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# PRESIDENT'S WORK GROUP ON ENVIRONMENTAL JUSTICE

## PFAS DRINKING WATER STANDARDS SETTING

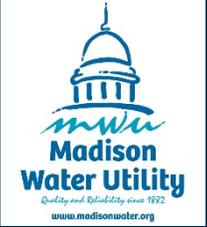


Krishna Kumar, General Manager  
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November 29, 2021

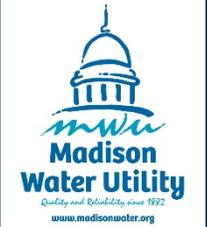


# PFAS Drinking Water Standards Setting



- Presentation Focus:
  1. Primary **Players**
  2. Key Elements of the **Process**
  3. EPA and WI DNR **Timeline**
  4. MWU Well Test **Results**
  5. Local Standard Setting **Challenges**

# PFAS Drinking Water Standards Setting - **Players**



**Sets Standards**

**US EPA**



**Implements Standards**

**WI DNR**

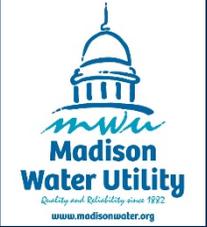


**Meets Standards**

**Public Water Utilities**



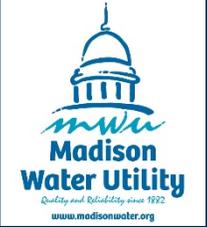
# PFAS Drinking Water Standards Setting – Role of EPA



- **Sets standards** for both naturally-occurring and human-made contaminants – **MCLs** (94 contaminants regulated)
- **Establishes non-mandatory guidelines** related to taste, appearance, or odor – **Secondary MCLs** (15 guidelines)
- **Prescribes** monitoring requirements for priority unregulated contaminants – **UCMRs** (30 contaminants)
  - Including PFOA, PFOS, PFHxS, and PFBS



# PFAS Drinking Water Standards Setting – **Role of DNR**



- **WI DNR implements & enforces** drinking water standards
- Rules are codified in **Wisconsin Administrative Code** and include:
  - Drinking Water Standards - MCLs & Secondary MCLs
  - Monitoring Frequency & Analytical Requirements
  - Reporting Requirements & Public Notification
  - Best Available Technology for Treatment



# PFAS Drinking Water Standards Setting – Role of MWU



## Meets Standards through Testing & Reporting to DNR:

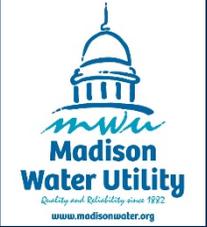
- **Daily** – chlorine, fluoride, coliform
- **Monthly** – iron, manganese, chloride
- **Quarterly** – VOC, radium, DBP
- **Annually** – IOC, PFAS, VOC
- **Periodically** – lead & copper, SOC

## Madison Water Utility – 2020 Testing

Test Type	Samples	Tests
Chlorine	10,621	10,621
Fluoride	6,856	6,856
Total coliform/E. coli	2,905	2,905
Others	788	5895
<b>Total</b>	<b>21,170</b>	<b>26,277</b>



# PFAS Drinking Water Standards Setting – Process (EPA)



## Step 1. Identify

- ✓ Contaminants of concern identified
- ✓ **Contaminant Candidate List (CCL)** published
- ✓ Contaminants prioritized using monitoring data & risk assessments

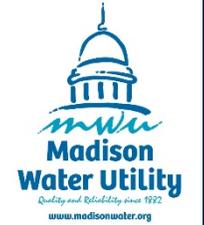
## Step 2. Evaluate

- Human health effects data
- Occurrence at levels of public health concern
- “Meaningful opportunity for health risk reduction”**

## Step 3. Regulate

- ✓ Publish Preliminary **Regulatory Determination**
- ✓ Receive and review public/agency comments
- ✓ Publish final regulation in the Federal Register

# PFAS Drinking Water Standards Setting – Process (EPA)

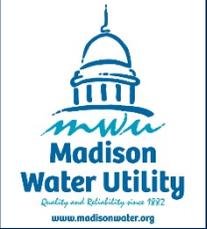


- Calculation of the **maximum allowable concentration** of a substance in water based on  $10^{-4}$  and  $10^{-6}$  risk levels

- Starts with:

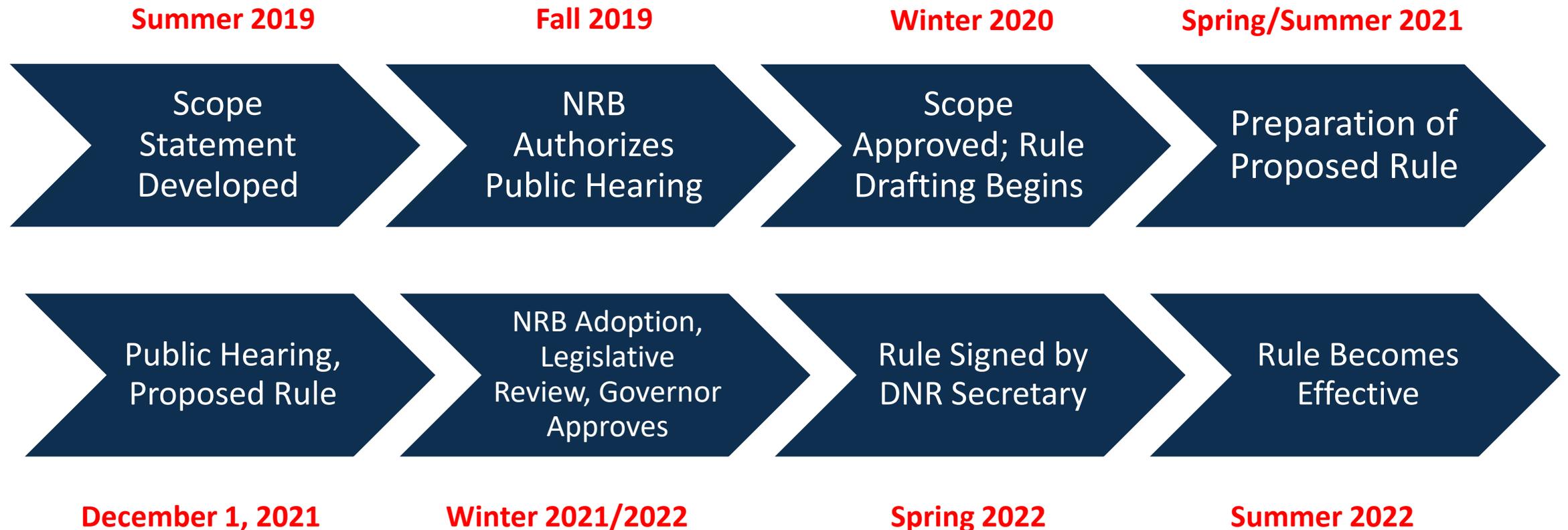
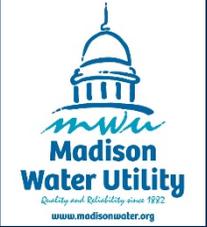
$$\begin{aligned} \left( \begin{array}{c} \text{acceptable} \\ \text{risk} \end{array} \right) &= \left( \begin{array}{c} \text{potency} \\ \text{of} \\ \text{substance} \end{array} \right) \left( \begin{array}{c} \text{exposure} \\ \text{to} \\ \text{substance} \end{array} \right) \\ &= \frac{\left( \begin{array}{c} \text{potency} \\ \text{of} \\ \text{substance} \end{array} \right) \left( \begin{array}{c} \text{conc'n of} \\ \text{substance} \\ \text{in medium} \end{array} \right) \left( \begin{array}{c} \text{rate of} \\ \text{medium} \\ \text{consumption} \end{array} \right) \left( \begin{array}{c} \text{exposure} \\ \text{duration} \end{array} \right) \left( \begin{array}{c} \text{exposure} \\ \text{frequency} \end{array} \right)}{\left( \begin{array}{c} \text{body} \\ \text{mass} \end{array} \right) \left( \begin{array}{c} \text{averaging} \\ \text{time} \end{array} \right)} \end{aligned}$$

# PFAS Drinking Water Standards Setting – Timeline (EPA)



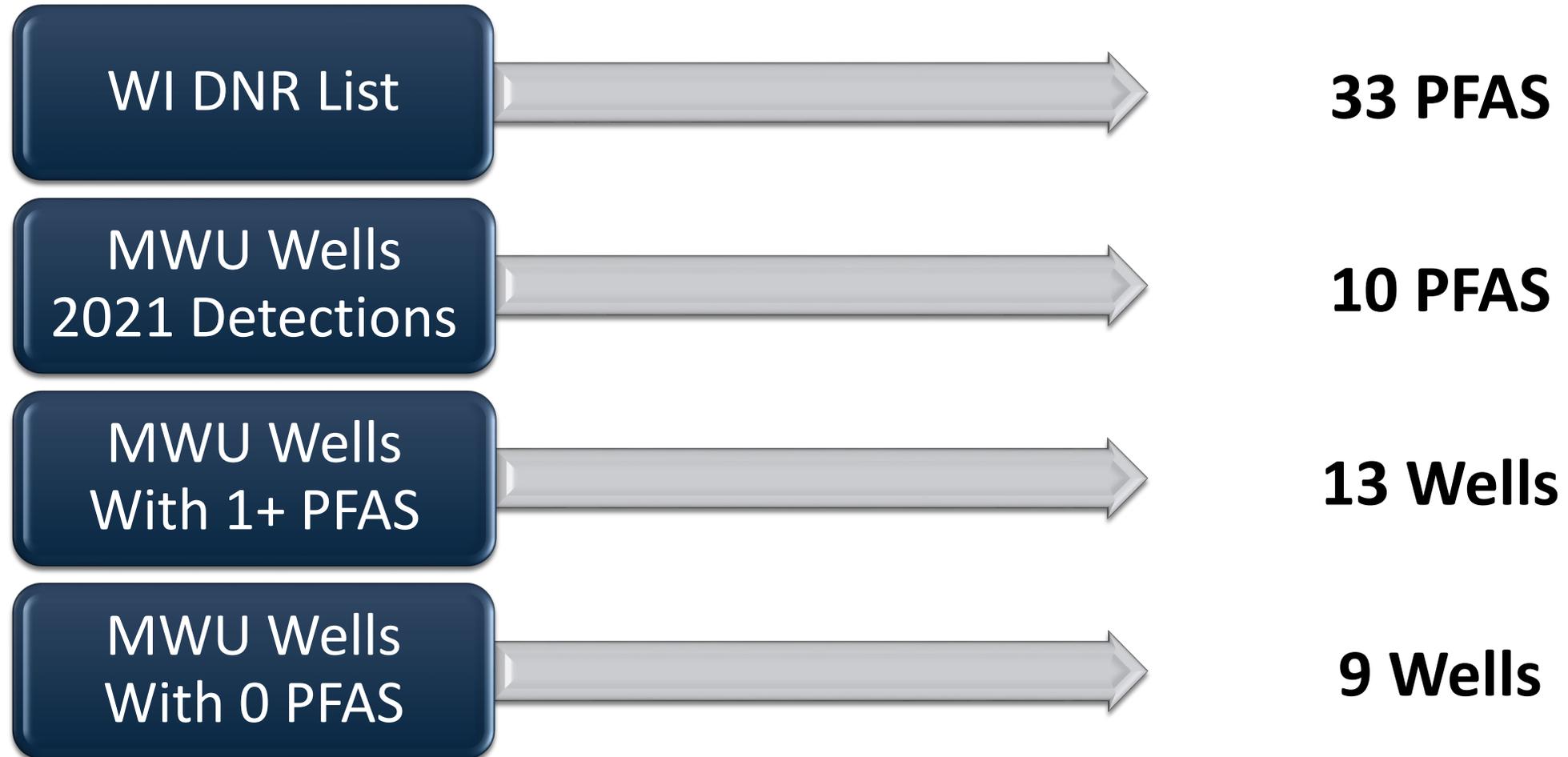
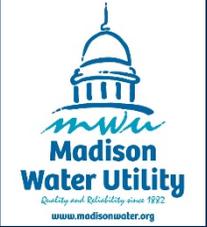
**EPA announces an aggressive timetable for PFAS regulation**

# PFAS Drinking Water Standards Setting – Timeline (DNR)

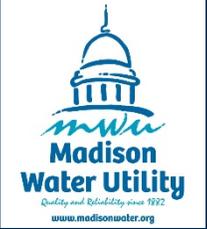


**DNR headed to the home stretch after a 30-month journey**

# PFAS Drinking Water Standards Setting – MWU Results



# PFAS Drinking Water Standards Setting – MWU Results



	PFAS Compound	WI DHS Recommendation (ppt)	Maximum (2021)	Maximum (2020)
1	PFOA	20 <sup>#</sup>	<b>1.38</b>	1.8
2	PFOS	20 <sup>#</sup>	<b>1.33</b>	1.8
3	FOSA	20 <sup>#</sup>	<b>ND</b>	4.4*
4	NEtFOSE	20 <sup>#</sup>	<b>ND</b>	1.5
5	PFBA	10,000	<b>25.5</b>	37
6	PFBS	450,000	<b>36.9</b>	1.7
7	PFHxA	150,000	<b>1.89</b>	2.2
8	PFHXS	40	<b>4.4</b>	5.0
9	PFDoA	500	<b>ND</b>	0.56
10	PFTeA	10,000	<b>ND</b>	0.52

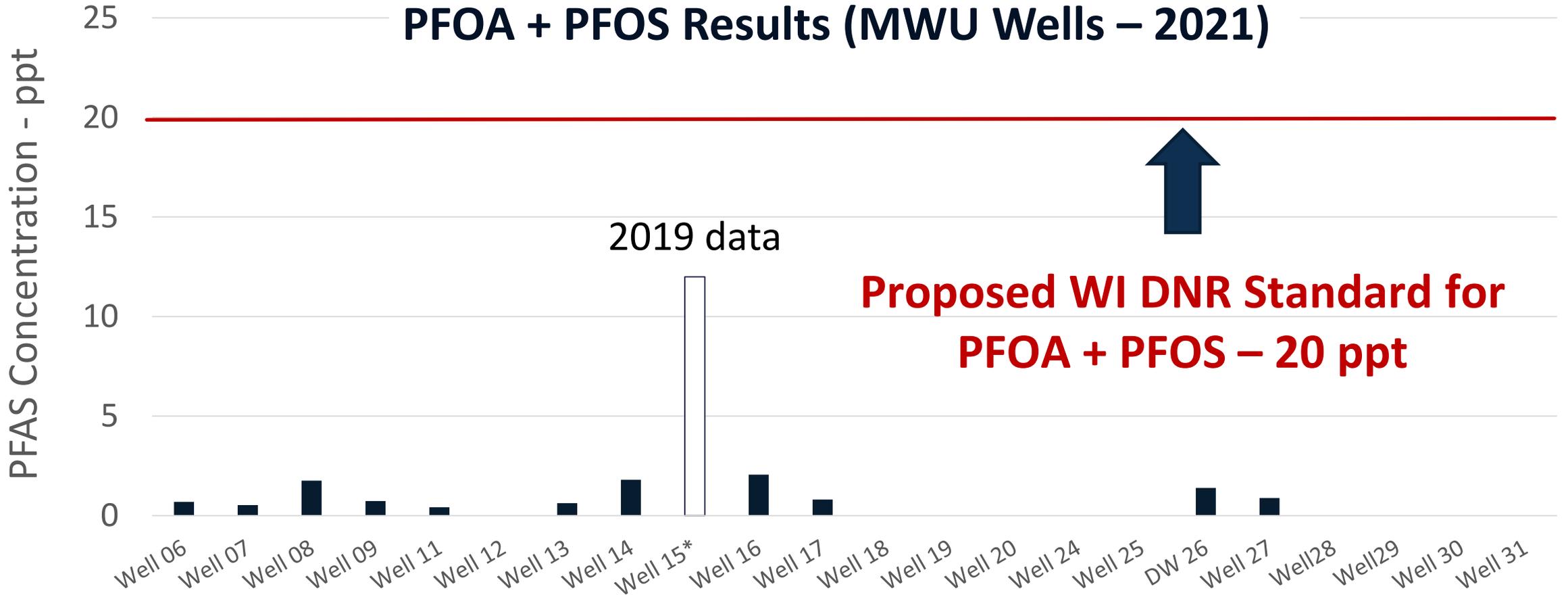
# Sum of **six PFAS** must be below **20 ppt**

\* May reflect cross-contamination at lab

# PFAS Drinking Water Standards Setting – MWU Results



## PFOA + PFOS Results (MWU Wells – 2021)



# PFAS Drinking Water Standards Setting – MWU Results



## MWU Impact

PFOA + PFOS

EPA Health Advisory Level: 70 ppt  
DNR Proposed Standard: 20 ppt

**0 Wells**

PFOA + PFOS + 4  
Additional PFAS

WI DHS Guidance: 20 ppt

**0 Wells**

4 + 12 Additional PFAS

WI DHS Guidance: Individual  
Recommendations for 16 PFAS

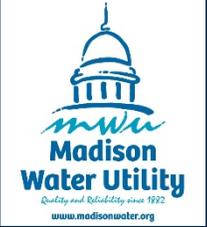
**0 Wells**

PFOA + PFOS + 16 PFAS

WI DHS Hazard Index: <1

**1 Well (#15):  
Shut Down**

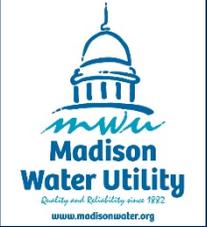
# PFAS Drinking Water Standards Setting – **At Local Level**



Challenges to Setting Local Standard for up to **36 PFAS compounds**:

- **Available Scientific and Technical Knowledge Base to**
  - Identify Acceptable Analytical Methods and Laboratories
  - Perform & Interpret Health Risk Assessments
  - Evaluate Best Available Technology
- **Ability to Determine Public Policy trade-offs by**
  - Measuring Public Benefits
  - Assessing Community Costs for Meeting Locally Set Standards

# PFAS Drinking Water Standards Setting – **At Local Level**



## Mitigating Factors:

- Robust, science-based standard setting processes underway – EPA, DNR
- DNR – PFAS Regulation
  - Public hearing on Proposed Rules - **Dec 1, 2021**
  - Final rule - **Summer 2022**
- EPA – PFAS Regulation
  - Proposed PFAS regulation - **Fall 2022**
  - Final rules becoming effective - **Fall 2023**



# Questions / Comments?

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