Wastewater as a Source of PFAS

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April 6, 2021

Presentation Overview

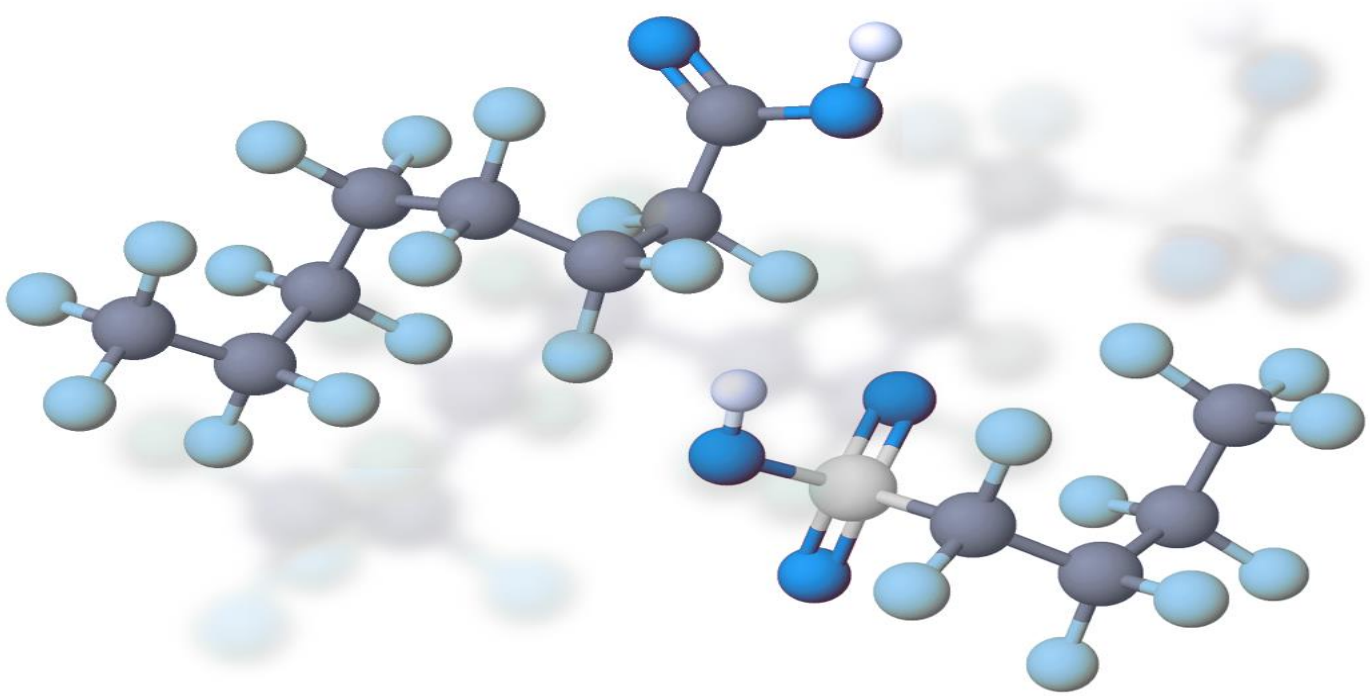
- PFAS National Water Program Highlights
- Pretreatment Primer
- Effluent Guidelines Update on Rulemaking
- EPA New England Mapping
- NPDES Permit Strategy
- State of Massachusetts Initiative

PFAS - What are they and where are they found?

Per- and Polyfluoroalkyl Substances (PFAS) are a group of synthetic chemicals that have been used for decades to manufacture household and commercial products that resist heat, oil, stains, grease, and water. PFAS have been used in many consumer products, including non-stick cookware, stain-resistant furniture and carpets, waterproof clothing, microwave popcorn bags, fast food wrappers, pizza boxes, shampoo and dental floss. They have also been used in certain firefighting foams and various industrial processes. Because of their widespread use, many PFAS, including perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), perfluorohexane sulfonic acid (PFHxS), and perfluorononanoic acid (PFNA), have been found in our environment.

PFAS Action Plan Update

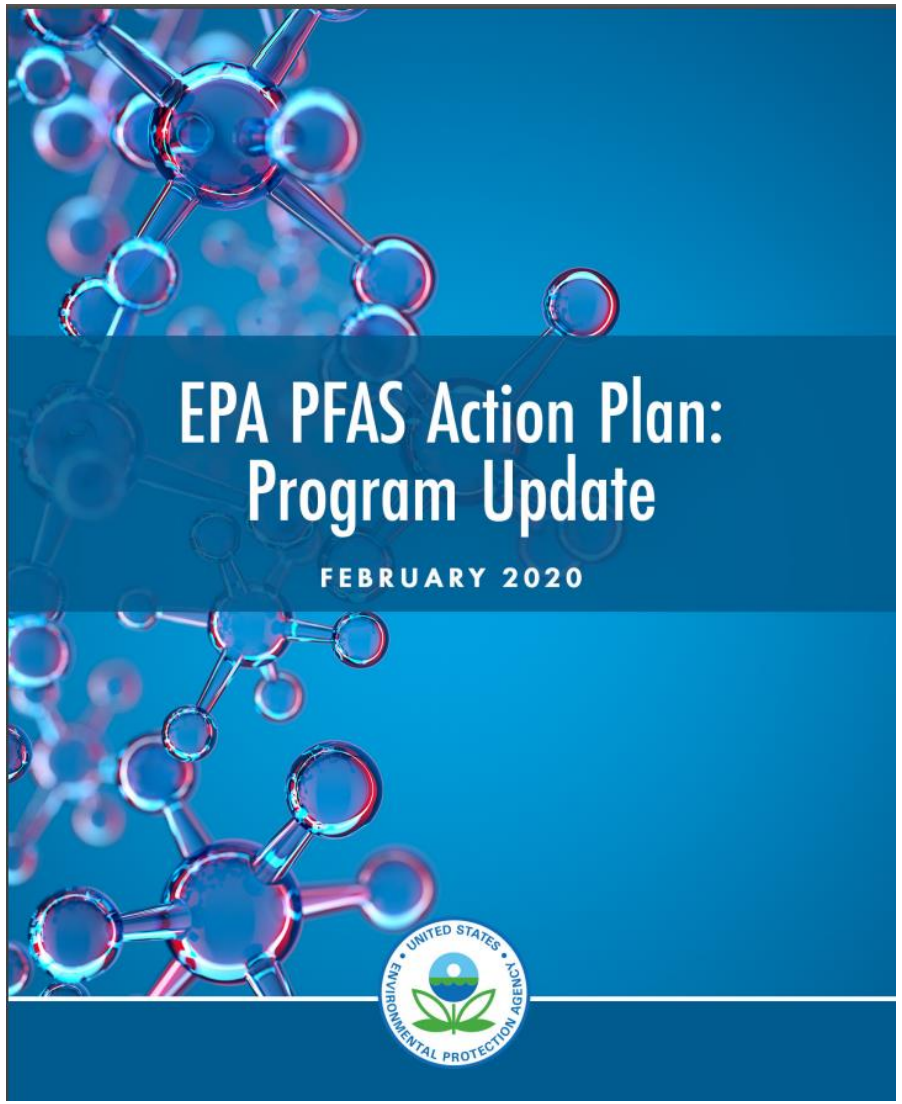
February 25, 2020



United States Environmental Protection Agency

Action Plan Highlights

- Incorporated feedback from community events and received 120,000 comments submitted to the public docket.
- The first multi-media, multi-program, national research, management and risk communication plan to address a challenge like PFAS.
- Over the past year, EPA has aggressively implemented the PFAS Action Plan and has made progress in all of the program areas.
- PFAS Occurrence in air, soils, leachate, biosolids, drinking water and waste water



https://www.epa.gov/sites/production/files/2020-01/documents/pfas_action_plan_feb2020.pdf

Update – January 2021 Highlights

Moving Forward on Regulating PFOA and PFOS in Drinking Water by Issuing Final Regulatory Determinations

New Data on PFAS in Drinking Water

Next Steps to Address PFAS in Wastewater

www.epa.gov/pfas

PFAS Standards

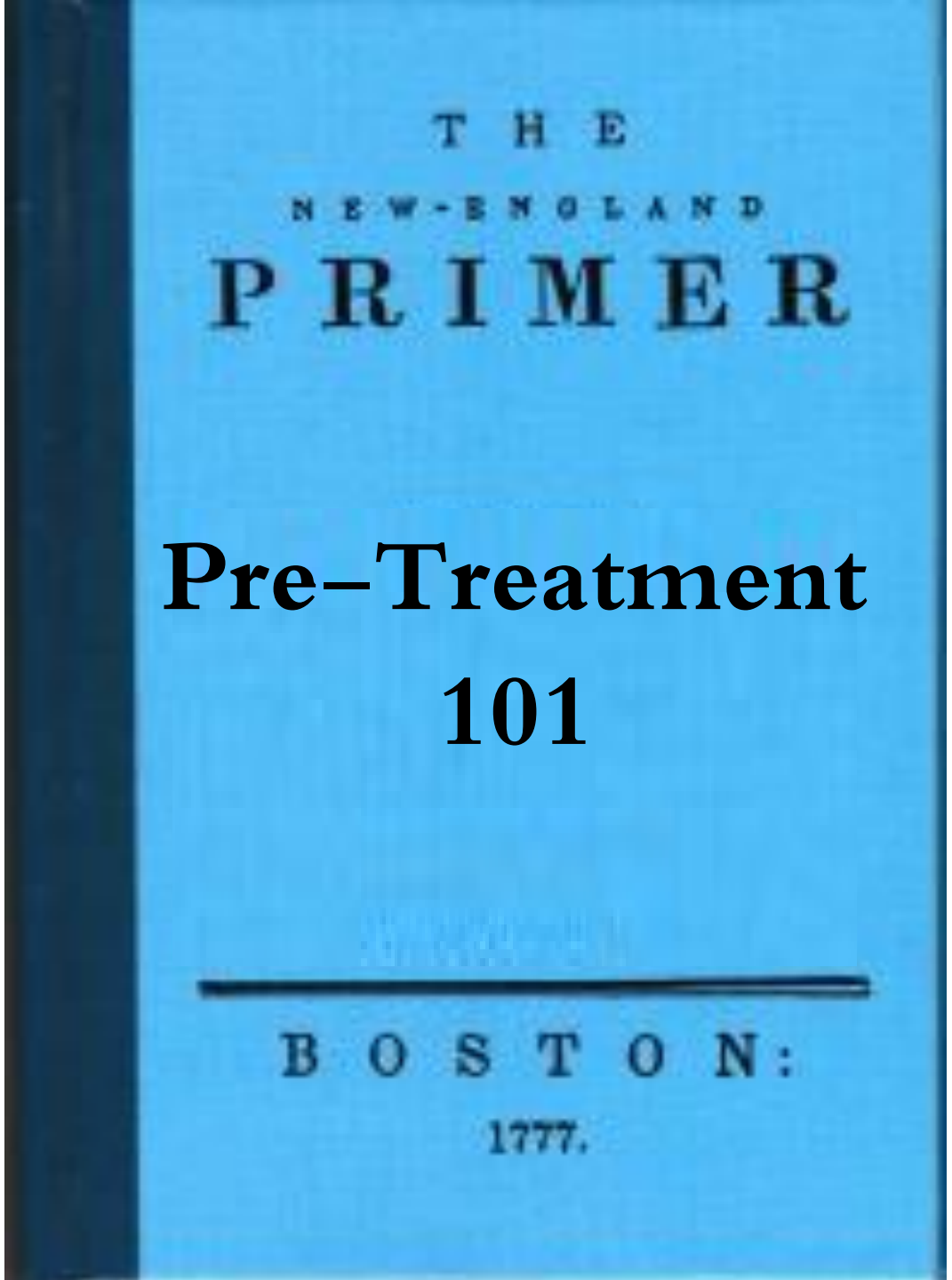
EPA

- Issued Drinking Water Health Advisories of 70 ppt for PFOA, PFOS and combined PFOA/PFOS.
- Pursuing plans to develop national Clean Water Act human health and aquatic life criteria for PFAS, as data supports.

States - Actively developing drinking water and ambient water quality criteria

New England State Regulation of PFAS for Drinking Water

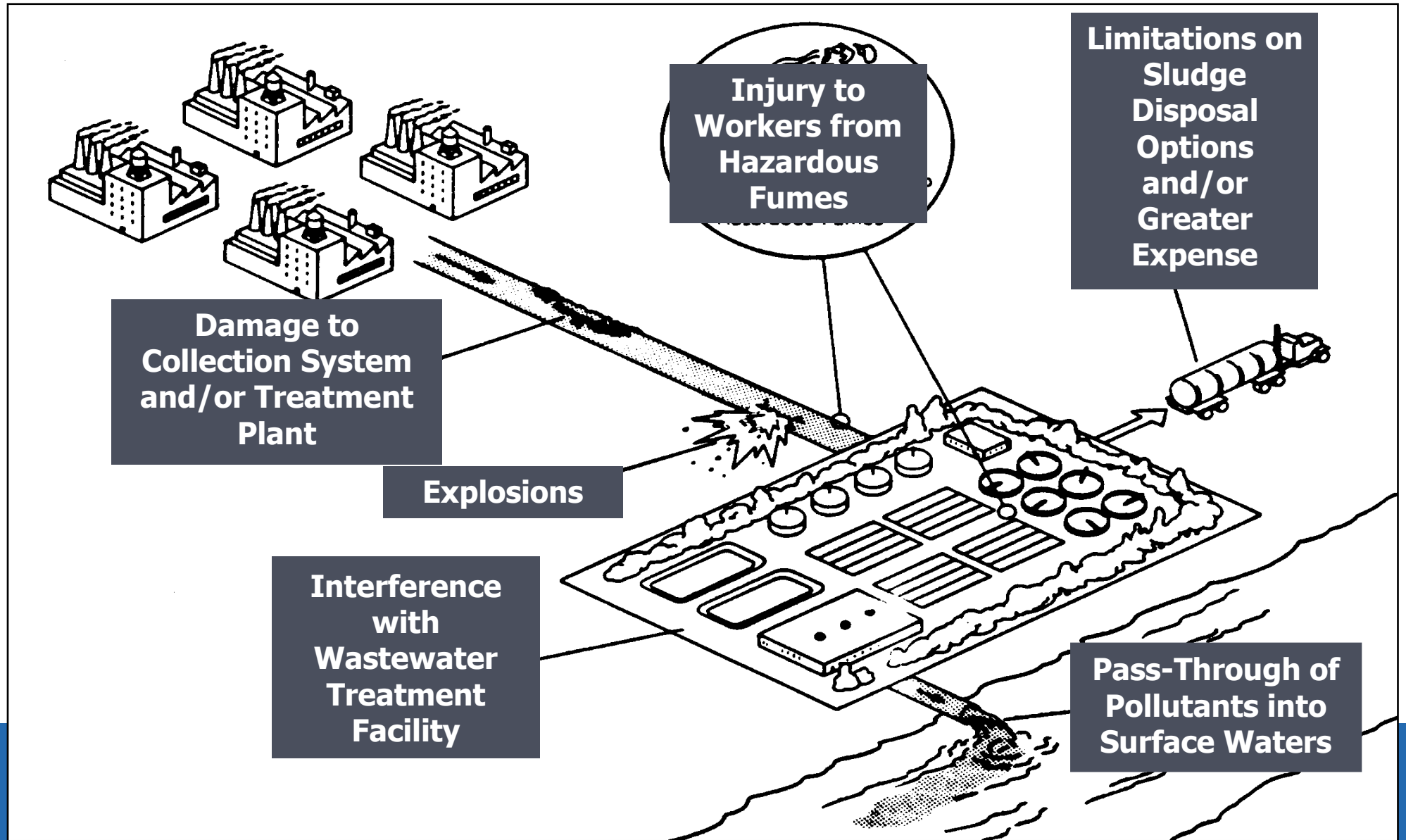
Connecticut	70 ppt	Sum of 5 PFAS compounds
Maine	70 ppt	PFOA & PFOS
Massachusetts	20 ppt	Sum of 6 PFAS compounds
New Hampshire *	11-18 ppt	Four PFAS compounds
Rhode Island	--	Working on regulations
Vermont	20 ppt	Sum of 5 PFAS compounds


THE
NEW-ENGLAND
PRIMER
Pre–Treatment
101
BOSTON:
1777.

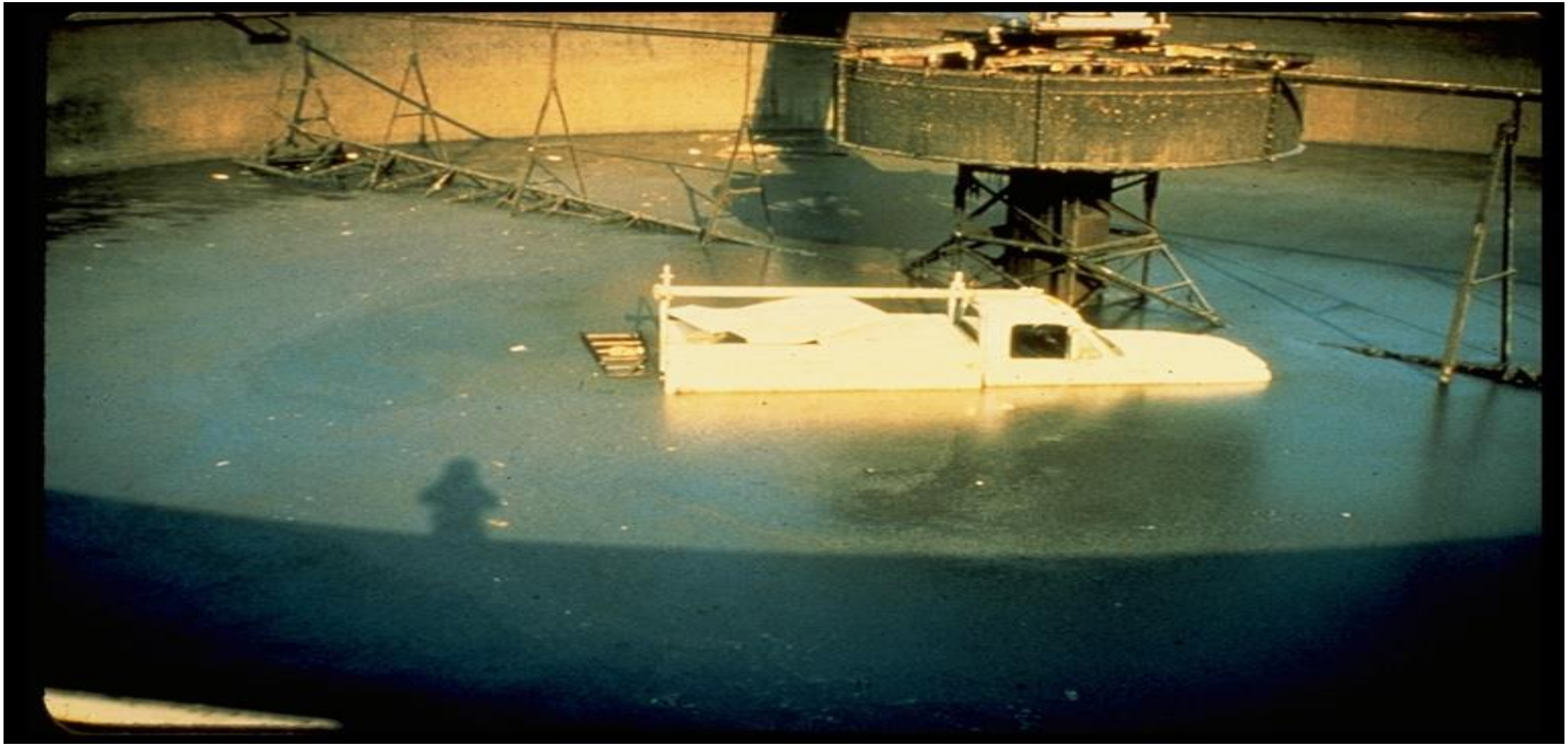
Clean Water Act: National Pollution Discharge Elimination System (NPDES)

General Pretreatment Regulations 40 CFR Part 403
January, 1981

Industrial Pretreatment Program: Prevent Pass-Through



Treatment plants were designed to remove conventional pollutants not heavy metals or PFAS



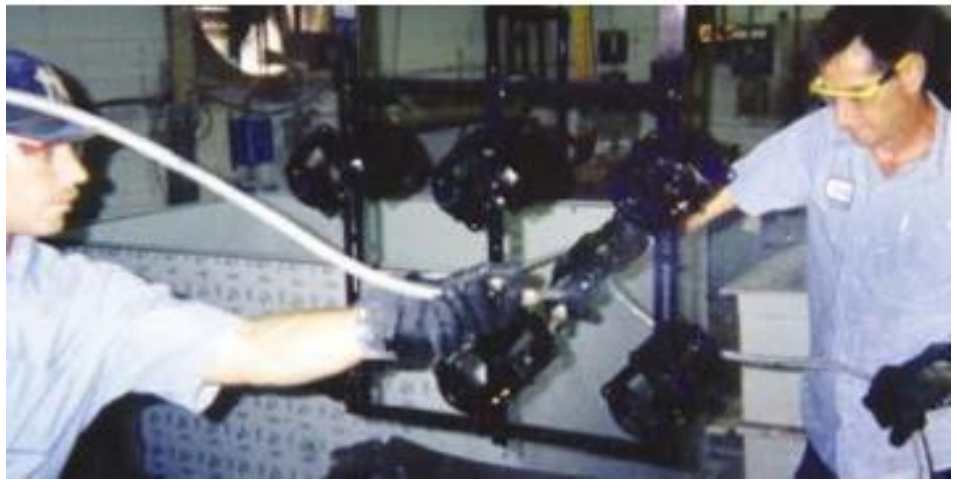
Significant Industrial User (SIU)

1. All Categorical Industrial Users (CIUs) regardless of flow
2. Significant Industrial Users (SIUs) which are industrial users that:
   - Discharge an average of 25,000 gpd of ***process*** wastewater
   - Contribute 5% or more of a POTW's average dry weather hydraulic or organic (i.e., BOD) capacity
   - Are determined to have "reasonable potential" to adversely affect POTW's operation, or violate pretreatment standards or requirements
3. Any other non-domestic user that discharges pollutants of concern

Categorical Industrial Users

Defined types of industries subject to National Categorical Pretreatment Standards examples:

- Electroplating (40 CFR 413)
- Metal Finishing (40 CFR 433)
- Plastics Molding and Forming (40 CFR 463)
- Metals Molding and Casting (40 CFR 464)
- Electrical and Electronic Components (40 CFR 469)
- Pharmaceuticals (40 CFR 439)



EPA Effluent Limitations Guidelines (ELG) and Standards Planning

Final ELG Plan 14
published January 2021

https://www.epa.gov/eg/effluent-guidelines-plan

PFAS Multi-Industry Detailed Study

- The goal of the PFAS Detailed Study is determine whether effluent guidelines rulemakings are warranted for any of the five PSC we are currently reviewing by examining three decision factors:
  - ***Are wastewater concentrations of pollutants at high enough levels to document treatment?***
  - ***Do the documented discharges from the industry warrant a national rule?***
  - ***Are wastewater treatment technologies available?***
- Five PSC include: OCPSF, Commercial airports, pulp and paper manufacturers, textile and carpet manufacturers, and metal finishers.
- Given the lack of available data on PFAS discharges, our primary sources of data will be collected through stakeholder outreach.

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Proposed Rulemaking – March 17, 2021

Clean Water Act Effluent Limitations Guidelines and Standards for the Organic Chemicals, Plastics and Synthetic Fibers (OCPSF) Point Source Category

40 CFR 414 – Existing Rule

https://www.epa.gov/eg/organic-chemicals-plastics-and-synthetic-fibers-effluent-guidelines

EPA New England Industrial Pretreatment Program

519 Wastewater Treatment Plants (POTW) within New England

90 Federally approved pretreatment programs

62 of which fall in MA and NH – EPA Approval Authority

EPA requires an annual report from POTWs listing significant industrial users

677 Significant Industrial Users in MA

131 Significant Industrial Users in NH

1325 Significant Industrial Users in New England

Region 1 Mapping PFAS

Mapped potentially known dischargers of PFAS

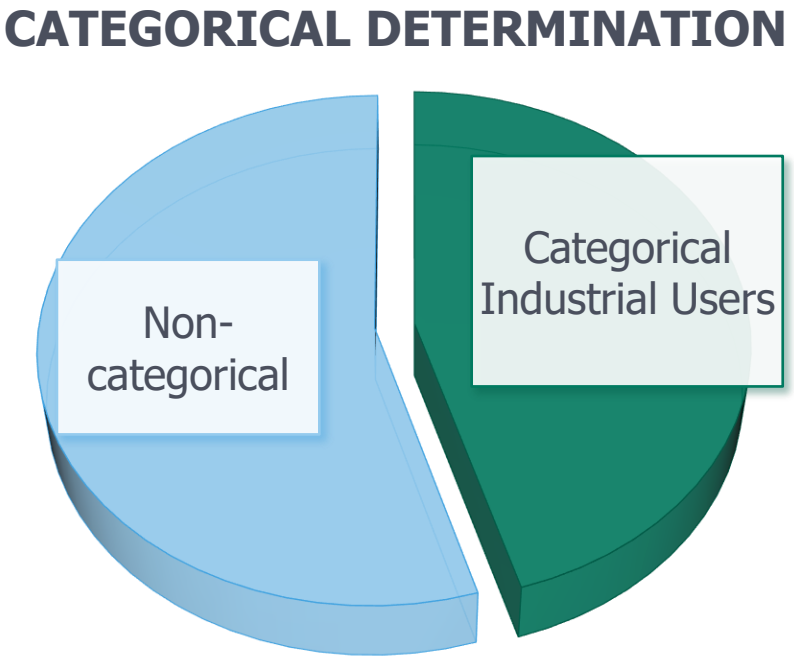
- Focused on MA and NH – EPA Authority
- Interested in drinking water sources
- Reviewed Annual Industrial Pretreatment reports
- Classified industrial sectors
- Ranked significant industrial users (High, Medium or Low)

PFAS Ranking

Reviewed **62 Annual Industrial Pretreatment Reports** to identify Significant Industrial Users to determine ranking:

Categorical Determination

- **45 percent** identified their categorical determination in their reports



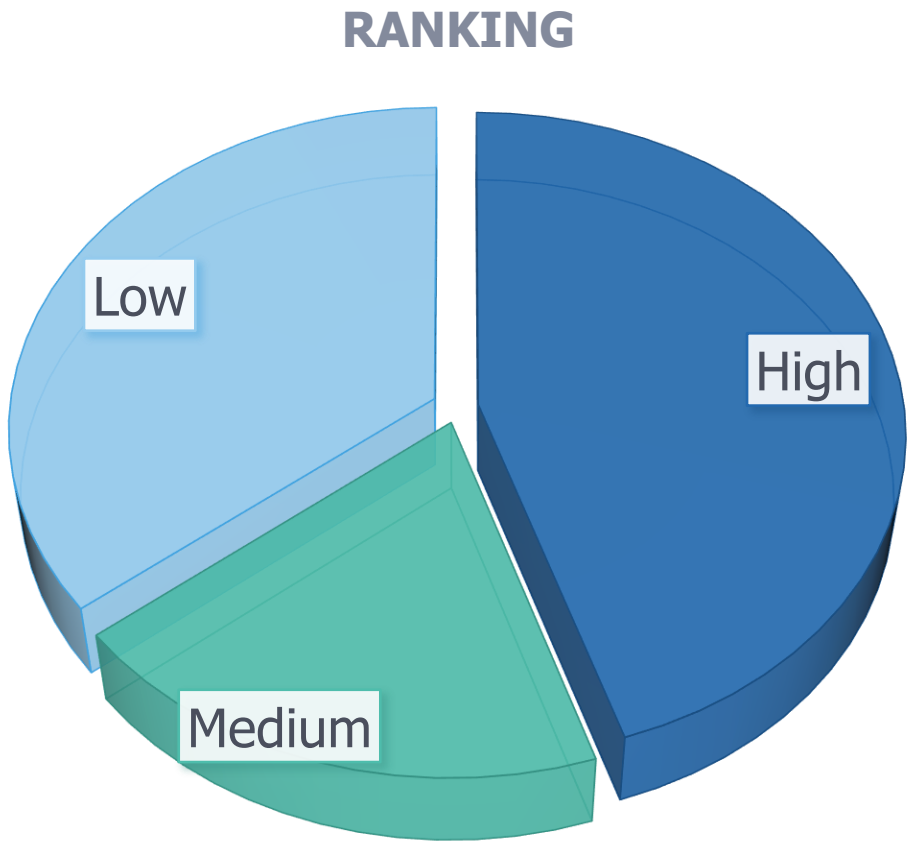
PFAS Ranking: High/Medium/Low

High: All the industries identified as potential PFAS sources; example metal platers, textiles,

landfill

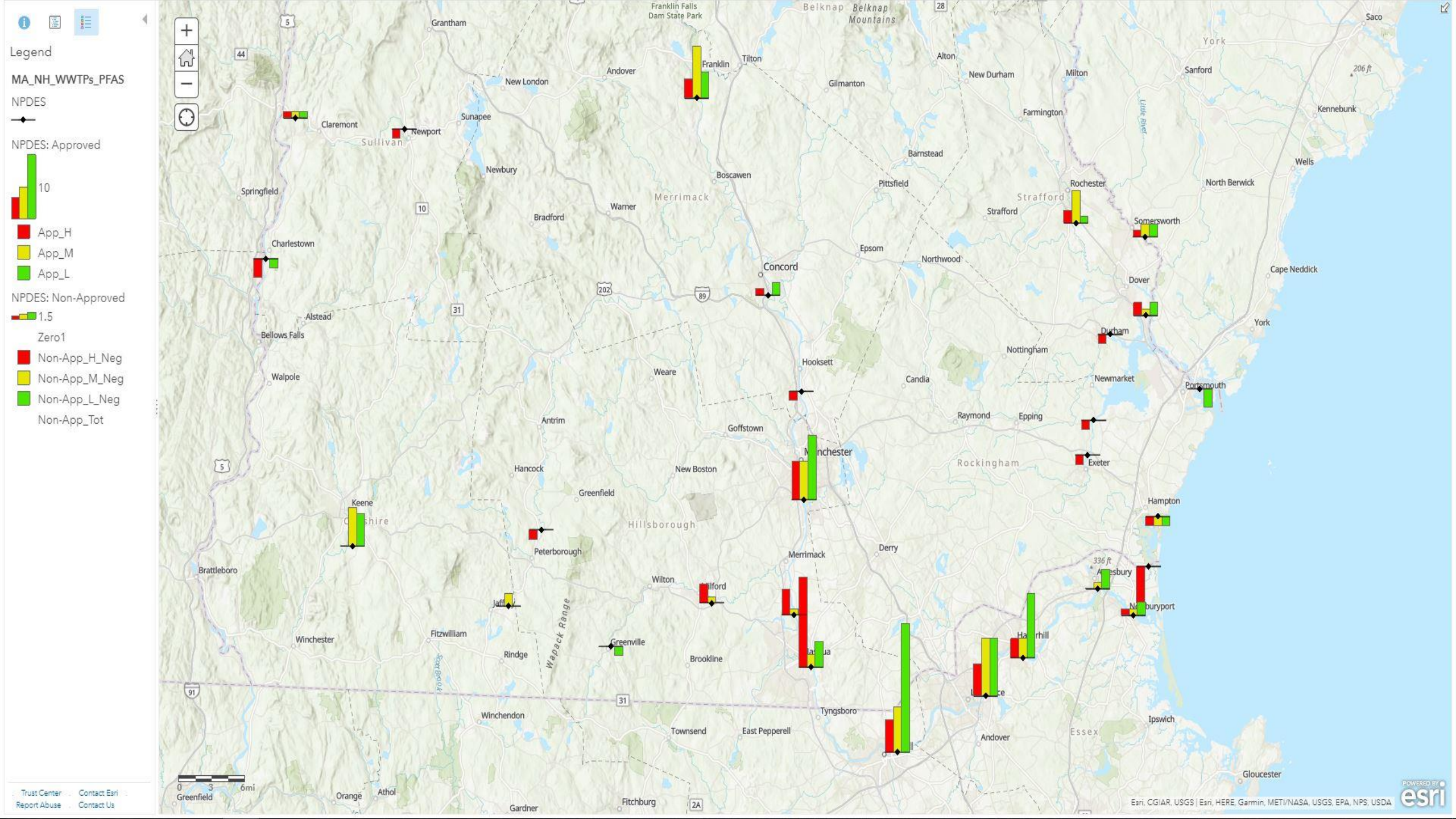
Medium: Has related activities that may include PFAS source; hospitals

Low: Unlikely to be related to PFAS; breweries or restaurants



PFAS Ranking Caveats

- Used best professional judgment
- Erred on conservative side
- Did not consider volume of wastewater


Legend
MA_NH_WWTPs_PFAS
NPDES
NPDES: Approved
10
App_H
App_M
App_L
NPDES: Non-Approved
1.5
Zero1
Non-App_H_Neg
Non-App_M_Neg
Non-App_L_Neg
Non-App_Tot
Trust Center
Report Abuse
Contact Esri
Contact Us
Grantham
Franklin Falls Dam State Park
Belknap Mountains
Saco
York
Franklin
Tilton
Alton
New Durham
Milton
Sanford
206 ft
Kennebunk
New London
Andover
Gilmanton
Farmington
Little River
Claremont
Newport
Sunapee
Sullivan
Barnstead
Wells
Newbury
Boscawen
Pittsfield
Rochester
North Berwick
Springfield
Merrimack
Strafford
Somersworth
Warner
Bradford
Charlestown
Epsom
Northwood
Concord
Cape Neddick
Dover
Alstead
Bellows Falls
Durham
York
Nottingham
Hooksett
Walpole
Weare
Candia
Newmarket
Portsmouth
Raymond
Epping
Antrim
Goffstown
Exeter
Rockingham
Hancock
New Boston
Greenfield
Keene
Hampton
Hillsborough
Peterborough
Derry
Merrimack
Brattleboro
Wilton
336 ft
Milford
Jaffrey
Wapack Range
Fitzwilliam
Winchester
Greenville
Rindge
Brookline
Tyngsboro
Townsend
East Pepperell
Andover
Essex
Ipswich
Winchendon
Gloucester
Athol
Orange
Gardner
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Esri, CGIAR, USGS | Esri, HERE, Garmin, METI/NASA, USGS, EPA, NPS, USDA
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R1 Assessment of Wastewater Impacts to Drinking Water

Using GIS analysis techniques to identify where the public water systems have the highest chance of wastewater contamination

Findings

- 60 Major NPDES facilities are upstream of drinking water intakes
- 16 Drinking water intakes are downstream of major NPDES dischargers
  - Minimum amount of upstream NPDES = 1
  - Maximum amount of upstream NPDES = 33
  - Closest NPDES discharger to a drinking water intake = 0.18 miles

Interim Strategy for Per- and Polyfluoroalkyl Substances in Federally Issued National Pollutant Discharge Elimination System (NPDES) Permits

EPA HQ Memo – November 22, 2020

Workgroup Recommendations include permit requirements for phased-in monitoring and best management practices, as appropriate, taking into consideration when PFAS are expected to be present in point source wastewater discharges.

PFAS DRAFT Language in ALL NPDES Permits (Massachusetts) as of July 2020

6 PFAS compounds to be monitored

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

Influent, Effluent, and Sludge Monitoring (1/quarter)

- This reporting requirement for the above listed PFAS parameters takes effect 6 months after EPA's multi-lab validated method for wastewater/biosolids is made available to the public on EPA's CWA methods program website
- Composite samples and report only – No numerical limits

Pretreatment Component on Industrial Dischargers

The Permittee shall commence annual sampling of the following types of industrial discharges into the POTW:

Platers/Metal Finishers

Paper and Packaging Manufacturers

Tanneries and Leather/Fabric/Carpet Treaters

Manufacturers of Parts with Polytetrafluroethlylene (PTFE) or teflon type coatings (i.e. bearings)

Landfill Leachate

Centralized Waste Treaters

Contaminated Sites

Fire Fighting Training Facilities

Airports

Any Other Known or Expected Sources of PFAS

MA OTA/DEP/EPA PFAS Initiative

3 POTWs discharging upstream of drinking water sources have been selected

- Marlborough
- Westborough
- Lowell

Questions

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