# PFAS DAC Community Water System Sampling Project

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CALIFORNIA Water Boards

The presenter declares no conflict of interest associated with this presentation.

Divisions of Drinking Water and Water Quality

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- 2021 and 2023 Method Comparison Studies
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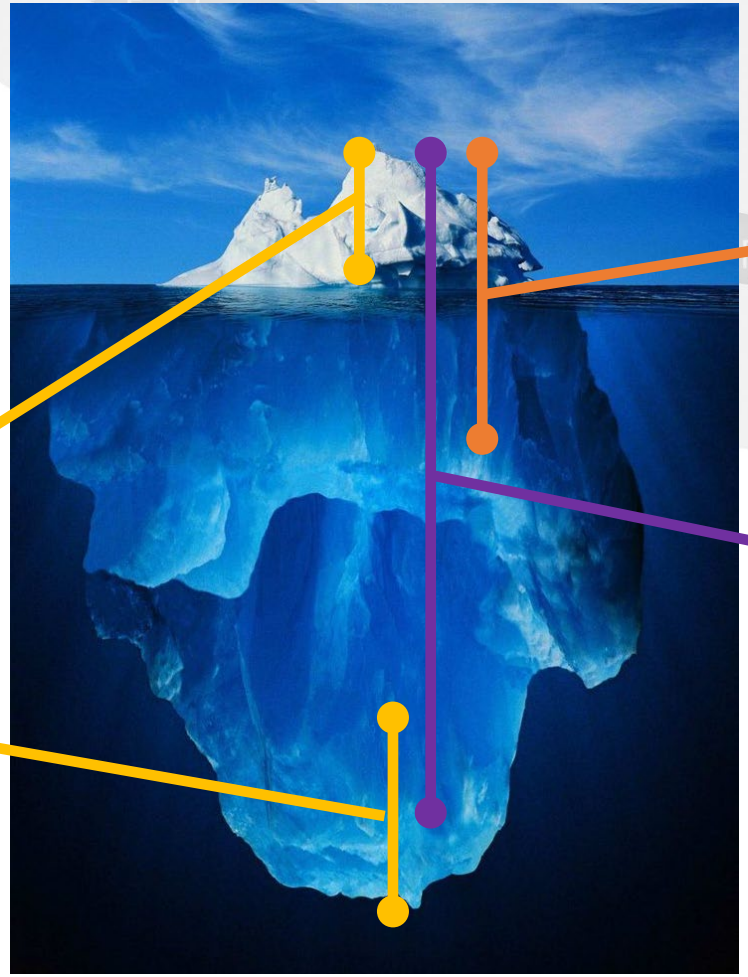
# California PFAS Scope

**AVAILABLE TARGETED ANALYSES**

- Drinking Water - US EPA Analytical Method 533 (25 analytes)
- Non-Drinking Water – US EPA Method 1633 (40 analytes)
- Ultrashort PFAS

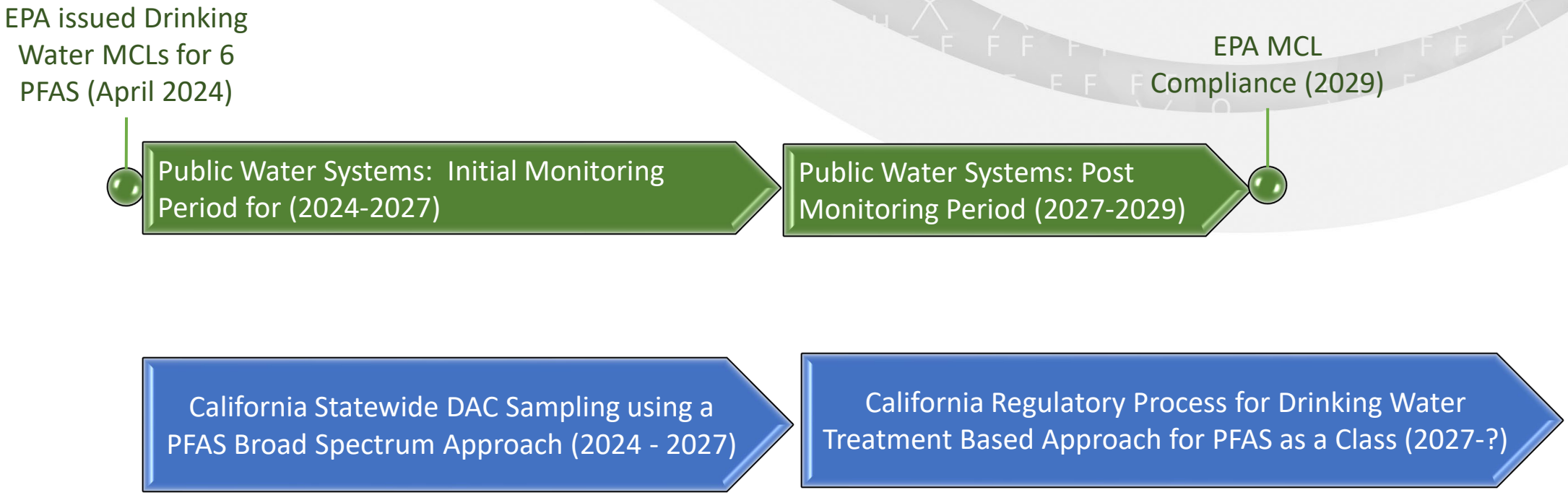


**NON-TARGETED ANALYSIS** (NTA) (~ 1,200 analytes – currently)

**“TOTAL” PFAS METHOD**

Adsorbable Organofluorine (AOF) by US EPA Method 1621

# PFAS MCL Regulatory Timeline – CA and EPA



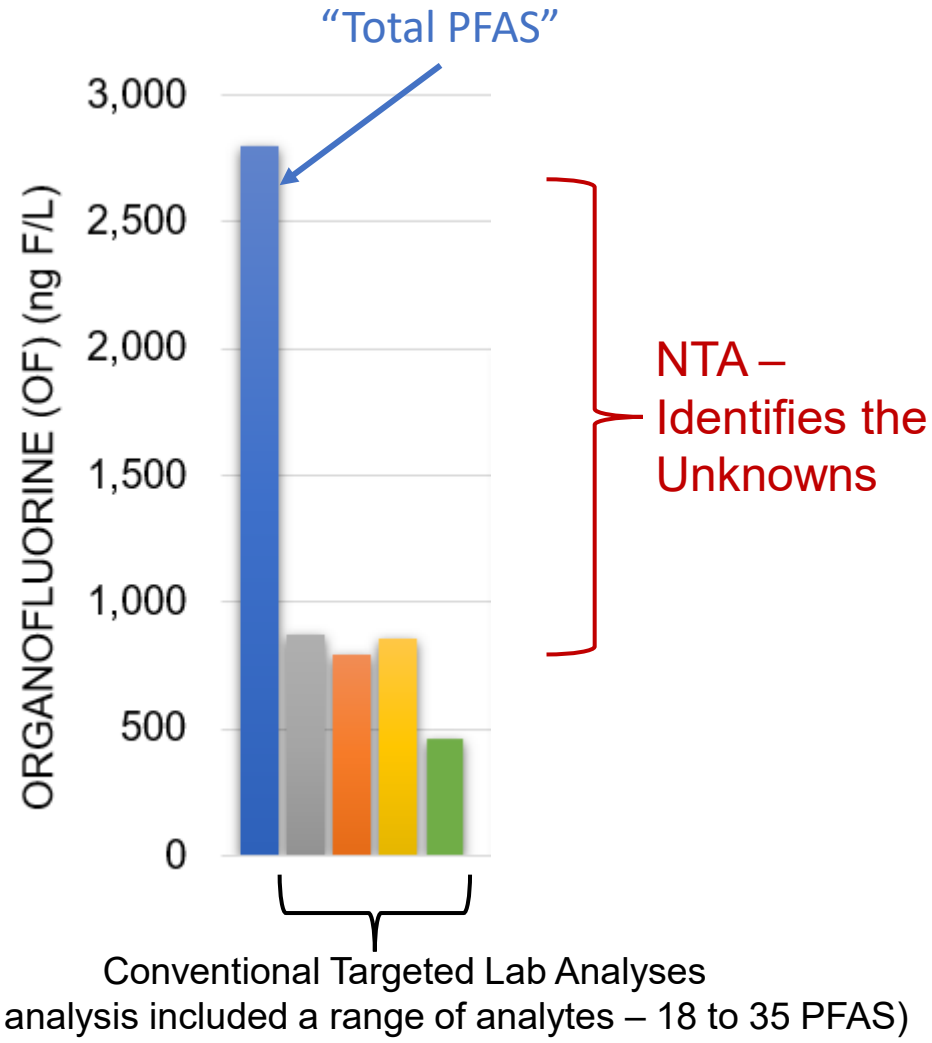
# CA Drinking Water Monitoring Orders for PFAS

- 2022 Order (October 2022; 1,296 wells; 386 systems)
  - Public Water Systems sampling source wells located near known/suspected primary PFAS sources (airports, refineries, bulk fuel terminals, chrome platers) and secondary receivers (landfills and wastewater treatment plants)
- 2024 DAC Order (March 2024; ~3,843 wells; 1,216 systems)
  - State-funded one-time sampling for DACs
  - EPA 533 & Adsorbable Organic Fluorine (all wells)
  - Ultrashort PFAS & Non-Target Analysis (~20% of the wells)
  - Ending in 2026

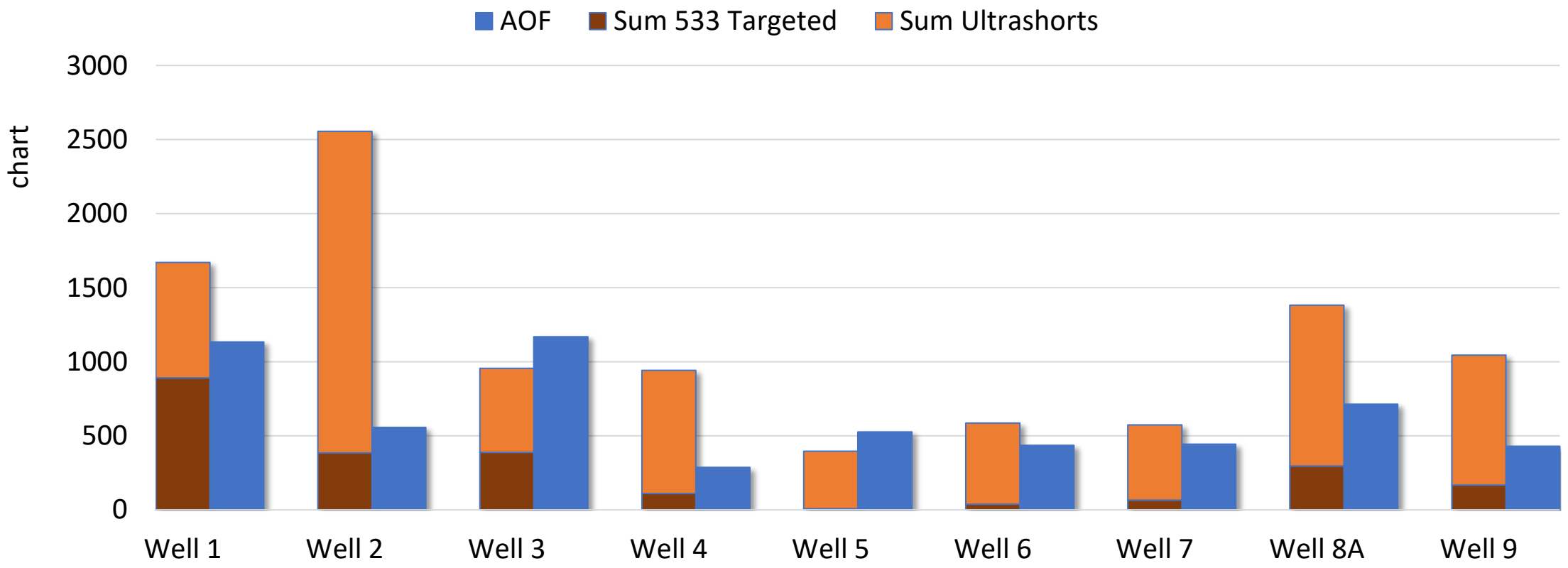
# 2021 PFAS Method Comparison Pilot Study

- Nine drinking water supply wells sampled in 2021
- Samples were analyzed by 5 different PFAS testing methods
- Up to 70% of the reported sums of the targeted PFAS were not accounted for in the "total PFAS" concentration
- **Non-Targeted Analysis (NTA) identifies the unknown PFAS structures and abundance relative to other samples**

*Available Targeted Analytical Testing Methods underestimate "Total PFAS"*



# 2023 PFAS Broad Spectrum Comparison Pilot Study




*Ultrashort PFAS analysis in combination with available targeted analytical testing methods can provide a better picture of "total PFAS".*

# PFAS DAC Water System Sampling Project

- Select a PFAS Broad Spectrum Method
- Sample nearly 4,000 public water wells serving disadvantaged communities (**2024 DAC Order**)
- Analyzed all source well samples for EPA Method 533 and the selected PFAS Broad Spectrum Method (Adsorbable Organic Fluorine)
- Analyzed samples from a subset of wells (approx. 600) for Ultra-Short PFAS and Non-Target Analysis

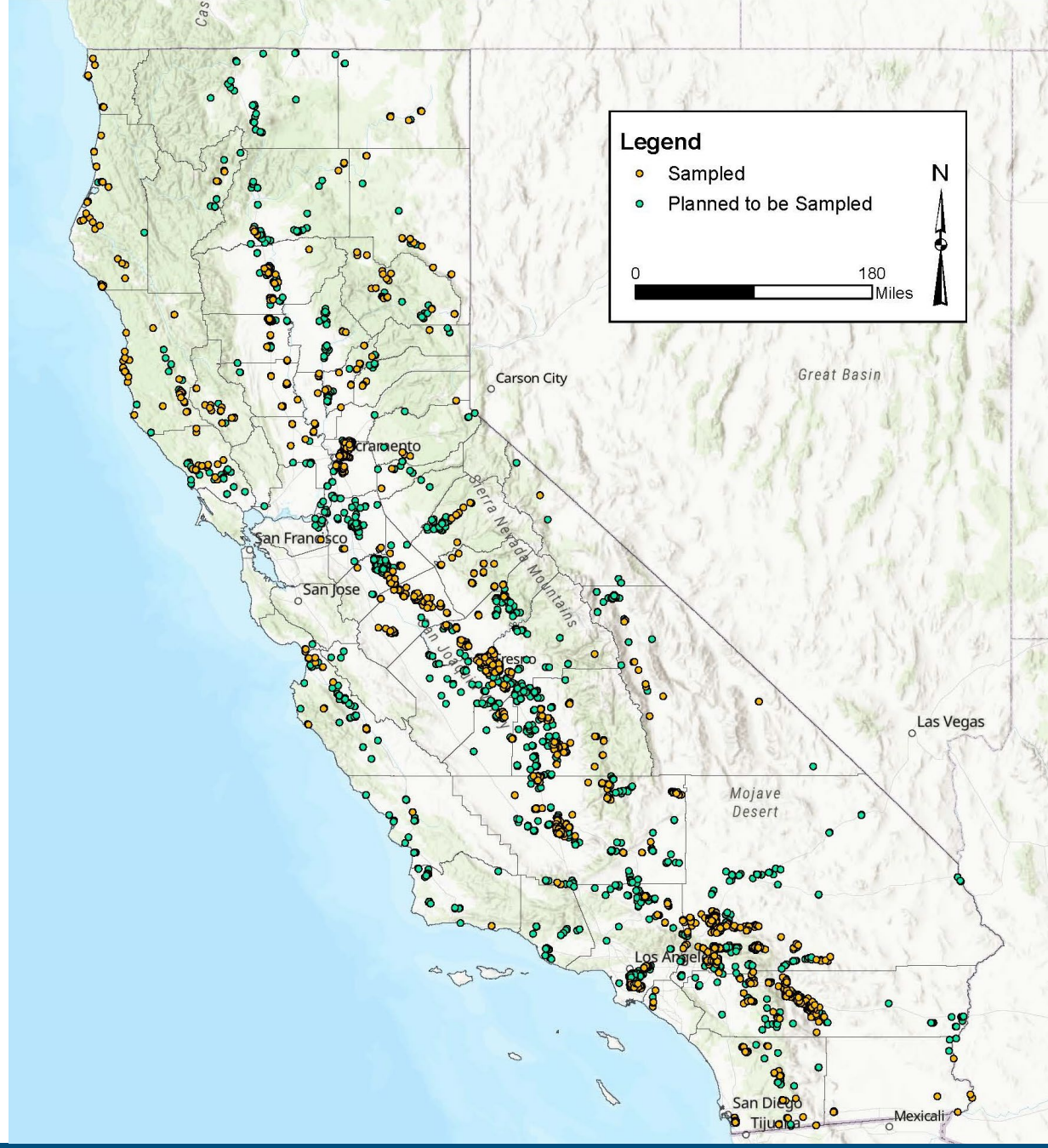
# 2024 DAC Order – PFAS Well Sampling Status

**FIELD SAMPLING (as of February 28, 2025)**

- # of wells sampled: **1,730 (47% complete)**
- # of water systems sampled**: 337 (30% complete)**

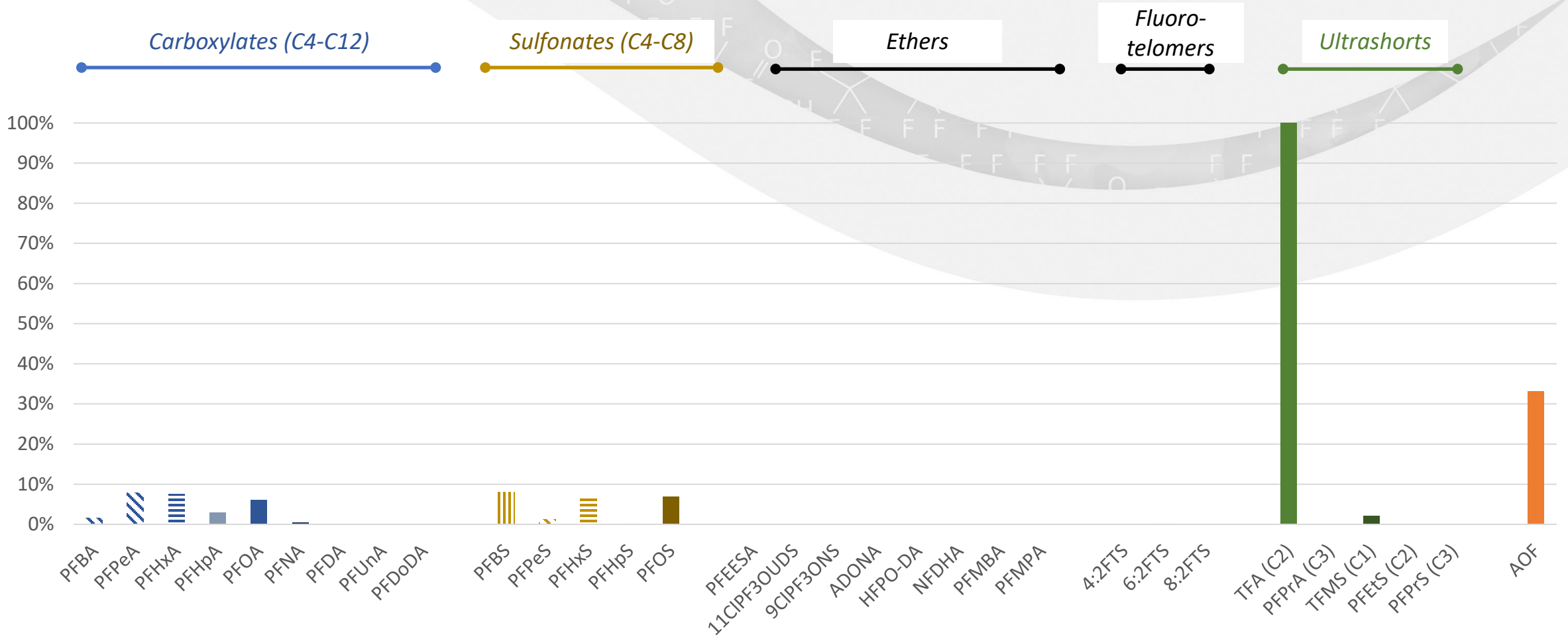
**MONTHLY SAMPLING AVERAGES**

- 170 Wells
- 39 Water Systems



# 2024 DAC Order PFAS Monitoring Results

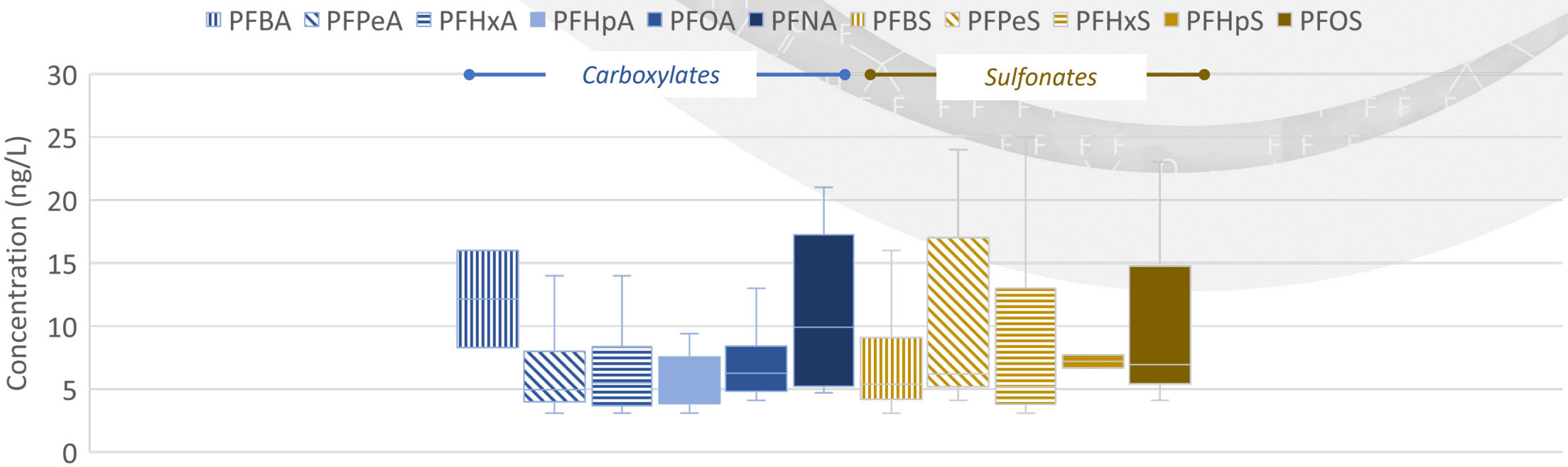
## *EPA Method 533/Ultrashorts– %Detects**




*Preliminary data as of December 18, 2024 sample collection date: # of well results for Method 533/AOF: 1,307; # of well results for Ultrashort PFAS: 227

# 2024 DAC Order PFAS Monitoring Results, cont'd

***EPA Method 533 – Detected Concentrations > CCRDL (outliers not shown)****

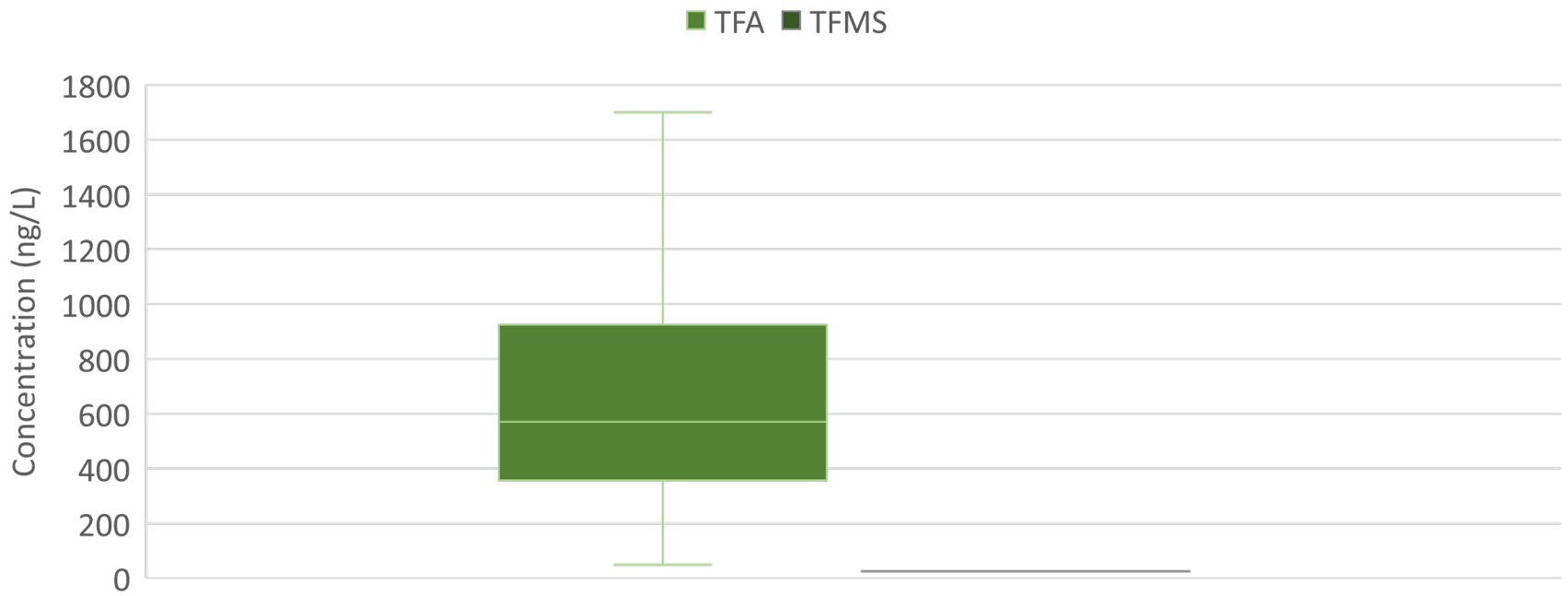



| | PFBA | PFPeA | PFHxA | PFHpA | PFOA | PFNA | PFBS | PFPeS | PFHxS | PFHpS | PFOS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **No of Detects >CCRDL** | 19 | 96 | 94 | 37 | 76 | 6 | 98 | 15 | 88 | 2 | 84 |
| **Min Conc. (ng/L)** | 5.1 | 3.1 | 3.1 | 3.1 | 4.1 | 4.7 | 3.1 | 4.1 | 3.1 | 6.7 | 4.1 |
| **Median Conc. (ng/L)** | 7.2 | 5.0 | 5.5 | 4.8 | 6.3 | 9.9 | 5.4 | 6.2 | 5.2 | 7.2 | 7.0 |
| **Max Conc. (ng/L)** | 16 | 54 | 56 | 25 | 50 | 21 | 51 | 24 | 230 | 8 | 350 |

*Preliminary data - as of December 18, 2024 sample collection date. # of well results: 1,307

# 2024 DDW Order PFAS Monitoring Results

***Ultrashorts – Detected Concentrations (outliers not shown)****

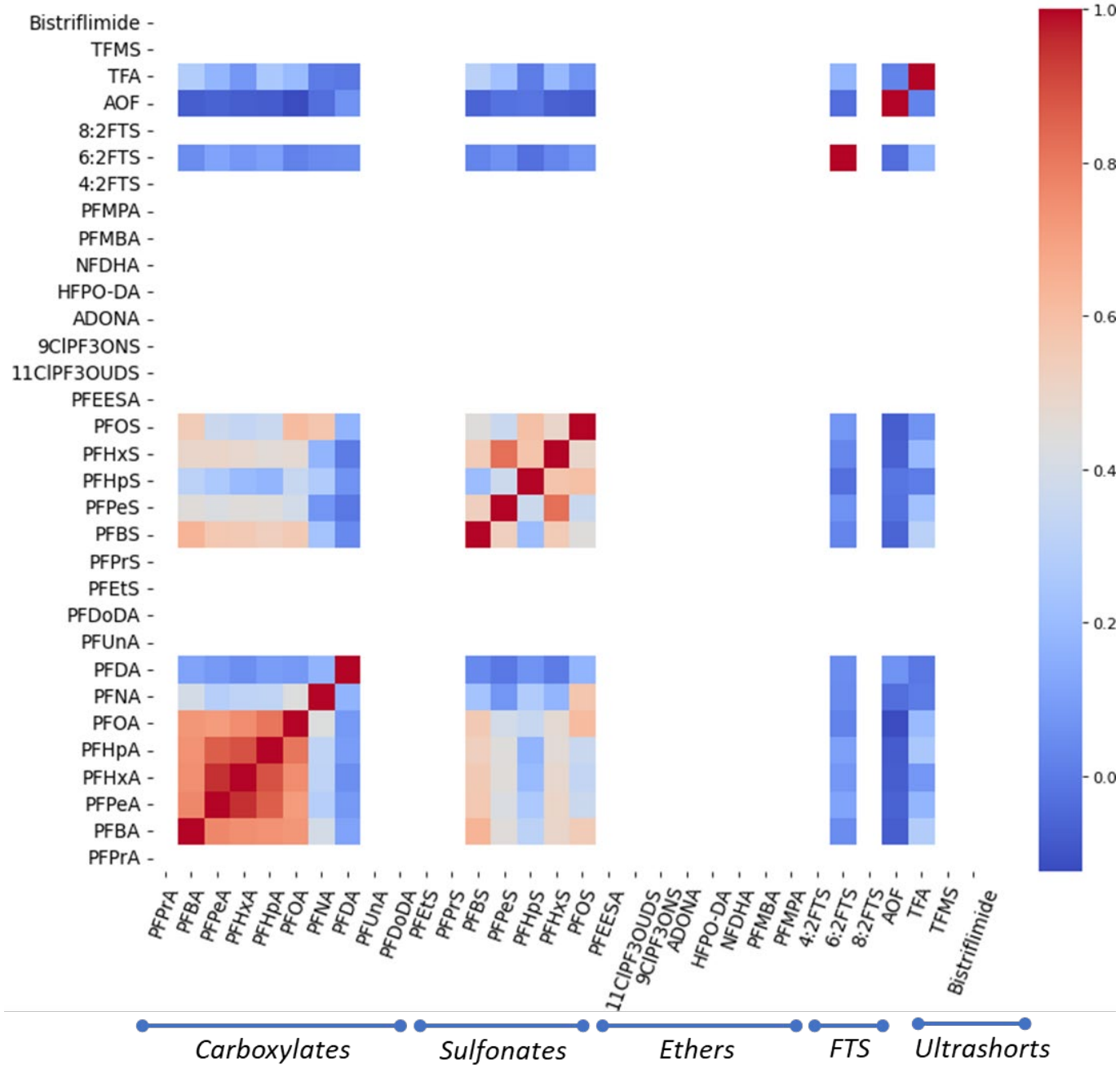



| | TFA | TFMS |
|---|---|---|
| **No of Detects** | 237 | 5 |
| **Min Conc. (ng/L)** | 49 | 25 |
| **Median Conc. (ng/L)** | 610 | 25 |
| **Max Conc. (ng/L)** | 4,400 | 67 |

*Preliminary data - as of December 18, 2024 sample collection date. # of well results: 237

# 2024 DDW Order – Monitoring Results

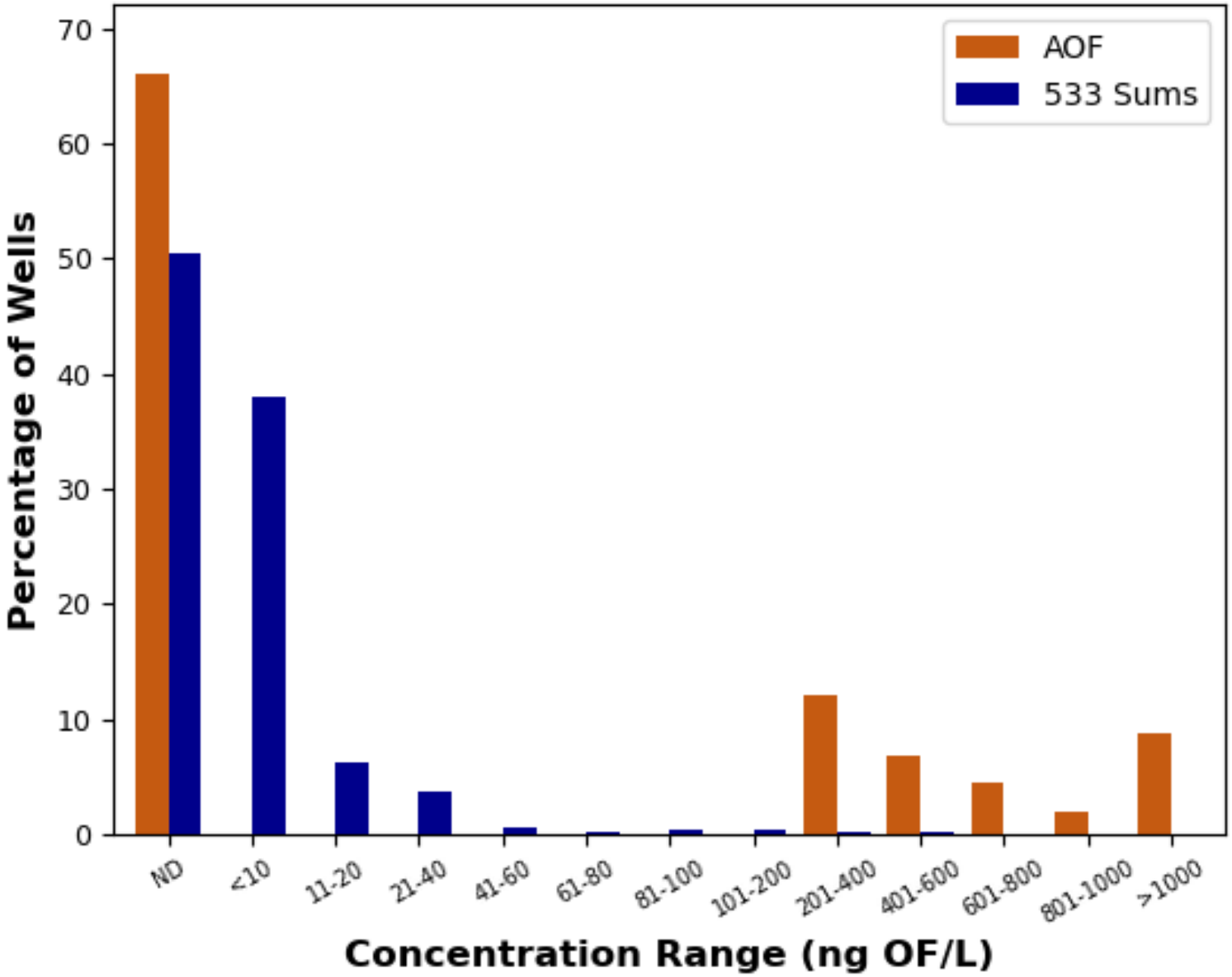
***Correlation of Most Common Analytes***




Preliminary data - as of December 18, 2024 sample collection date. Total number of wells n= 1,307.

# 2024 DDW Order – Monitoring Results, cont'd

***Percentage of Wells - AOF and 533 Sums***




Preliminary data - as of December 18, 2024 sample collection date. Total number of wells n= 1,307.

# Drinking Water - California NL/RLs vs. EPA Rule

| Contaminant | California Notification Level | California Response Level | U.S. EPA# MCL | U.S. EPA Hazard Index Denominator* | U.S. EPA Hazard Index |
|---|---|---|---|---|---|
| PFOA# | 5.1 | 10 | 4.0 | -- | -- |
| PFOS# | 6.5 | 40 | 4.0 | -- | -- |
| PFHxS | 3 | 20 | 10 | 10 | Two or more ≤1 |
| PFNA | -- | -- | 10 | 10 | Two or more ≤1 |
| HFPO-DA | -- | -- | 10 | 10 | Two or more ≤1 |
| PFBS | 500 | 5,000 | -- | 2,000 | Two or more ≤1 |
| PFHxA | 1,000^ | -- | -- | -- | -- |

*All units in nanograms per liter (ng/l) unless otherwise noted.*

^OEHHA recommendation

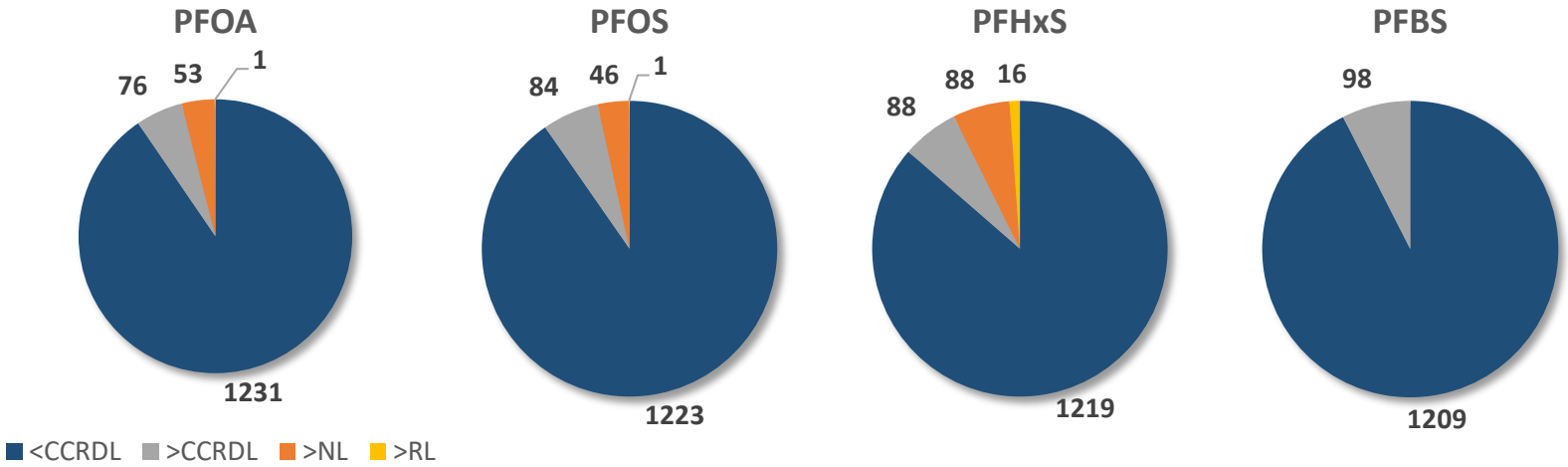
*Unit-less Health Based Water Concentration = MCL Goal

# QRAA based

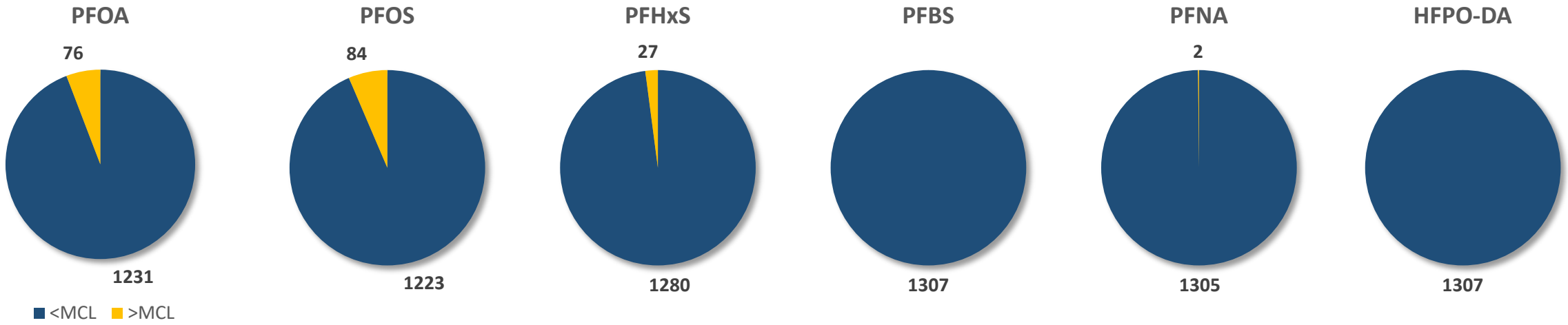
# 2024 DAC Order Exceedances

Preliminary data - as of December 18, 2024 sample collection date. Total number of wells n= 1,307.

## *DDW Advisory Level Exceedances*




## *Federal MCL Exceedances*



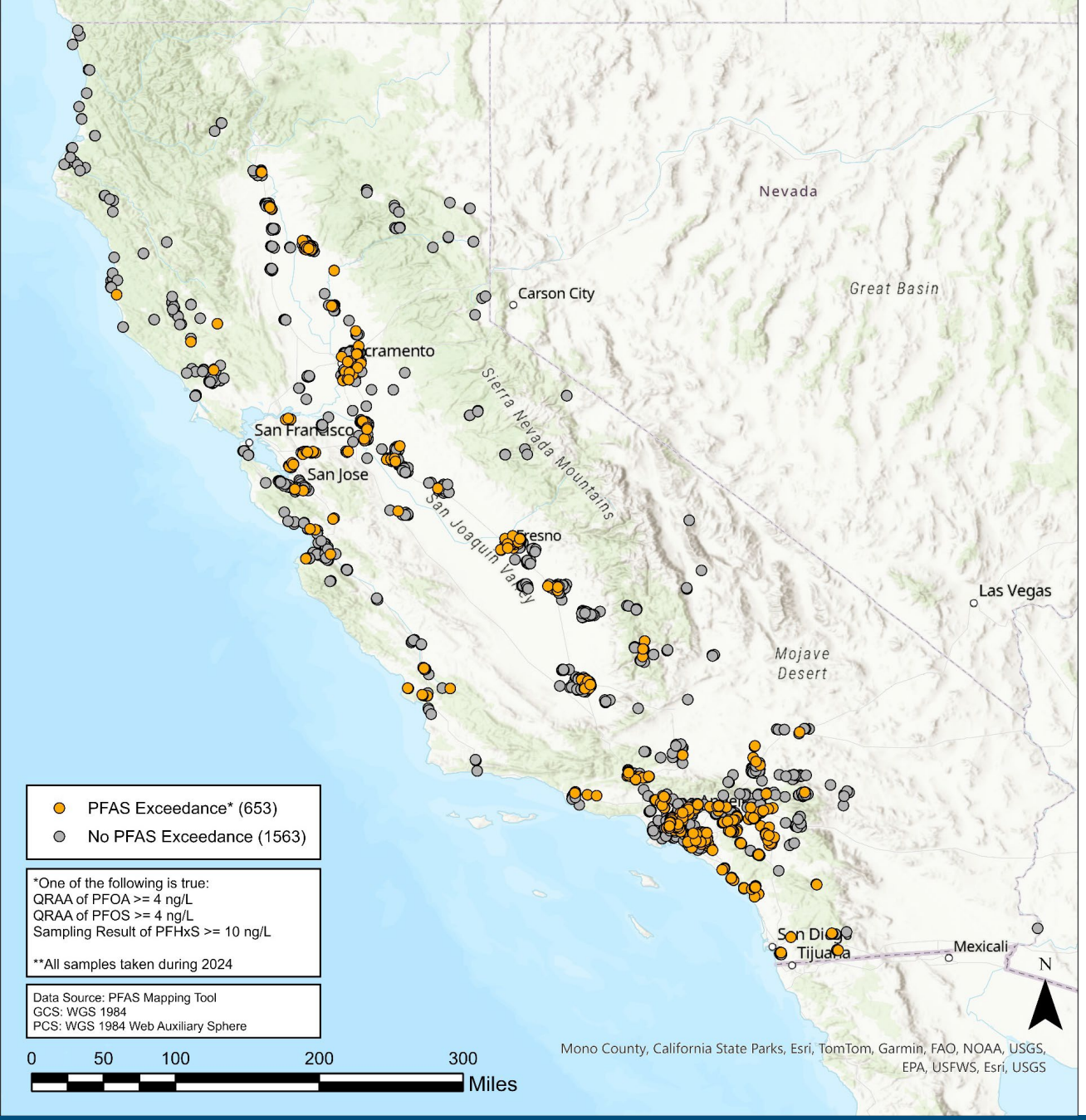
# PFAS Monitoring Results

***Occurrence Level Exceedances in Public Water System Wells***

| 2024 ORDER (DACs Only) | Detects (>CCRDLs) | > Notification Level | > Response Level | > Federal MCL |
|---|---|---|---|---|
| PFOA | 5.8% | 4.1% | 0.1% | 5.8% |
| PFOS | 6.4% | 3.5% | 0.1% | 6.5% |
| PFHxS | 6.7% | 6.8% | 1.2% | 2.1% |
| PFBS | 7.5% | 0% | 0% | 0% |

| 2022 & 2024 ORDER | Detects (>CCRDL) | > Notification Level | > Response Level | >Federal MCL |
|---|---|---|---|---|
| PFOA | 25% | 20% | 9% | 20% |
| PFOS | 31% | 23% | 3% | 26% |
| PFHxS | 32% | 32% | 4% | 9% |
| PFBS | 24% | 0% | 0% | 0% |

CCRDL = Consumer Confidence Reporting Detection Limit




# PFAS Monitoring Results – 2022 and 2024 Orders

Sources Exceeding Federal MCLs for PFOA, PFOS, or PFHxS - 2024 Data Only

# THANK YOU!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**Division of Drinking Water**

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Water Board's PFAS website: https://www.waterboards.ca.gov/pfas/
DDW's PFAS website: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/pfas.html
Water Board's PFAS Mapping Tool: https://geotracker.waterboards.ca.gov/map/pfas_map