PFAS: A National Challenge Requires Local Solutions

Paul W. Locke
(Semi-Retired)
Bureau of Waste Site Cleanup
Paul.W.Locke@mass.gov

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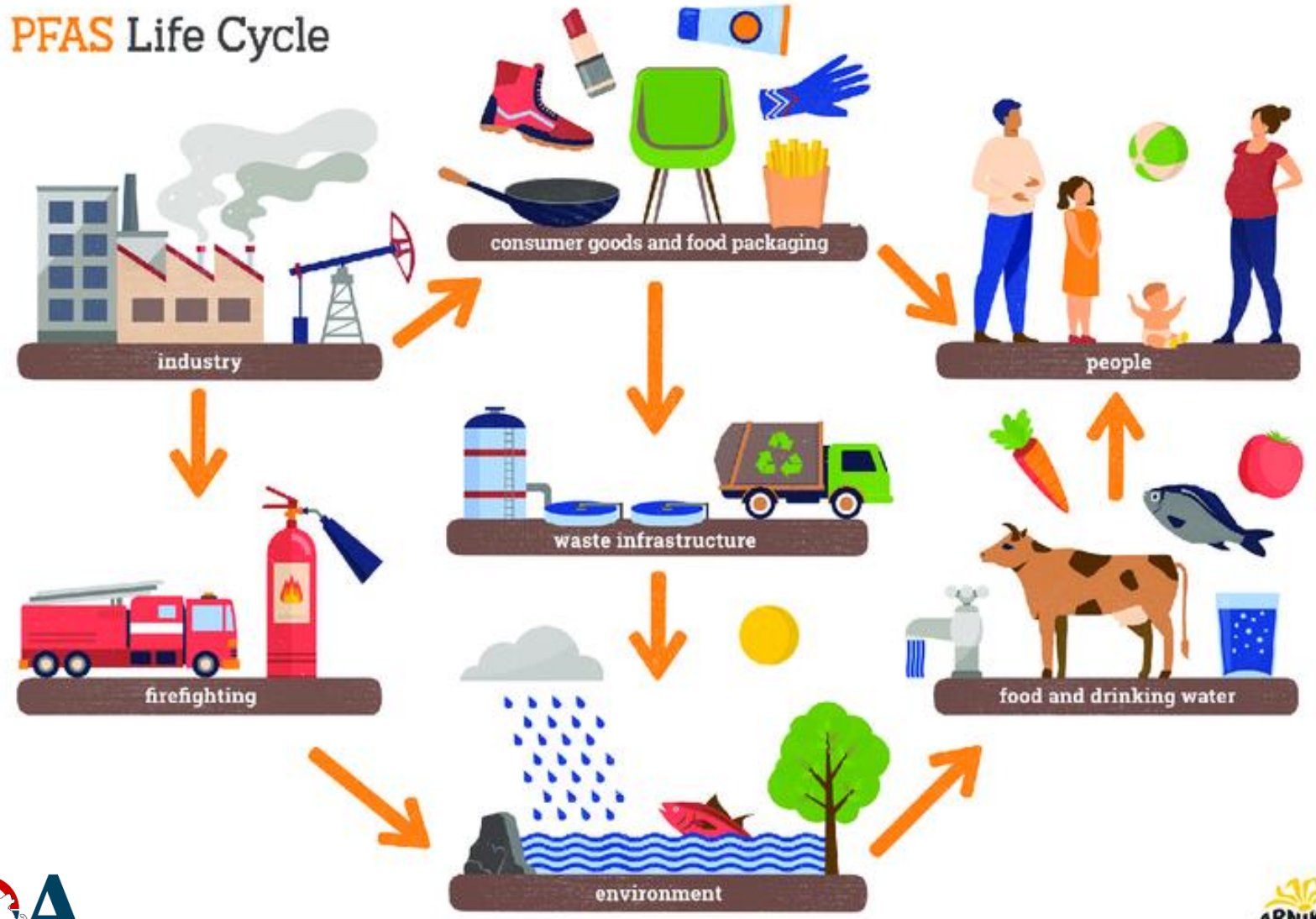
MassDEP 2024 MHOA Annual Conference

PFAS - *"It's Everywhere!"* (they say)

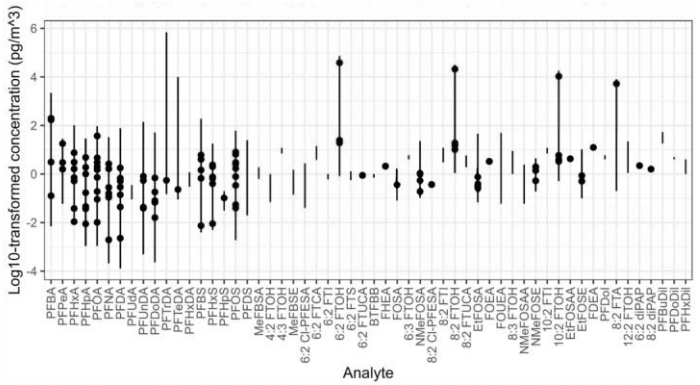


Graphic Credit/Source: Arnika

PFAS *Is* Everywhere

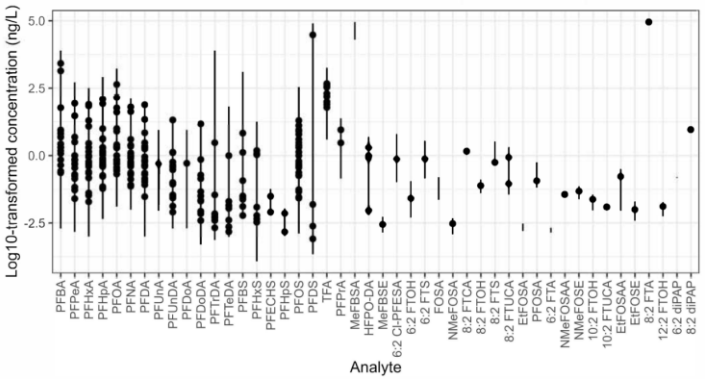
- Widespread production and Use
- Long half-life in the environment (as well as in the body)

Air (Outdoor)



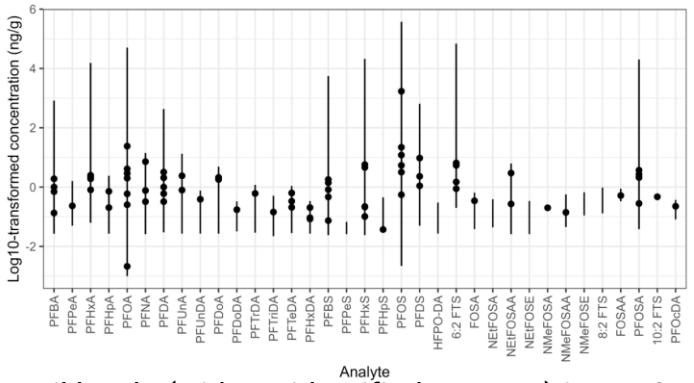
concentrations of volatile PFAS is in the hundreds of pg/m^3

Water (Precipitation)



PFAS in precipitation greater than 1,600 ng/L (PFOA) and 50 ng/L (PFOS) in continental (not remote) regions.

Earth (Soil)

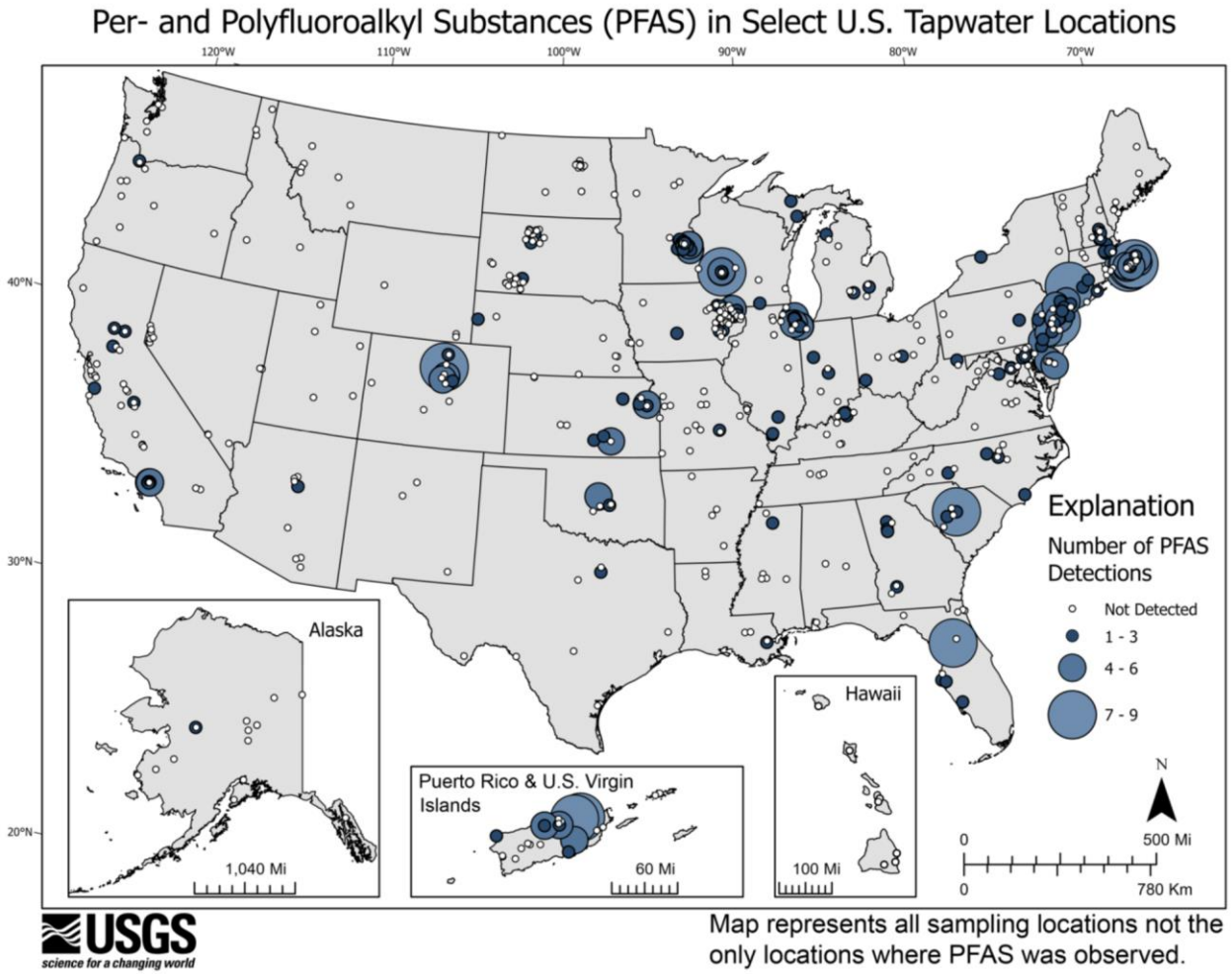


soil levels (without identified sources) in NH & ME ranged from ND to 5.4 µg/kg (PFOS) and ND to 5.3 µg/kg (PFOA)

SOURCE: ITRC https://pfas-1.itrcweb.org/6-media-specific-occurrence/

PFAS *Is* Everywhere, *but…*

- When **drinking water** is contaminated, up to 75% of a person's total exposure to PFAS is due to the drinking water.
  (Sunderland, 2019, https://pmc.ncbi.nlm.nih.gov/articles/PMC6380916/
- At least 45% of the nation's tap water is estimated to have one or more types of PFAS. (USGS, https://www.usgs.gov/news/national-news-release/tap-water-study-detects-pfas-forever-chemicals-across-us)



PFAS *Is* Everywhere, *including Massachusetts*

- Nationally, PFAS-contaminated drinking water is a (the?) major contributor to PFAS exposure in the population

- In Massachusetts…
  - 174 (of 1,417, 13%) Public Water Supplies sampled have PFAS6 above the 20 ng/L MMCL
    https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas#pfas-detected-in-drinking-water-supplies-in-massachusetts-
  - 100 (of 1,668, 6%) Private Drinking Water Wells sampled have PFAS6 above 20 ng/L
    https://www.mass.gov/doc/massdep-free-pfas-analysis-program-final-report/download

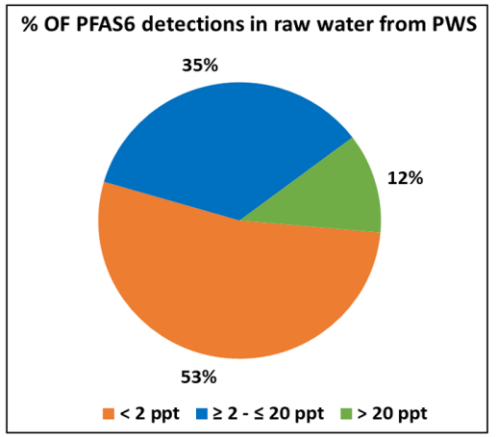


Figure 20. PFAS6 detections in raw water from PWS

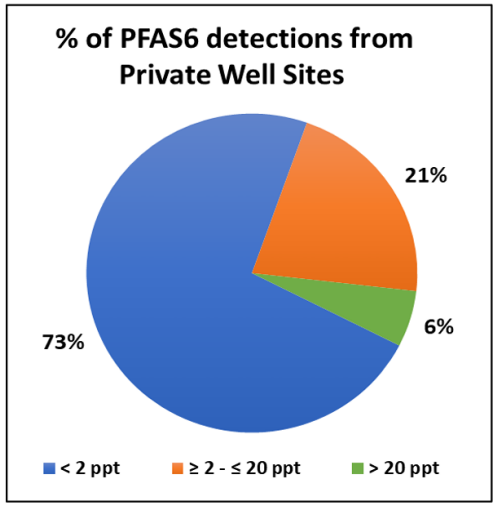


Figure 23. PFAS6 detections from Private Well Sites

The Standards are going DOWN.

WHEN?	2020	2024						2025 & beyond
WHO?	MassDEP	USEPA						MassDEP
WHAT?	20 ng/L	4 ng/L	4 ng/L	10 ng/L	10 ng/L	10 ng/L	1	??
WHICH?	PFAS6 • PFHpA • PFHxS • PFOA • PFOS • PFNA • PFDA	PFOA	PFOS	PFNA	PFHxS	GenX	Hazard Index • PFFNA • PFHxS • GenX • PFBS	??

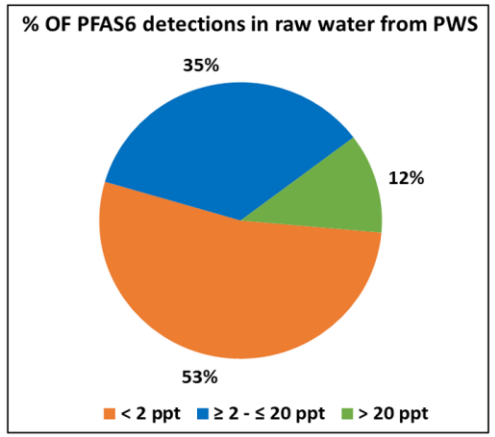
The Standards are going DOWN.

- Massachusetts Drinking Water Standard will be *at least as stringent* as USEPA's MCLs (by law)

- The Massachusetts Drinking Water Standard(s) will be:
  - Around 4 (+/-)
  - May or may not include grouping of PFAS compounds, either by concentration (PFAS6-like) or by risk estimate (Hazard Index approach).
  - Will be close to the detection limit (You find it, you have to deal with it)

The Standards are going DOWN.

- More stringent standards means more problematic water supplies.
  - 666 (of 1,417, 47%) Public Water Supplies sampled have PFAS6 equal to or greater than 2 ng/L (detection limit) https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas#pfas-detected-in-drinking-water-supplies-in-massachusetts-
  - 450 (of 1,668, 27%) Private Drinking Water Wells sampled have PFAS6 equal to or greater than 2 ng/L (detection limit) https://www.mass.gov/doc/massdep-free-pfas-analysis-program-final-report/download



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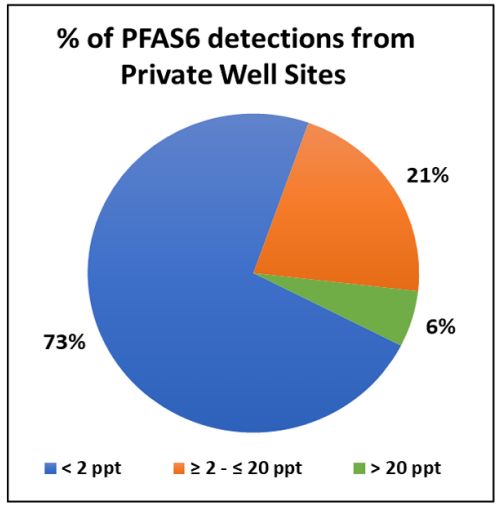

Figure 23. PFAS6 detections from Private Well Sites

Public Water Supplies

- Run by professionals
- Are well (clearly) regulated on an ongoing basis
- Have been sampling for PFAS for several years
- Know (pretty well) how the new standards will affect them
- Have professional organizations to keep them informed and to work directly with MassDEP Drinking Water Program
- Have financial assistance available (State Revolving Fund)

Private Well Owners ??

- Run by professionals
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MassDEP and Private Wells

- MassDEP Drinking Water Program regulates *public* wells, not private wells, including pro-active sampling.
- MassDEP Waste Site Cleanup Program regulates “releases to the environment”, including contamination in groundwater.
  This is triggered *after* sampling discovers a problem.
  - Releases create a 21E “oil and hazardous material disposal site”, however not all environmental contamination creates a “site”
  - Potentially Responsible Parties required to clean up sites and address exposure to contamination
  - The status of a private well owner is… complicated

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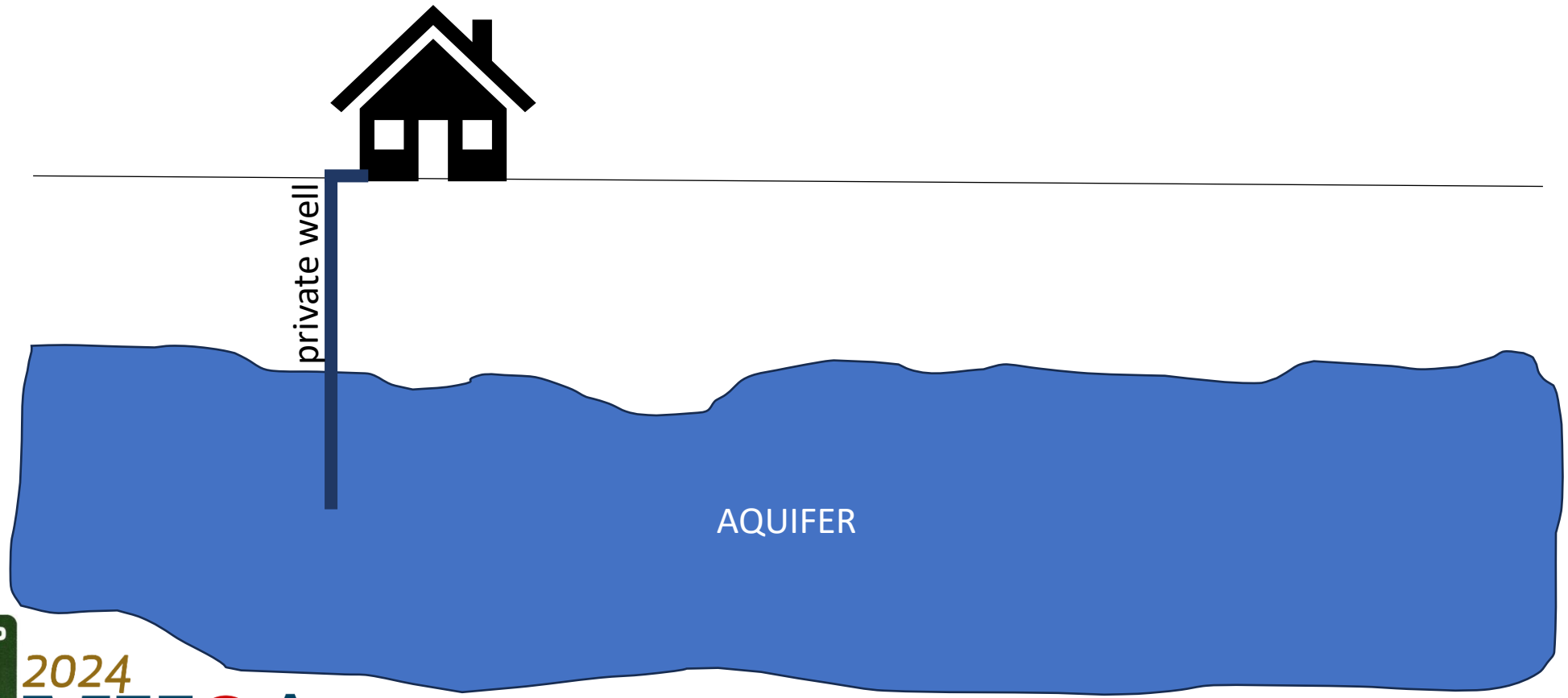

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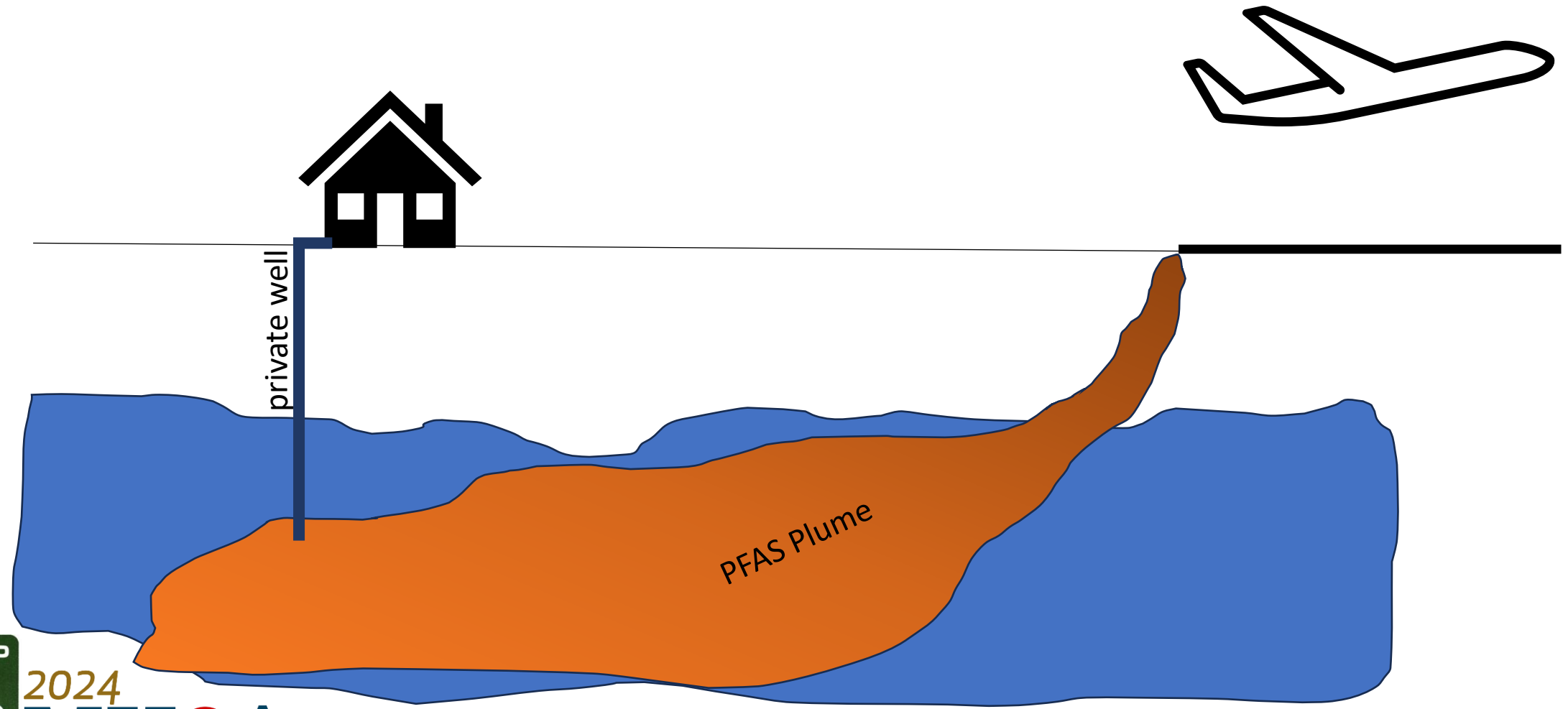

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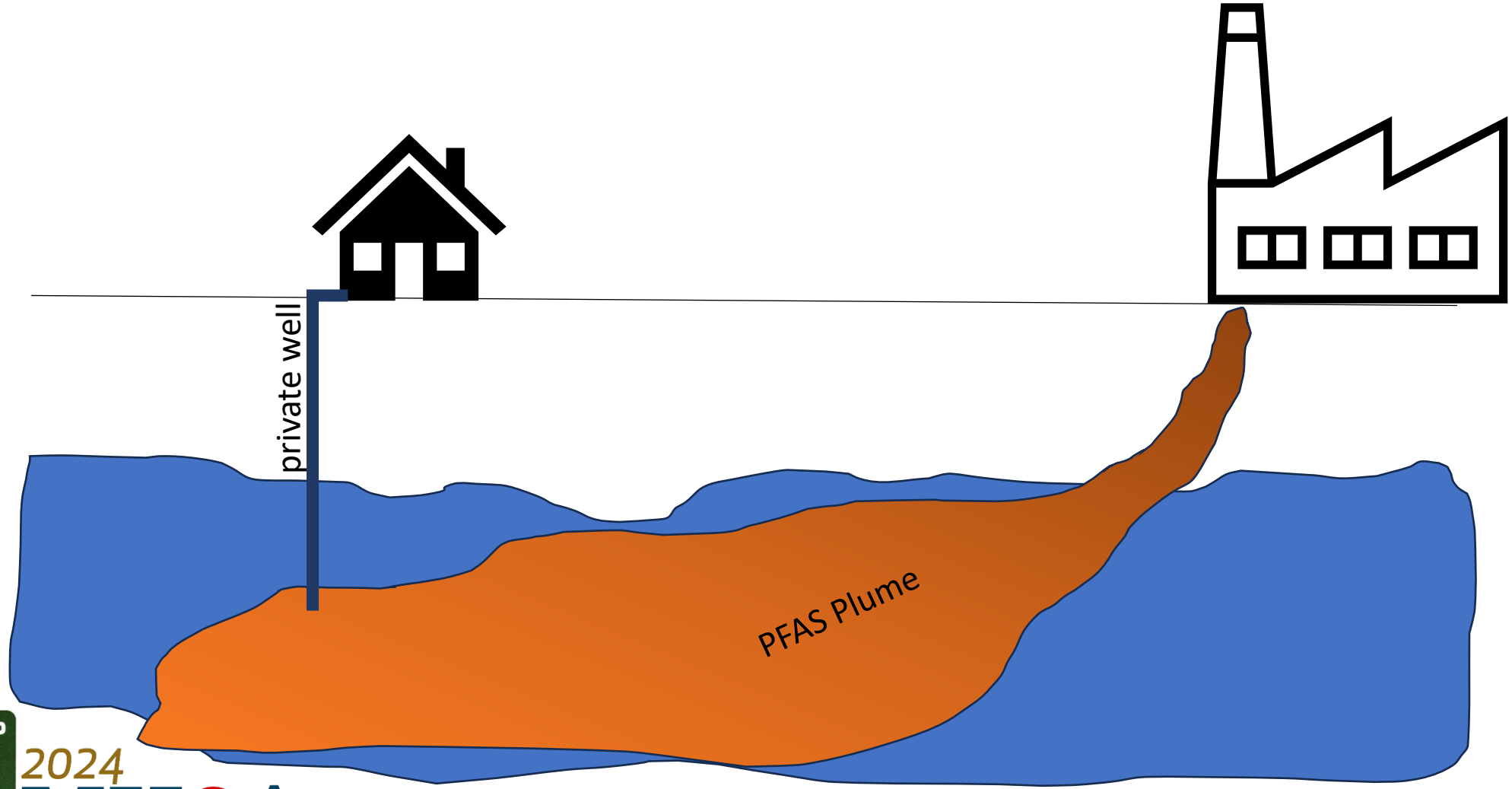

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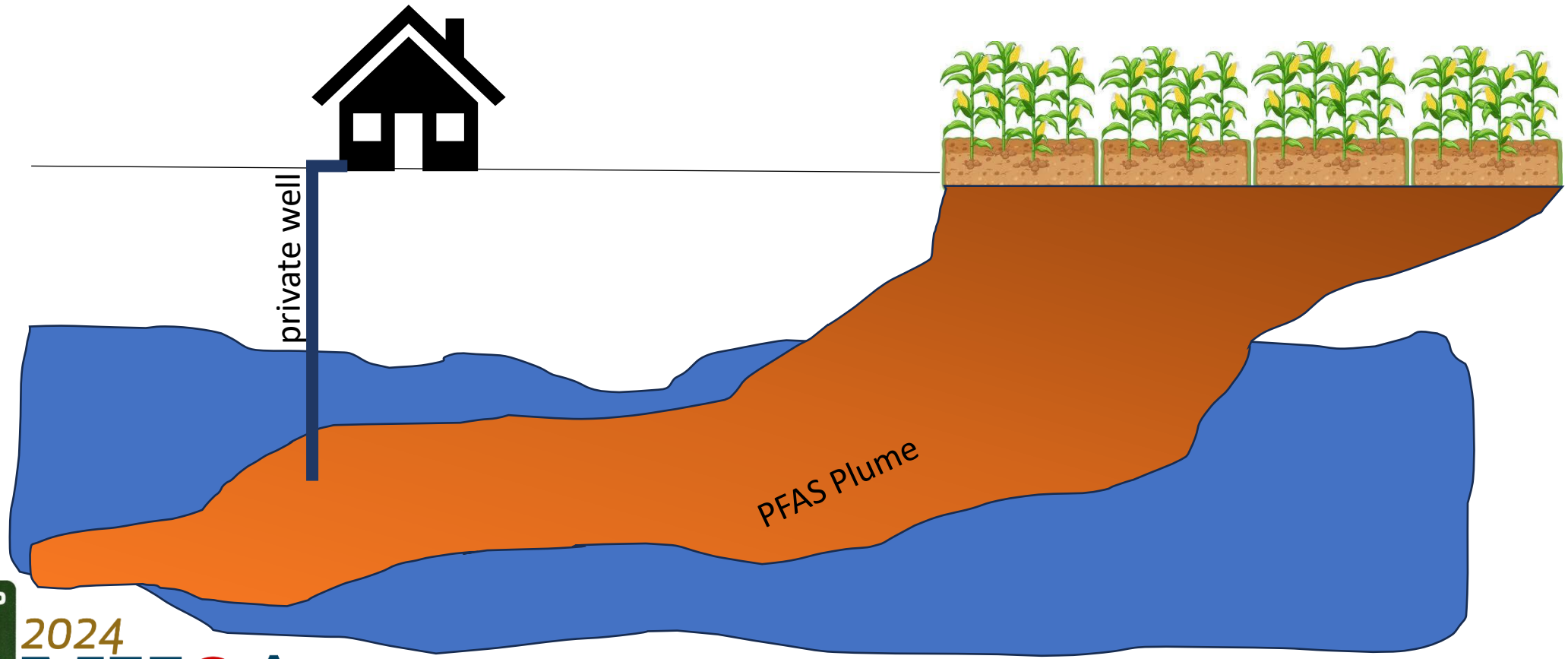

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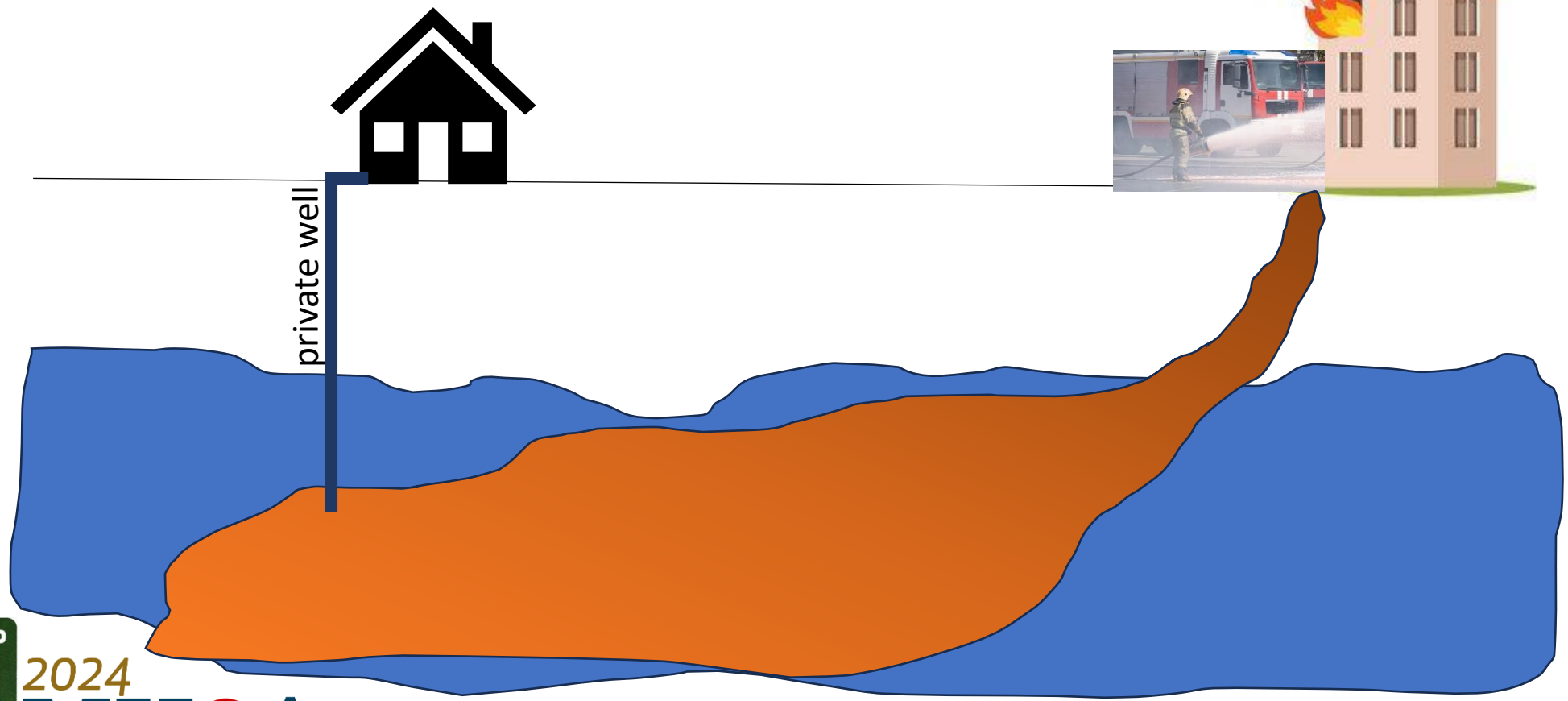

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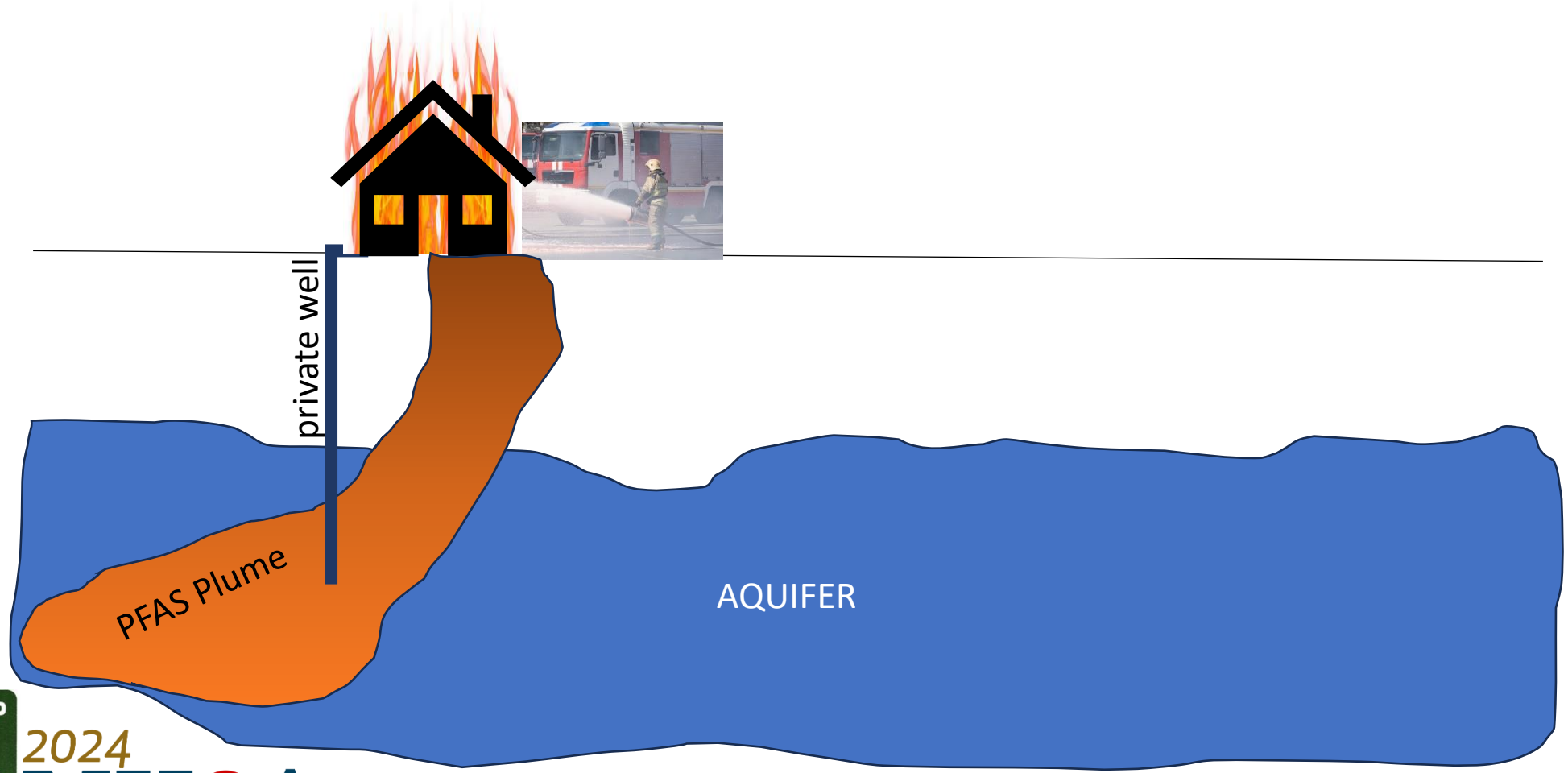

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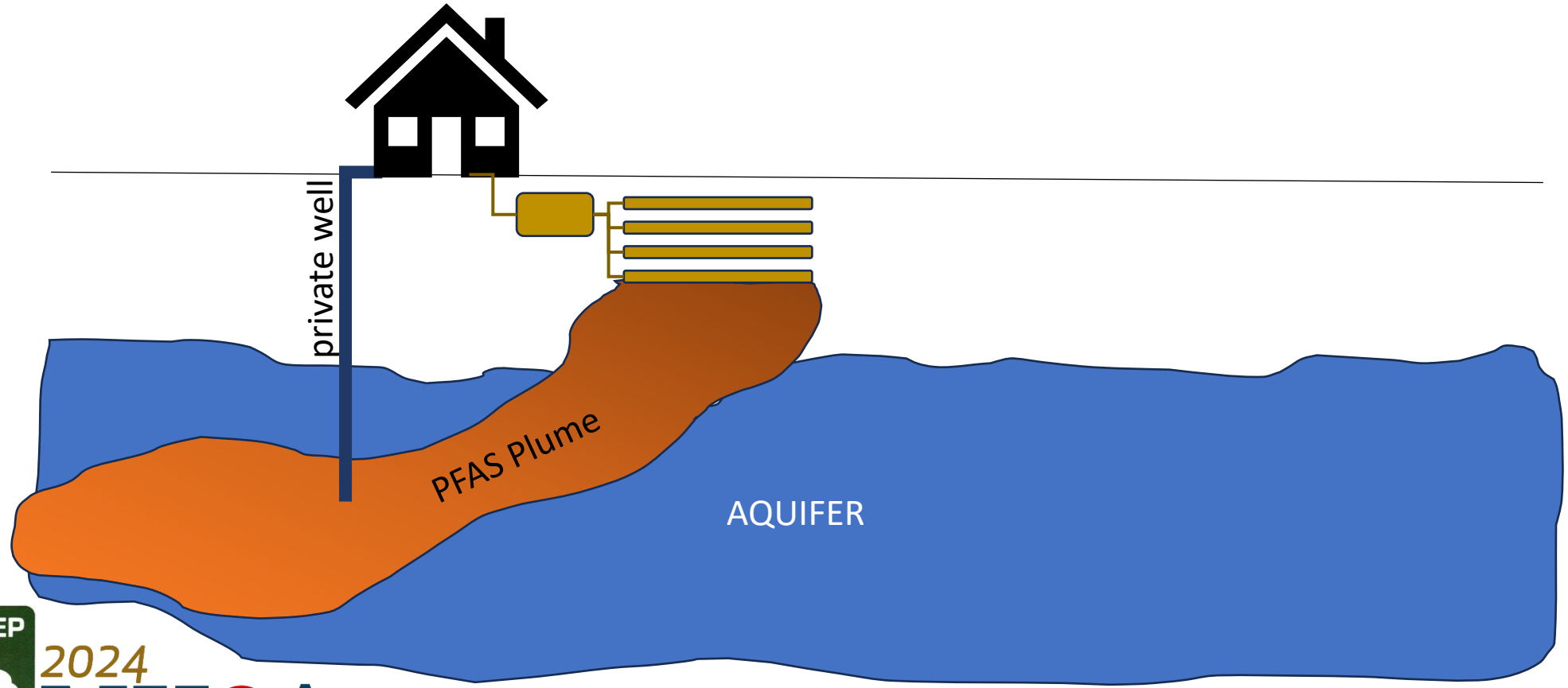

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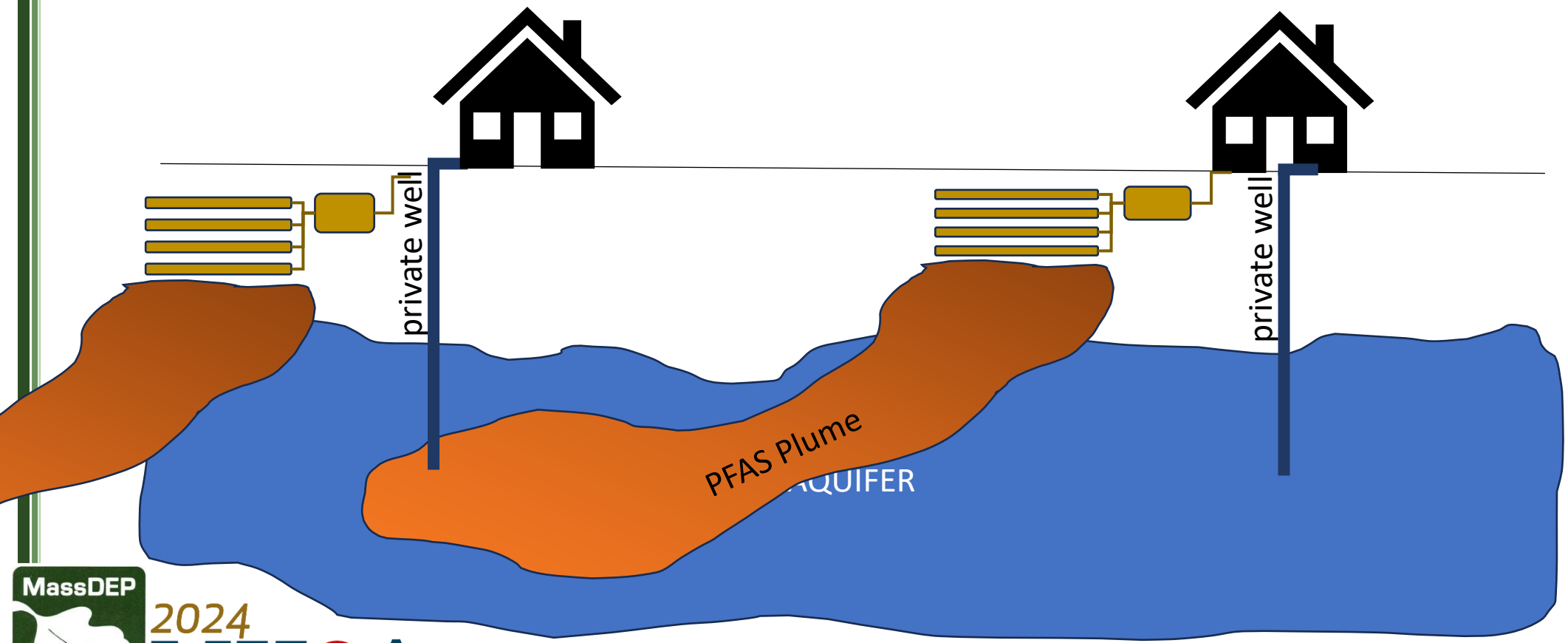

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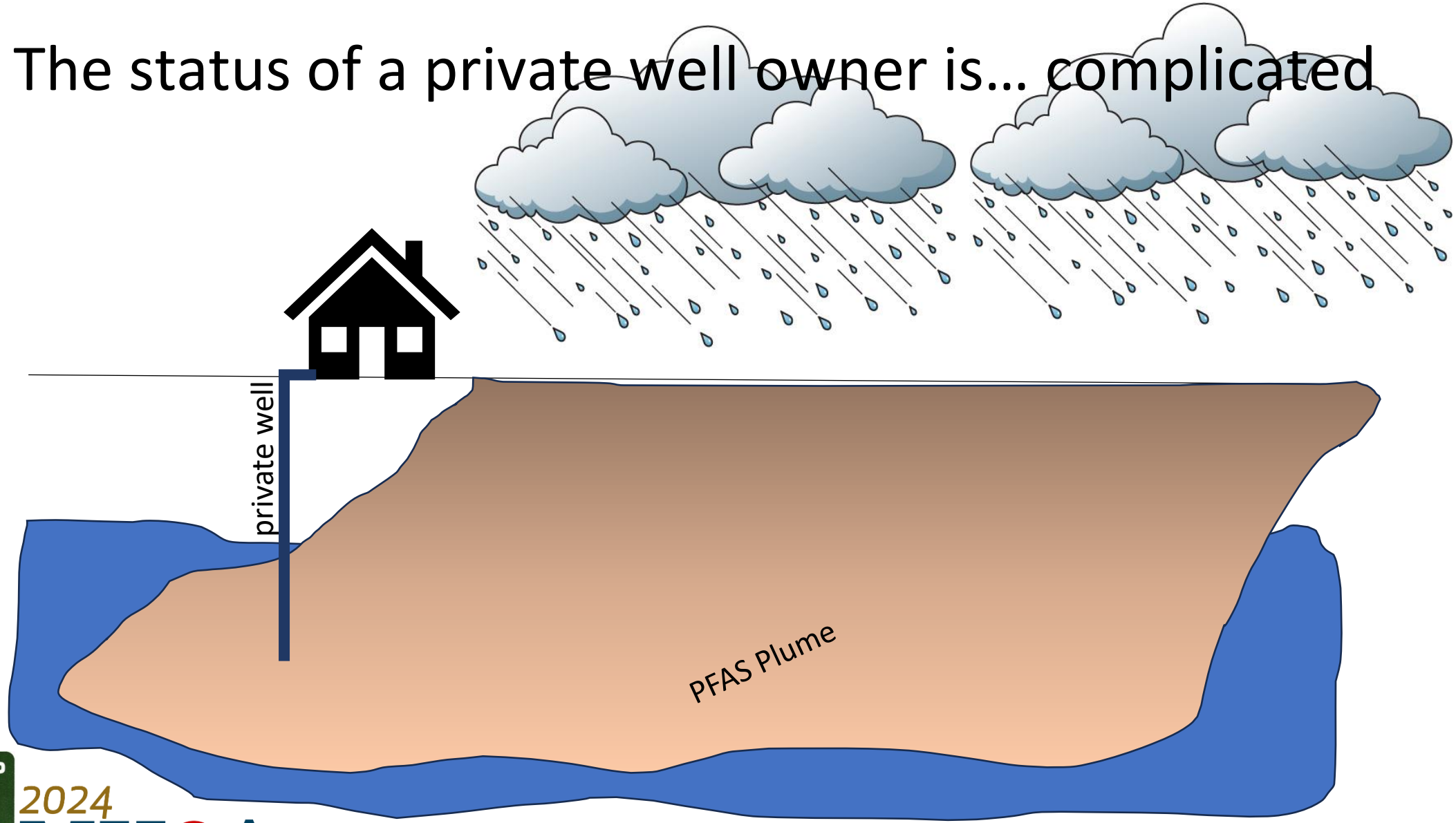


MassDEP and Private Wells

- Sampling a private well may trigger a legal notification obligation on the part of the homeowner if the result is greater than the RCGW-1 Reportable Concentration (20 ng/L for PFAS6 *as of November 2024*)

- The PFAS source may be an up-gradient regulated release
  (Homeowner may qualify for "Downgradient Property Status")
- The PFAS source may be from an on-site regulated release
  (Homeowner may be the Potentially Responsible Party)
- The PFAS source may not be a regulated "release"
  (Homeowner still has a contaminated drinking water well)

MassDEP and Private Wells

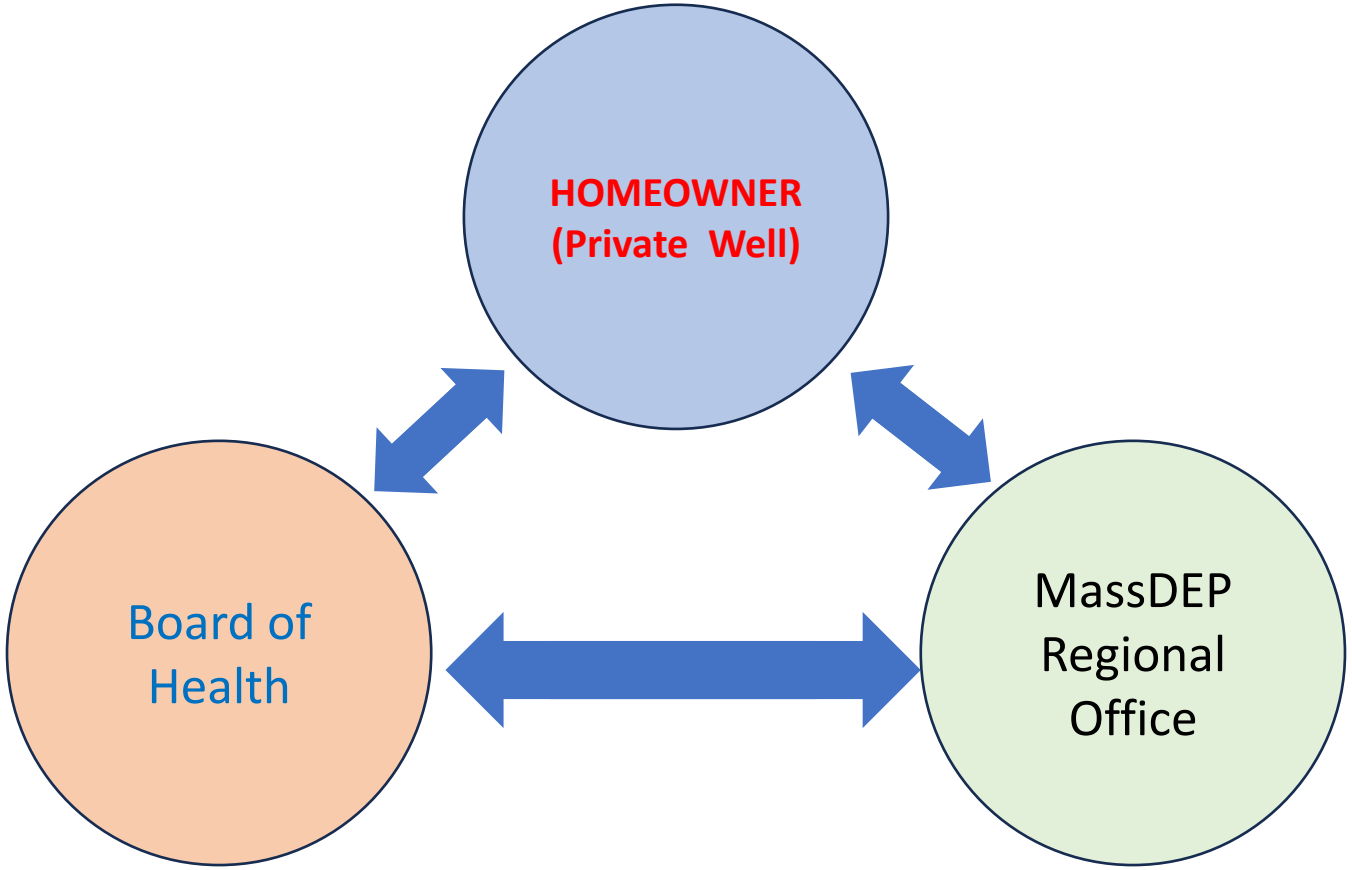
MassDEP can help!

- Discuss potential implications *before* sampling occurs
- Clarify potential liability/obligations once PFAS is discovered
- Determine status under site cleanup regulations (Massachusetts Contingency Plan, 310 CMR 40.0000)
- Advise on potential health risks, both short- and long-term
- Advise on potential treatment options
- Ensure that Imminent Hazards are eliminated/mitigated

MassDEP can't…

- Pay for treatment at all PFAS-contaminated private wells

Complicated Situations Require COMMUNICATION



MassDEP
Bureau of Waste Site Cleanup
Deputy Regional Directors

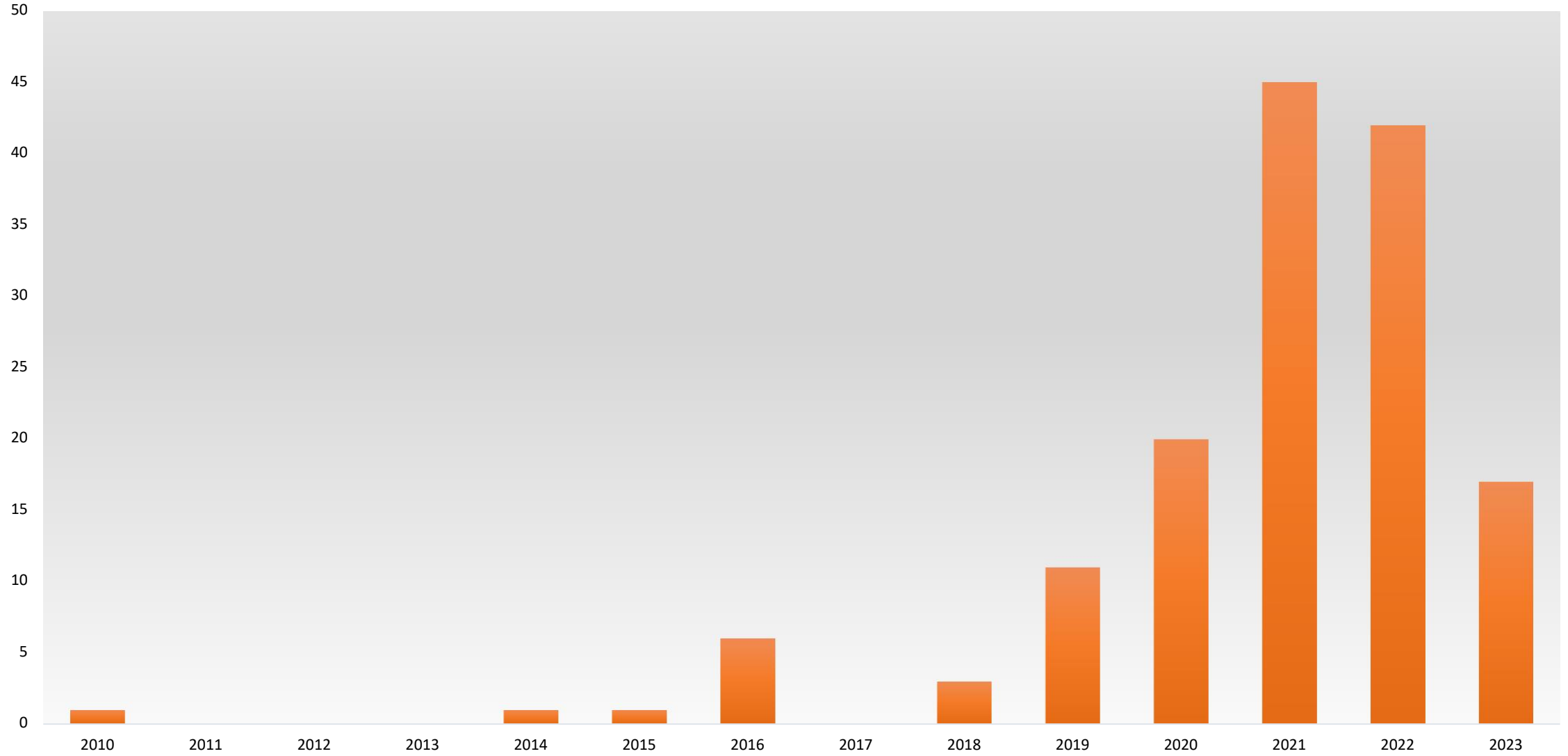
WERO – Tamara Cardona
857-408-6562

CERO – Mark Baldi
508-864-4413

NERO – Steve Johnson
978-284-0998

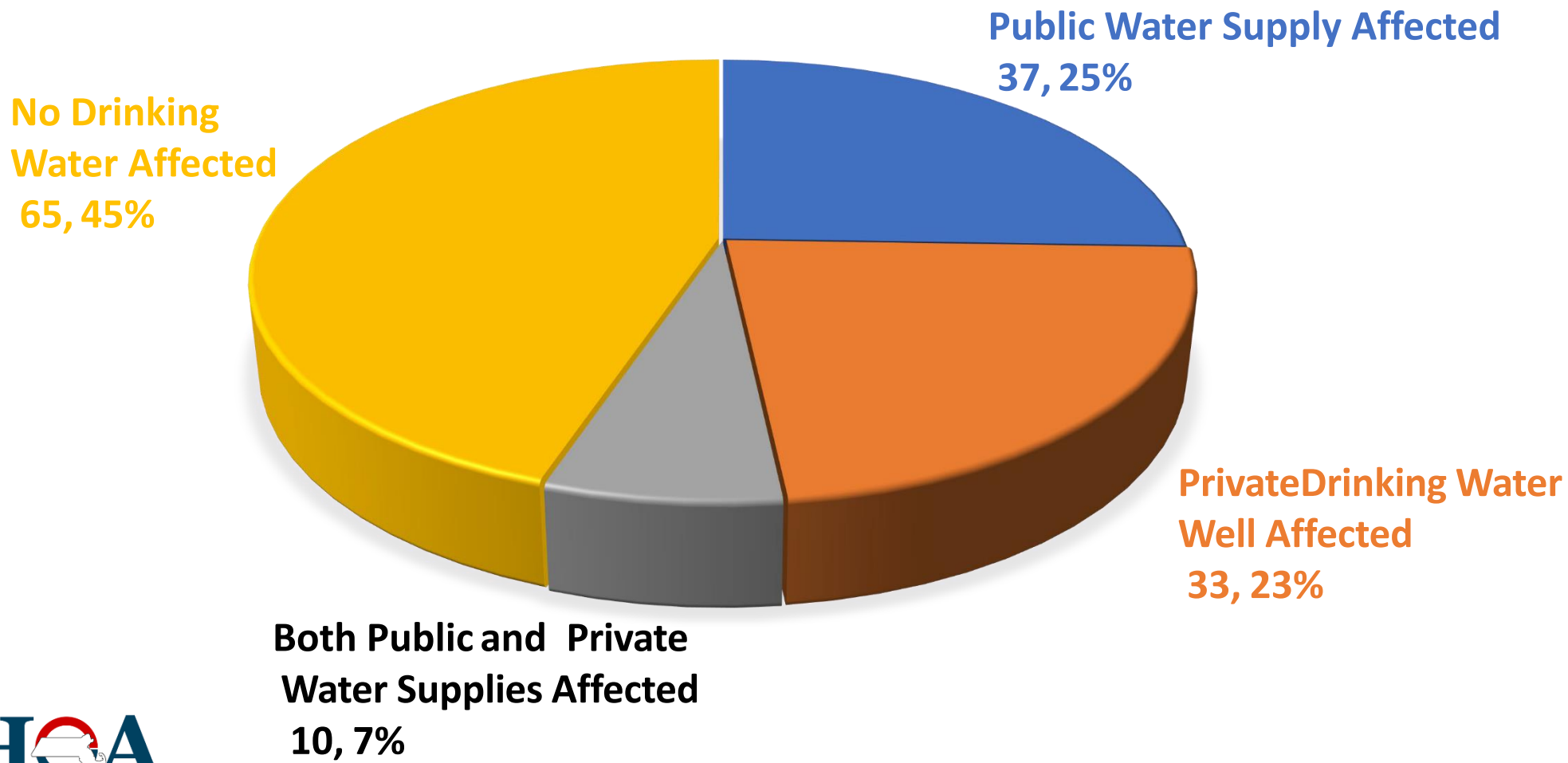
SERO – John Handrahan
617-571-0198

PFAS - 21E Program Notifications (by Year)

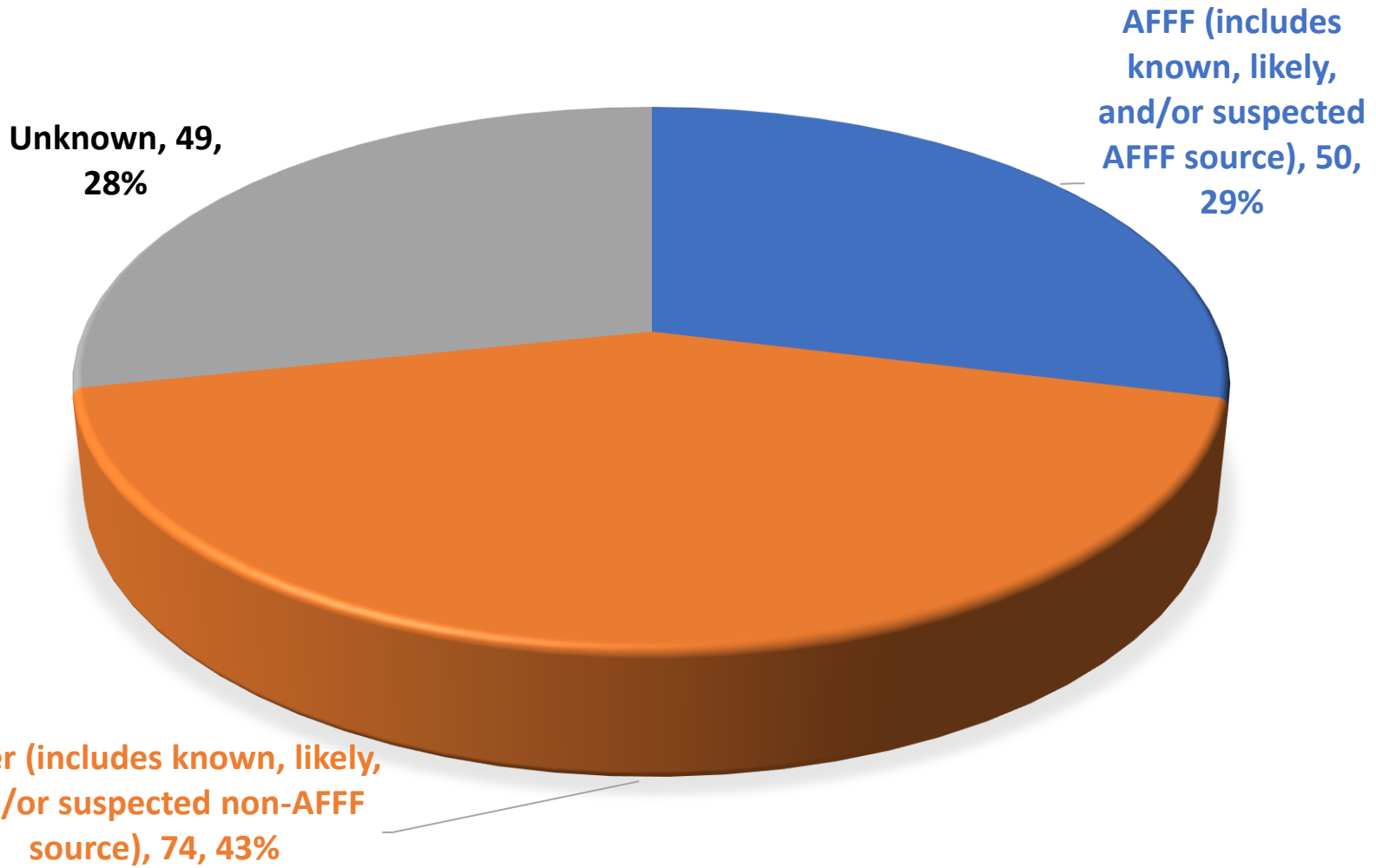


21E PFAS Sites & Drinking Water

(145 sites as of Sept 2024)



PFAS Site Sources (As of Sept. 2024)



In Summary

1. PFAS is a major environmental problem, especially in drinking water
2. Levels of concern in drinking water continue to get lower
3. Public Water Supplies are aware and are/will deal with it
4. Private well owners are less aware of potential drinking water issues, including *but not limited to* PFAS
5. Public health is potentially at risk from unaddressed private drinking water.
6. Local Boards of Health, MassDEP and others must work together to spread the word, provide guidance and offer solutions.

Focus in Massachusetts (State Level)

- Drinking Water
- Wastewater and Residuals
- Septic Systems
- Air
- Landfills
- 21E Sites & Federal Sites
- AFFF Foam Takeback Program
- PFAS Omnibus Legislation
- AGO Multi-District Litigation

BWSC's "PFAS Program Plan"

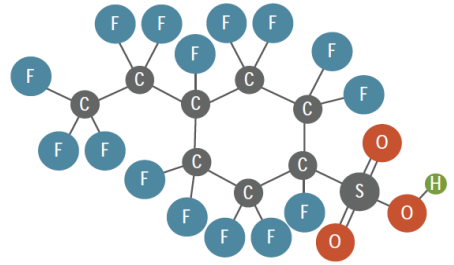
- Site/Source Discovery Efforts
  (Private Wells/PWS Impacts)
- PRP Identification
  (RFIs, Access Agreements, DPS, NORs)
- Imminent Hazard Mitigation
  (Bottled Water, POETS, with NOR/NORA/NOIM where Applicable)
- Remediation (including Technology Tracking)
- Research & Development (In-Field and Lab Findings)

MassDEP Office of Research & Standards Efforts

- 3-Year Review of PFAS & Drinking Water Regulations
- **PBPK Modeling of PFAS Serum Concentrations**
  - PFAS drinking water sampling frequency
  - **IH concentration(s) derivation**
- **PFAS in Drinking Water Beyond MA PFAS6** (per SWDA, April 2024)
- **PFAS Signatures from Private Septic Systems Literature Search**
- **PFAS Soil Background Data for PFAS6+ Chemicals**
- PFAS and Fluorinated Containers
- WES Lab's PFAS Analytical Capacity Expansion

For More Information Contact: Mark Smith, ORS Director

c.mark.smith@mass.gov



PFAS AFFF Foam Take-Back Program Continues

- Legacy Foam Collection & Destruction Since 2018
  - Partnership w/ Mass Dept. of Fire Services
  - Capital fund-supported / $250K allocation by legislature (FY23)
- Modern Foams Collection Added (Low Levels of PFAS Compounds)
- 157 Participants / 47,171 gallons Collected / $784,308 Total Cost
- Recent Program Re-Launch Efforts
- Ongoing Communication with Other NE States
- https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas#pfas-in-fire-fighting-foam-

PFAS – Omnibus Bill

An Act to Protect Massachusetts Public Health from PFAS

https://malegislature.gov/Bills/193/H4486

- Reported to House Ways & Means in June 2024
  - Committee recommended bill ought to pass
  - *MAY* be taken up again in 2024
- MassDEP "Staying Tuned" to Actions on the Bill by the Legislature
- **Bill Anticipated to be Filed Again by Rep. Hogan & Sen. Cyr for Consideration in January 2025**