

Welcome & Introductions

- Alder Grant Foster
- Amy Barrilleaux – Madison Water Utility
- Joe Grande – Madison Water Utility
- Jeff Lafferty – Public Health Madison & Dane County
- Doug Voegeli – Public Health Madison & Dane County

Meeting Ground Rules

- Be present.

Silence phones and avoid side conversations and other behaviors that can prevent others from listening.

- Share the air.

Please don't interrupt, and help us maintain a space where everyone can participate.

- Respect individual perspectives and contributions to the discussion.

Q & A Ground Rules

- **Raise your hand** to be recognized by the moderator. Once recognized, address your question to the moderator. Please only ask one question at a time.
- **Please do not interrupt** or engage in side conversations.
- Neighbors who have not yet asked a question will get priority over those who have.
- **Expect unfinished business.** We will be mindful of the time; however, there may be unanswered questions or in-depth discussions that are not finished when the meeting ends.



PFAS in Water

Jeff Lafferty, Doug Voegeli, Joe Grande



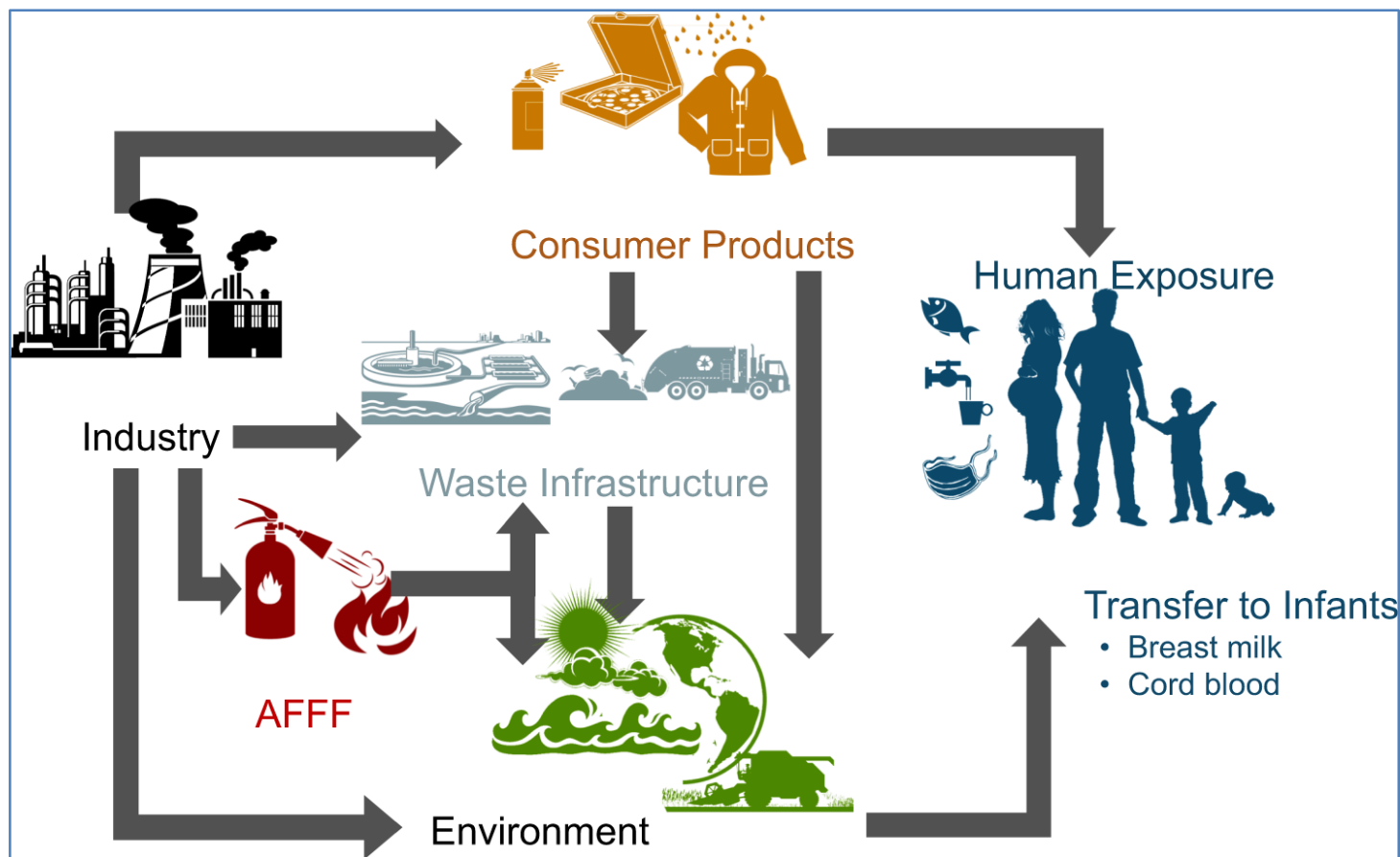
PFAS BACKGROUND

What Are PFAS?

- Per- and polyfluoroalkyl substances (PFAS)
- A group of man-made chemicals designed to repel water, oil, and grease
- Present in many consumer products



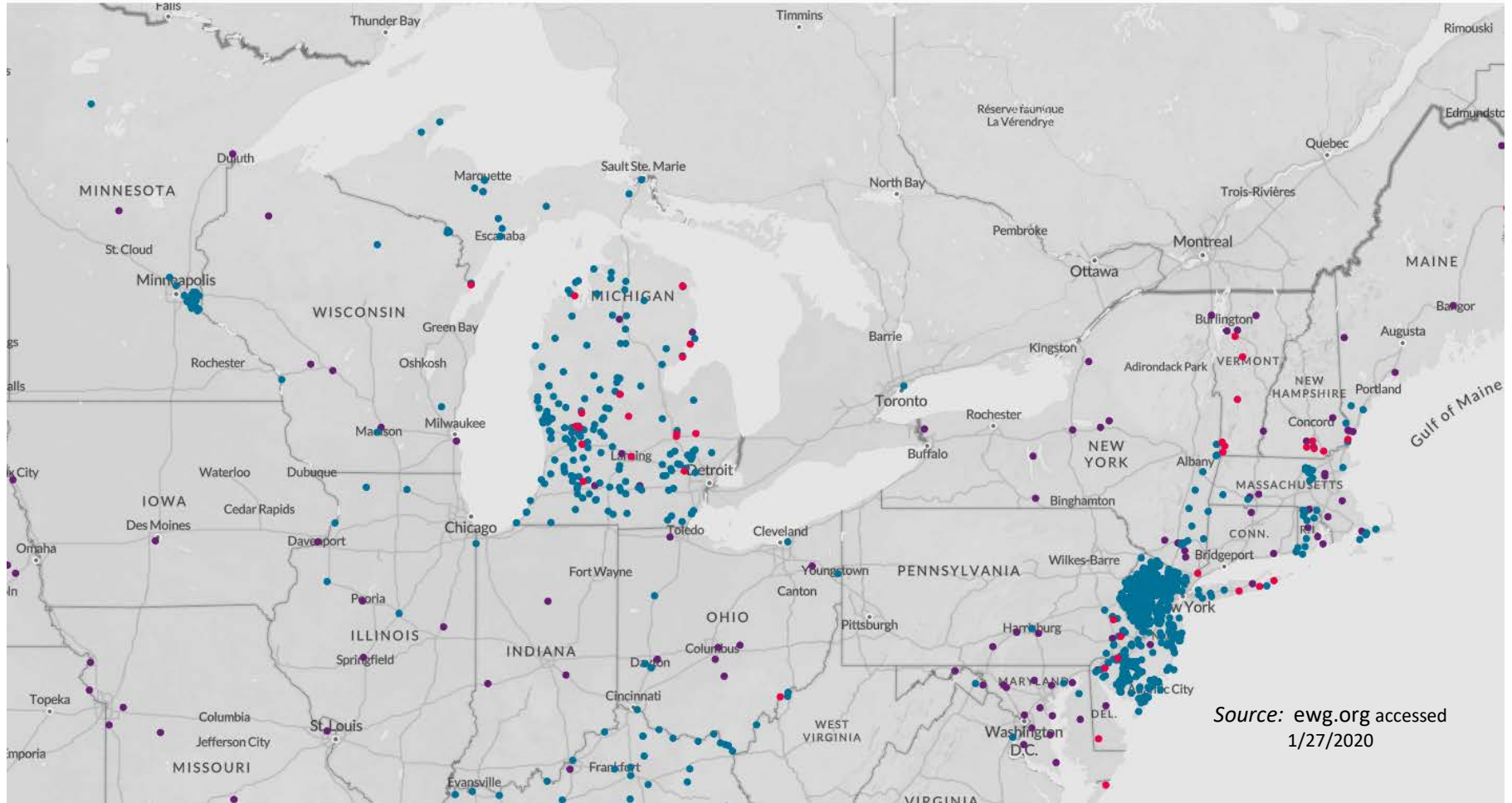
PFAS Are Widespread in the Environment



From: E.M. Sunderland et al. (2019)

PFAS Occurrence

PFAS Contamination in the U.S.



Federal PFAS Regulations

- There are none for any media – soil, water, or air
- Drinking Water Health Advisory (HA) – US EPA
 - 2009 – provisional HA for PFOA (400 ppt) and PFOS (200 ppt)
 - 2016 – lifetime HA of **70 ppt PFOA + PFOS** individually or summed
 - Basis: developmental effects in pregnant & lactating woman
 - Sensitive populations: fetuses and breast-fed infants

State Drinking Water Standards

	MN	NJ	NH	VT	MN	NJ	NY	MI
	HBV	MCL	MCL	Interim MCL	HBV	Interim GWS	MCL	MCL
Effective	2017/2018	2018	2019	2019				
Proposed					4/2019	4/2019	7/2019	10/2019
Adopt				2/2020		1-year	No timeline	4/2020
PFAS Standard (ppt)								
PFOA	35	--	12	20*	--	14	10	8
PFOS	27	--	15	20*	15	13	10	16
PFHxS	27	--	18	20*	47	--	--	51
PFNA	--	13	11	20*	--	--	--	6
PFHpA	--	--	--	20*	--	--	--	--
PFBS	2000	--	--	--	--	--	--	420
PFBA	7000	--	--	--	--	--	--	--
PFHxA	--	--	--	--	--	--	--	400,000
Gen X	--	--	--	--	--	--	--	370

*Regulation applies to sum of five PFAS: PFOA, PFOS, PFHxS, PFNA, PFHpA

PFAS MONITORING

PFAS Testing – Drinking Water

2012 – Subset of wells (4) – no detections of six PFAS

2015 – All 23 wells tested two times – no detections

2017 – Subset of wells (5)

- Lower detection/reporting limits
- Sample “high-risk” or vulnerable wells
- **Two of five wells show low level detections**

2019 – All wells using modified EPA Method 537

- Low detection/reporting limits
- Broad range of PFAS tested (24 - 30 PFAS)
- **Fourteen of twenty-three wells show presence of at least one PFAS**

MADISON WATER UTILITY 2019 PFAS Testing

10/17/2019

Well PFAS Testing Results



LOW



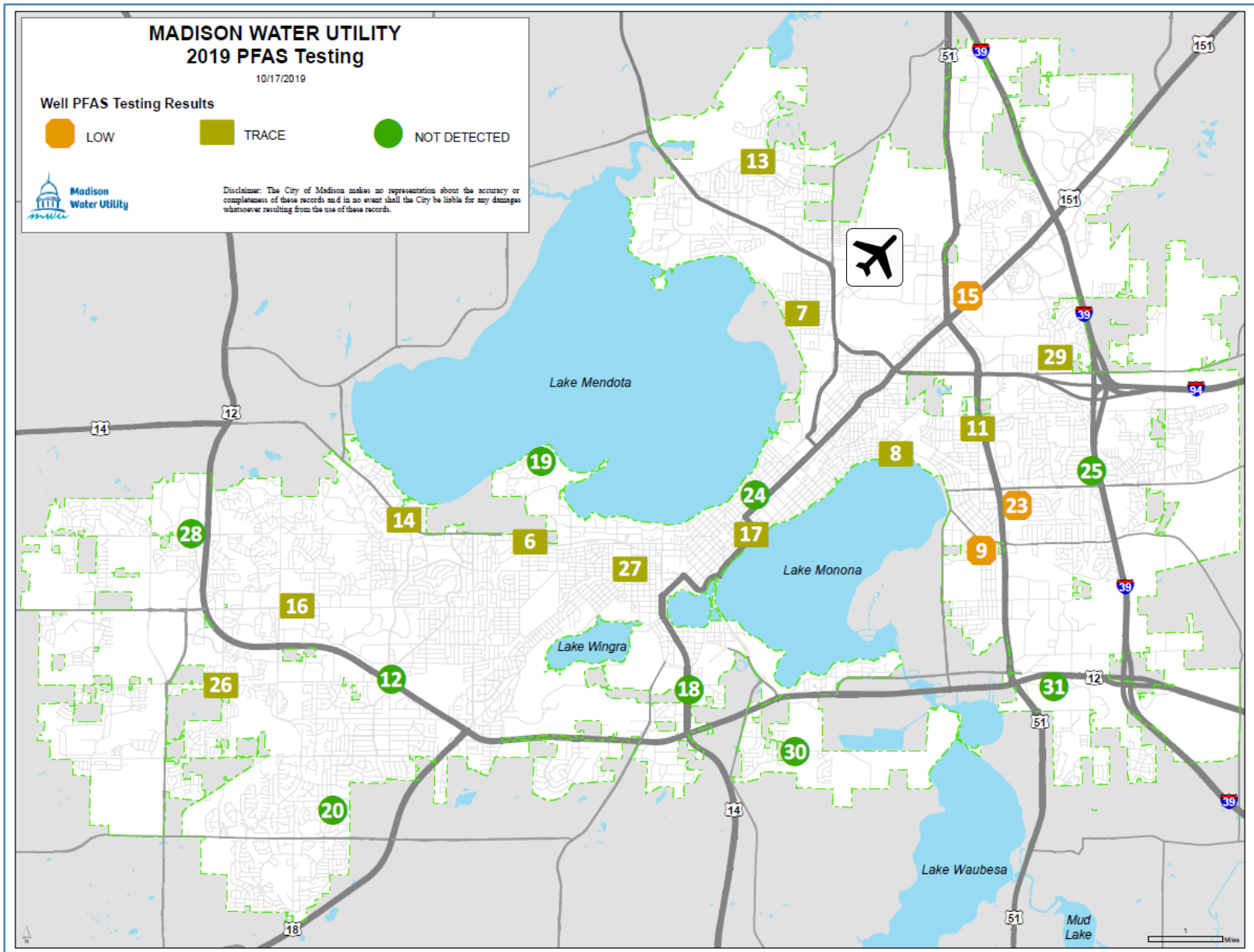
TRACE



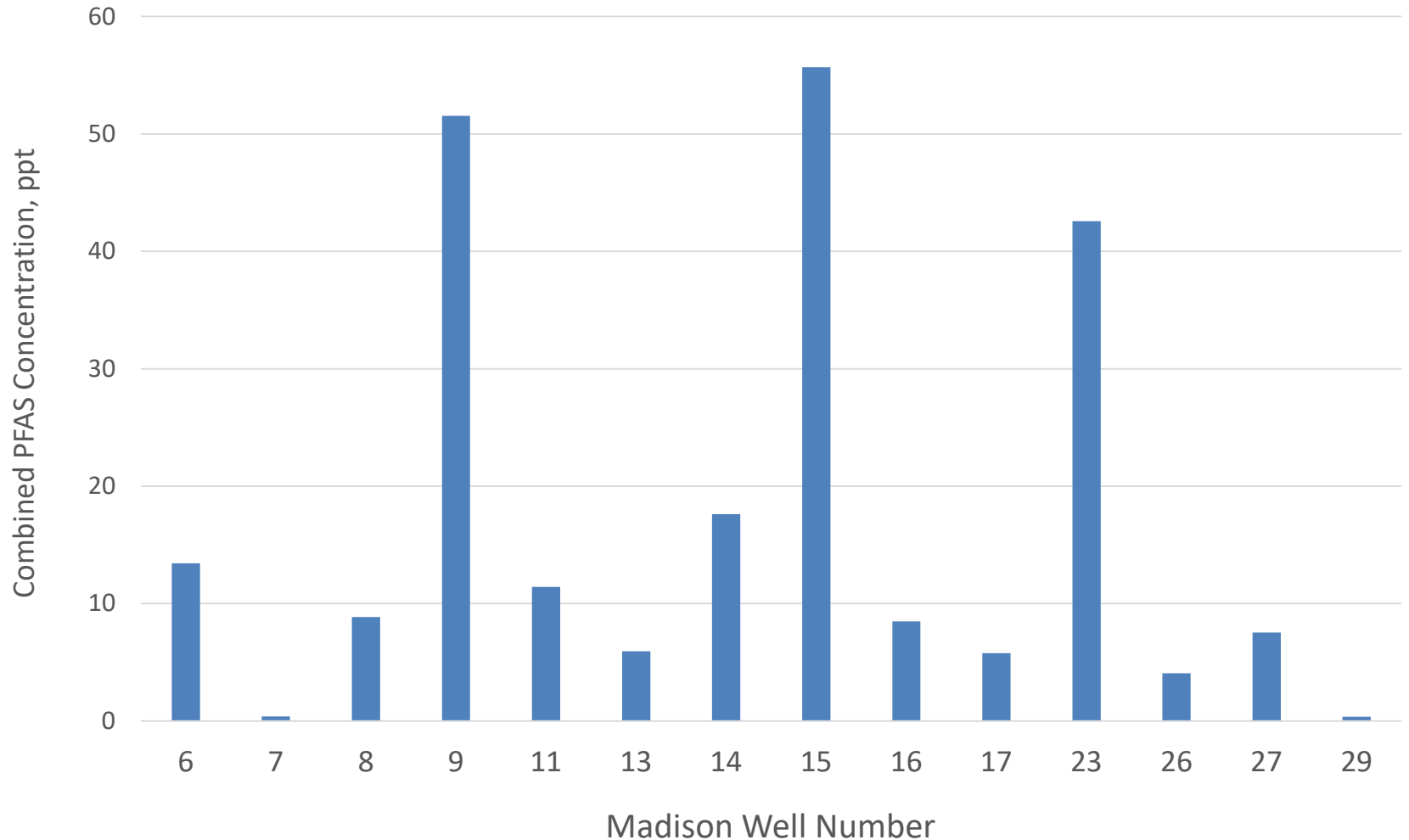
NOT DETECTED



Disclaimer: The City of Madison makes no representation about the accuracy or completeness of these records and in no event shall the City be liable for any damages whatsoever resulting from the use of these records.

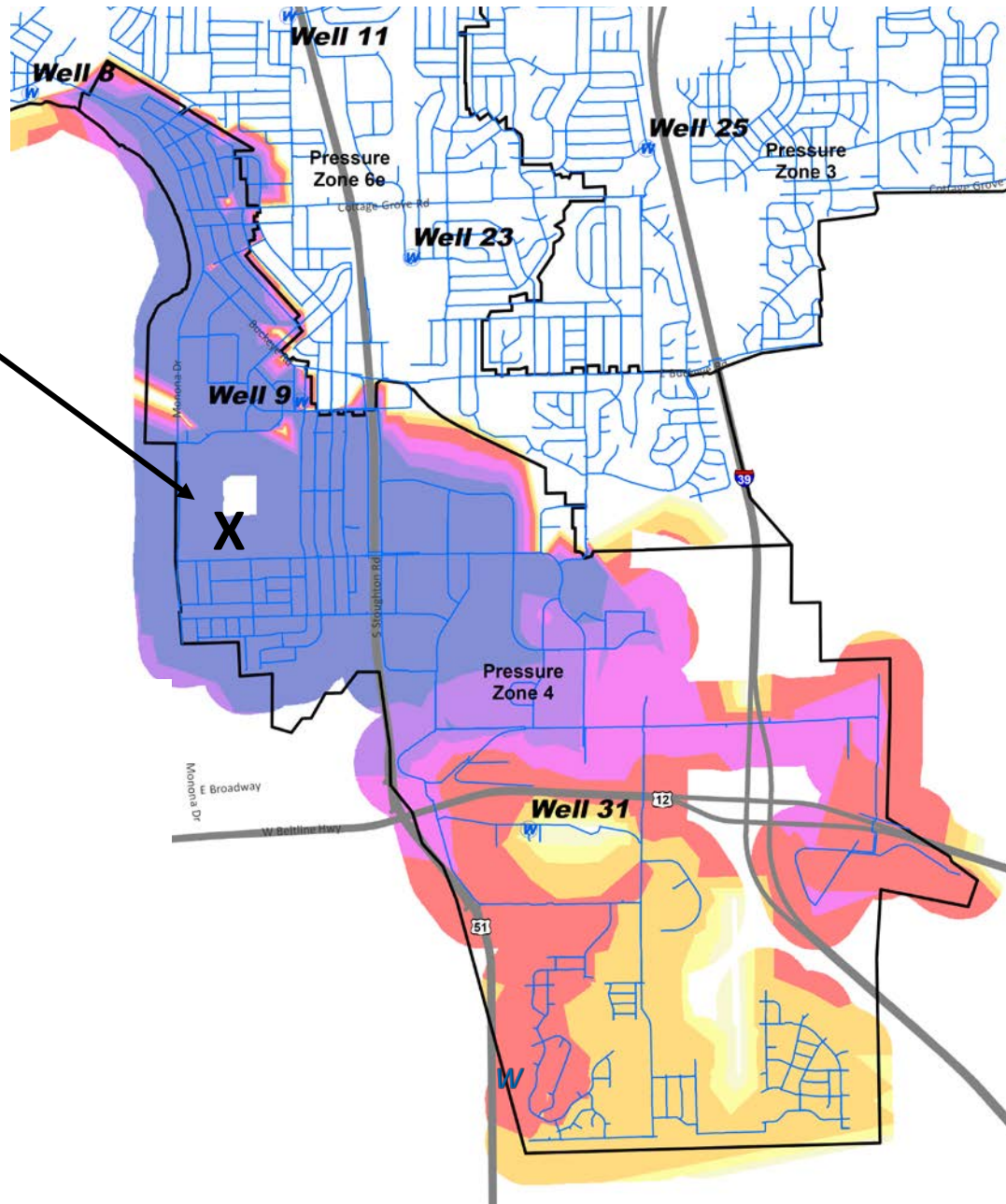


Maximum PFAS Level At Each Well





WELL 9 SERVICE AREA

You Are Here




Legend

 Unit Well

 Water Main

Well Source %


 80 - 100

 60 - 80

 40 - 60

 20 - 40

 10 - 20

 5 - 10

 1 - 5

What's In My Tap Water

- First determine which well serves your home

www.MadisonWater.org/PFAS

- Review water quality reports

[Well 9 Report](#) – includes detailed test results on a wide range of potential drinking water contaminants

- Note: most results in your home would be similar to the well; exceptions include some metals like lead, copper, iron, and manganese

What Can Be Done To Lower PFAS Levels In Water?

- Change in operations – Reduce the use of some wells
- Source abandonment – Permanently close wells
- Add treatment
 - Granular activated carbon (GAC)
 - Ion Exchange (IX)
 - Reverse Osmosis (RO)



Knowledge Gaps

- What is an acceptable level of exposure?
- Do chemically different PFAS behave similarly in the body?
- Are there interactive effects among PFAS or other contaminants?
- What might the regulatory environment look like in five years?
- How effective are treatment technologies at removing low PFAS levels and the specific mixture observed in Madison?

PFAS & HEALTH

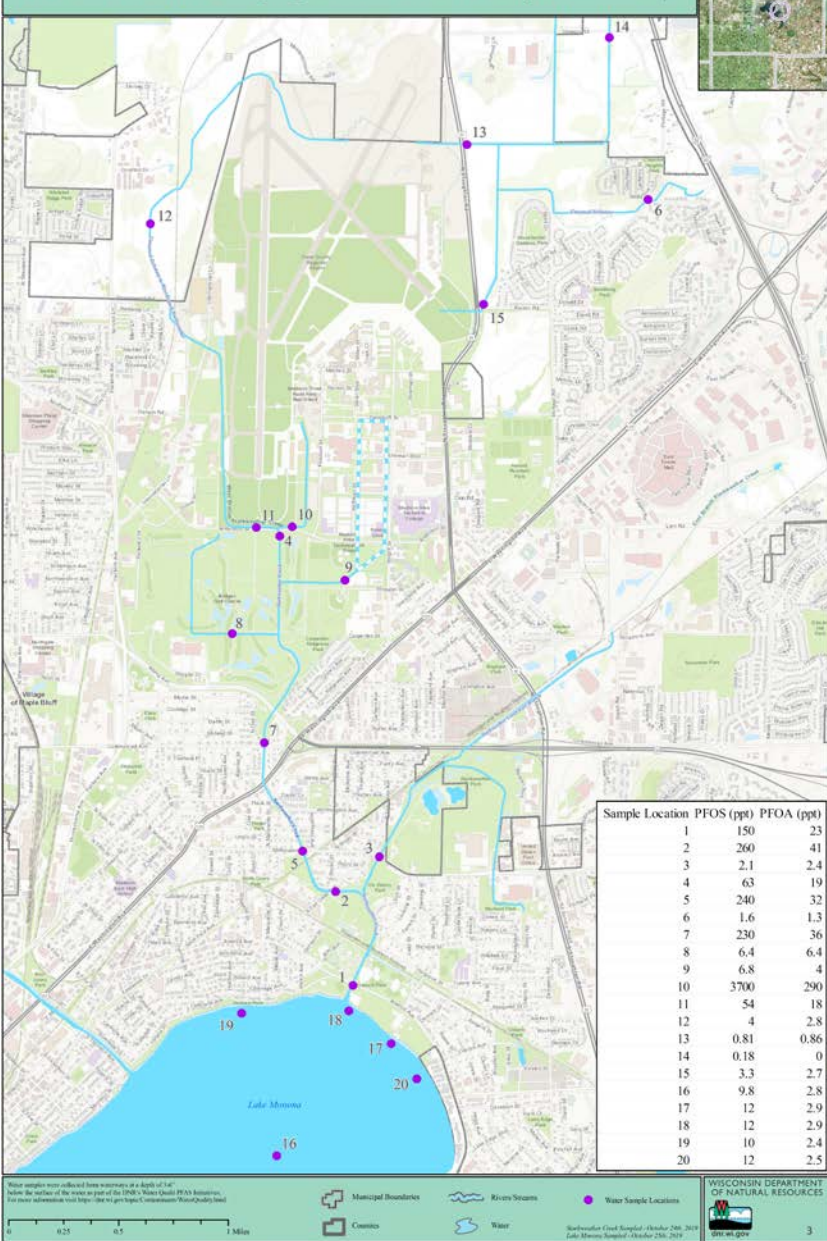
PFAS Exposure Routes

- Drinking water and soil from industrial areas with frequent PFAS manufacture, disposal, or use
- Indoor air or dust from consumer products treated with PFAS to resist stains
- Surface water or groundwater receiving run-off or seepage from areas where firefighting foam was often used
- Fish from contaminated bodies of water
- Grease resistant food packaging and paper products

Potential Human Health Impacts

- Scientists are still learning about the health effects that various PFAS can have on the body.
- Some, but not all, studies in humans with PFAS exposure have shown that certain PFAS may:
 - Affect growth, learning, and behavior of infants and older children
 - Lower a person's chance of getting pregnant
 - Interfere with the body's natural hormones
 - Increase cholesterol levels
 - Affect the immune system
 - Increase the risk of cancer






FISH TISSUE & SURFACE WATER









Surface Water Testing

- Starkweather Creek
 - Highest level near WI ANG
 - 3700 ppt PFOS
 - 8800 ppt total PFAS
 - Elevated levels downstream
 - 63 - 260 ppt PFOS
- Lake Monona
 - 10 – 12 ppt PFOS
 - 35 – 40 ppt total PFAS

Local Fish Consumption Advisories

Starkweather Creek		
Species	Up to 1 meal/week	Up to 1 meal/month
 Bluegill	All sizes	
 Largemouth bass		All sizes
 Northern pike		All sizes
 Walleye		All sizes
 Yellow perch		All sizes

Lake Monona		
Species	Up to 1 meal/week	Up to 1 meal/month
 Bluegill	All sizes	
 Common carp		All sizes
 Largemouth bass		All sizes
 Northern pike		All sizes
 Walleye		All sizes
 Yellow perch		All sizes

Upcoming Community Meetings

- Focus: PFAS in Fish & Surface Water
- Location: East Madison Community Center
8 Straubel Court
- Dates:
 - Saturday, February 8 from 10:30 to 11:30 am
 - Wednesday, February 12 from 6:30 to 7:30 pm

Questions?



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www.publichealthmdc.com/pfas

www.cityofmadison.com/water/water-quality/water-quality-testing/perfluorinated-compounds