



# PFAS UPDATE

CHEE THAO, Environmental Health Specialist

June 27, 2024



1

Updated EPA MCLs

2

PFAS in Dane County

3

Angler Outreach

4

Private Well Testing

5

Waubesa Beach Area

# Updated EPA MCLs

- EPA released new standards for publicly available, municipal drinking water in April, 2024
  - Does not apply to groundwater and private wells
- Department of Health Services recommendations for groundwater from 2022
  - Reviewing EPA drinking water standards

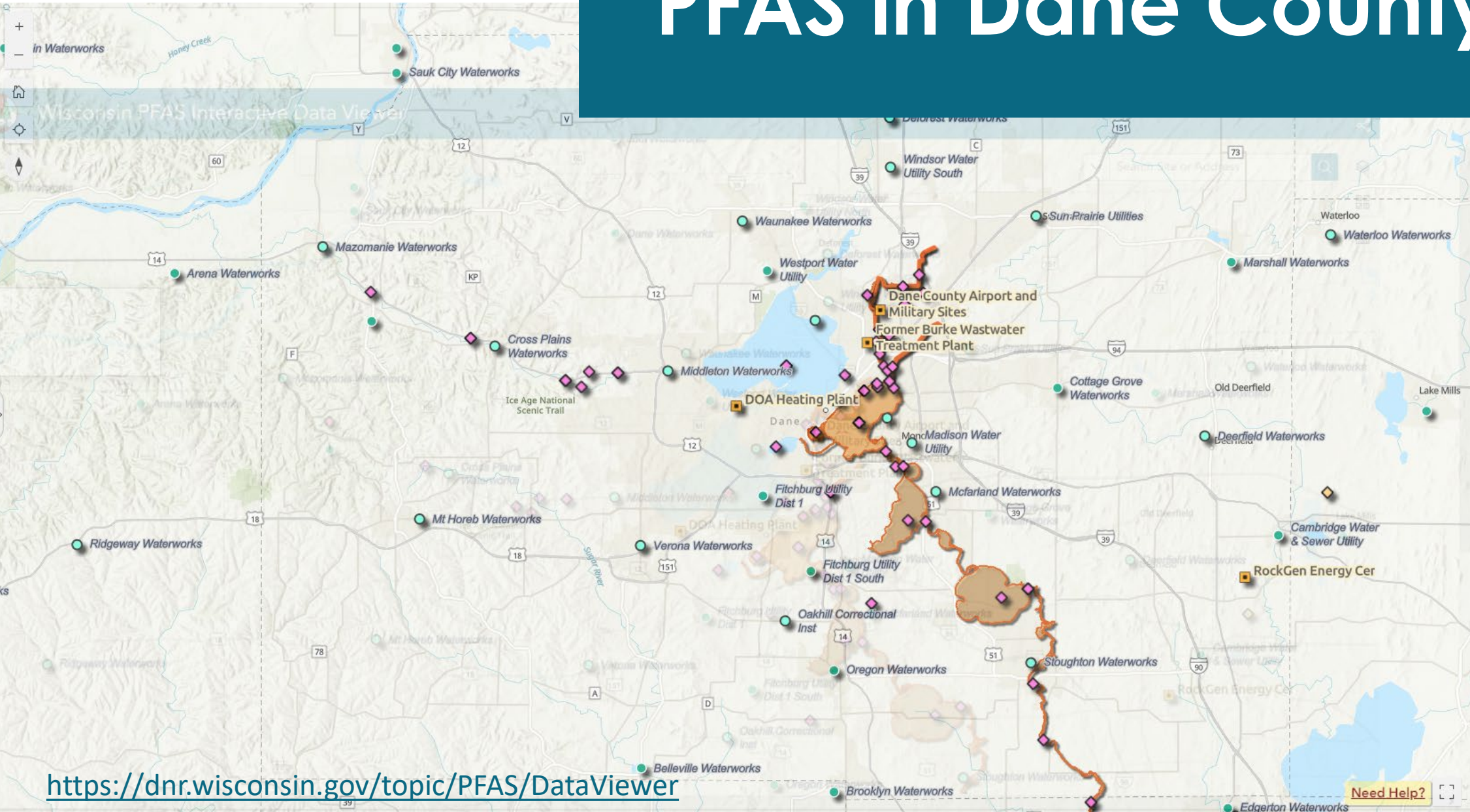
Analyte Name	CAS No	Maximum Contaminant Limit (ng L <sup>-1</sup> or PPT)			
		EPA Drinking Water		Groundwater	Surface Water
		Pre-2024	2024+		
11CI-PF3OUds	763051-92-9	NA	NA	NA	NA
4:2 FTS	757124-72-4	NA	NA	NA	NA
6:2 FTS	27619-97-2	NA	NA	NA	NA
8:2 FTS	39108-34-4	NA	NA	NA	NA
9CI-PF3ONS	746426-58-1	NA	NA	NA	NA
ADONA	919005-14-4	NA	NA	3,000	NA
HFPO-DA	13252-13-6	NA	10*,**	300	NA
NETFOSAA	2991-50-6	NA	NA	20**	NA
NETFOSAA	4151-50-2	NA	NA	20**	NA
NETFOSE	1691-99-2	NA	NA	20**	NA
NMeFOSAA	2355-31-9	NA	NA	NA	NA
NMeFOSAA	31506-32-8	NA	NA	NA	NA
NMeFOSE	24448-09-7	NA	NA	NA	NA
Perfluorobutansulfonic Acid	375-73-5	NA	NA	450,000	NA
Perfluorodecanoic Acid	335-76-2	NA	NA	300	NA
Perfluorohexanoic Acid	307-24-4	NA	NA	150,000	NA
PFBA	375-22-4	NA	2000	10,000	NA
PFDS	335-77-3	NA	NA	NA	NA
PFDoS	79780-39-5	NA	NA	NA	NA
PFHpS	375-92-8	NA	NA	NA	NA
PFNS	68259-12-1	NA	NA	NA	NA
PFOSA	754-91-6	NA	NA	20**	NA
PFPeA	2706-90-3	NA	NA	NA	NA
PFPeS	2706-91-4	NA	NA	NA	NA
Perfluorododecanoic Acid	307-55-1	NA	NA	500	NA
Perfluoroheptanoic Acid	375-85-9	NA	NA	NA	NA
Perfluorohexanesulfonic Acid	355-46-4	NA	10*,**	40	NA
Perfluorononanoic Acid	375-95-1	NA	10*,**	30	NA
Perfluorooctanesulfonic Acid	1763-23-1	70 <sup>†</sup> ,**	4*	20**	8*
Perfluorooctanoic Acid	335-67-1	70 <sup>†</sup> ,**	4*	20**	20 or 95 <sup>†</sup> ,***
Perfluorotetradecanoic Acid	376-06-07	NA	NA	10,000	NA
Perfluorotridecanoic Acid	72629-94-8	NA	NA	NA	NA
Perfluoroundecanoic Acid	2058-94-8	NA	NA	3,000	NA

<sup>†</sup>enforcable publicly available water

\*\* combined total

\*\*\* if the water is intended for public water use then the lower standard applies

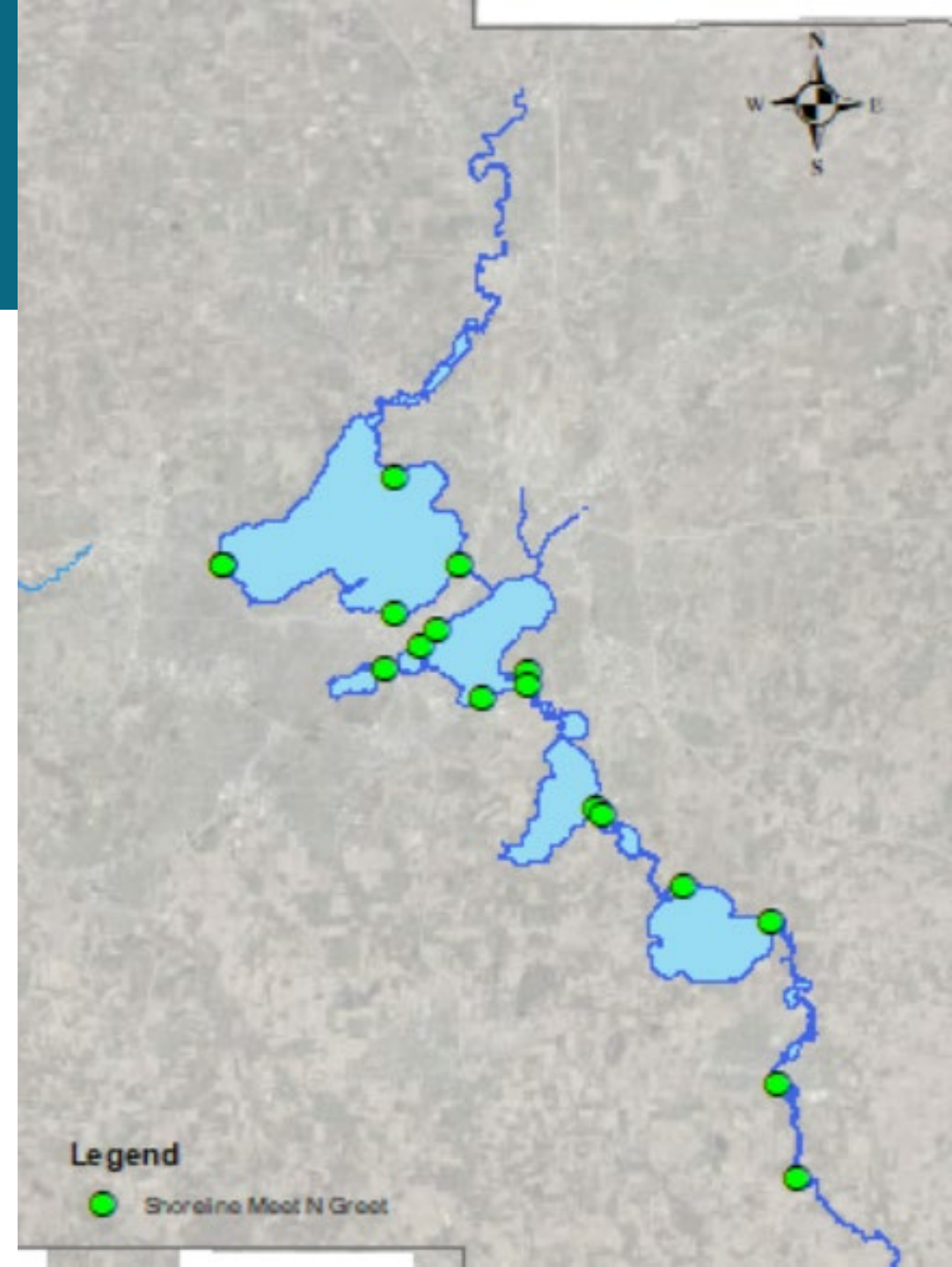
# PFAS in Dane County



<https://dnr.wisconsin.gov/topic/PFAS/DataViewer>

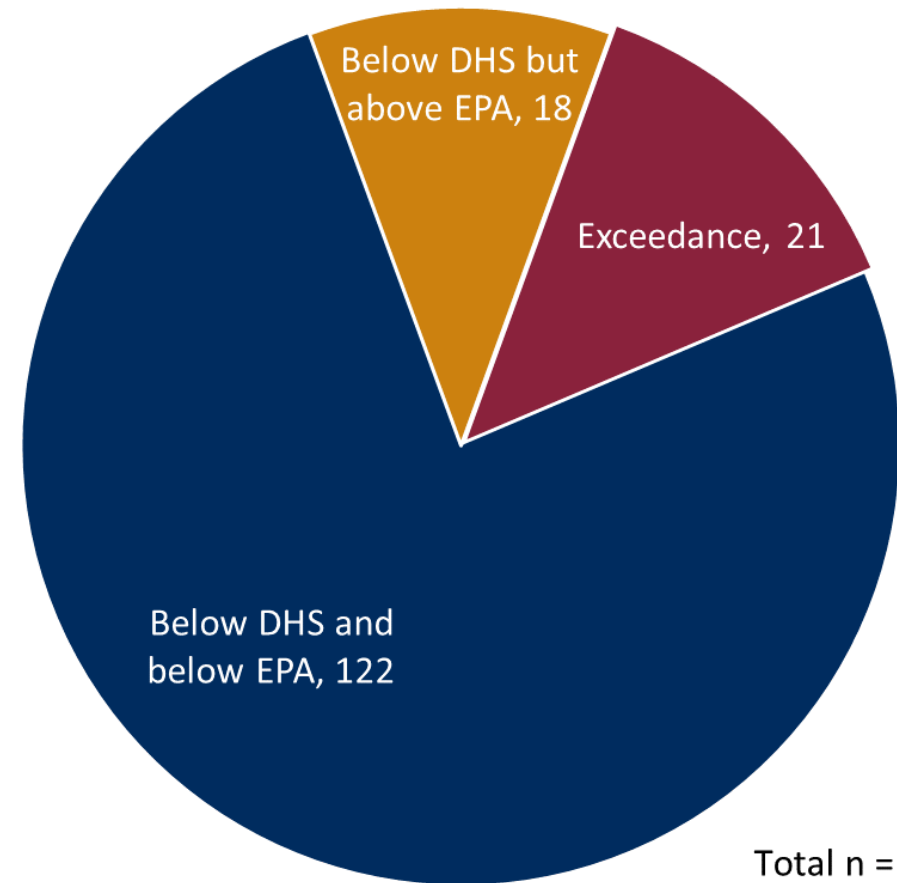
# Angler Outreach

- 17 different locations around Chain of Lakes
- n = 89
  - 57% Caucasian
  - 18% African American
  - 13% AAPI
  - 13% LatinX



# Private Well Testing

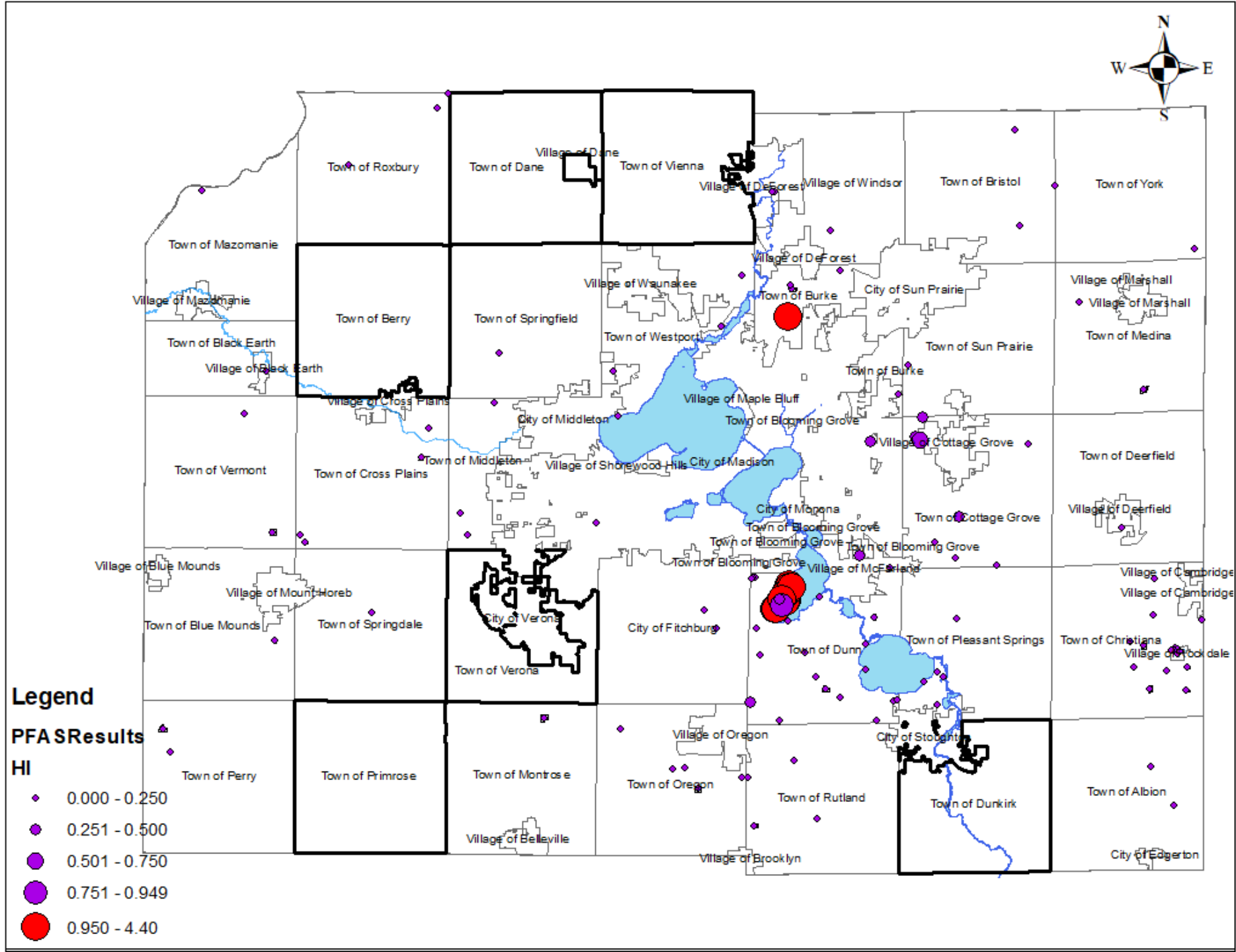
**13% of tests  
exceeding DHS  
Recommendations**



Total n = 161

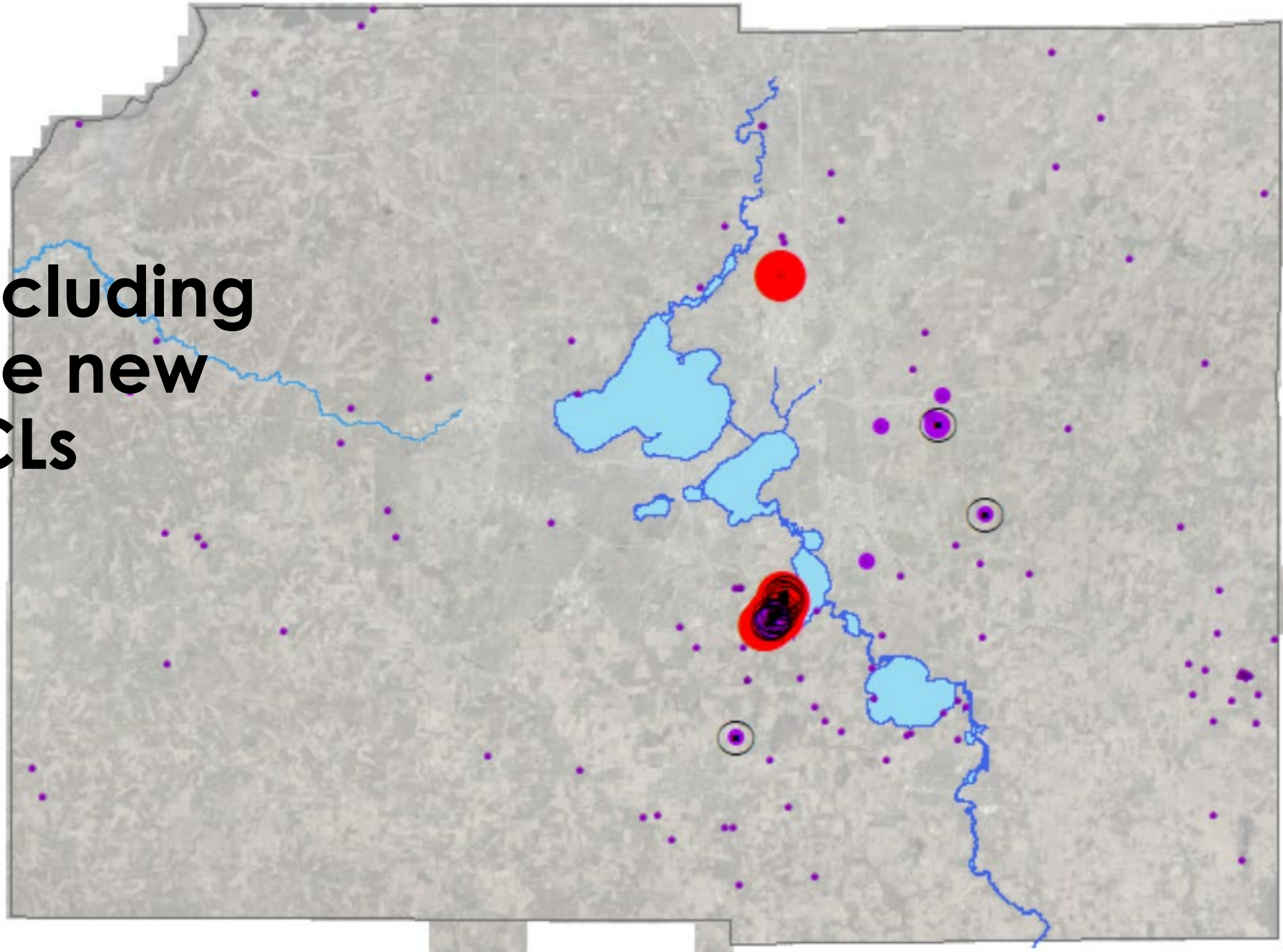
# Private Well Results around the County

n = 161

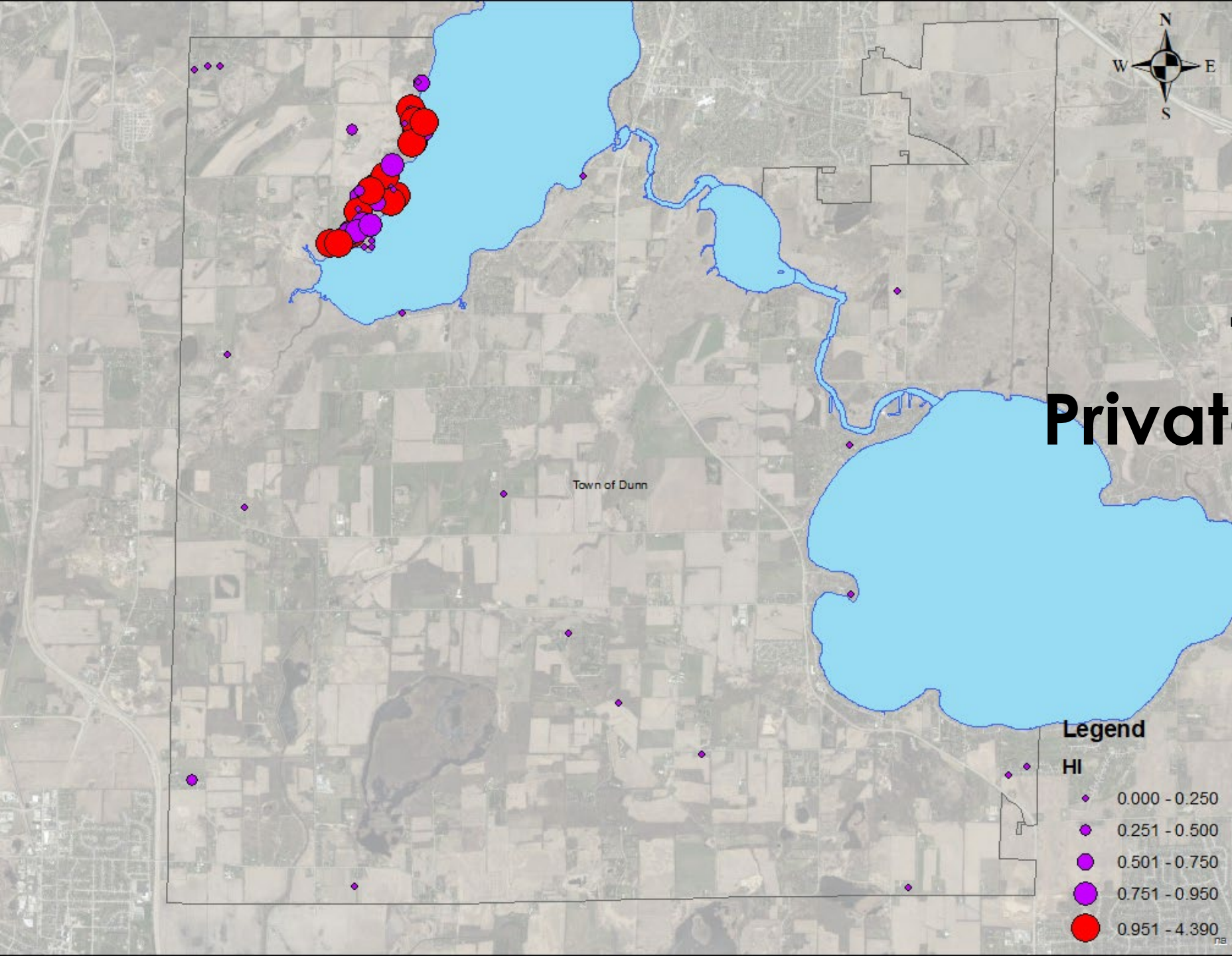


**Dane Co including  
those above new  
EPA DW MCLs**

**n = 161**





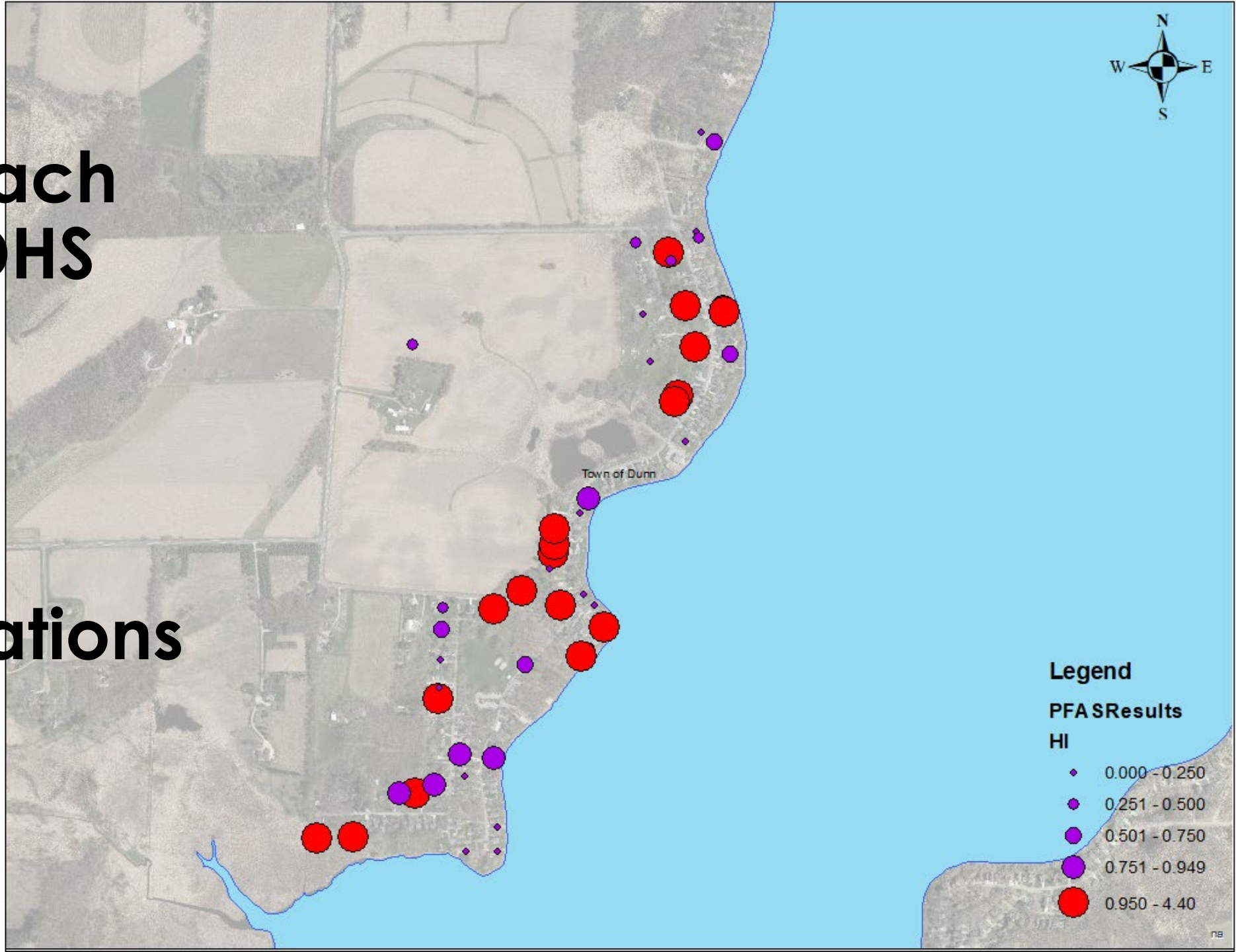


# Town of Dunn Private Well Results

n = 69

# Waubesa Beach Area under DHS Guidelines

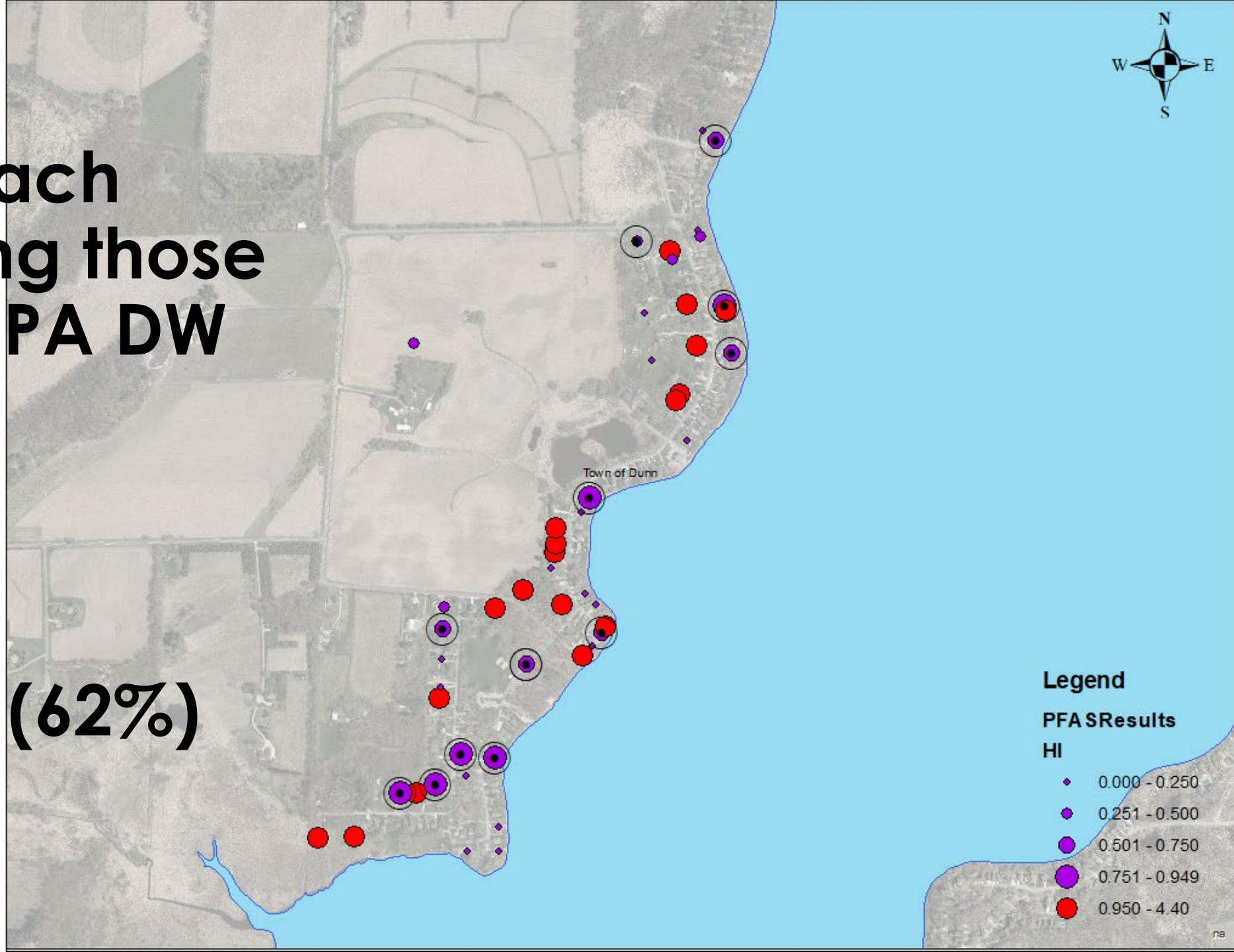
19 of 50 sites  
exceed DHS  
recommendations  
(38%)



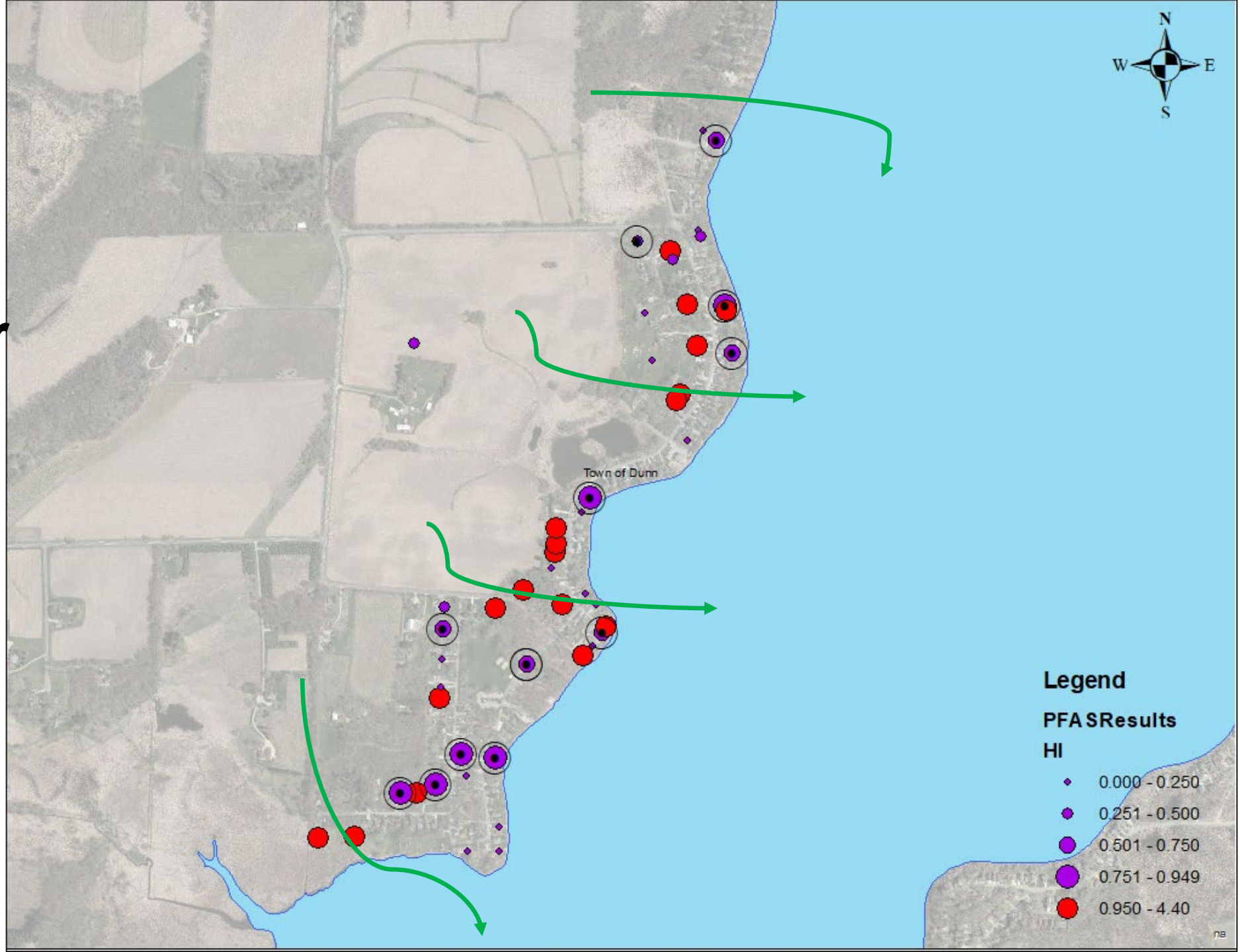
# Waubesa Beach Area including those above new EPA DW MCLs

n = 12

31 of 50 sites (62%)



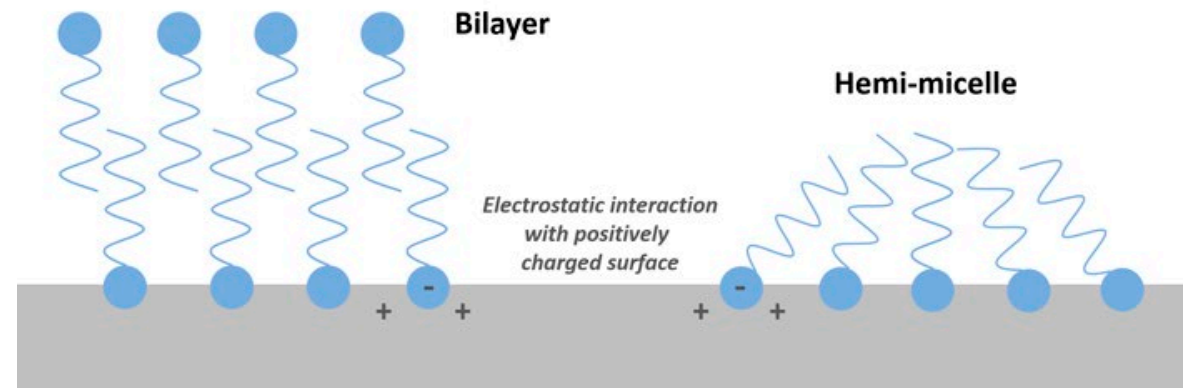
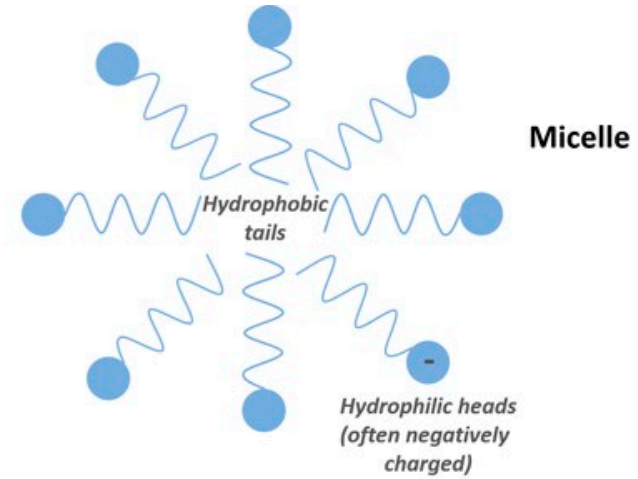
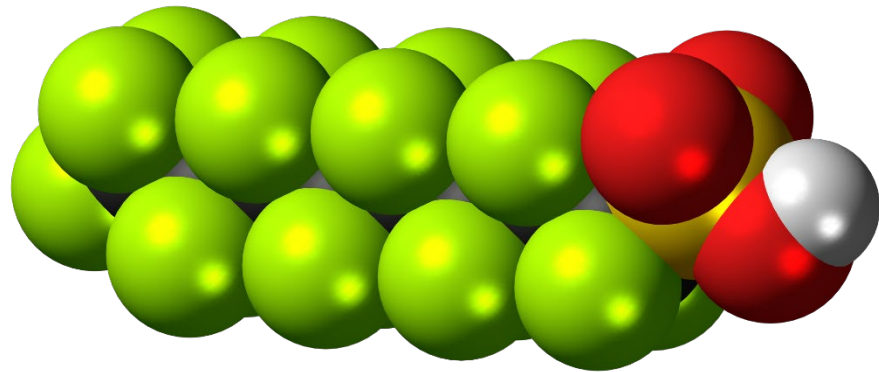
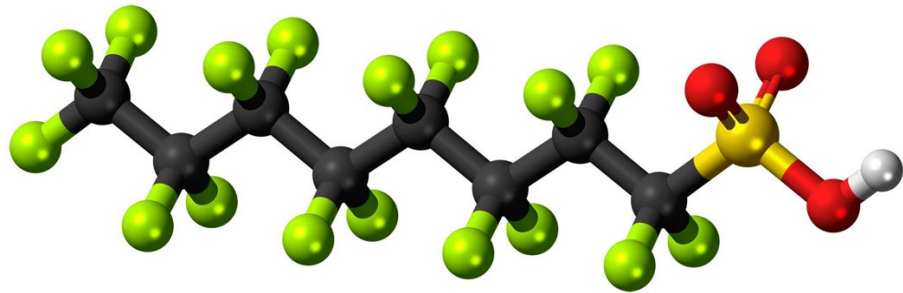
**Groundwater  
flows into  
Lake in this  
area**



# Next Steps

- Public Health PFAS Private Well Testing extended until end of September, 2024
- Continue Angler Outreach
- EPA guidance on Biosolids expected Q4, 2024

# What are PFAS



# Standards and Recommendations

- EPA released new standards for publicly available, municipal drinking water in April, 2024
  - Does not apply to groundwater and private wells
- Department of Health Services recommendations for groundwater from 2022
  - Reviewing EPA drinking water standards

Analyte Name	CAS No	Maximum Contaminant Limit (ng L <sup>-1</sup> or PPT)			
		EPA Drinking Water		Groundwater	Surface Water
		Pre-2024	2024+		
11CI-PF3OUds	763051-92-9	NA	NA	NA	NA
4:2 FTS	757124-72-4	NA	NA	NA	NA
6:2 FTS	27619-97-2	NA	NA	NA	NA
8:2 FTS	39108-34-4	NA	NA	NA	NA
9CI-PF3ONS	746426-58-1	NA	NA	NA	NA
ADONA	919005-14-4	NA	NA	3,000	NA
HFPO-DA	13252-13-6	NA	10*,**	300	NA
NETFOSAA	2991-50-6	NA	NA	20**	NA
NETFOSAA	4151-50-2	NA	NA	20**	NA
NETFOSE	1691-99-2	NA	NA	20**	NA
NMeFOSAA	2355-31-9	NA	NA	NA	NA
NMeFOSAA	31506-32-8	NA	NA	NA	NA
NMeFOSE	24448-09-7	NA	NA	NA	NA
Perfluorobutansulfonic Acid	375-73-5	NA	NA	450,000	NA
Perfluorodecanoic Acid	335-76-2	NA	NA	300	NA
Perfluorohexanoic Acid	307-24-4	NA	NA	150,000	NA
PFBA	375-22-4	NA	2000	10,000	NA
PFDS	335-77-3	NA	NA	NA	NA
PFDoS	79780-39-5	NA	NA	NA	NA
PFHpS	375-92-8	NA	NA	NA	NA
PFNS	68259-12-1	NA	NA	NA	NA
PFOSA	754-91-6	NA	NA	20**	NA
PFPeA	2706-90-3	NA	NA	NA	NA
PFPeS	2706-91-4	NA	NA	NA	NA
Perfluorododecanoic Acid	307-55-1	NA	NA	500	NA
Perfluoroheptanoic Acid	375-85-9	NA	NA	NA	NA
Perfluorohexanesulfonic Acid	355-46-4	NA	10*,**	40	NA
Perfluorononanoic Acid	375-95-1	NA	10*,**	30	NA
Perfluorooctanesulfonic Acid	1763-23-1	70 <sup>†</sup> ,**	4*	20**	8*
Perfluorooctanoic Acid	335-67-1	70 <sup>†</sup> ,**	4*	20**	20 or 95 <sup>†</sup> ,***
Perfluorotetradecanoic Acid	376-06-07	NA	NA	10,000	NA
Perfluorotridecanoic Acid	72629-94-8	NA	NA	NA	NA
Perfluoroundecanoic Acid	2058-94-8	NA	NA	3,000	NA

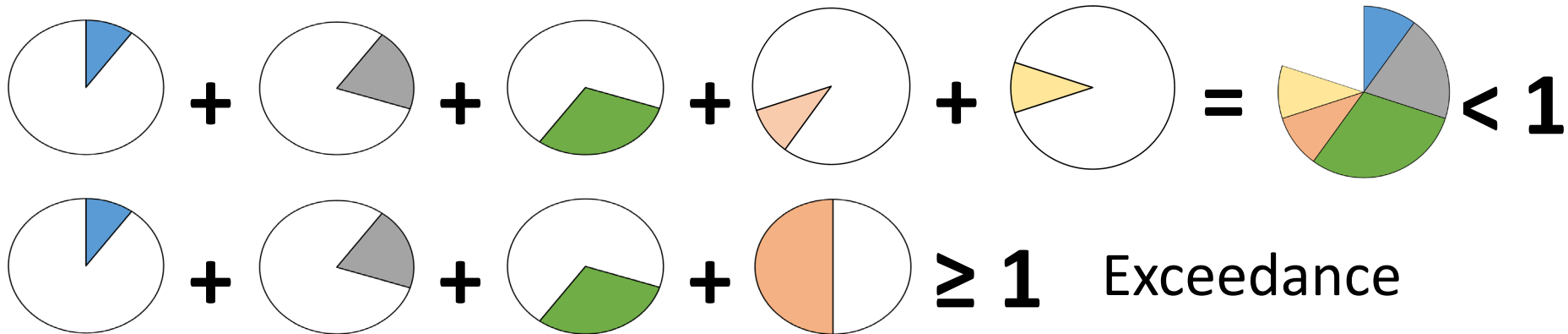
<sup>†</sup>enforcable publicly available water

\*\* combined total

\*\*\* if the water is intended for public water use then the lower standard applies

# The Hazard Index

- Recommended calculation by the Wisconsin Department of Health Services (DHS)
- Recognizes that most exposures are to a mix of chemicals
- While no individual chemical may be above their recommended health guideline, the mix may still prove harmful
- Formal calculation:  $HI = \sum_{i=1}^n \frac{PFAS\ Results_i}{PFAS\ Limit_i}$
- Anything above a 1 is considered an exceedance

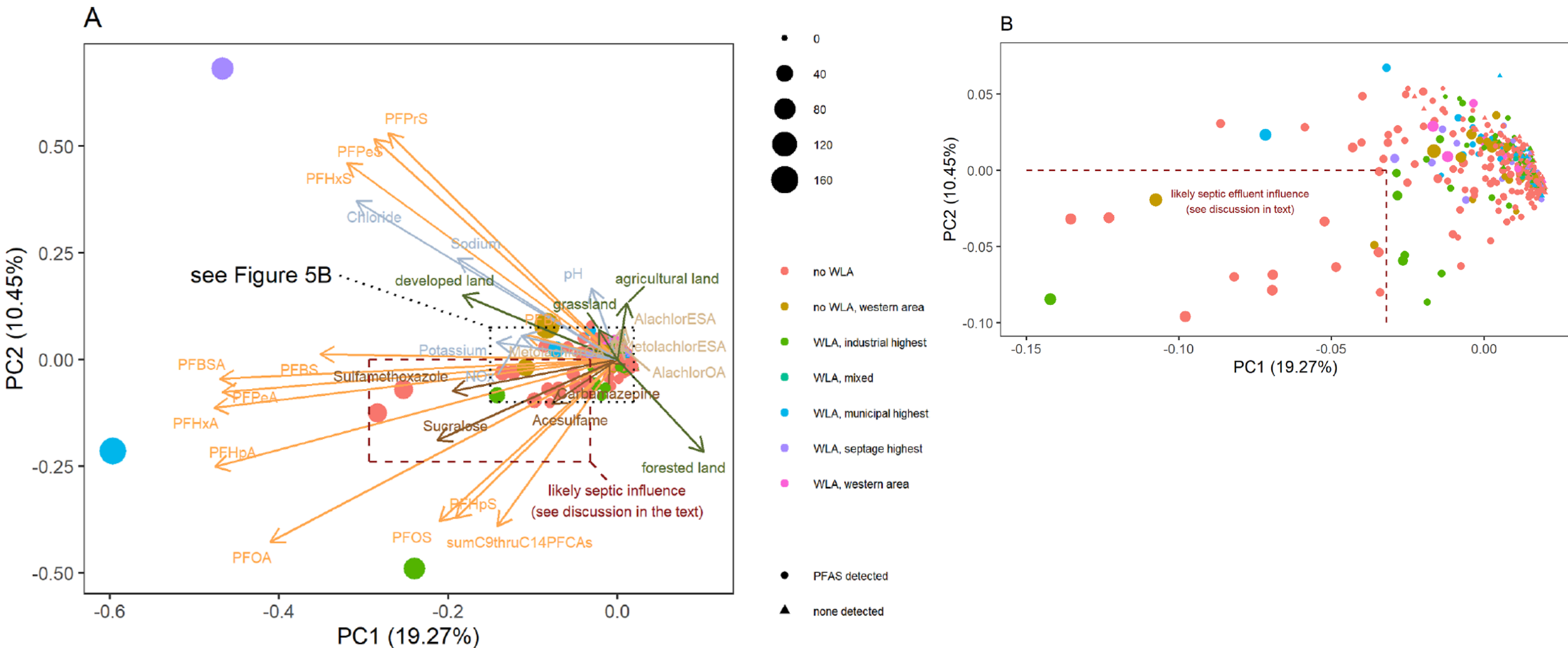




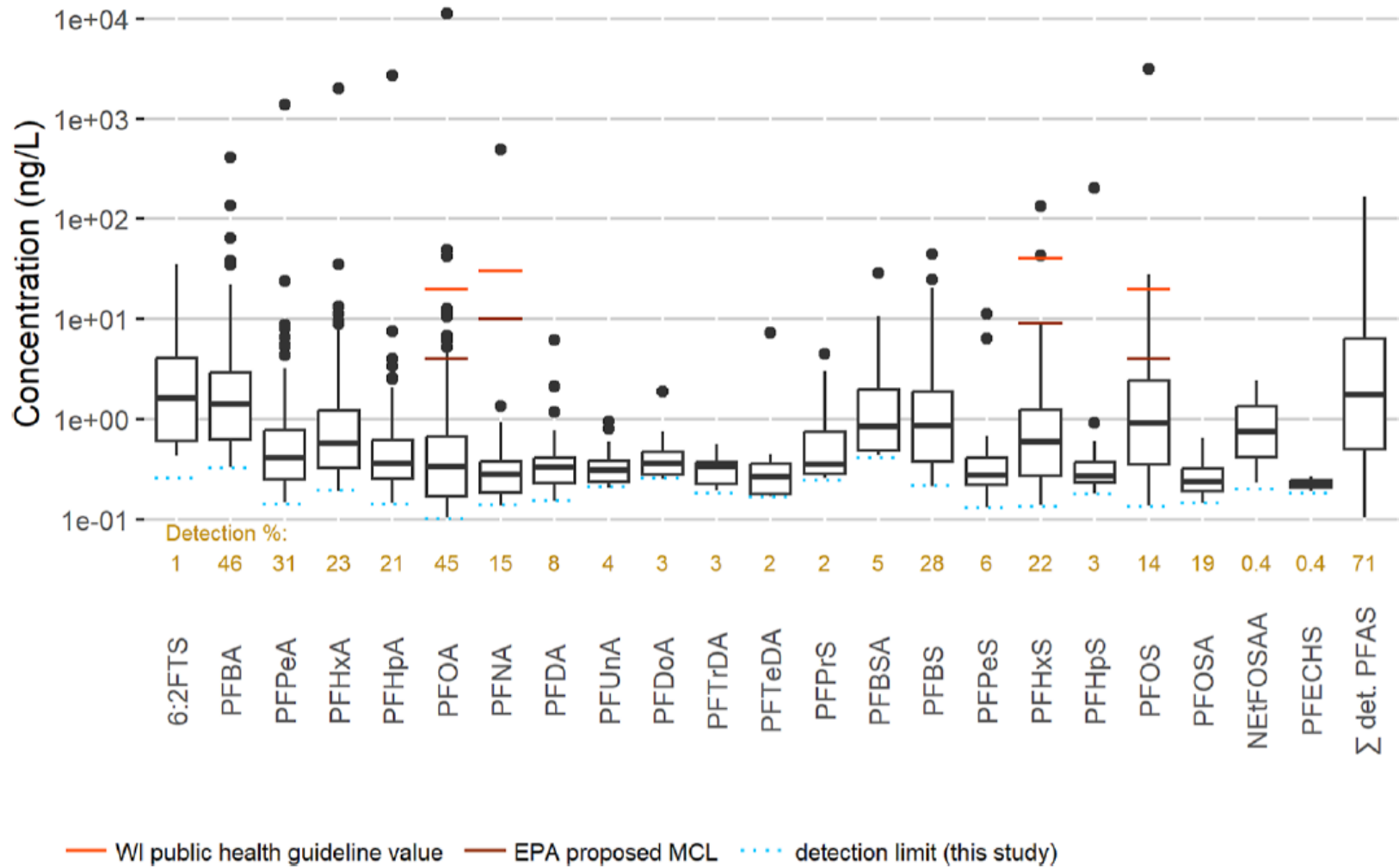
# DNR Shallow Groundwater Study 2023

- 450 wells all across WI
- 71% of wells with PFAS detected
- 1% above DHS recommendations
- 4% above EPA proposed MCLs

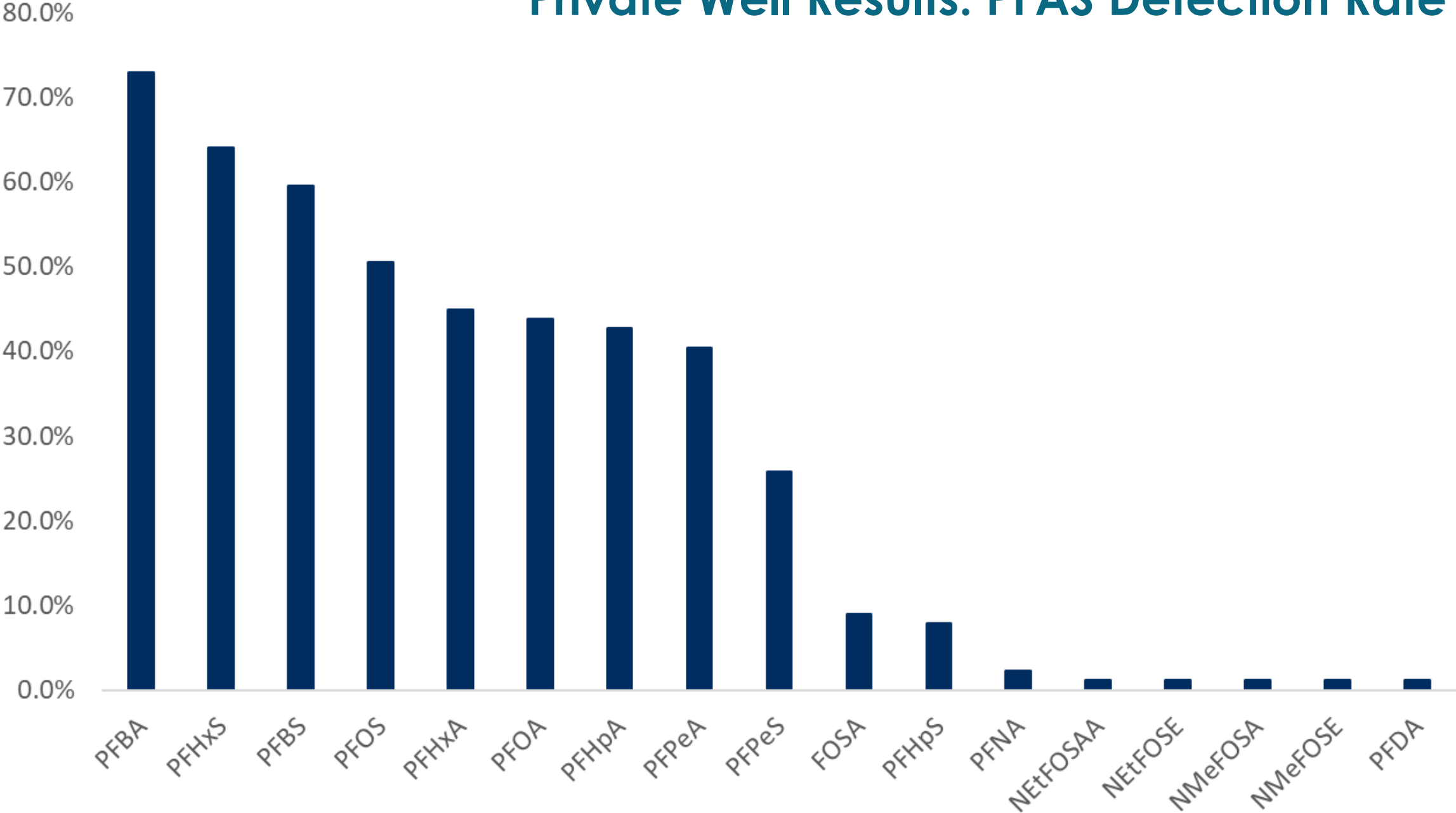
# DNR Shallow Groundwater and Source Tracing study Nov, 2023



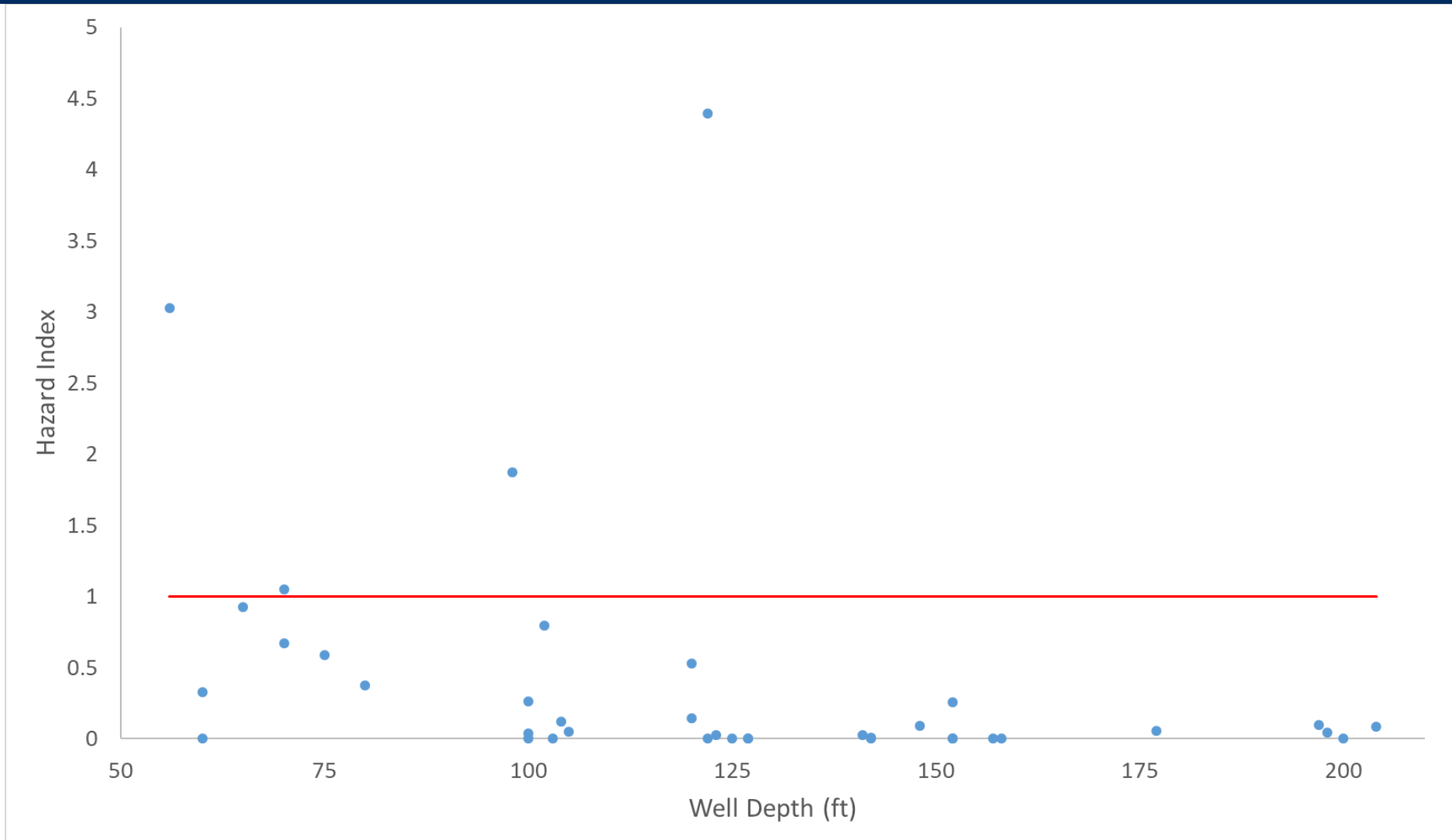
# DNR Shallow Groundwater and Source Tracing study Nov, 2023



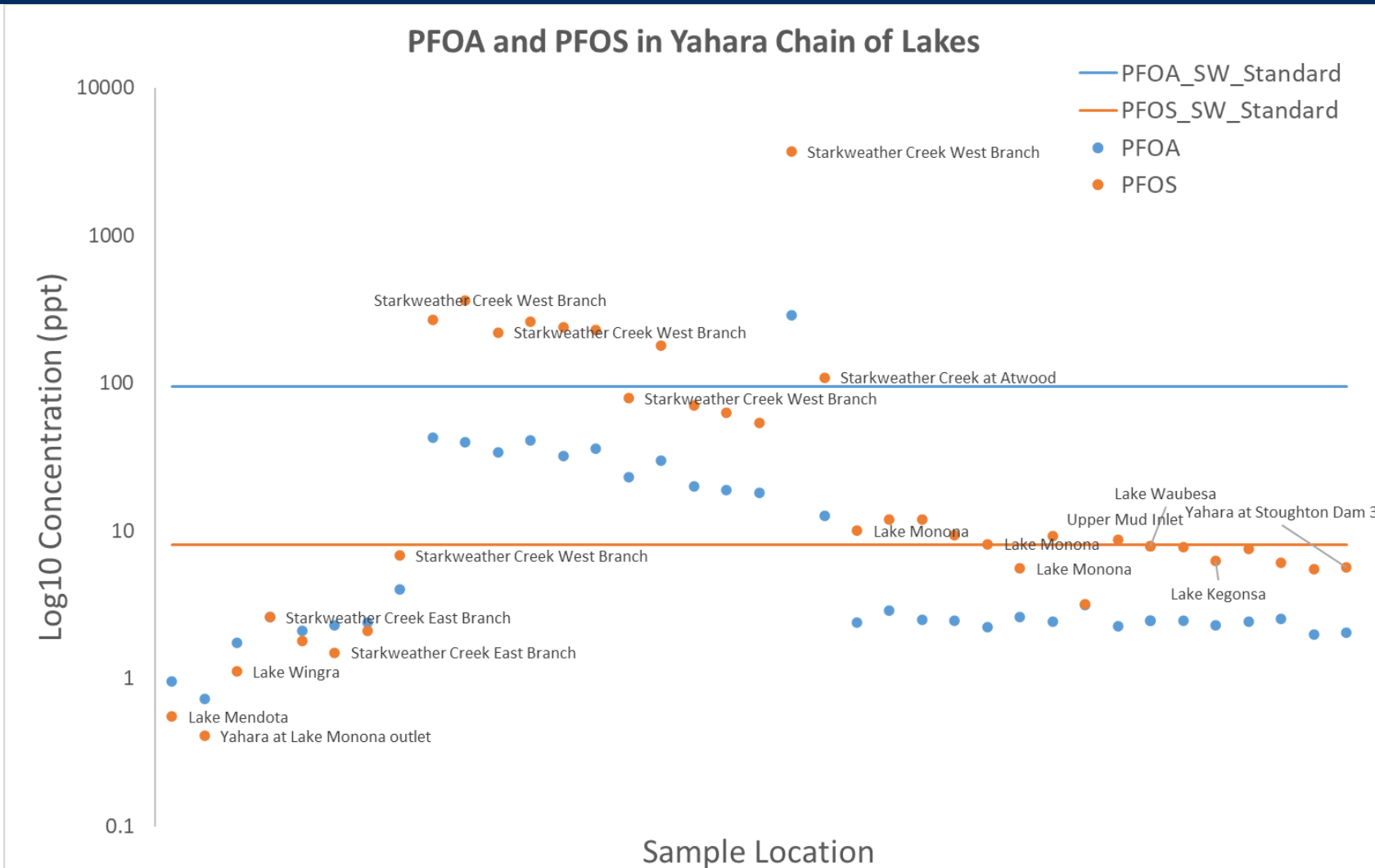
# Private Well Results: PFAS Detection Rate



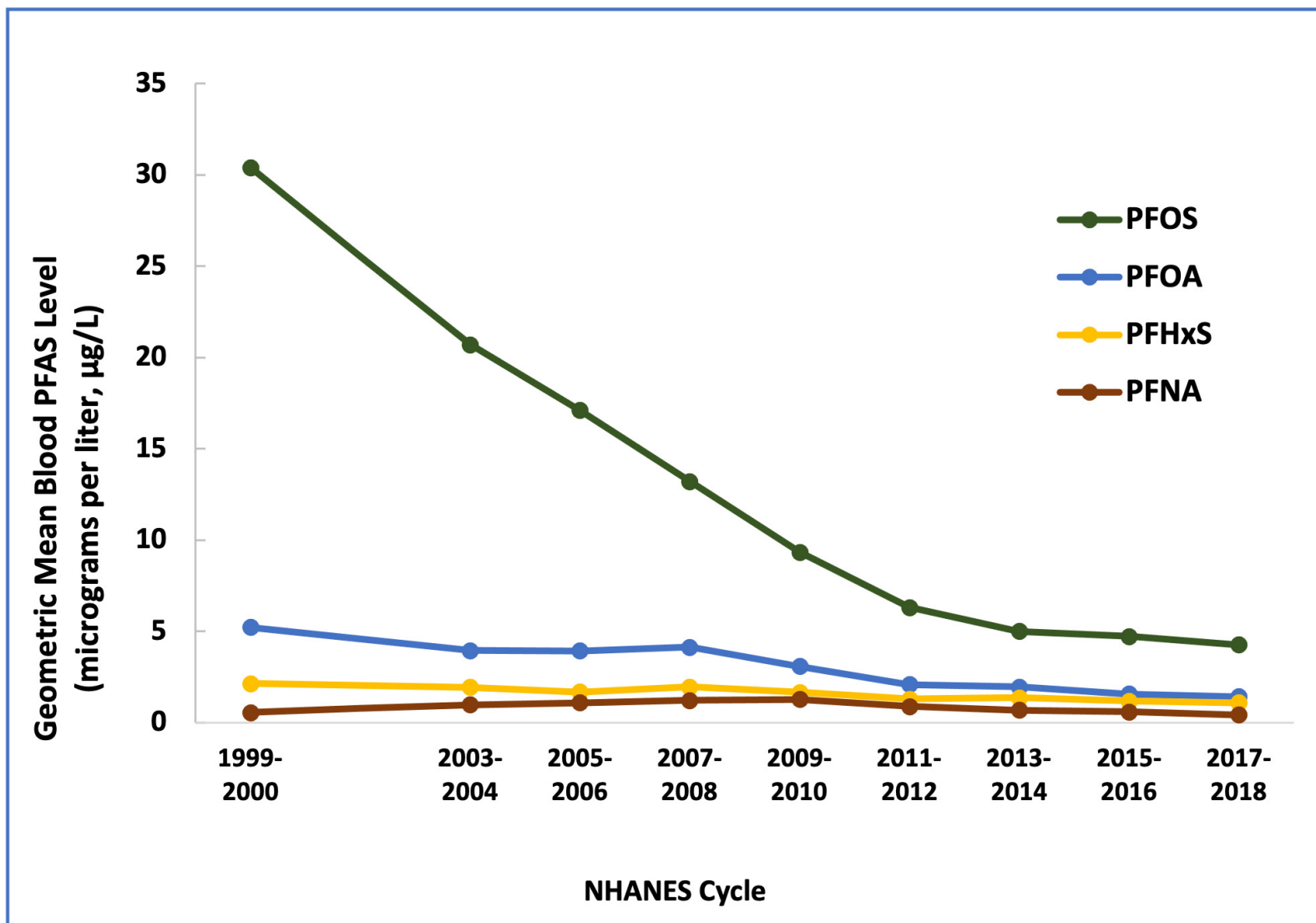
# Private Wells Testing around Dane County (n=34)\* need to update

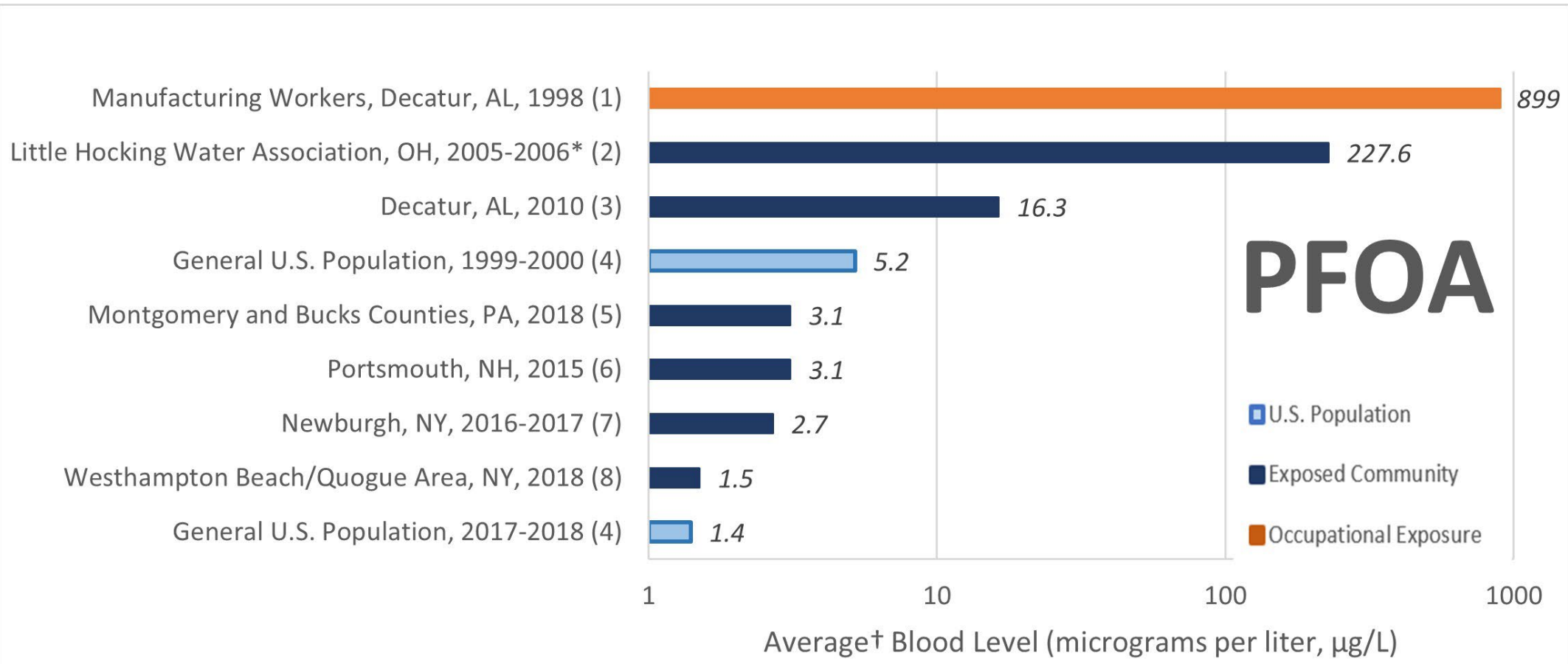


# DNR Surface Water Data Yahara Chain of Lakes



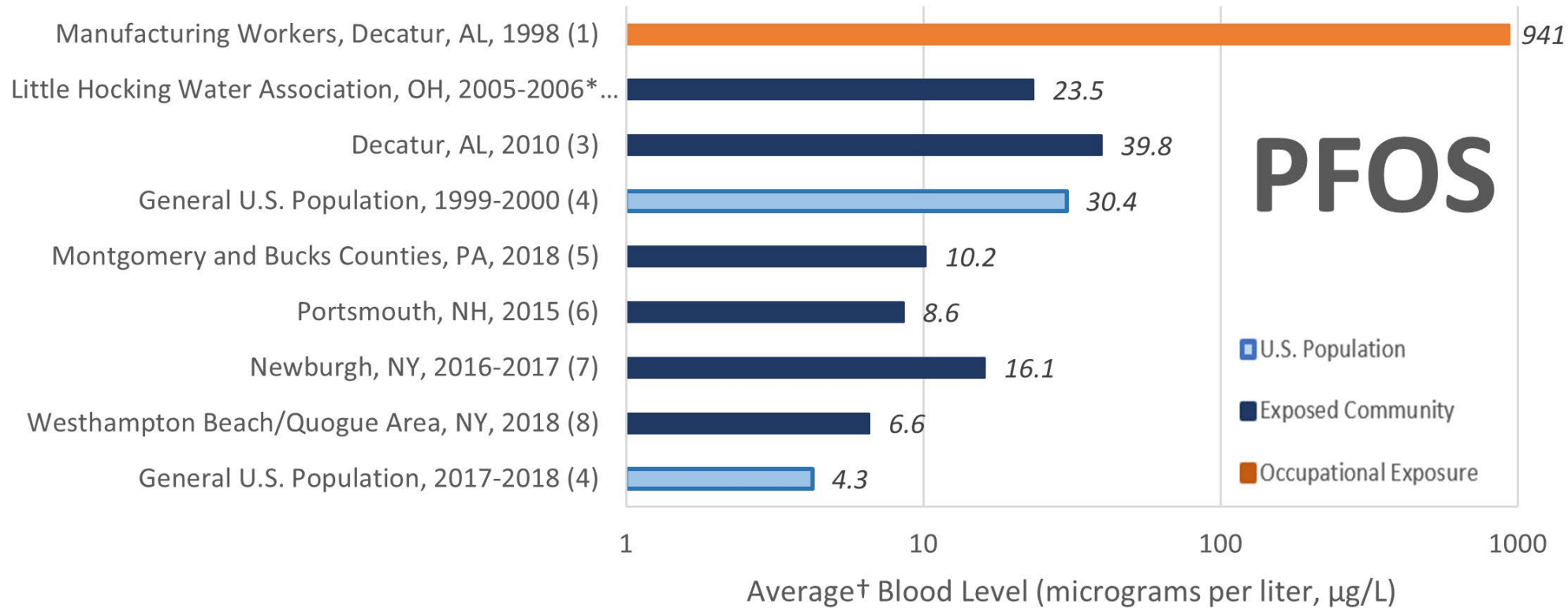
# NHANES Cycle Blood serum study



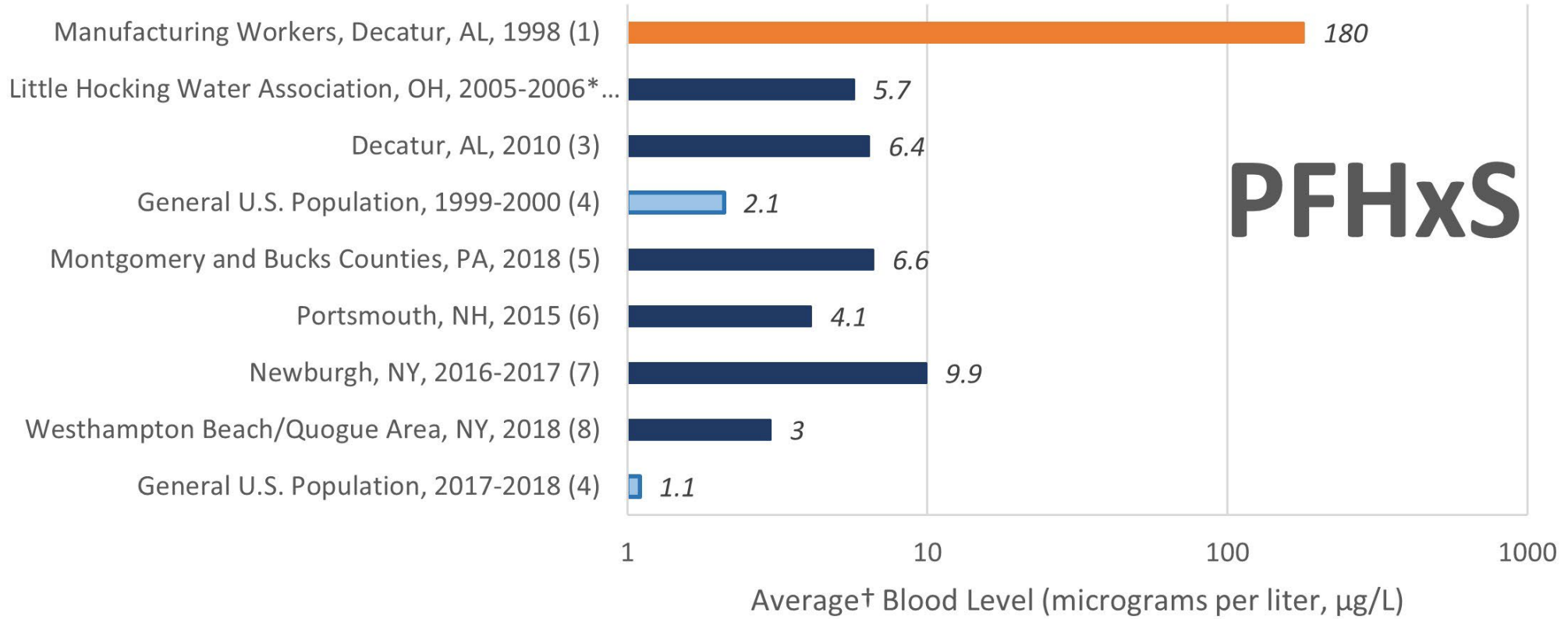


† Averages are geometric means except the study marked with an asterisk (\*), which reported arithmetic mean.





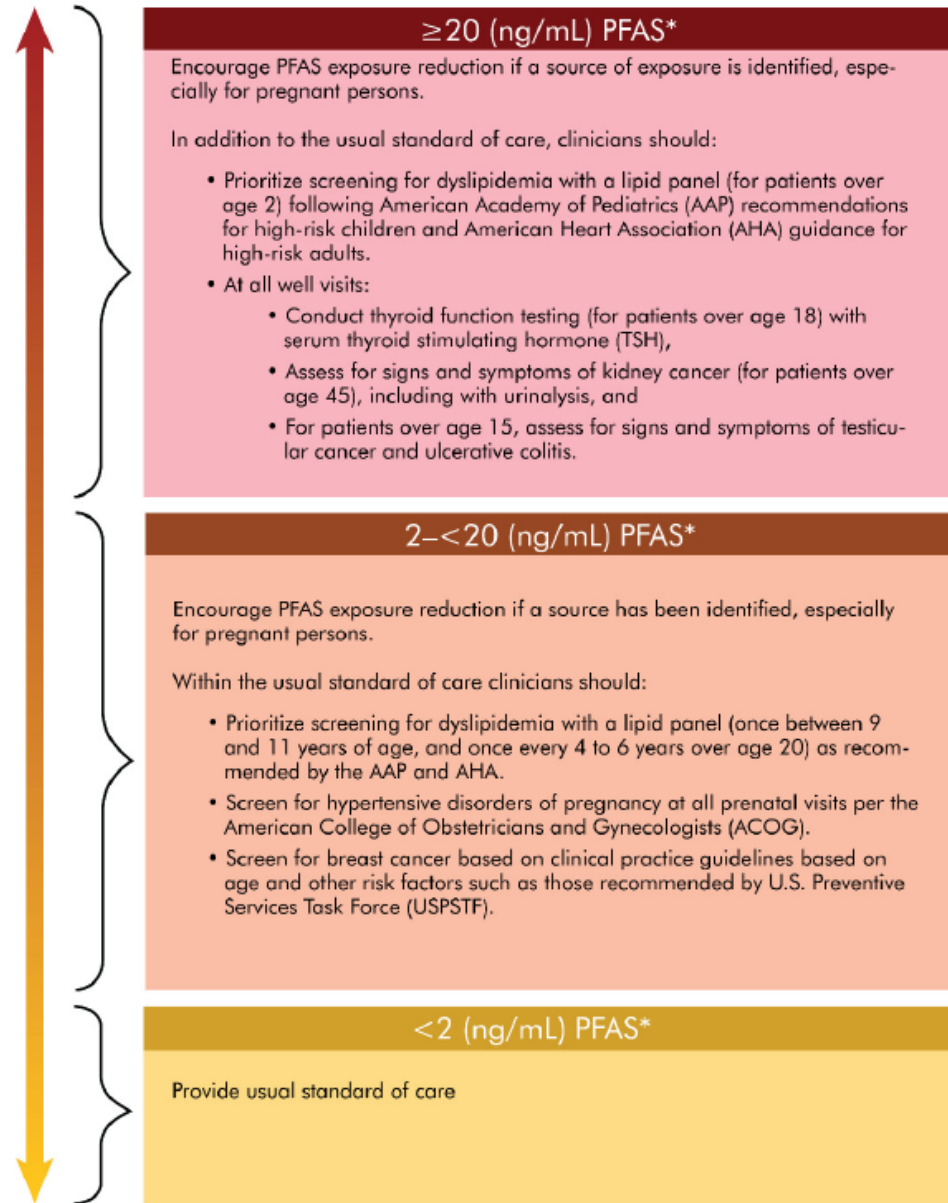
† Averages are geometric means except the study marked with an asterisk (\*), which reported arithmetic mean.



† Averages are geometric means except the study marked with an asterisk (\*), which reported arithmetic mean.

# *National Academy of Sciences Clinical Guidance on blood serum testing*

$$1 \frac{\mu\text{g}}{\text{L}} = \frac{1\text{ng}}{\text{mL}} = \text{ppb}$$



\* Simple additive sum of MeFOSAA, PFHxS, PFOA (linear and branched isomers), PFDA, PFUnDA, PFOS (linear and branched isomers), and PFNA in serum or plasma

**FIGURE S-6** Clinical guidance for follow-up with patients after PFAS testing.  
NOTE: MeFOSAA = methylperfluorooctane sulfonamidoacetic acid; PFDA = perfluorodecanoic acid; PFHxS = perfluorohexane sulfonic acid, PFNA = perfluorononanoic acid; PFOA = perfluorooctanoic acid; PFOS = perfluorooctanesulfonic acid; PFUnDA = perfluoroundecanoic acid.