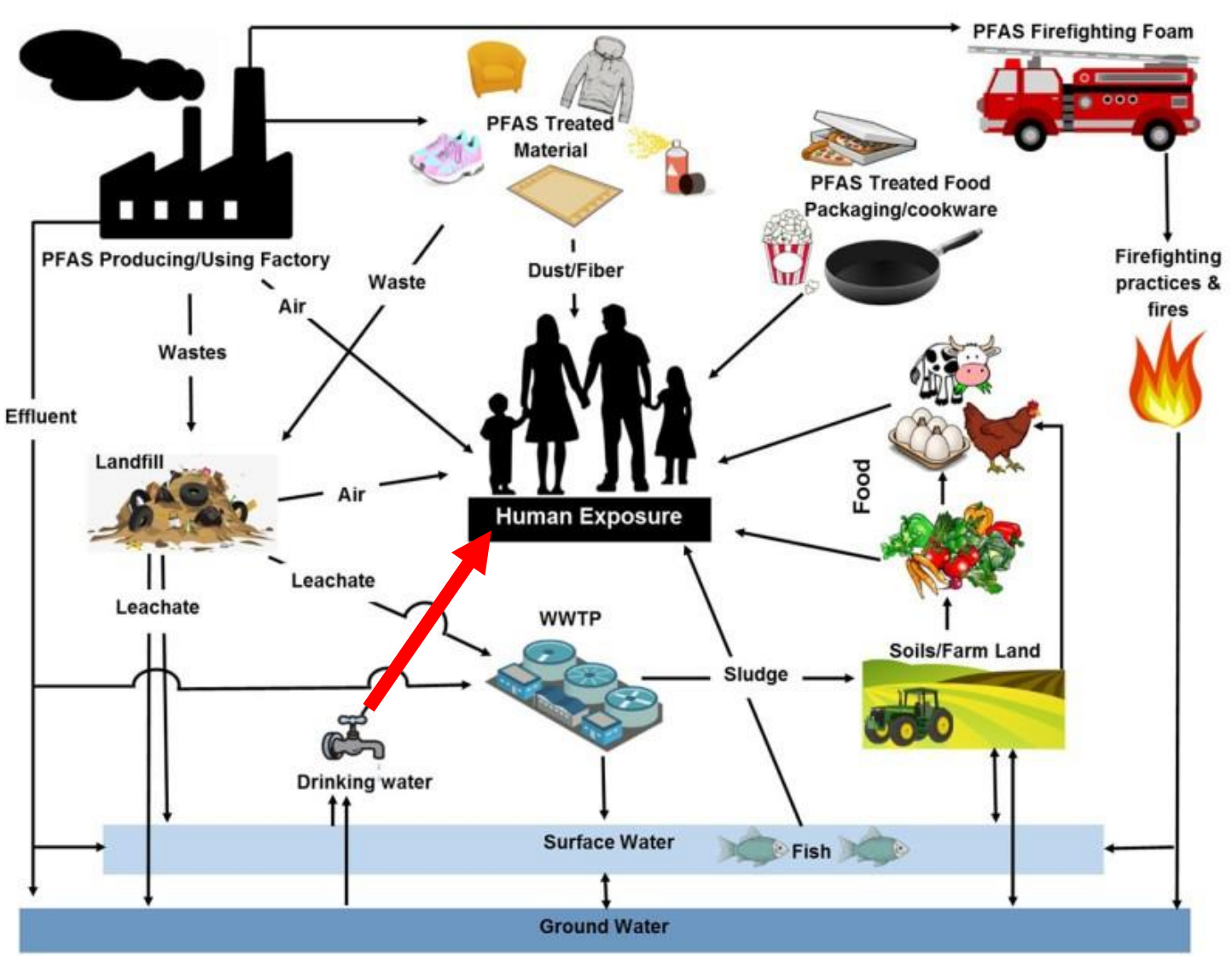
Environment & Human Exposure to PFAS



Human Exposure and sources of PFAS
Image: DWP, adapted from Oliaei et al. 2013.

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MassDEP Addressing PFAS

May 2016

USEPA issued a health advisory of 70 ppt for the sum of two PFAS compounds in drinking water

June 2018

MassDEP ORS issued a drinking water guidance for the sum of five PFAS compounds of 70 ppt

January 2019

MassDEP revised the ORS Guideline for the sum of six PFAS compounds to 20 ppt to align with anticipated regulations

December 2019

MassDEP issues final rules for soil & groundwater cleanup under the Massachusetts Contingency Plan (MCP)

October 2020

MassDEP issues final drinking water regulations establishing a Maximum Contaminant Level (MCL) of 20 ppt

Drinking Water Values for PFAS (ppt) by state

	PFOS	PFOA	PFNA	PFHxS	PFHpA	PFDA
U.S. EPA Health Advisory	**70 Sum of two**		**NA**	**NA**	**NA**	**NA**
MA MCL, GW standard	**70 (2018 ORSG) → 20 (MCL; MCP GW standard) Sum of five → Sum of six (add PFDA) MCL October 2020: Sum of six PFAS = 20**					
VT MCL	**20 Sum of five**					**NA**
CT Action Levels	**70 Sum of five**					**NA**
WI Recommended GW standard	**20**					
ATSDR Based on draft ATSDR toxicity values and EPA exposure parameters	**7**	**11**	**10**	**70**	**NA**	**NA**
NY MCL	**10**	**10**	**NA**	**NA**	**NA**	**NA**
NJ MCL	**13**	**14**	**13**	**NA**	**NA**	**NA**
CA Notification levels (Response Levels)	**6.5 (40)**	**5.1 (10)**	**NA**	**NA**	**NA**	**NA**
MI MCL	**16**	**8**	**6**	**51**	**NA**	**PFNA value recommended**
MN guidelines	**15**	**35**	**NA**	**47**	**NA**	**NA**
NH MCL	**15**	**12**	**11**	**18**	**NA**	**NA**
Most other states (EPA value by default)	**70**		**NA**	**NA**	**NA**	**NA**

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MassDEP PFAS Regulations

Soil & Ground Water (MCP)

310 CMR 40.16

Effective 12/27/19

MA is only one of two states with comprehensive cleanup standards for both

Parties responsible for soil and groundwater contamination will be required to cleanup groundwater that could be used as drinking water to meet the 20 ppt standard

Drinking Water (MCL)

310 CMR 22.00

Effective 10/2/20

Establishes a limit of 20 ppt for the sum of six PFAS compounds (PFAS6), providing a higher degree of protection than any other state

Requires public water suppliers to test for PFAS6 on a quarterly basis and act when there is a detection above the limit; implementation staggered based on community public water supplier size

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PFAS & Drinking Water

PFAS6 Drinking Water Standard

- Regulations establish a new MCL: highest level of a contaminant allowed in drinking water. MCLs are enforceable standards
- Program Review: MassDEP required to review regulations every three years to ensure we are incorporating, reflecting, responsive to the latest science.
- "PFAS6" MCL is 20 ppt for the sum of six PFAS compounds
  - PFOS: perfluorooctane sulfonic acid
  - PFOA: perfluorooctanoic acid
  - PFHxS: perfluorohexane sulfonic acid
  - PFNA:perfluorononanoic acid
  - PFHpA: perfluoroheptanoic acid
  - PFDA: perfluorodecanoic acid
- No federal standard: PFOS and PFOA health advisory only

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Ongoing Evaluation

- MCL requires reassessment at least every three years
  - Reflects rapidly expanding scientific data
  - Potential updates to current regulation covering subclass of six PFAS
  - Potential expansion to include guidelines for additional PFAS
    - Some other states have developed, or are considering, values for PFBA; PFBS; PFHxA; GenX
- ORS developing database and tracking scientific developments
  - Including carcinogenicity data

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MCL Applicability to Public Water Systems

MCL applies to:

- Community Water Systems (year-round residential customers)
- Non-transient, Non-Community Water Systems (NTNCs)
  - Schools/Daycares, Larger Businesses (25+ employees)

MCL does not apply to:

- Transient, Non-Community Water Systems (TNCs)
  - Recreational Areas, Campgrounds, Hotel/Motels, Small Businesses
  - But they must collect one sample
- Consecutive Systems (those that purchase all their water)

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State Funding for PFAS Remediation

- Funding provided by two supplemental budgets: Chapter 142 of the Acts of 2019 and Chapter 31 of the Acts of 2020)
- $8.4M for PWS testing and treatment design, including reimbursement for costs already incurred, including three rounds of grant funding:
    - PFAS Design Grants #1 - $1.98M to 10 PWS
    - PFAS Design Grants #2 - $3M for 17 PWS
    - 1st Interim PFAS6 Response Grants – 7/8/21 application deadline
  - State funding for Public Water Supply Testing
  - Free Private Well Drinking Water testing -

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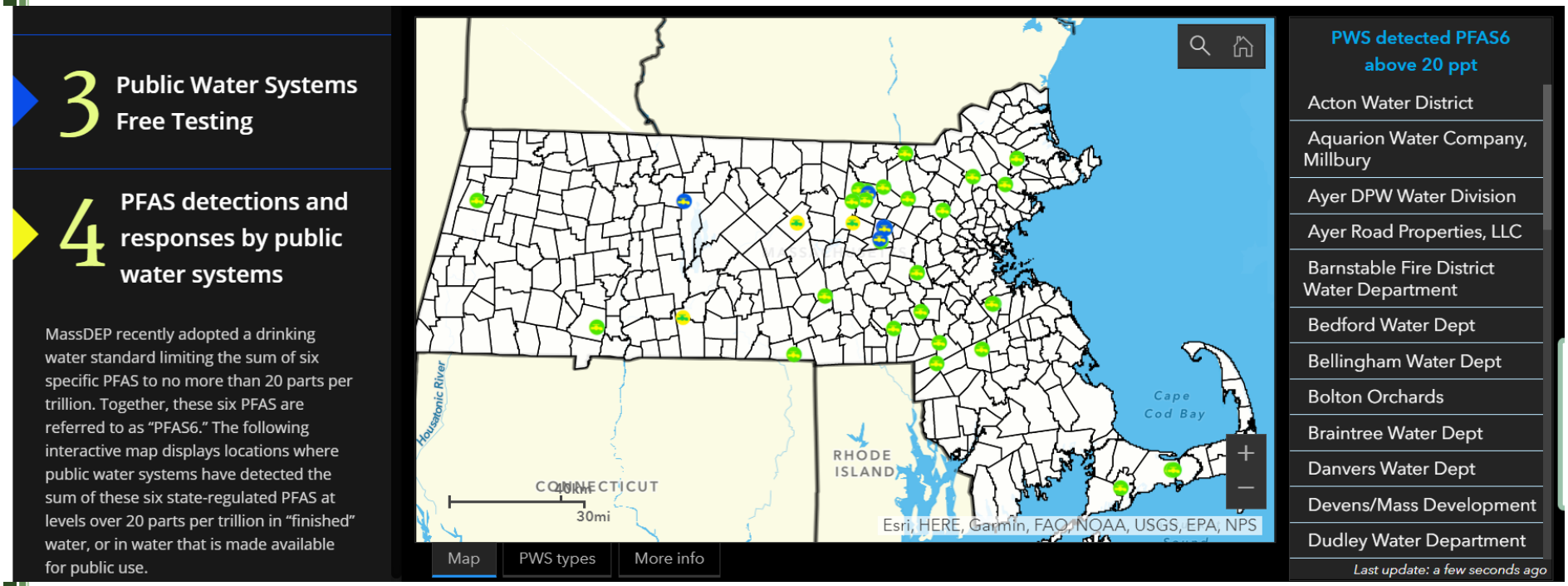
State Funding for PFAS Remediation

- Clean Water Trust; State Revolving Fund
  - Priority funding; 0% loans
  - $180 million in SRF financing for 16 projects to date

PFAS in Public Water Systems

- About 600 Public Water Systems (PWS) have sampled, including all 25 of the largest PWS
- Of the PWS that have tested:
  - Many systems report results with no issues
  - MassDEP is currently working with 23 Community Systems on short and long term measures to address exceedances identified through testing

MassDEP Story Map



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

Private Wells PFAS Sampling Program

- Announced in November 2020, a free sampling and analysis program for PFAS in 84 communities where 60% or more of residents are served by private wells
- Private wells are regulated by local Boards of Health (overseen by MassDPH) – MassDEP partnering with BOHs, municipal officials, and UMass for the program
- 1,480 homeowners in 63 communities have applied for free sampling; 95% of the results are below the MCL

Private Wells PFAS Sampling Program

Alford
Aquinnah
Ashby
Ashfield
Becket*
Belchertown*
Berkley*
Berlin
Bolton
Boxborough*
Boxford
Brimfield
Buckland
Carlisle*++
Carver*
Charlemont
Charlton
Chesterfield*
Clarksburg
Colrain
Conway
Dover*

Dunstable
Erving
Florida
Freetown*
Goshen
Granby*
Granville
Hampden
Harvard
Hawley
Heath
Holland
Hubbardston
Lakeville*
Leverett*
Leyden
Mendon
Middlefield
Millville
Monterey
Montgomery
Mount Washington

Nantucket
New Ashford
New Braintree
New Marlborough
New Salem*
Newbury*++
Oakham
Otis*
Pelham*
Peru
Petersham*
Phillipston
Plainfield
Plympton*
Princeton*
Rehoboth*
Richmond
Rochester*
Rowe
Royalston*
Sandisfield
Savoy*

Shelburne*
Sherborn*++
Shutesbury*++
Stow*
Sutton
Tolland
Truro
Tyngsborough*
Tyringham
Wales
Warwick*
Washington
Wellfleet
Wendell*
West Tisbury
Westhampton
Westport*
Windsor

*31 communities accepting applications & sampling

++4 communities with results over 20ppt

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AFFF Takeback Program 2018-2019

- Partnered with the Department of Fire Services (DFS)
- ~200,000lbs from 75+ public safety agencies (~ $213,000)
- 149,016 pounds (17,531 gallons)removed and disposed

PFAS & Wastewater

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EPA/MassDEP PFAS Permit Requirements for Municipal and Industrial Discharges

- Monitoring
  - Municipal WWTPs
    - Quarterly influent, effluent, and sludge samples
    - Annual effluent samples from industrial facilities discharging to WWTP
  - Industrial
    - Quarterly effluent samples

- EPA Timing
  - Conditions go into effect 6 months after EPA's multi-lab validated method for PFAS in wastewater is made available

MassDEP's Additional PFAS Conditions in Wastewater Permits

- Industrial Dischargers' Permit Source Reduction
  - Within 6 months of effective date of permit must evaluate use of PFAS-containing products and whether use can be reduced or eliminated
  - EEA Office of Technical Assistance to work directly with industrial dischargers and industrial facilities discharging into municipal WWTPs

- MassDEP Timing
  - Most facilities: monitoring begins 6 months after EPA's multi-lab validated method for PFAS in wastewater is available, **or 2 years from the effective date of the permit**, whichever is earlier
  - For facilities discharging upstream of drinking water intakes, effluent monitoring begins **180 days** after the effective date of the permit

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PFAS & Residuals

PFAS in Residuals: Context

- Wastewater residuals: 38% reused as fertilizer in MA
- MassDEP regulates 35 entities that land apply residuals
- PFAS Testing: quarterly requirement for residuals that are land applied (as of July 2020)
- No EPA lab method; MassDEP approves individual methods
- No land application standards; MassDEP evaluating options and consulting with stakeholders
- Alternative disposal alternatives include landfill, incineration, export
- Policy issues
  - Impacts of PFAS on water, crops, biota
  - Impacts of regulating reuse and reuse market disruption

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PFAS in Residuals: MassDEP Actions

- Stakeholder Process
  - Industry groups, AOS holders, environmental advocacy organizations, health advocacy organizations, academic researchers, agriculture groups, and other state agencies
  - First meeting held in September. Gathering information and perspectives

- Technical work underway
  - Leachate model
  - Review of others' research/coordination with other states
  - Technical subcommittee meeting
  - Establish screening values

Goal: develop interim screening levels

PFAS & Surface Waters

PFAS in Rivers: Monitoring & Characterization

- MassDEP partnering with U.S. Geological Survey
- Collected and analyzed riverine water samples for 24 PFAS compounds
- Sampling sites upstream and downstream of wastewater treatment facilities, downstream of industrial areas, and where no known PFAS sources are expected
- 3 rounds of monthly sample collection
- Report expected early in 2021

PFAS in Pesticide Containers

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Anvil 10+10 and Other PFAS Testing

- Adult mosquitocide used for EEE spraying
- PEER (NGO) tested samples and detected PFAS; MassDEP followed with its own testing in fall 2020
- EPA conducted testing on containers, which were determined to be the source
- Spring 2021: MassDEP working with MDAR to test other pesticide products

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