CDPHE – Statewide PFAS Sampling

2024 Project Update

Presented to SAME Denver Metro Post – 3/19/2024

COLORADO
Department of Public Health & Environment

Hello! We are your presenters:

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AGENDA

01 CDPHE 2024 Action Plan

02 Activities Completed to Date

03 Grant and Sampling Updates

04 Review of Statewide Detections

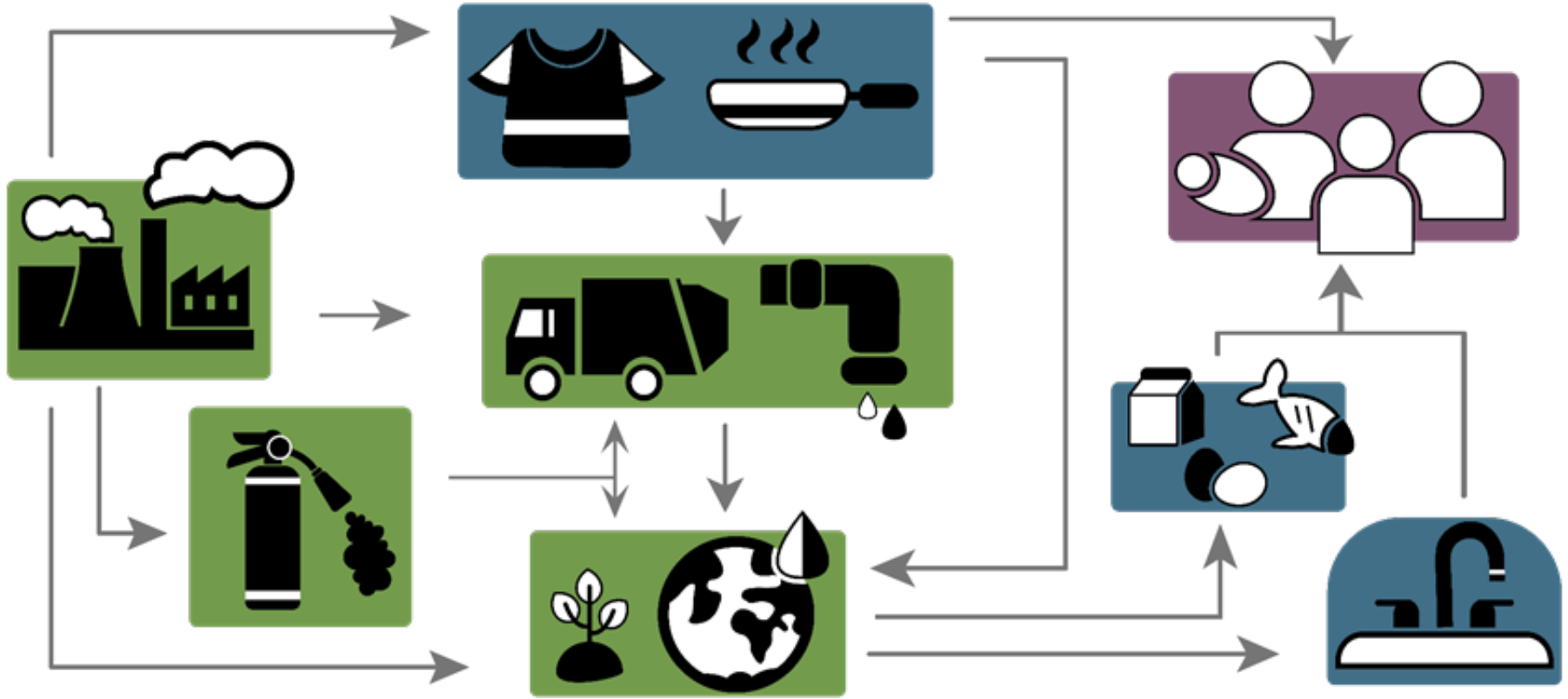
05 Next Steps

01

CDPHE 2024 Action Plan

2024 PFAS Action Plan

1. Identify and minimize Coloradans' exposure to PFAS
2. Assess and provide information on PFAS health risks
3. Limit PFAS entering the environment and address known contamination



Identify and minimize Coloradans' exposures to PFAS

Water

- Support and implement EPA's PFAS drinking water regulations.
- Help drinking water providers assess, notify and reduce levels.
- Use PFAS Grant Program to support communities with testing, treatment and emergency assistance.
- Fund drinking water treatment.
- Build state lab capacity.

Assess and provide information on PFAS health risks

In progress

- Targeted health risk communication.
- Identify new academic partners and continue relationships with existing partners.
- Assess potential health risks at sites where PFAS has contaminated soil and/or water.

COLORADO SCOPE

Study on Community Outcomes from PFAS Exposure

Limit PFAS entering environment and address known contamination

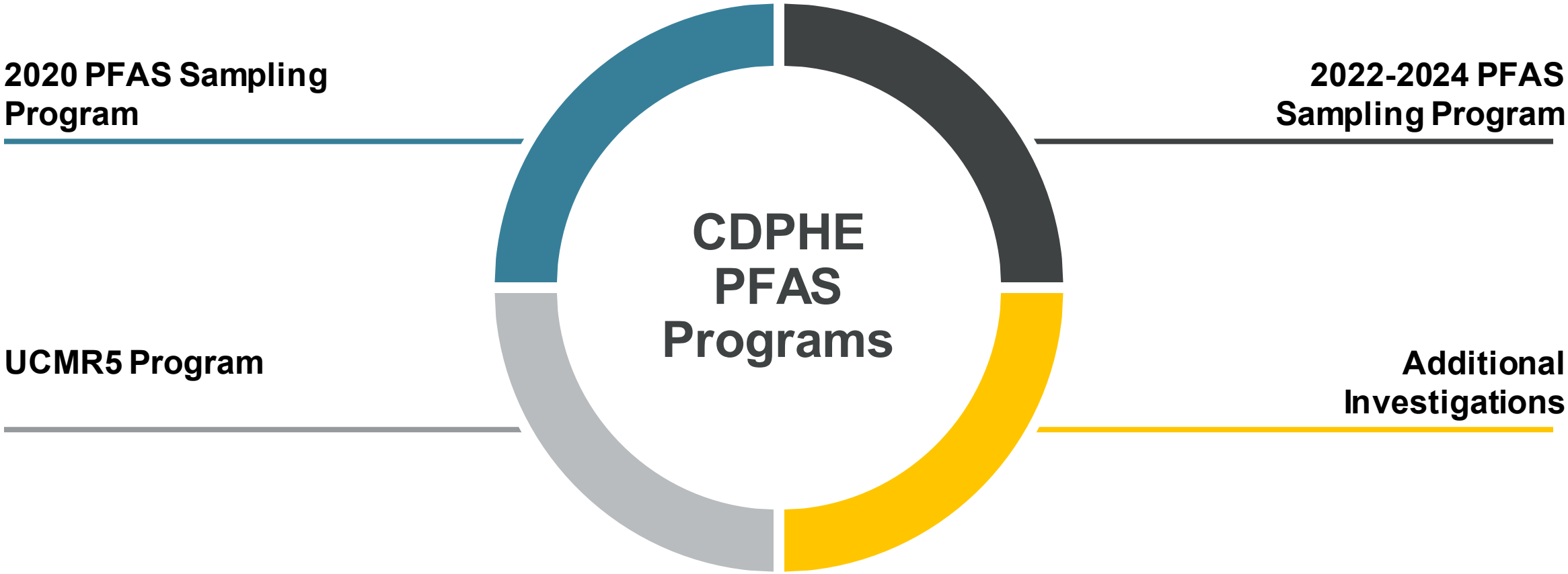
Firefighting foam containing PFAS

- Require entities to register PFAS foam and survey fire departments.
- Develop regulations with stakeholders to prevent and respond to new releases of PFAS foam.
- Expand PFAS Takeback Program to include commercial airports and explore potential to buy and dispose of additional PFAS materials.
- Develop an alert process to inform stakeholders of PFAS releases.

02

Activities Completed to Date

CDPHE PFAS Sampling Activities



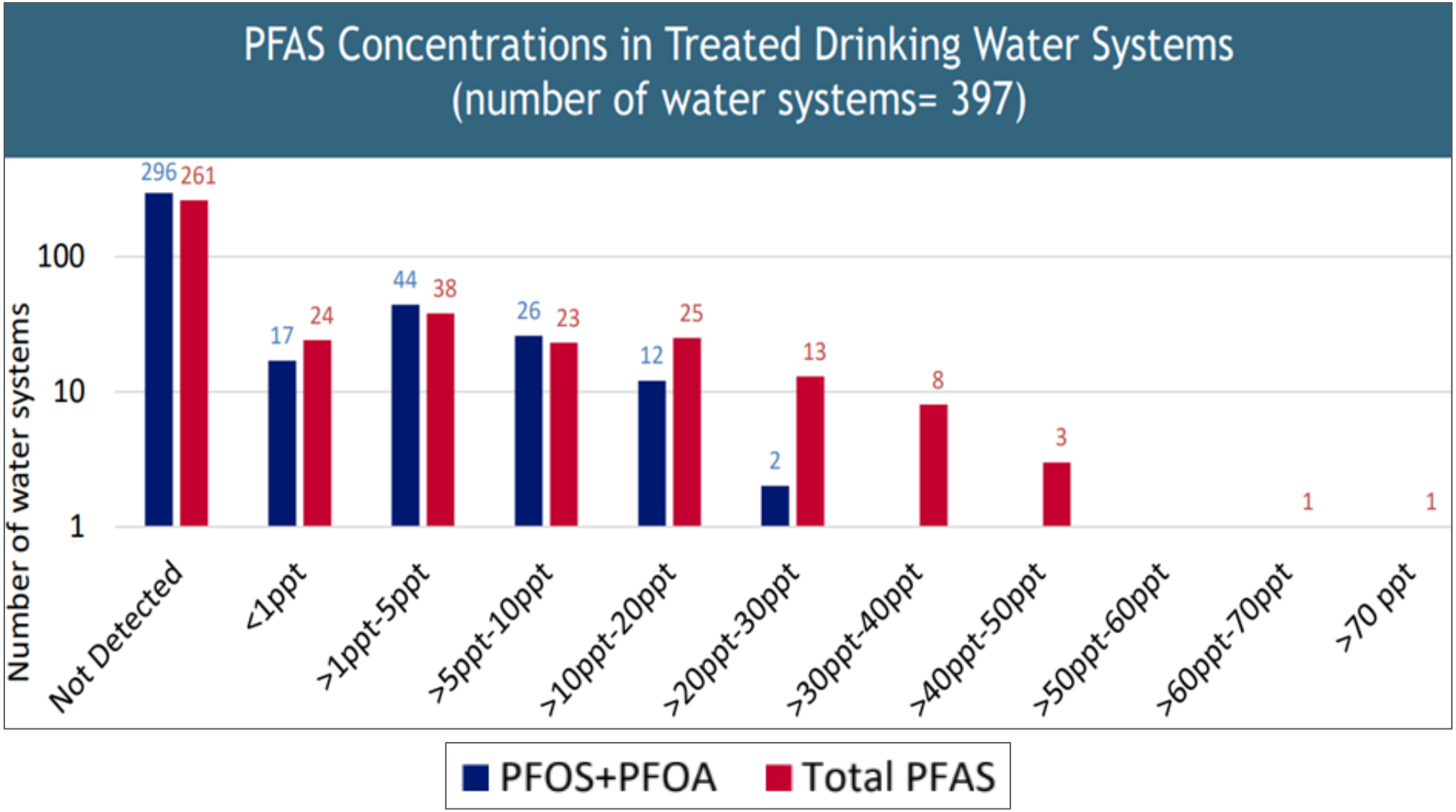
CDPHE PFAS Sampling Activities

- 2020 PFAS Sampling Program Summary
  - 397 systems sampled Statewide
  - Performed during COVID
    - Limited accessibility
    - Extended lab TAT on results

- UCMR-5 Updates
  - 70 systems sampled Statewide
  - Currently in process through 2025

- Additional Investigations
  - Biosolids sampling
  - Fish tissue studies
    - Comparative analysis to water and sediment samples
    - Performed in several reservoirs throughout the State
  - Focused sampling in areas deemed to be higher risk

2020 PFAS sampling project results

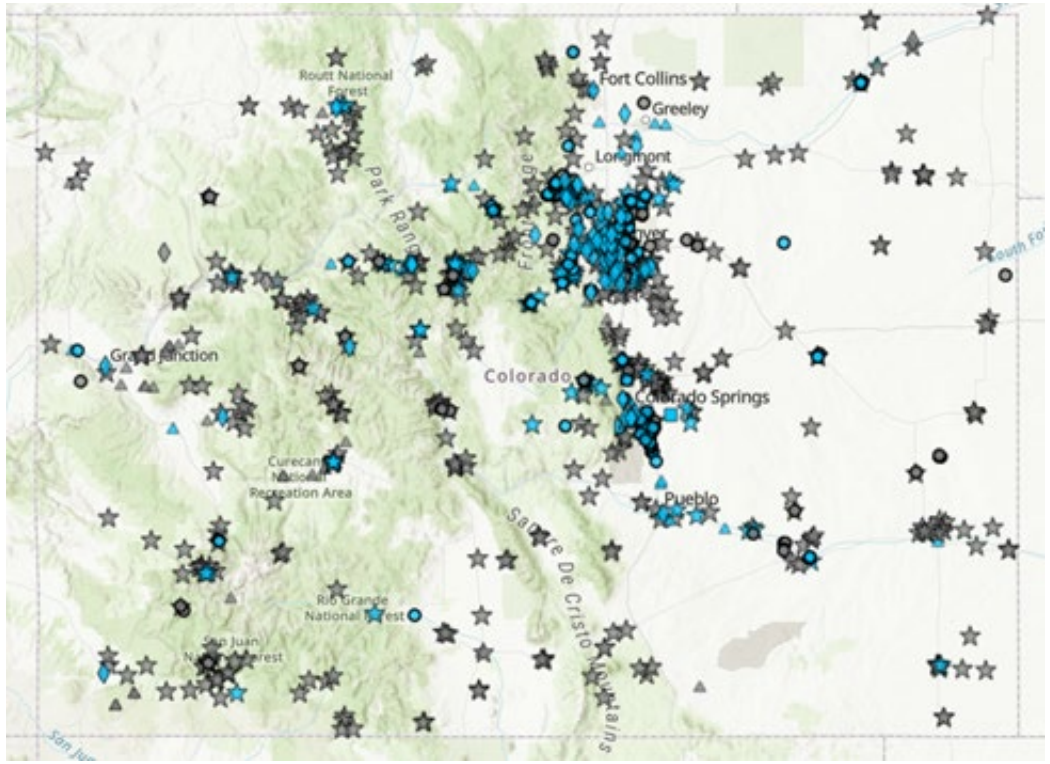


EPA's Unregulated Contaminant Monitoring Rule (UCMR)

- EPA uses the UCMR to collect data every 5 years on unregulated contaminants in drinking water so they can determine whether future health research and/or regulation is needed
- UCMR 5 requires water providers serving 3,300 or more people to test for 29 PFAS and lithium from 2023-2025
- EPA posts UCMR test results on their website and water systems must share detections with customers

PFAS actions in Colorado to date

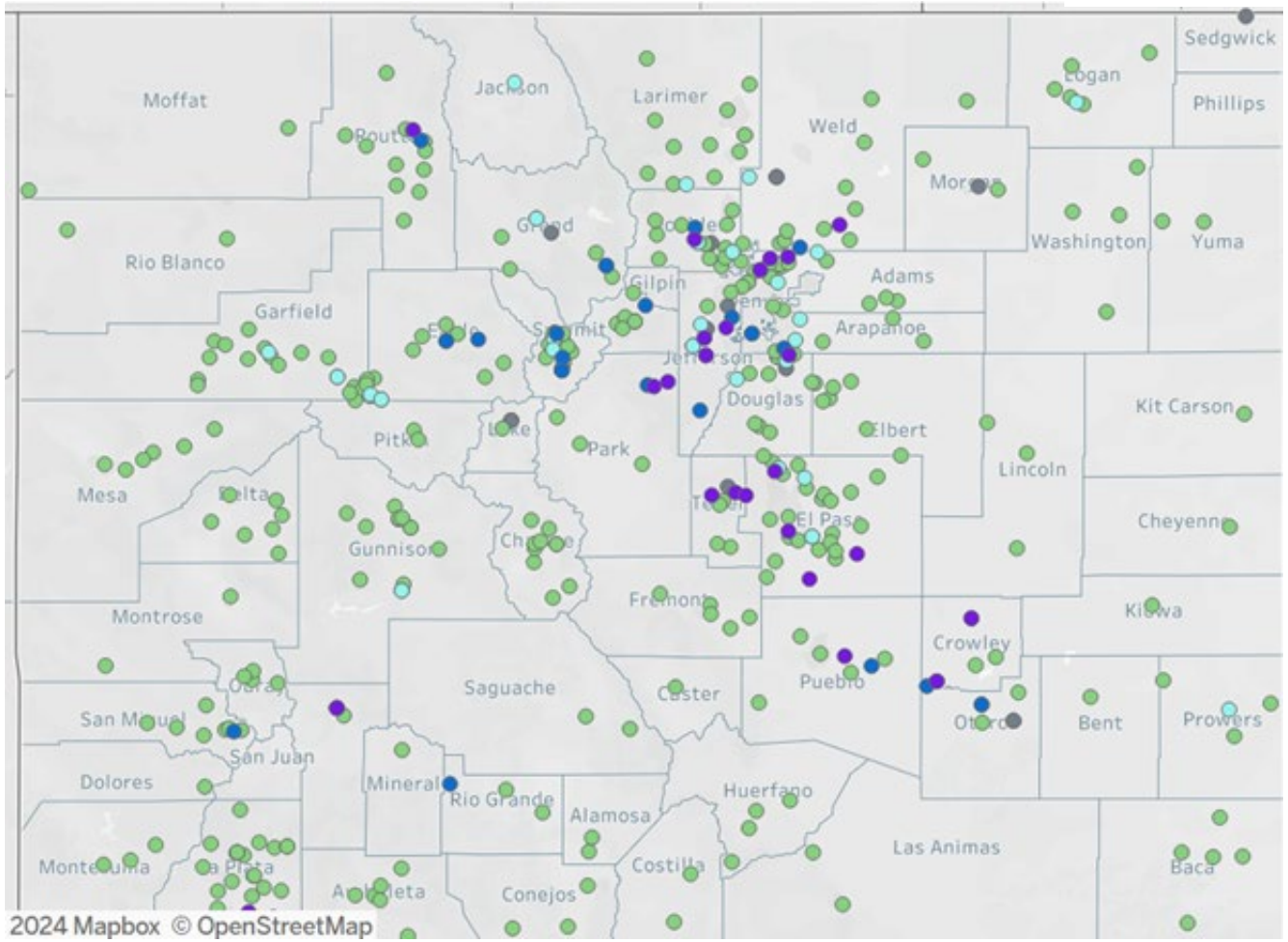
- Sampling & investigation
- Mapping
- Regulations, policies, & legislation
  - Limit PFAS entering state waters
  - Biosolids testing
  - Allow investigation and cleanup
  - Product bans and labeling
  - Prevent PFAS foam releases
- Actionable & accessible information



PFOS detections in Colorado (July 2022)

PFAS detections in Colorado

- 34% of water providers
- 100% of wastewater discharges
- 100% of biosolids
- 100% of fish
- Some communities face higher levels of contamination



PFAS levels in treated drinking water

03

Grant and Sampling Updates

Grant and Sampling Updates 2022-2024

- Senate Bill 20-218 for CDPHE Hazardous Substance Response Act
- HDR Engineering Sampling Support
  - Groundwater
  - Wastewater & Biosolids
  - Surface Water
  - Drinking Water
- Total of 1,092 samples collected over 11 months
  - 21% of which were QC samples
- Grant Process and Coordination
  - 10 Grant Recipients sampled
    - Follow-on quarterly sampling 2023-2024
- Private Well Sampling
  - Near areas of known contamination
  - 78 locations selected
    - 28 declined or non-responsive
    - 50 private wells sampled

2022-2023 Program Summary – PWS Locations

- Re-sampling of PWS from 2020 Investigation
  - Approximately 78 Public Water Systems (PWS)
    - Detections ranging from 0.5 to >50 ng/L combined PFOA/PFAS
  - Re-sampled to corroborate detections from 2020
  - Field Reagent Blanks performed
- Total of 113 PWS/POTW sites were prioritized for sampling in initial year of program
  - 23 systems were non-responsive or declined sampling
  - Total of 90 PWS sites completed between Aug. 2022 and June 2023
  - Of these, 71 had analysis complete by June 2023

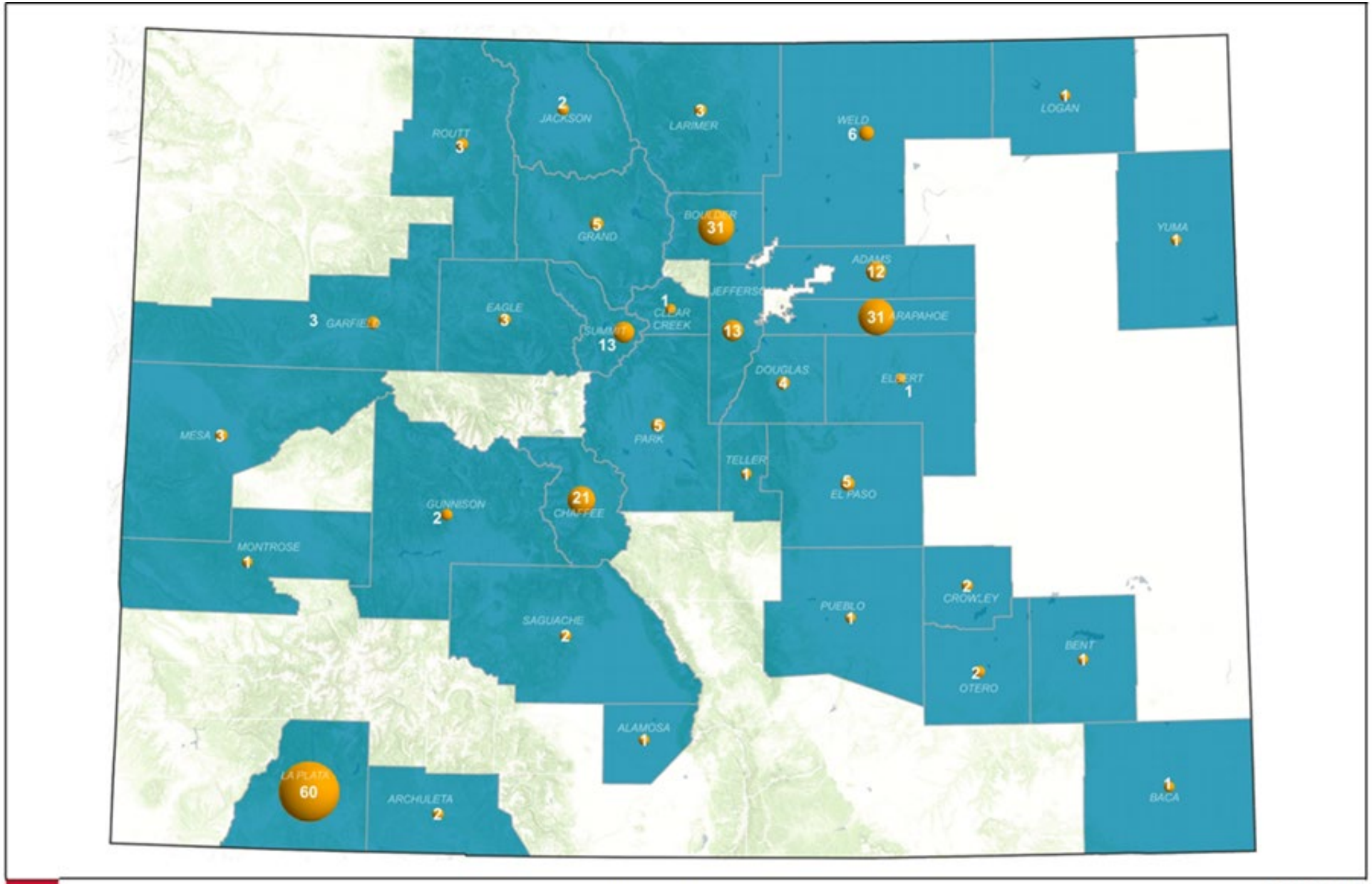
Sampling Group	Total Sites Sampled and Analyzed through June 2023	Total Samples Collected	% of Total Samples Collected
CDPHE Grant Recipients	9	286	26%
Public Water Systems	71	659	60%
Private Well Owners	50	147	14%

2022-2023 Program Summary

Geographic Distribution

- More than half collected along Colorado Front Range concentrated in Denver/Boulder Metro Area
- Large areas covered in Central Rockies under Grant Recipient programs
- Durango area had a large, complex private well and surface water sampling program under a Grant Recipient

Geographic Region	Total # Sites Sampled	Total Number Samples Collected (866)	% of Total Samples Collected
Western Slope/Durango	7	101	12%
Central Rockies	32	226	26%
Front Range	59	519	60%
Eastern Plains	4	20	2%



Number of Sites Sampled

0 Miles 50

SAMPLED COUNTIES

FIGURE -1

PATH: G:\PLAYGROUND\FRAS_SANDBOX\7.2_INFMAP_DOCS\COPHE_FRAS_REPORT\COPHE_FRAS_REPORT.APRX - USER: LYOUNG - DATE: 5/30/2023
DATA SOURCE: Colorado Department OfTransportation, ESRI, USGS

2022-2023 Program Summary

- Water Matrix Summary
  - 99% of sample locations were Groundwater or Surface Water-sourced
  - Wastewater accounted for remaining percentage
- Sample Analysis
  - Drinking Water – EPA Method 537.1
    - 18 components analyzed, Trizma preserved, 30% of analysis to date
  - Raw Water (WW, GW, SW) – EPA Method 537 Modified (DoD QSM Table B-15)
    - 25 components analyzed, 64% of analysis to date
  - Wastewater, Water and Biosolids – EPA Method 1633
    - 40 components analyzed
    - Only one location in 2022-2023 had this analysis; more commonly used in 2023-2024.
  - Analysis TAT of 30-45 days for 537.1/537M. Closer to 60-75 days for 1633 analysis.

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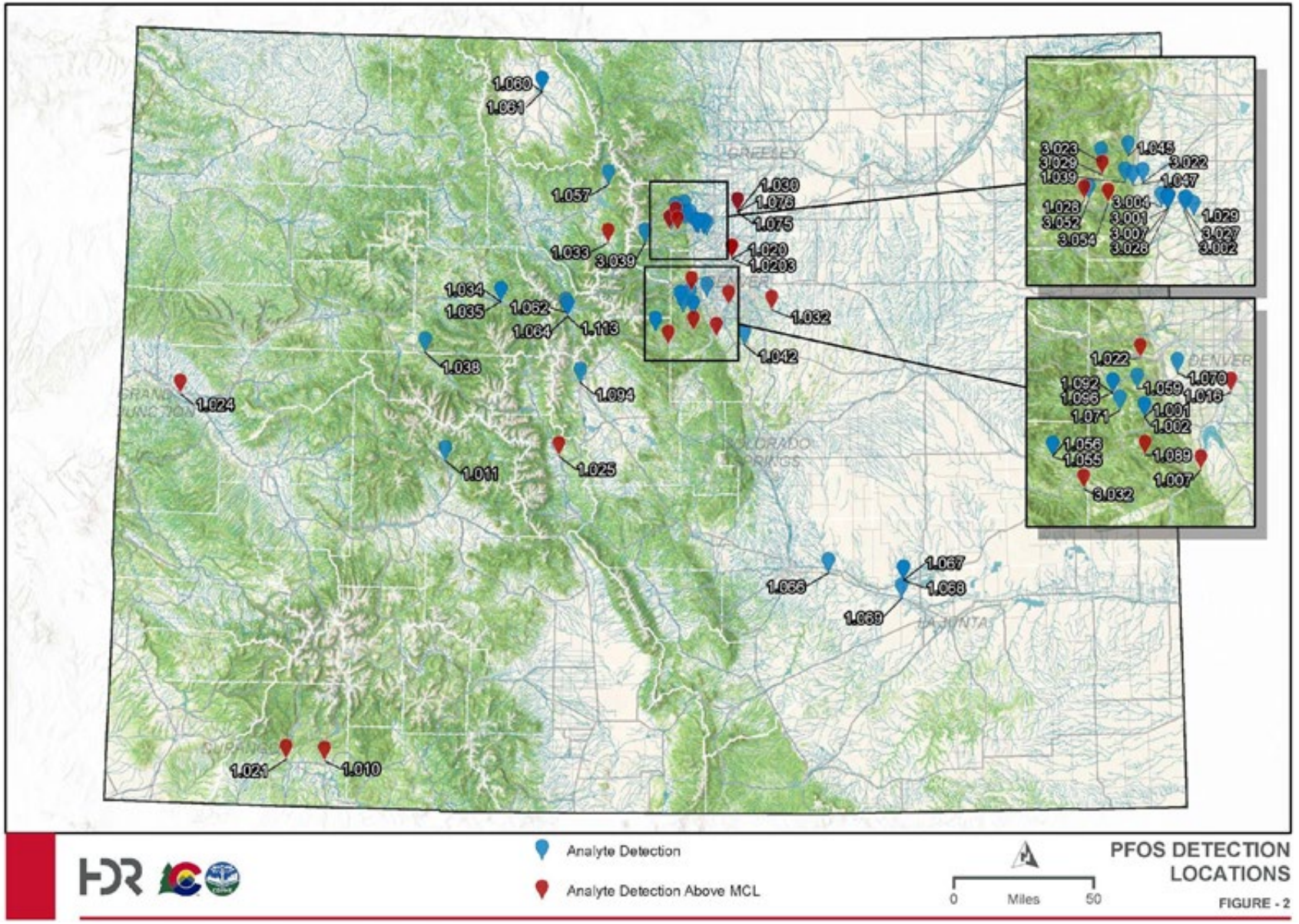
Review of Statewide Detections

2022-2023 Results Summary

- Results provided to PWS operators, Grant Recipients, and CDPHE
- Private Well results provided in community forums to discuss results
- Results focused on six PFAS compounds of interest: PFOS, PFOA, PFBS, Gen-X, PFNA, and PFHxS which have either EPA Maximum Contaminant Limits (MCLs) or Health-Based Water Concentrations (HBWCs) as listed in the *US EPA Office of Water Proposed PFAS National Primary Drinking Water Regulation (2023)*.
- There were no detections of Gen-X at any sites sampled in 2022-2023
- The following presents the results for the remaining 5 compounds of interest:
  - Locations with Blue indicators had detections above the lab MDL
  - Locations with Red indicators had detections above the respective MCL/HBWC

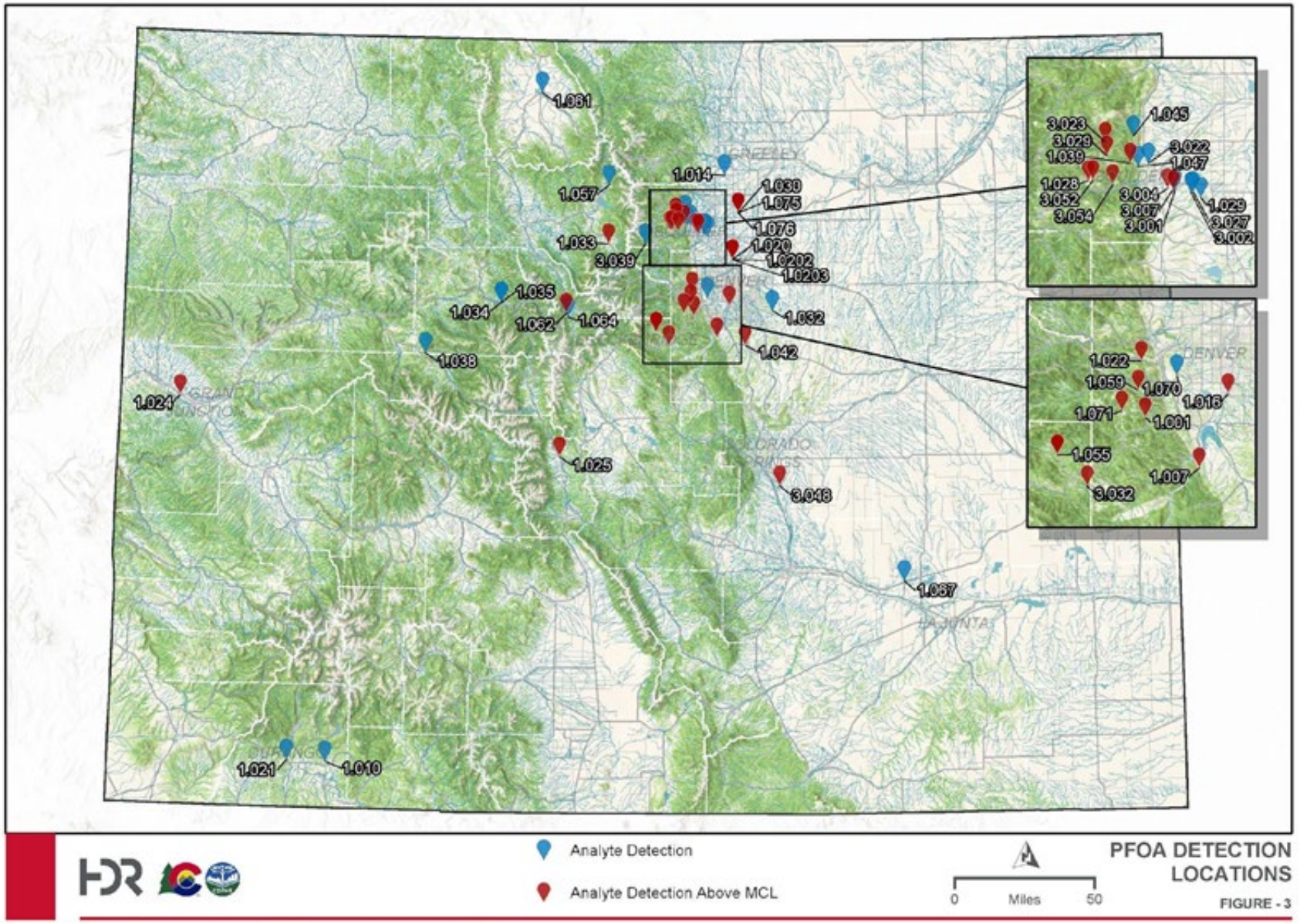
PFOS Detections

- Lab MDL = 0.50 - 0.54 ng/L
- EPA MCL = 4.0 ng/L
- Total of 48 PWS and 13 private wells had detections above MDL
- Total of 24 PWS/grant recipients and 7 private wells had detections above MCL
- Contamination could be linked to multiple sources including fire stations, airports, wastewater treatment plants, landfills, oil facilities and chemical processing plants.



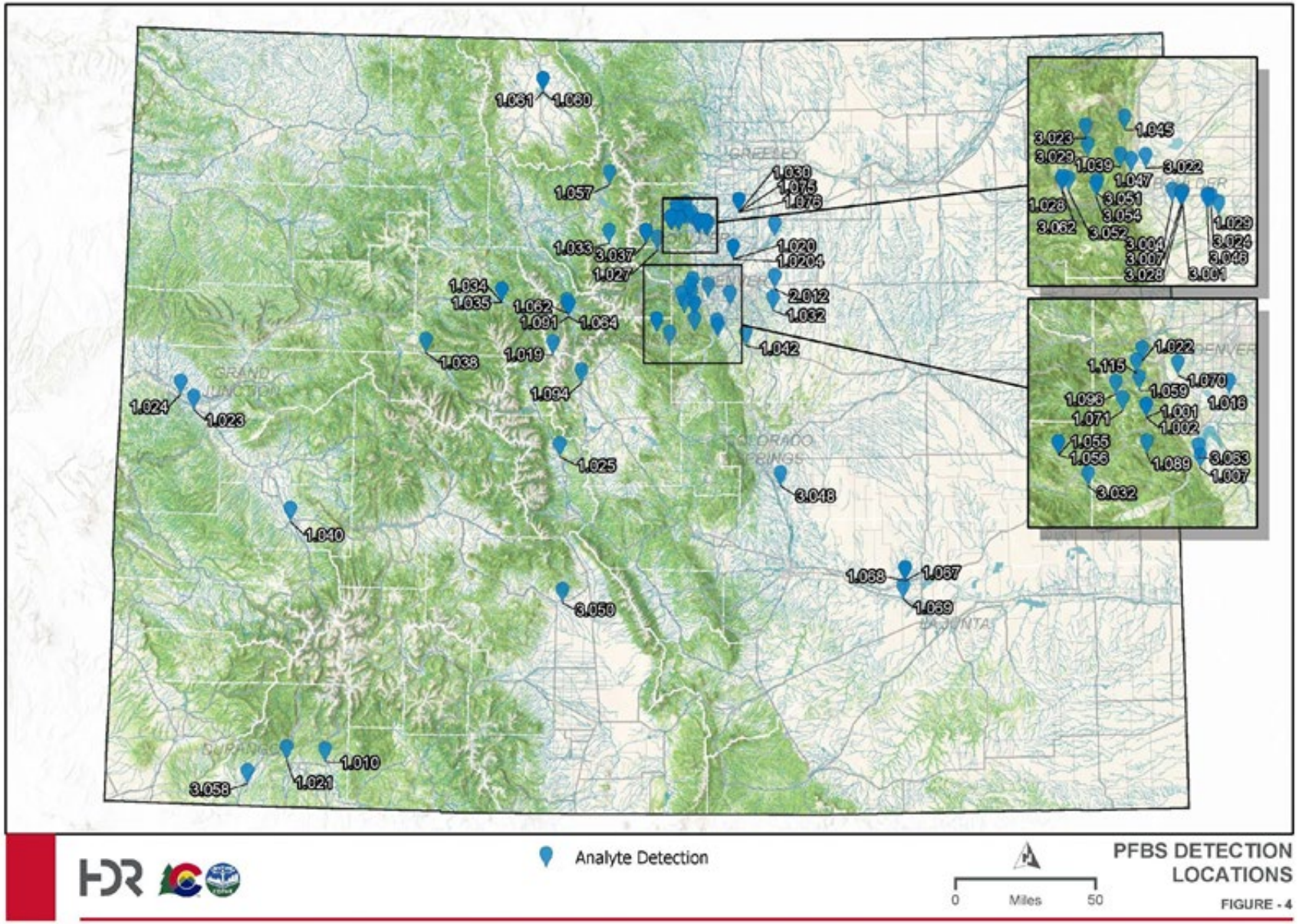
PFOA Detections

- Lab MDL = 0.50 - 0.85 ng/L
- EPA MCL = 4.0 ng/L
- Total of 37 PWS and 14 private wells had detections above MDL
- Total of 21 PWS/grant recipients and 8 private wells had detections above MCL
- Many of the highest detections observed were downgradient of fire stations and previous wildfires which may have had possible AFFF usage



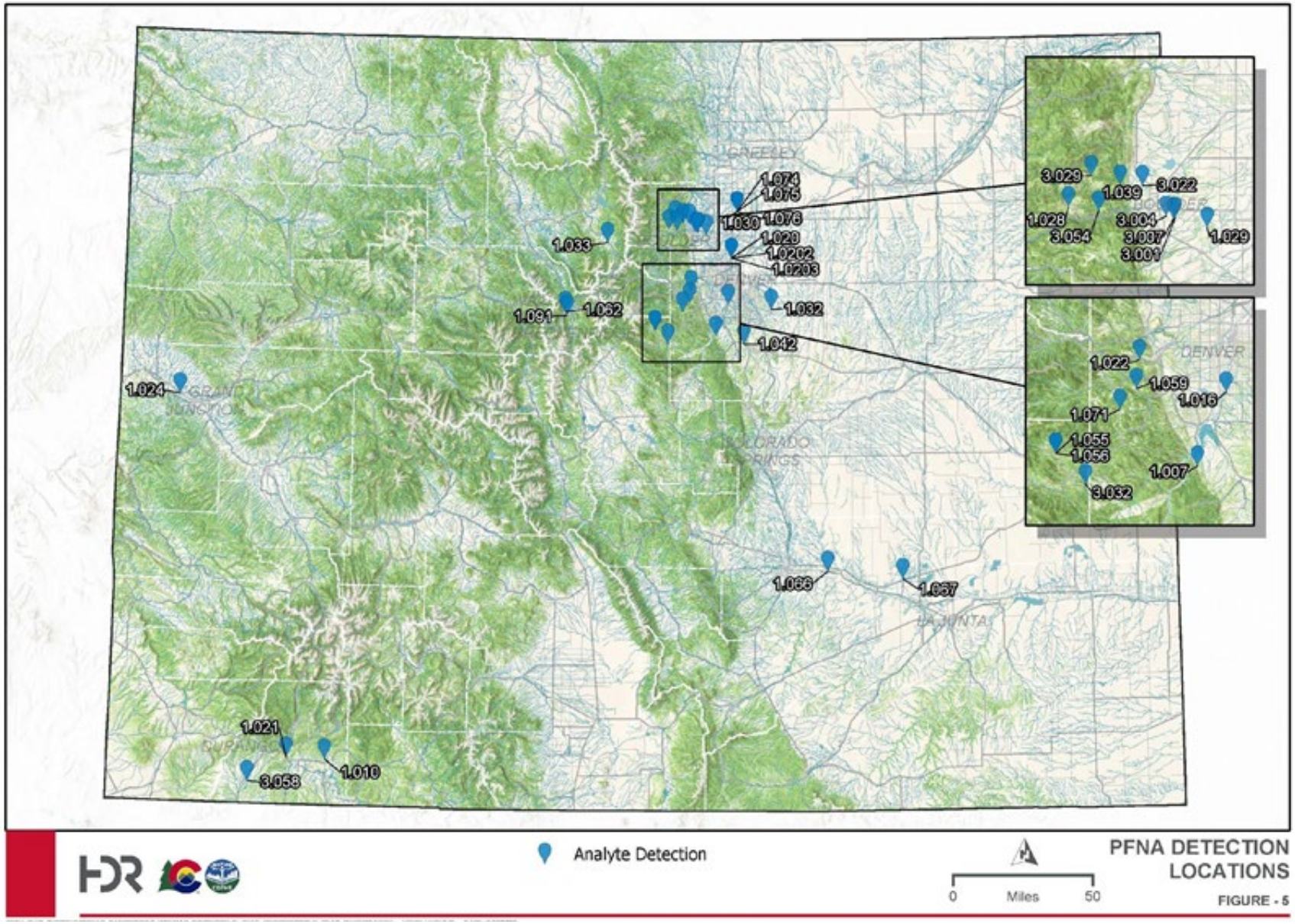
PFBS Detections

- Lab MDL = 0.20 - 0.50 ng/L
- EPA Hazard Index MCL = 1.0
  - Using a calculation that considers combined concentrations of PFBS, Gen-X, PFNA, and PFHxS
- EPA HBWC = 2,000 ng/L
- Total of 51 PWS and 26 private wells had detections above MDL
- No sites were above, or even within an order of magnitude of the HBWC for PFBS
- Close correlation between PFBS and PFOS sites



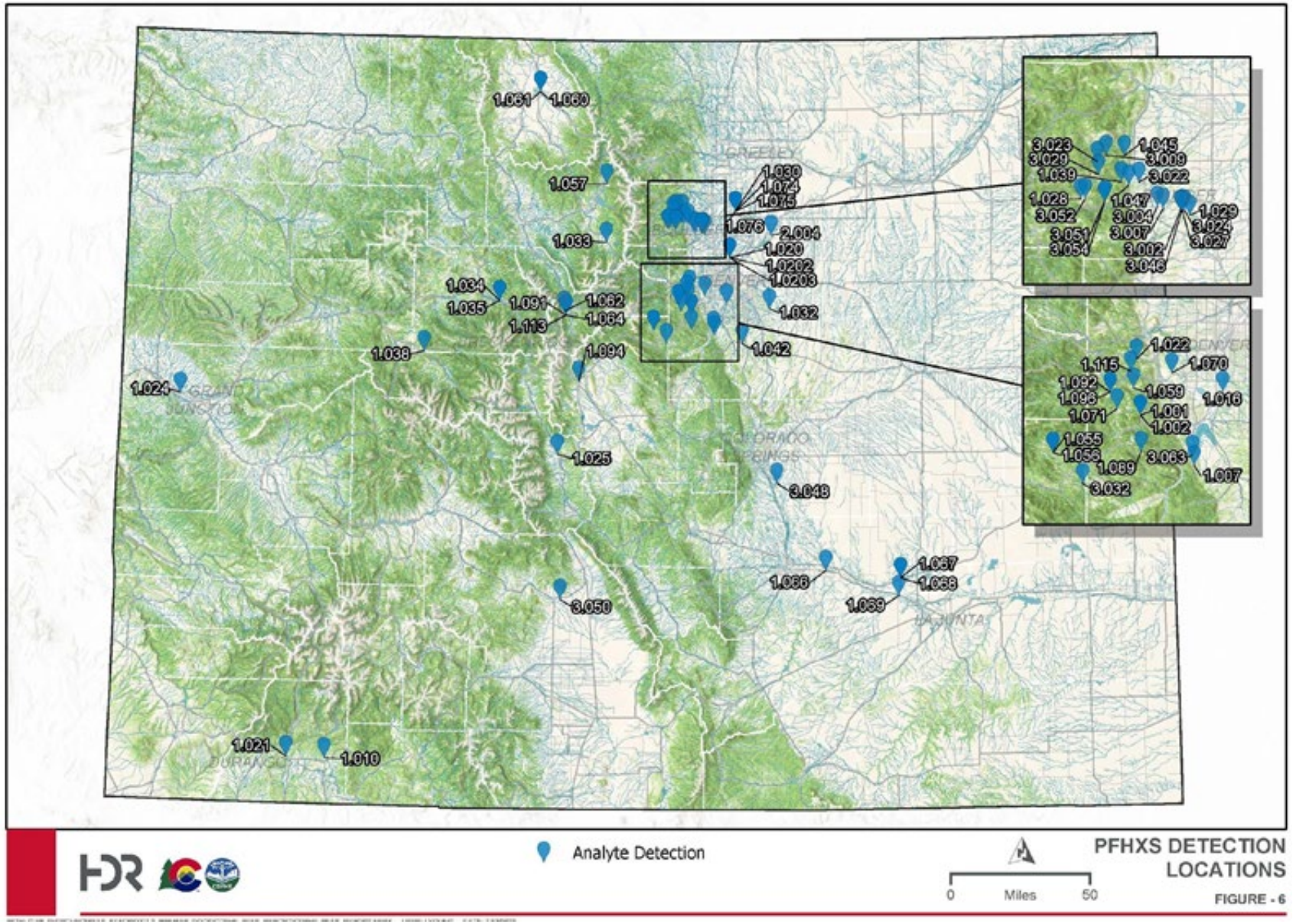
PFNA Detections

- Lab MDL = 0.27 - 0.50 ng/L
- EPA Hazard Index MCL = 1.0
  - Using a calculation that considers combined concentrations of PFBS, Gen-X, PFNA, and PFHxS
- EPA HBWC = 10.0 ng/L
- Total of 27 PWS and 8 private wells had detections above MDL
- No sites were above the HBWC for PFNA
- All sites with PFNA detections, with one exception, also had detections for PFOA and PFOS



PFHxS Detections

- Lab MDL = 0.50 - 0.58 ng/L
- EPA Hazard Index MCL = 1.0
  - Using a calculation that considers combined concentrations of PFBS, Gen-X, PFNA, and PFHxS
- EPA HBWC = 9.0 ng/L
- Total of 48 PWS and 18 private wells had detections above MDL
- No sites were above the HBWC for PFHxS
- 87% of sites also had detections of PFOA and PFOS



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Next Steps

2023-2024 Ongoing Work

- Quarterly Sampling of 12 Grant Recipients throughout CO
- First-time sampling of 83 additional Public Water Systems
- Additional sampling of private wells in widespread areas
- Increased sampling of biosolids and wastewater using 1633 analysis

QUESTIONS