

Community Update Regarding Drinking Water in Randolph

July 29, 2021

**Massachusetts Department of
Environmental Protection
(MassDEP)**

MassDEP



**MassDEP's
Southeast Regional Office**

Millie Garcia-Serrano, MPH

Regional Director

and

Environmental Justice

Deneen Simpson

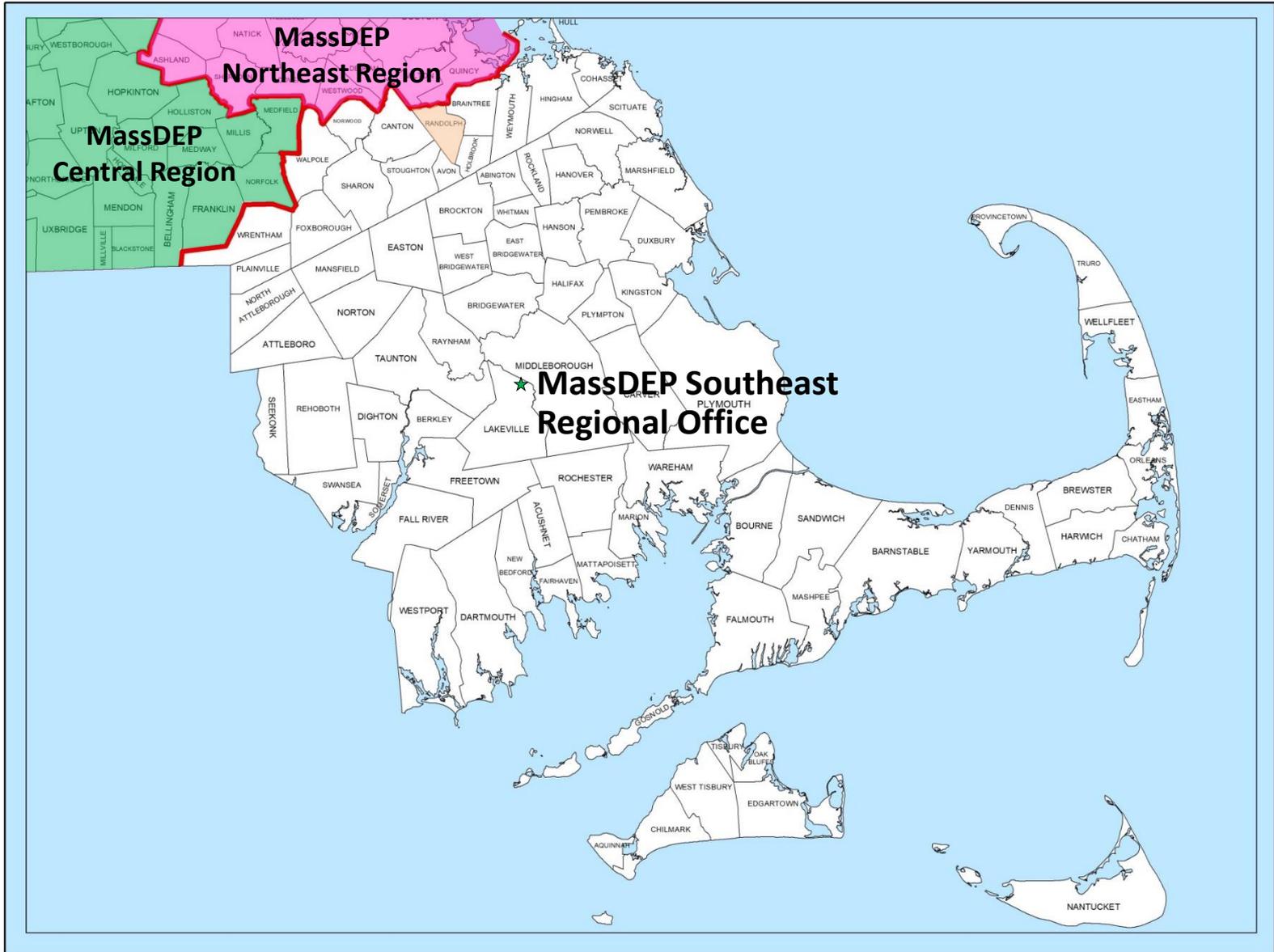
Environment Justice (EJ) Program Director

MassDEP Boston Office

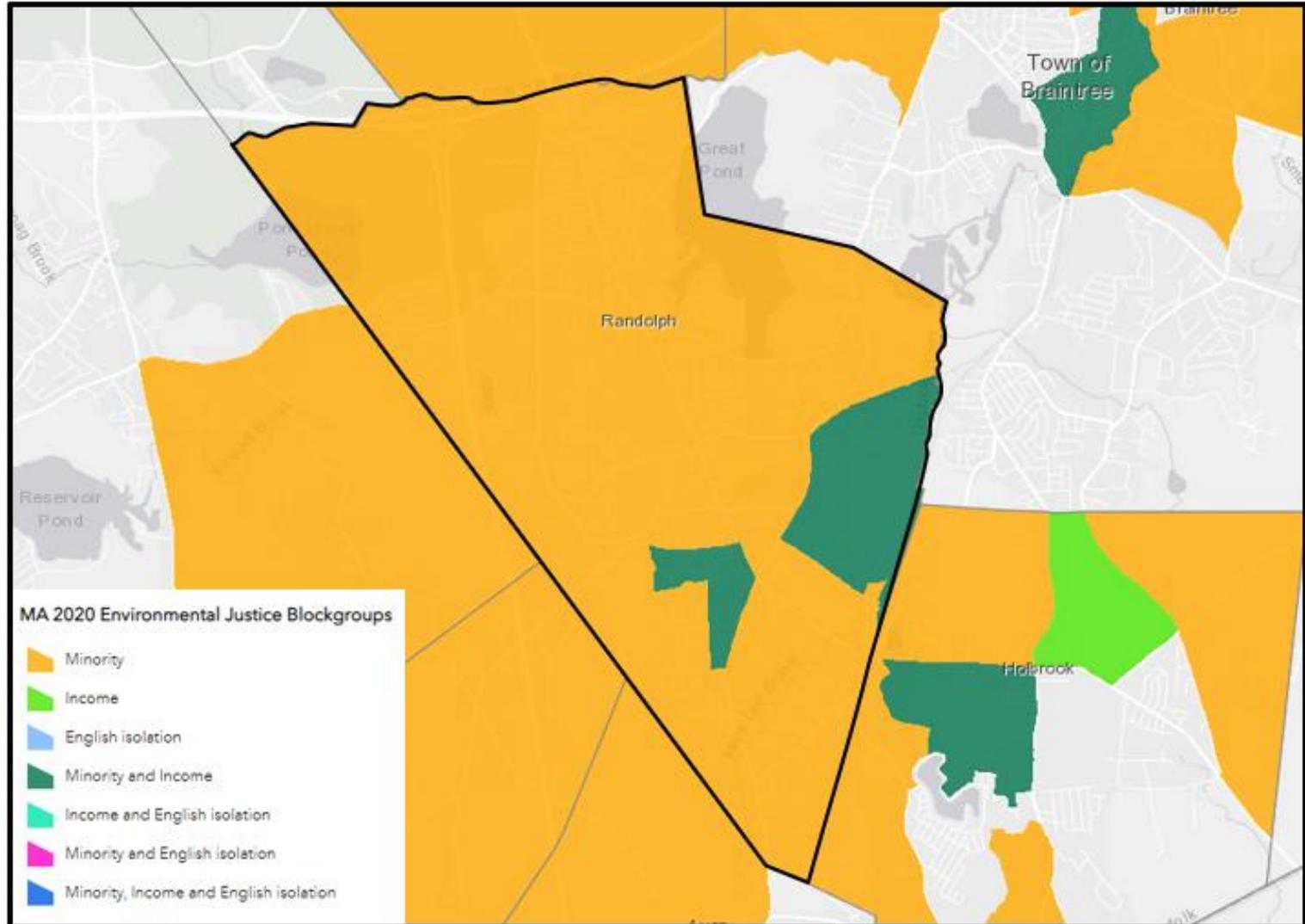
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MassDEP's Southeast Region



Environmental Justice Populations in Randolph



Randolph Drinking Water

Where does it come from?

How is it regulated?

How is it treated?

Is it tested?

Nick Schuler

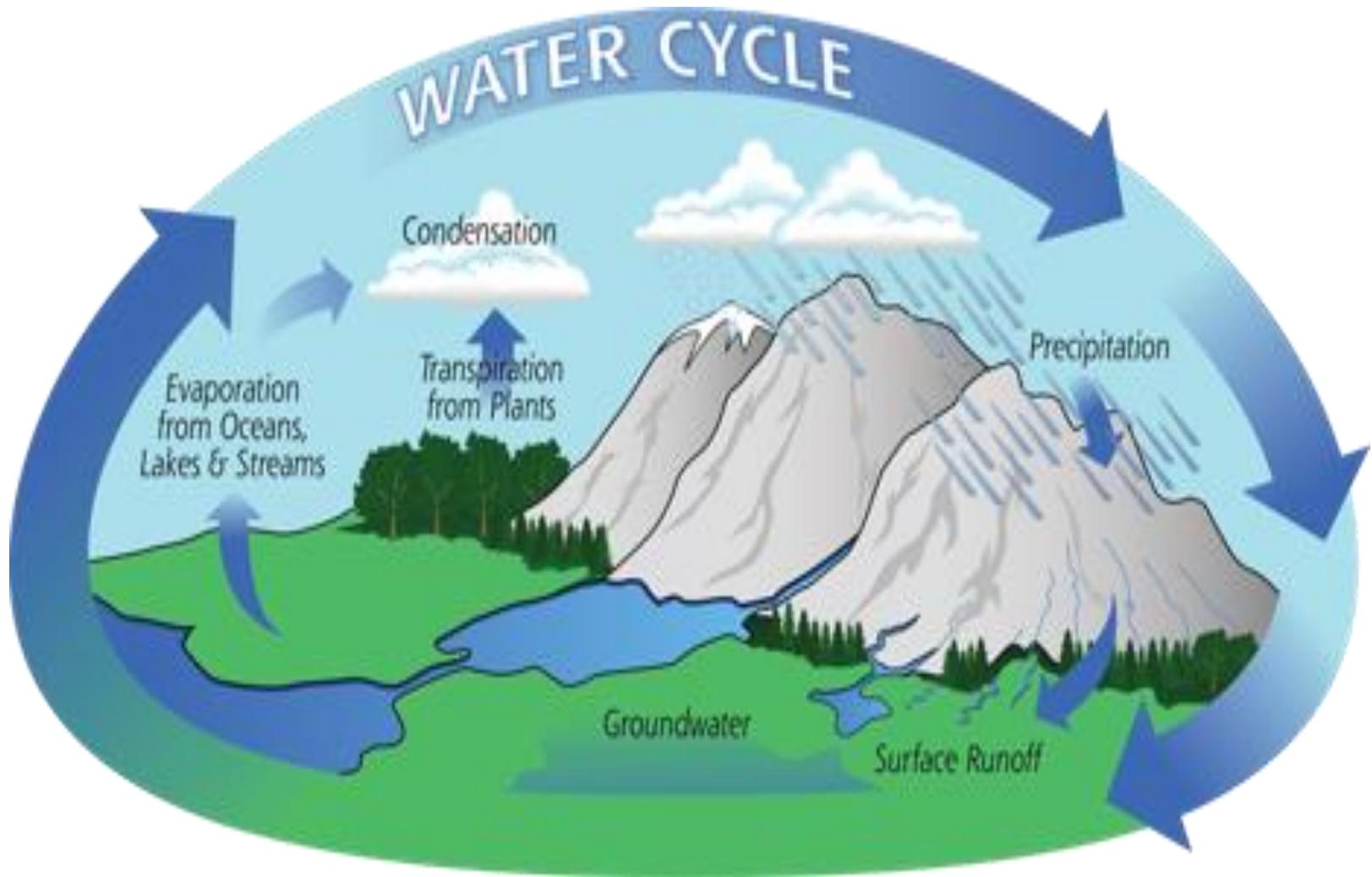
Environmental Analyst

MassDEP Southeast Regional Office

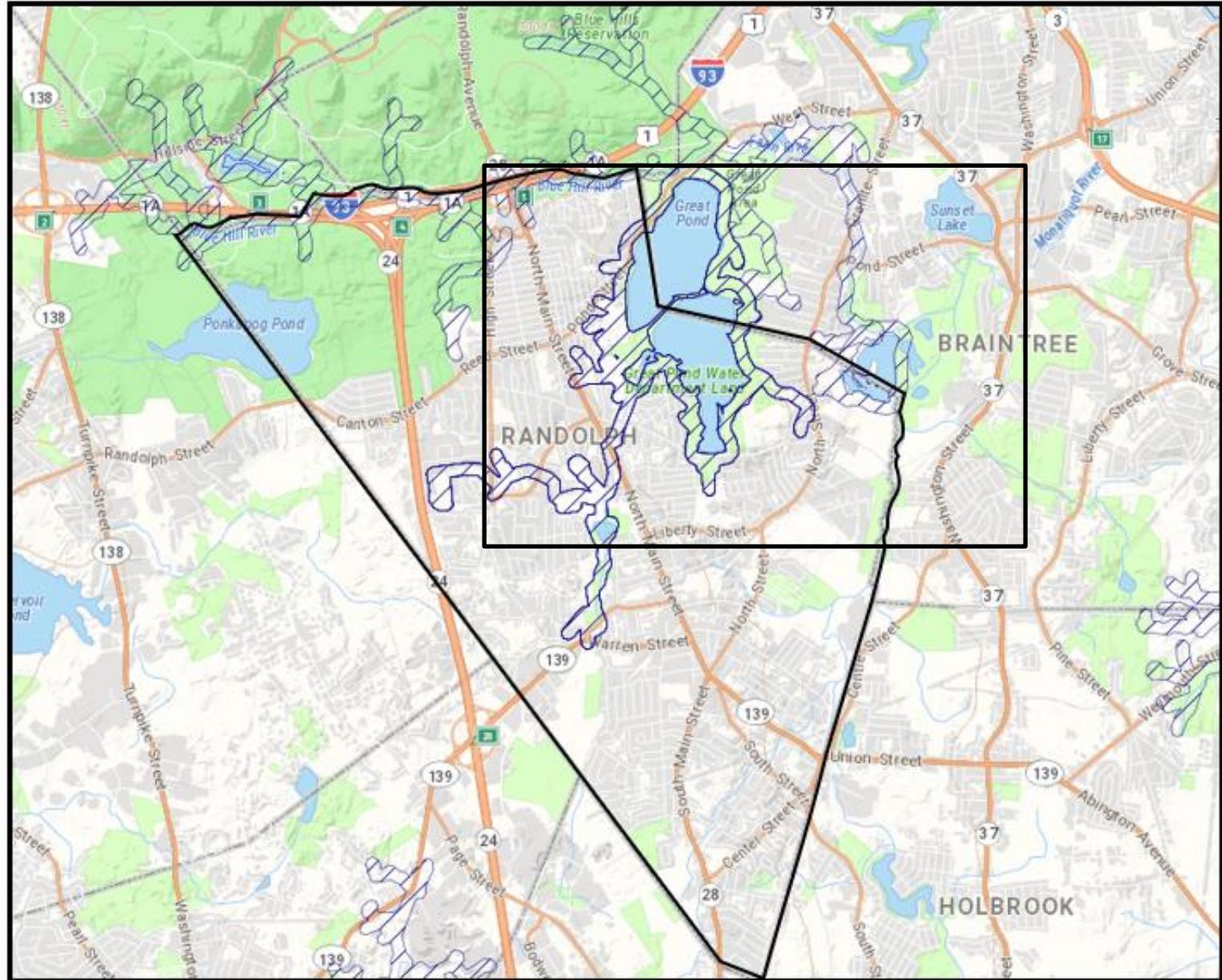
Drinking Water Program

MassDEP

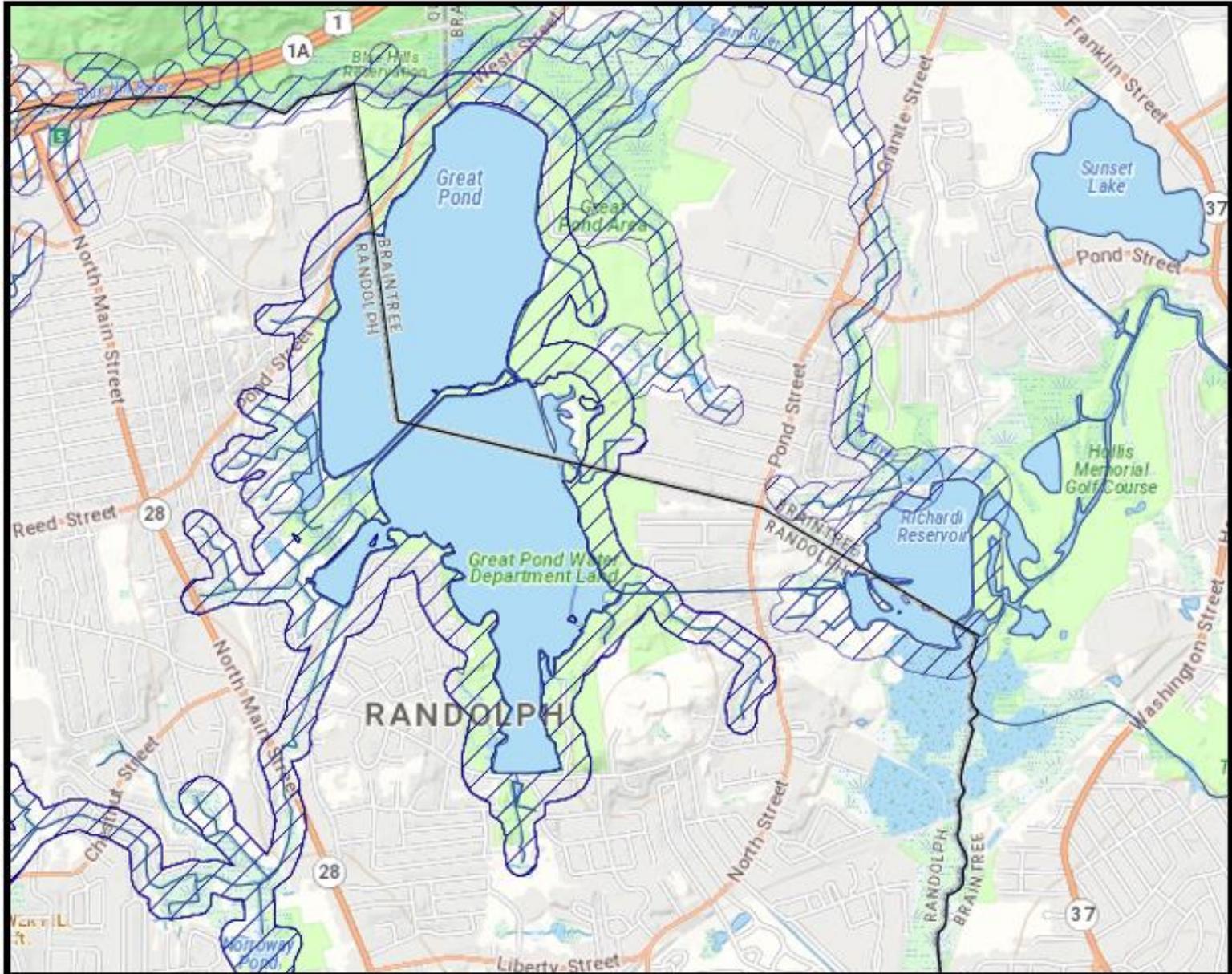




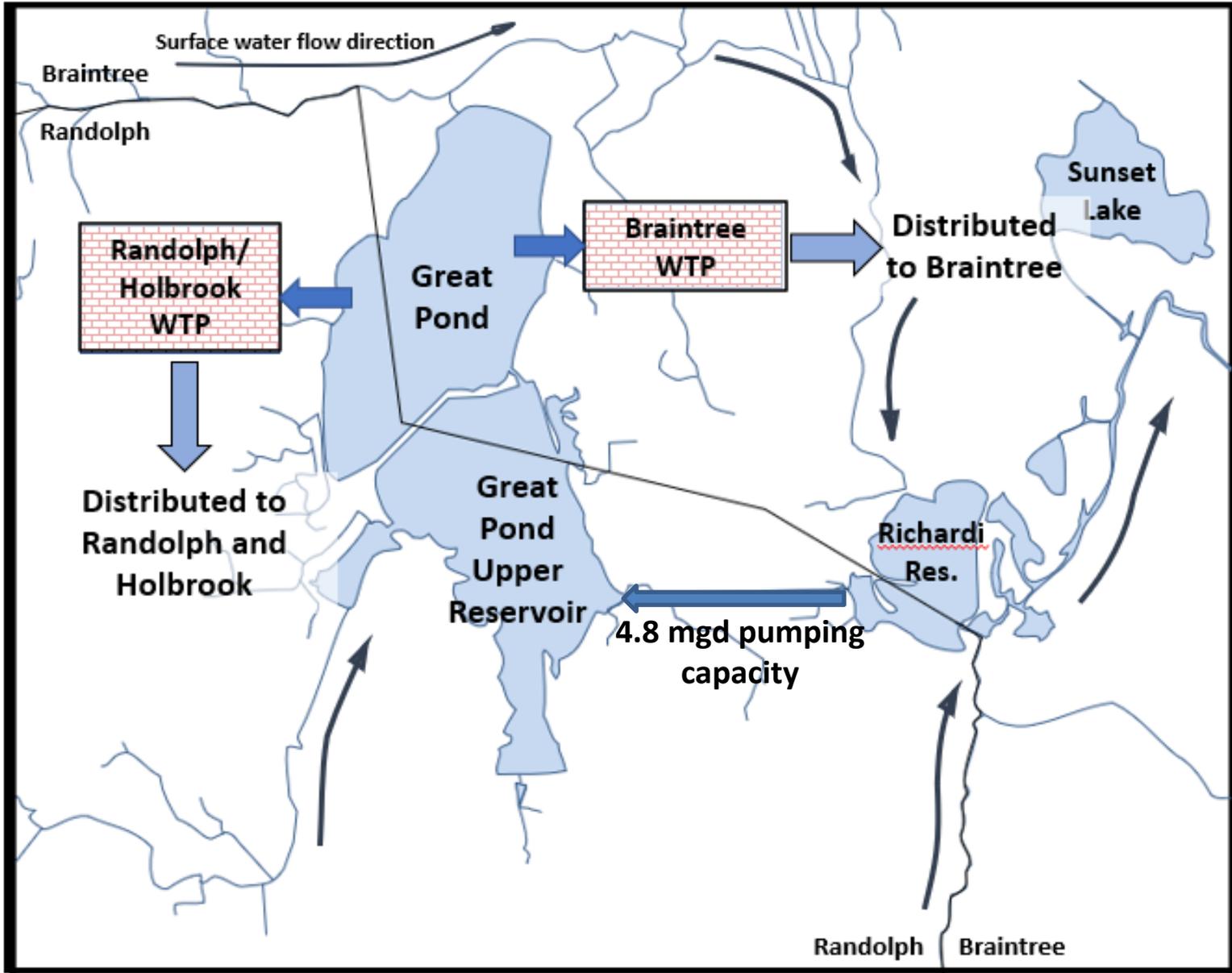
Source of Randolph Drinking Water



Source of Randolph Drinking Water



Randolph Drinking Water Distribution



Regulated by the Safe Drinking Water Act

- Safe Drinking Water Act passed by Congress in 1974
- Authorizes US Environmental Protection Agency (EPA) to set national health-based standards to protect against natural-occurring and man-made contaminants
- Requires actions to protect drinking water and sources: rivers, lakes, reservoirs, springs, and groundwater
- MassDEP has a compendium of standards and guidance values available for evaluating contaminants in Massachusetts drinking waters
- EPA, MassDEP and Public Water System Operators Work Together to provide drinking water is safe



Randolph Water Treatment Plant



- Existing plant was built in 1936
- Some water lines date to 1800s
- Treated 800 million gallons of water in 2020
- New Plant to replace current outdated plants
 - To replace Randolph/Holbrook and Braintree plants

Treatment of Randolph Public Water

Prior to use, the water from Great Pond is:

- Filtered/flocculated to remove particles and sediment
- Chlorinated to address biological contaminants
- Buffered to control corrosion of pipes in the distribution system



Testing of Randolph Public Water

The water from Great Pond is regularly analyzed for:

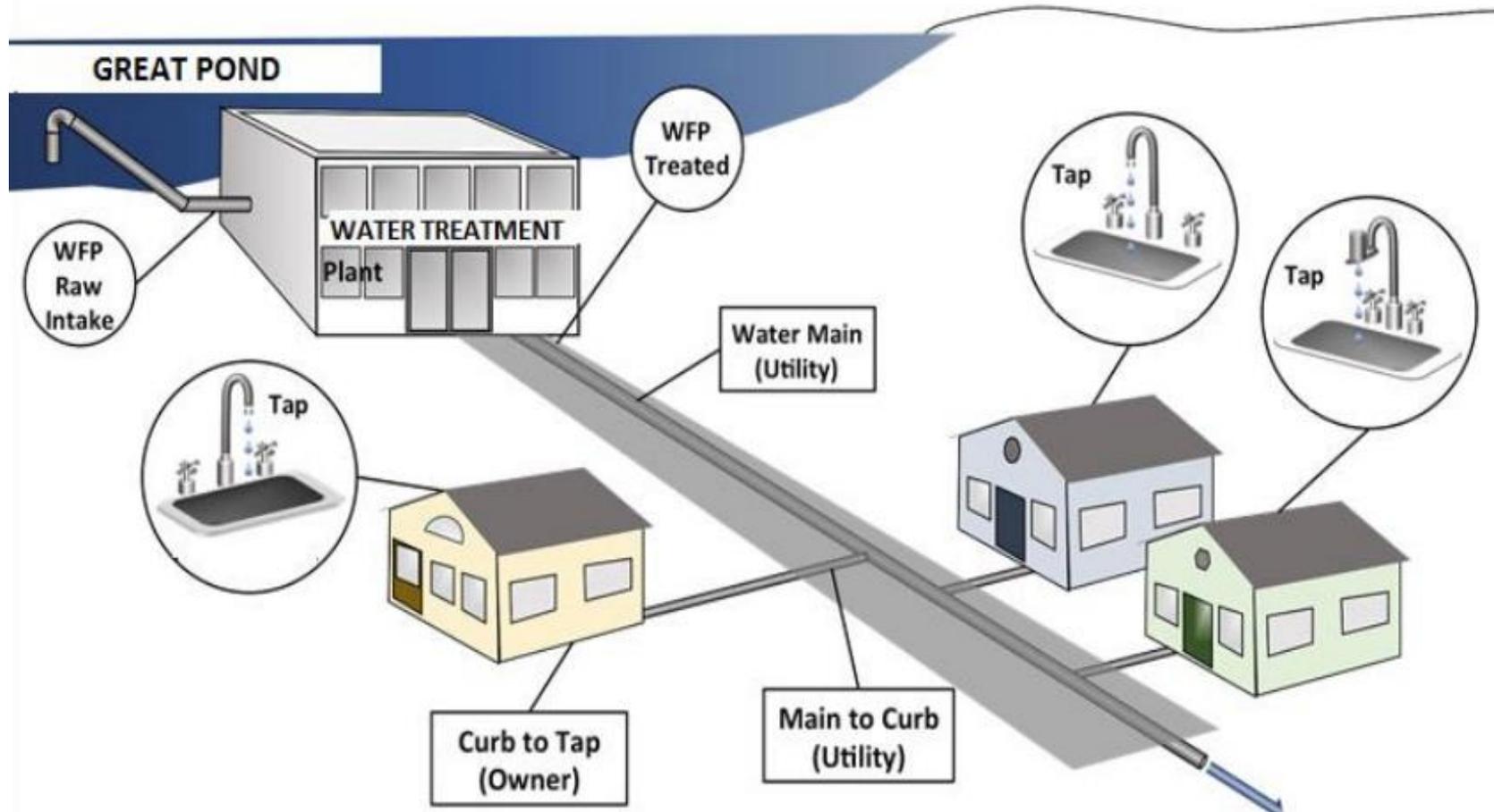
- Bacteria
- Inorganic compounds
 - Metals, nitrite/nitrate, perchlorate
- Synthetic organic chemicals
 - Pesticides, polychlorinated biphenyls (PCBs), furans, etc.
- Volatile organic compounds (VOCs)
 - Benzene, toluene, trichlorethylene, etc.
- And now... the six per- and polyfluoroalkyl substances (PFAS6) – a contaminant of emerging concern

Annual Consumer Confidence Reports with the analytical results sent to customers every year

- Sent by July 1st
 - Available at: [Randolph 2020 CCR for Web.pub \(randolph-ma.gov\)](http://randolph-2020.ccr.webpub Randolph 2020 CCR for Web.pub (randolph-ma.gov))



After treated and testing water is Distributed to costumers



PFAS and Drinking Water

Kathy Baskin, P.E.

Assistant Commissioner

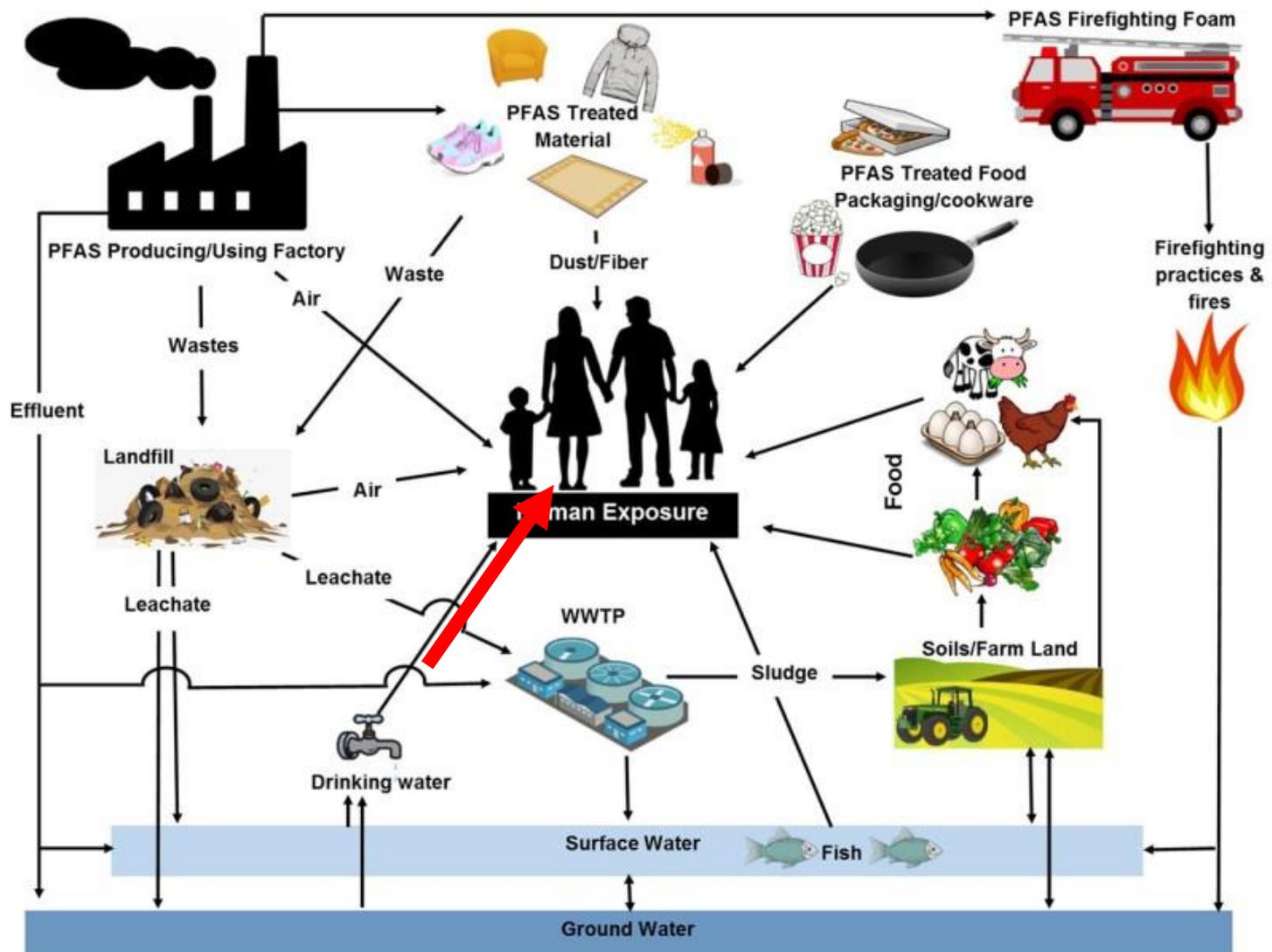
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Bureau of Water Resources

MassDEP



Environment & Human Exposure to PFAS



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

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 by State

	PFOS	PFOA	PFNA	PFHxS	PFHpA	PFDA
U.S. EPA Health Advisory	70		NA	NA	NA	NA
	Sum of two					
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

Results are in nanograms per liter (ng/L or parts per trillion (ppt))

MassDEP PFAS Regulations

Soil & Groundwater (Massachusetts Contingency Plan)

[310 CMR 40.16](#)

Effective 12/27/19

Massachusetts is only one of two states with comprehensive cleanup standards for soil and groundwater

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 (Massachusetts Maximum Contaminant Level)

[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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PFAS6 Drinking Water Standard

- Regulations establish a new Maximum Contaminant Level: 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 Maximum Contaminant Level (MCL) is 20 ng/L (ppt) for the sum of six PFAS compounds
 - PFOS: perfluorooctane sulfonic acid
 - PFNA: perfluorononanoic acid
 - PFOA: perfluorooctanoic acid
 - PFHpA: perfluoroheptanoic acid
 - PFHxS: perfluorohexane sulfonic acid
 - PFDA: perfluorodecanoic acid
- No federal (EPA) drinking water standard:
 - PFOS and PFOA health advisory only



Ongoing Evaluation

- Massachusetts Maximum Contaminant Level (MMCL) requires reassessment at least every three years
 - Reflects rapidly expanding scientific data
 - Potential updates to current regulation covering subclass of PFAS
 - Potential expansion to include guidelines for additional PFAS
 - Some other states have developed, or are considering, values for PFBA; PFBS; PFHxA; GenX
- MassDEP's Office of Research and Standards developing PFAS database and tracking scientific developments
 - Including carcinogenicity data



MCL Applicability to Public Water Systems

Massachusetts Maximum Contaminant Level (MCL) applies to:

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

Massachusetts Maximum Contaminant Level (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)



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](#))
- \$8.4 million for Public Water System 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 System Testing
- Free Private Well Drinking Water testing -



State Funding for PFAS Remediation

- Clean Water Trust; State Revolving Fund
- Priority funding; zero-percent interest on loans
- \$180 million in State Revolving Fund 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 systems
- Of the Public Water Systems 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

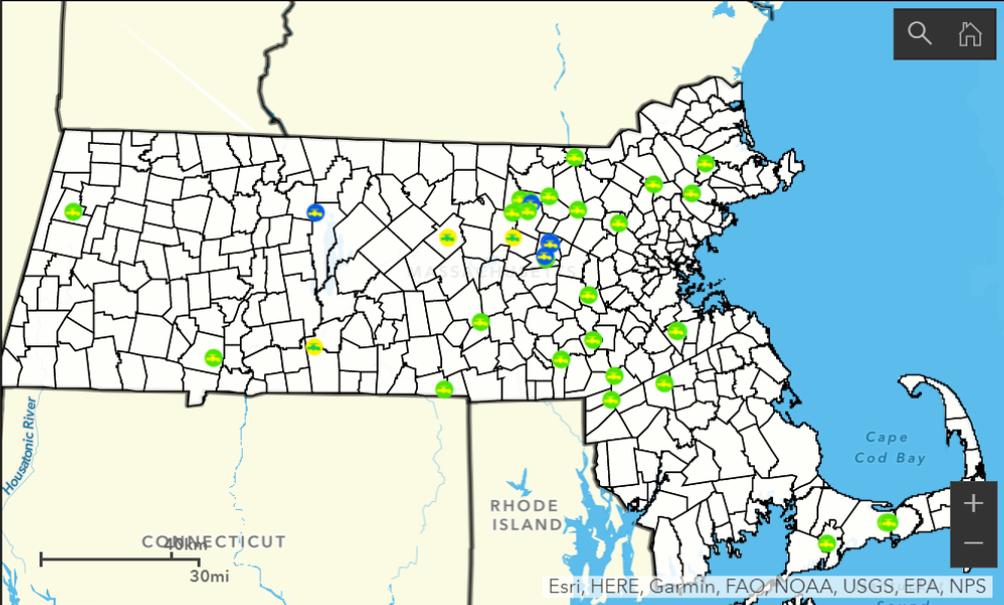


MassDEP PFAS6 Story Map

3 Public Water Systems Free Testing

4 PFAS detections and responses by public water systems

MassDEP recently adopted a drinking water standard limiting the sum of six specific PFAS to no more than 20 parts per trillion. Together, these six PFAS are referred to as "PFAS6." The following interactive map displays locations where public water systems have detected the sum of these six state-regulated PFAS at levels over 20 parts per trillion in "finished" water, or in water that is made available for public use.



Map PWS types More info

Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS

PWS detected PFAS6 above 20 ppt

- Acton Water District
- Aquarion Water Company, Millbury
- Ayer DPW Water Division
- Ayer Road Properties, LLC
- Barnstable Fire District Water Department
- Bedford Water Dept
- Bellingham Water Dept
- Bolton Orchards
- Braintree Water Dept
- Danvers Water Dept
- Devens/Mass Development
- Dudley Water Department

Last update: a few seconds ago

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

PFAS6 Impacts to the Randolph Public Water Supply

Gerard Martin

Acting Deputy Regional Director
MassDEP Southeast Regional Office
Bureau of Water Resources

MassDEP



PFAS6 in Randolph Drinking Water

COMPOUND	SAMPLING DATE					
	1/26/21	2/22/21	3/22/21	4/12/21	5/10/21	6/14/21
PFDA	ND	ND	ND	ND	ND	ND
PFNA	J	J	J	J	J	J
PFHpA	2.6	2.6	2.3	2.4	2.3	2.4
PFHxS	2.5	2.5	2.4	2.2	2.5	2.6
PFOS	5.5	6.2	5.6	5.3	5.3	5.6
PFOA	9.2	9.5	9.0	8.9	8.5	9.5
PFAS6	19.8	21.2	19.3	18.8	18.5	20.1

Results are in nanograms per liter (ng/L) or parts per trillion (ppt)

ND = not detected above the method detection limit of 2.0 ng/L

J = Estimated value below method detection limit of 2.0 ng/L

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Public Outreach/Public Education

- The Randolph and Holbrook Joint Water Board mailed Public Education notice to Randolph and Holbrook Customers on April 29, 2021
- While not violating the PFAS6 Maximum Contaminant Level, the Public Education notice included:
 - PFAS6 results
 - PFAS6 definition
 - Information on what you can/should do
 - Information on what is being done by the Randolph/Holbrook Water Board
- Provided information on receiving information in Vietnamese & Haitian Creole



Short Term Approach

- Continue monthly sampling of drinking water
- Boiling the water will not destroy PFAS6
- Randolph setting up a vending unit to provide alternate water to sensitive subgroups (pregnant/nursing women, infants and those who are immunocompromised) if the PFAS6 Maximum Contaminant Level is exceeded

Long Term Approach

- New Regional Treatment Plant



Questions?

MassDEP



Environmental Partners

PFAS Treatment Long-term

MassDEP

