



Town of Topsfield Public Water Supply PFAS Information

February 10, 2021

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
ERIC WORRALL, DIRECTOR, NORTHEAST REGIONAL OFFICE**



REMINDER: To Ask Questions During Tonight's Presentation:

▶ Please Email: Kharutunian@Topsfield-ma.gov

What are PFAS, why are they a problem?

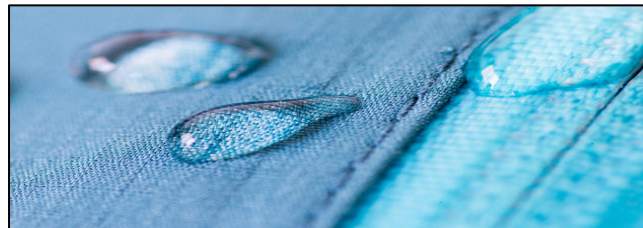
PFAS are Per- and Polyfluoroalkyl Substances:

- Human-made chemicals
- Used in stain-resistant, water-resistant, and non-stick products, firefighting foams, food packaging, outdoor clothing, carpets, leather goods, waxes, and more.
- Linked to health risks, particularly in immuno-compromised individuals and women who are pregnant or nursing, and in infants.

PFAS are persistent in the environment

- ▶ **Landfills** – current and historic landfills and dumping areas
- ▶ **Firefighting Foam** – airfields, military bases, fire-fighting training areas, big fires, locations where Class B firefighting foam has been discharged (not necessarily fire stations)
- ▶ **Biosolids** – application of sewage sludge, paper mill sludge
- ▶ **Groundwater Discharges** – septic systems, other facilities
- ▶ **Air Releases** – incinerators, permitted releases

Hazardous Waste Sites



How is Massachusetts addressing PFAS?

- ▶ MassDEP has established a Maximum Contaminant Limit (MCL) of 20 ppt for the sum of six PFAS compounds (PFAS6) in drinking water for public water supplies (October 2, 2020)
- ▶ Legislature provided \$8.4M requested by Baker–Polito Administration for:
 - ▶ MassDEP testing of public water supplies and private wells throughout Massachusetts for PFAS
 - ▶ Grants to municipal water suppliers to address PFAS in drinking water
- ▶ \$20M to Clean Water Trust for communities to address contamination issues.

Next Regulatory Steps for Topsfield

- ▶ Public Education Materials have been distributed.
- ▶ Sampling monthly for PFAS6 in finished water.
- ▶ If 3 monthly samples in a calendar quarter average over the 20 ppt Maximum Contaminant Level:
 - ▶ An MCL violation will occur.
 - ▶ A Public Notice document must be distributed each quarter while the MCL violation is in effect.
 - ▶ Steps must be taken to reduce the PFAS6 levels below the MCL, potentially including the design, permitting and construction of additional treatment.

Topsfield PFAS6 Results

(parts per trillion)

Pre-Regulation Testing:

- ▶ October 2019: 24.36 ppt
- ▶ December 2019: 14.14 ppt
- ▶ February 2020: 10.12 ppt
- ▶ July 2020: 11.30 ppt & 11.21 ppt
- ▶ August 2020: 22.04 ppt & 24.07 ppt
- ▶ September 2020: 13.37 & 14.17 ppt

Post-Regulation Testing:

- ▶ October 2020: 21.42 ppt (initial)
 - ▶ November 2020: 19.81 ppt (confirmatory)
- Initial & Confirmatory Avg. = 20.62 ppt
- ▶ December 2020: 12.7 ppt & 20.56 ppt
- 2020 Q4 Average = 19.29 ppt

Topfield Greensand Facility

Manganese Removal Selection Process

Possible Treatment Methods:

- ▶ Reverse Osmosis
 - ▶ Expensive, large amount of waste
- ▶ Biological
 - ▶ New, promising but potentially unreliable
- ▶ Membrane Filtration
 - ▶ Requires permanganate
 - ▶ Difficult to operate

Greensand Selected:

- ▶ Removes soluble & particulate Mn
 - ▶ Can use chlorine as oxidant
- ▶ Very efficient
 - ▶ Process creates very little waste, allows recycling of water
- ▶ Easy to operate & maintain
 - ▶ Not as oxidant dose dependent
 - ▶ No pink water

Topfield Greensand Facility

Design & Construction Timeline

WTP Timeline:

- ▶ 2014
 - ▶ Obtained design funding for WTP
 - ▶ EPA tests for PFAS – none detected
- ▶ 2015 – 2017
 - ▶ Design, permitting & bid WTP
 - ▶ USEPA Health Advisory - 70 ppt (2016)
- ▶ 2017- 2018
 - ▶ Plant construction
- ▶ 2019
 - ▶ Plant commissioned (January)
 - ▶ MassDEP announces intention to regulate PFAS (January)
 - ▶ Plant goes online (March)
 - ▶ MassDEP publishes draft PFAS regulations 20 ppt

Topfield's Next Steps

Short-term actions:

- ▶ Working closely with MassDEP
- ▶ Monitor PFAS levels
 - ▶ Monthly testing
 - ▶ Results being verified by multiple labs
 - ▶ Publish results
- ▶ Applied for MassDEP pilot testing grant

Long-term Plans:

- ▶ Looking for regional solutions for PFAS
- ▶ Exploring enhancements to the treatment system

Questions?

- ▶ Questions During Tonight's Presentation:
 - ▶ Email: **kharutunian@Topsfield-ma.gov**
- ▶ Other Questions:
 - ▶ MassDEP Email: **amy.lapusata@mass.gov**
 - ▶ Topsfield Water Department Email: **gkrom@topsfield-ma.gov**
- ▶ MassDEP PFAS Website: **Google "MassDEP PFAS"** **<https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas>**