

# MassDEP Actions to Address PFAS

Presentation to the Massachusetts  
Water Resources Commission

June 13, 2019



# Topics for Today

- What Are PFAS?
- What Are Common Uses of PFAS?
- Where Are PFAS in Massachusetts?
- Waste Site Cleanup Activities
- Drinking Water Program Activities
- More Information Online
- Discussion

# What Are PFAS?

## What Are Common Uses of PFAS?

## Where Are PFAS in Massachusetts?

## Waste Site Cleanup Activities

Paul Locke

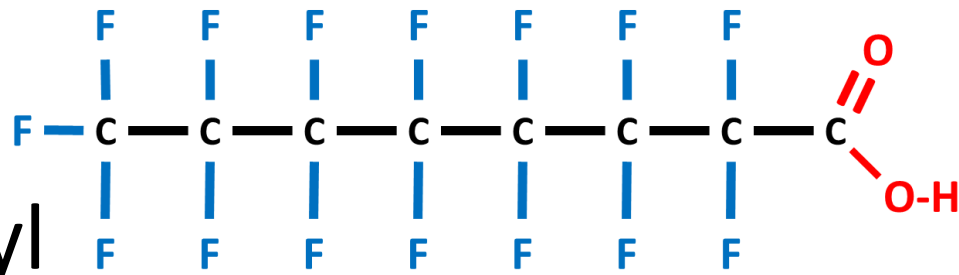
Assistant Commissioner

Bureau of Waste Site Cleanup



# What Are PFAS?

## Poly- and perfluoroalkyl Substances



*A family of thousand of compounds with varying structure*  
(e.g, carbon chain length)

- **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
  - Cancers

# What Are Common Uses of PFAS?

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



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

# What Are Exposures 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)

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Water uses that pose (relatively) less concern include:

- Water use by individual not considered in “sensitive group”
- Non-residential water use – *restaurants, workplace*
- Water use for other purposes – *bathing, washing vegetables*

Ways an individual may reduce potential exposure:

- Drink & cook with bottled water
- Use a home water treatment system (NSF certification)

# Waste Site Cleanup Activities for PFAS

*Normalizing the Situation:*

Move from “Emerging Contaminant” to “Just Another Contaminant”

1. Publish PFAS Sampling Fact Sheet
2. Bring known Releases Into the Site Cleanup Process
3. Promulgate Reportable Concentrations & Cleanup Standards for Soil & Groundwater

# PFAS Sampling Fact Sheet



massdep pfas sampling



Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection  
One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker  
Governor

Karyn E. Polito  
Lieutenant Governor

Fact Sheet

Interim Guidance on Sampling and Analysis for PFAS at Disposal Sites  
Regulated under the Massachusetts Contingency Plan

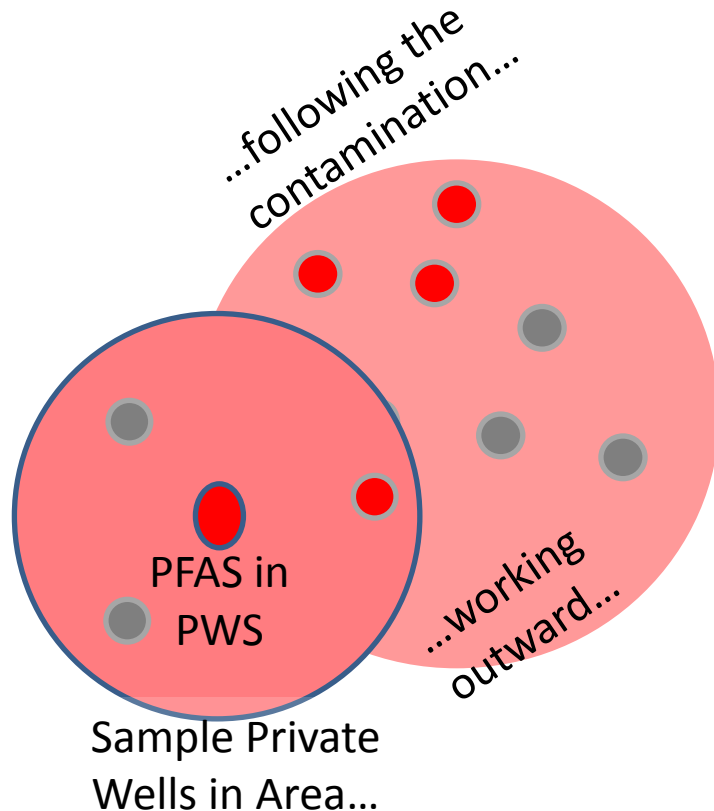
June 19, 2018

**Provides direction to PRPs & LSPs:**

- **What to sample for**
- **Where to sample**
- **How to sample**
- **How to interpret the results**



# Bring Releases Into the MCP



- **Source Discovery**  
Issue Requests for Information (RFIs) and Notices of Responsibility (NORs)
- **Sampling private wells**  
near known PFAS-contaminated public wells or known sources (PRP-lead or MassDEP)
- **Working w/EPA and DoD**  
cleanup & funding issues

# Promulgate MCP Method 1 Standards

- Package of MCP Revisions  
Public Comment through July 19, 2019  
<https://www.mass.gov/lists/2019-proposed-mcp-revisions>
- Method 1 Standards for Soil & Groundwater
- Reportable Concentrations for Soil & Groundwater
- Proposed for groundwater protected for current/future drinking water use:
  - 20 ng/L GW-1 Standard & RCGW1
  - for SUM of 6 PFAS

# AFFF Firefighting Foam Take-Back

- Pre-2003 foams
- Outreach, voluntary inventory, and collection/disposal program for fire chiefs
- Launched May 2018
- 50+ fire chiefs have requested assistance, so far
  - *MORE THAN 7,000 gallons* of AFFF concentrate
- Disposal via incineration

# PFAS in Drinking Water at Public Water Supplies

A. Margaret Finn, PE  
Drinking Water Program  
MassDEP



# Current Drinking Water Guidelines

- 2016 - USEPA issued a Health Advisory for drinking water of 70 parts per trillion (ppt) for the sum of PFOA and PFOS
- 2018 - MassDEP established an Office of Research and Standards Guideline (ORSG) for drinking water that extended the EPA advisory to include PFOS, PFOA, PFNA, PFHxS, and PFHpA at 70 ppt.
- Most states have opted to implement the 2016 EPA Health Advisory. However, some states have proposed or established their own guidance or regulatory values.

# Other States: Drinking Water Values

parts per trillion (as of 6/10/19)

		PFOS	PFOA	PFNA	PFHxS	PFHpA	Other PFAS	
<b>USEPA</b>	Health Advisory	70 Sum of both					PFDA: No current standards  PFBS: MN = 2,000  Gen X: NC = 140	
<b>ATSDR</b>	Based on ATSDR toxicity value	7	11	10	70			
<b>NY</b>	Recommended MCL	10	10					
<b>NJ</b>	Recommended MCL	13	14	13 Final				
<b>CA</b>	Interim Notification Levels	13	14					
<b>VT</b>	Health Advisory/ Groundwater rule	20 Sum of five						
<b>MA</b>	ORSG / GW Std	70 (2018 ORSG) → 20 (proposed GW std) Sum of five → Sum of six (adds PFDA)						
<b>CT</b>	DW Action Levels	70 Sum of five						
<b>MN</b>	Guidelines	27	35		27			
<b>NH</b>	Proposed MCL	70	38	23	85			
<b>Most other states</b> (EPA value by default)		70						

# PFAS in MA Public Water Supplies

- PWS where PFAS has been confirmed:
  - 6 PWS over the 2018 ORSG: Hyannis, Westfield, Hudson, Ayer, Mass Development (Devens), and Lakeside Estates (Mashpee)
  - 4 PWS over the proposed GW standard (20 ppt) but below the ORSG: Appleworks (Harvard), Ayer Rd Properties (Harvard), Mashpee Water District and Barnstable Fire District
  - 5 PWS below 20 ppt
- All PWS >20 ppt ***have taken action***: installation of treatment; shutting off wells; modified well usage; connected to municipal water; and/or purchased water from adjacent communities.
- Firefighting foam (AFFF) appears to be primary source (with one likely manufacturing source and one source under investigation)
- All PWS PFAS results are posted on Mass.Gov
- Note: Detections in more than 120 *private wells* in 7 communities.

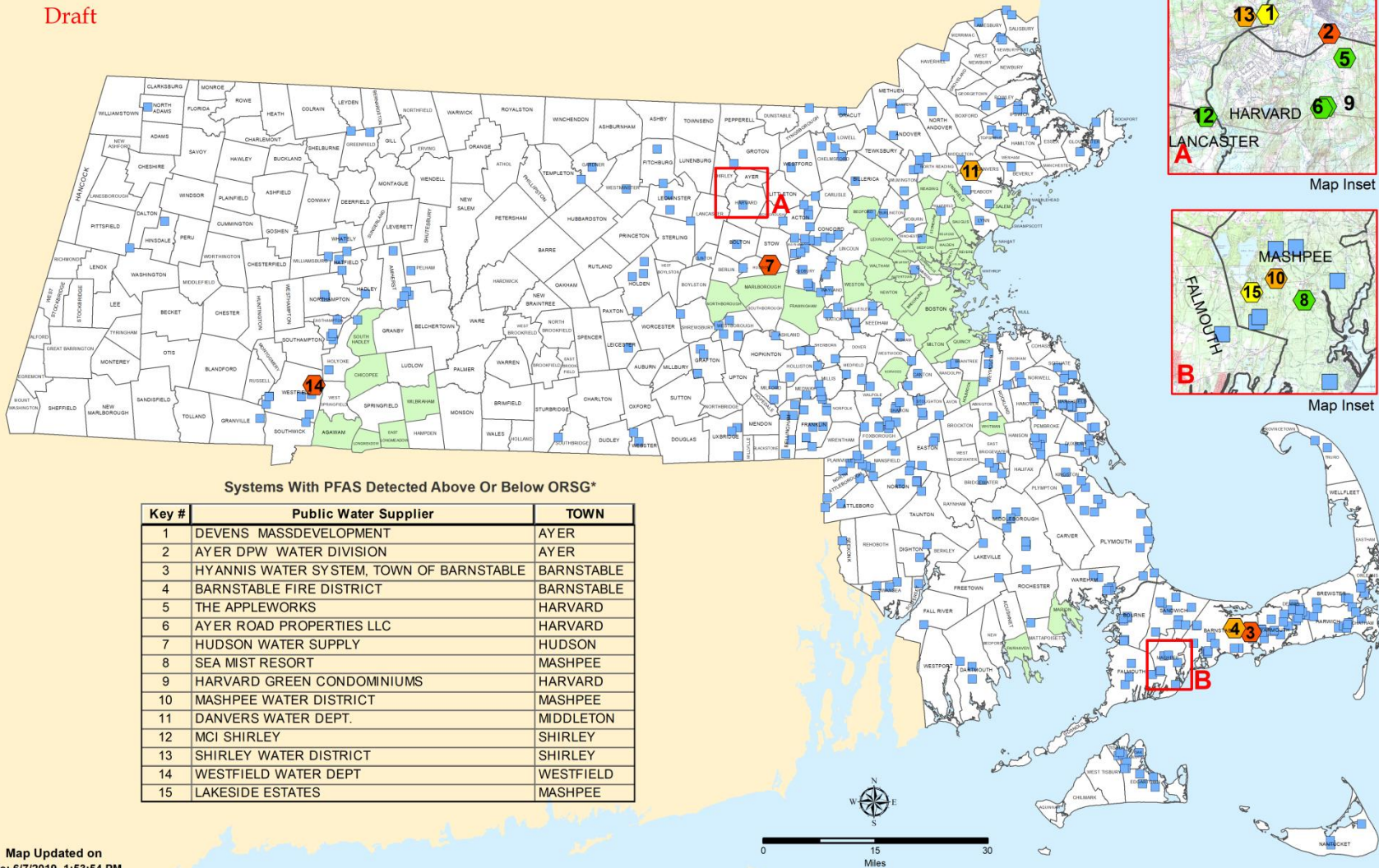


Charles D. Baker  
Governor  
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Lieutenant Governor  
Kathleen A. Theoharides  
Secretary of Energy  
and Environmental Affairs



# PFAS Testing of Drinking Water

Draft



Systems With PFAS Detected Above Or Below ORSG\*

Key #	Public Water Supplier	TOWN
1	DEVENS MASSDEVELOPMENT	AYER
2	AYER DPW WATER DIVISION	AYER
3	HYANNIS WATER SYSTEM, TOWN OF BARNSTABLE	BARNSTABLE
4	BARNSTABLE FIRE DISTRICT	BARNSTABLE
5	THE APPLEWORKS	HARVARD
6	AYER ROAD PROPERTIES LLC	HARVARD
7	HUDSON WATER SUPPLY	HUDSON
8	SEA MIST RESORT	MASHPEE
9	HARVARD GREEN CONDOMINIUMS	HARVARD
10	MASHPEE WATER DISTRICT	MASHPEE
11	DANVERS WATER DEPT.	MIDDLETON
12	MCI SHIRLEY	SHIRLEY
13	SHIRLEY WATER DISTRICT	SHIRLEY
14	WESTFIELD WATER DEPT	WESTFIELD
15	LAKESIDE ESTATES	MASHPEE

Map Updated on  
Date: 6/7/2019, 1:53:54 PM

### Municipal Public Water Systems

- Public Water Supply Sources Tested (locations are approximate)
- PFAS detected above ORSG\*
- PFAS detected below ORSG

### Non-Municipal Public Water Systems

- PFAS detected above ORSG\*
- PFAS detected below ORSG

Towns That Purchase Water  
No PFAS Detected

\* ORSG = MassDEP Office of Research and Standards  
Guideline 70 ppt (70 nanograms per liter)

EEA PFAS information and PWS Data Portal links.  
<https://eeonline.eea.state.ma.us/porta/#/search/drinking-water>  
<https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas>

Please note:  
Not all tested sites of a public water system may fall within a town's boundaries.

Data Disclaimer:  
The map is created from a subset of data from MassDEP GIS and MassDEP BWR Groups. MassDEP makes no claims, no representations, and no warranties, expressed or implied, concerning the validity (expressed or implied), the reliability or the accuracy of the GIS data and GIS data products furnished by MassDEP, including the implied validity of any uses of such data. For specific information on your water supply, please consult your water bill to contact your water company.



# Proposed MassDEP Drinking Water Standards

- Proposed waste site cleanup standard for groundwater for current/future drinking water
  - Any sum PFOS, PFOA, PFNA, PFHxS, PFHpA, and PFDA at 20 ppt
  - Public comment closes 7/19/19
- Evaluating potential revision to the 2018 ORSG
- Developing a Massachusetts Maximum Contaminant Level (MCL) Drinking Water Standard
  - Will follow standard regulation development process
  - Pre-rule external stakeholder engagement underway
  - Which compounds and what levels – Will be informed by GW standard comments and the review of the 2018 ORSG
  - Note: Petition to establish a “Treatment Technique” standard for entire class of PFAS (>3,000 substances)

# Other MassDEP Drinking Water PFAS Actions to Date

- PWS with PFAS levels greater than the draft groundwater cleanup standard were urged to take actions, and MassDEP provided support and guidance.
- All new PWS sources must be tested for the six PFAS chemicals before they are placed on-line.
- Published DW sampling guidance and guidance on lab selection.
- PWS testing results are published on MassDEP website.
- “High Priority” status for PWS PFAS treatment seeking Drinking Water State Revolving Fund (DWSRF) financing.
- Request to water bottlers for sampling results.
- Also, requiring testing of residuals for land application.

# Planned Actions

- Letter sent this week to all PWS encouraging voluntary sampling.
- Considering targeted sampling at PWS near known or potential PFAS sources.
- Pursuing laboratory certification regulations and certification program for PFAS analysis.
- Moving forward with:
  - Waste Site Cleanup /GW standard regulations
  - Consideration of ORSG revision
  - Pursuing MCL/DW standard

# More Information Online

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

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