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 repellant
- **“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)

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

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)

<table>
<thead>
<tr>
<th>State/Standard</th>
<th>PFOS</th>
<th>PFOA</th>
<th>PFNA</th>
<th>PFHxS</th>
<th>PFHpA</th>
<th>Other PFAS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>USEPA</strong></td>
<td>70</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>70 Sum of both</strong></td>
</tr>
<tr>
<td><strong>ATSDR</strong></td>
<td>7</td>
<td>11</td>
<td>10</td>
<td>70</td>
<td></td>
<td><strong>PFDA: No current standards</strong></td>
</tr>
<tr>
<td><strong>NY</strong></td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td><strong>PFBS: MN = 2,000</strong></td>
</tr>
<tr>
<td><strong>NJ</strong></td>
<td>13</td>
<td>14</td>
<td>13</td>
<td></td>
<td></td>
<td><strong>Gen X: NC = 140</strong></td>
</tr>
<tr>
<td><strong>CA</strong></td>
<td>13</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td><strong>20 Sum of five</strong></td>
</tr>
<tr>
<td><strong>VT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td><strong>Sum of five</strong></td>
</tr>
<tr>
<td><strong>MA</strong></td>
<td>70</td>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td><strong>(2018 ORSG) → 20 (proposed GW std)</strong></td>
</tr>
<tr>
<td><strong>CT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>70</td>
<td><strong>Sum of five</strong></td>
</tr>
<tr>
<td><strong>MN</strong></td>
<td>27</td>
<td>35</td>
<td></td>
<td>27</td>
<td></td>
<td><strong>(EPA value by default)</strong></td>
</tr>
<tr>
<td><strong>NH</strong></td>
<td>70</td>
<td>38</td>
<td>23</td>
<td>85</td>
<td></td>
<td><strong>(Proposed MCL)</strong></td>
</tr>
<tr>
<td><strong>Most other states</strong></td>
<td>70</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>(EPA value by default)</strong></td>
</tr>
</tbody>
</table>
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.
### PFAS Testing of Drinking Water

#### Systems With PFAS Detected Above Or Below ORSG*

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

---

#### 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)

Data Source: MassDEP, MassGIS - Map Produced by MassDEP GIS Group, June 2019 - WRI_PFAS_ORSG_map.pdf

**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-BARV Group. MassDEP makes no claims, express or implied, as to 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 contact your water utility or contact your local 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

TABLE OF CONTENTS

- What are PFAS and why are they a problem?
- PFAS detected in drinking water supplies in Massachusetts
- Health advisories and downloadable fact sheets
- Development of a PFAS Drinking Water Standard (MCL)
- Laboratories and testing for PFAS
- Bottled water and home water filters
- PFAS and Waste Sites
- Take-back program for legacy firefighting foam
- PFAS in Wastewater Residuals
- Links to additional information