



Statewide PFAS Sampling of Public Water Supplies in Michigan

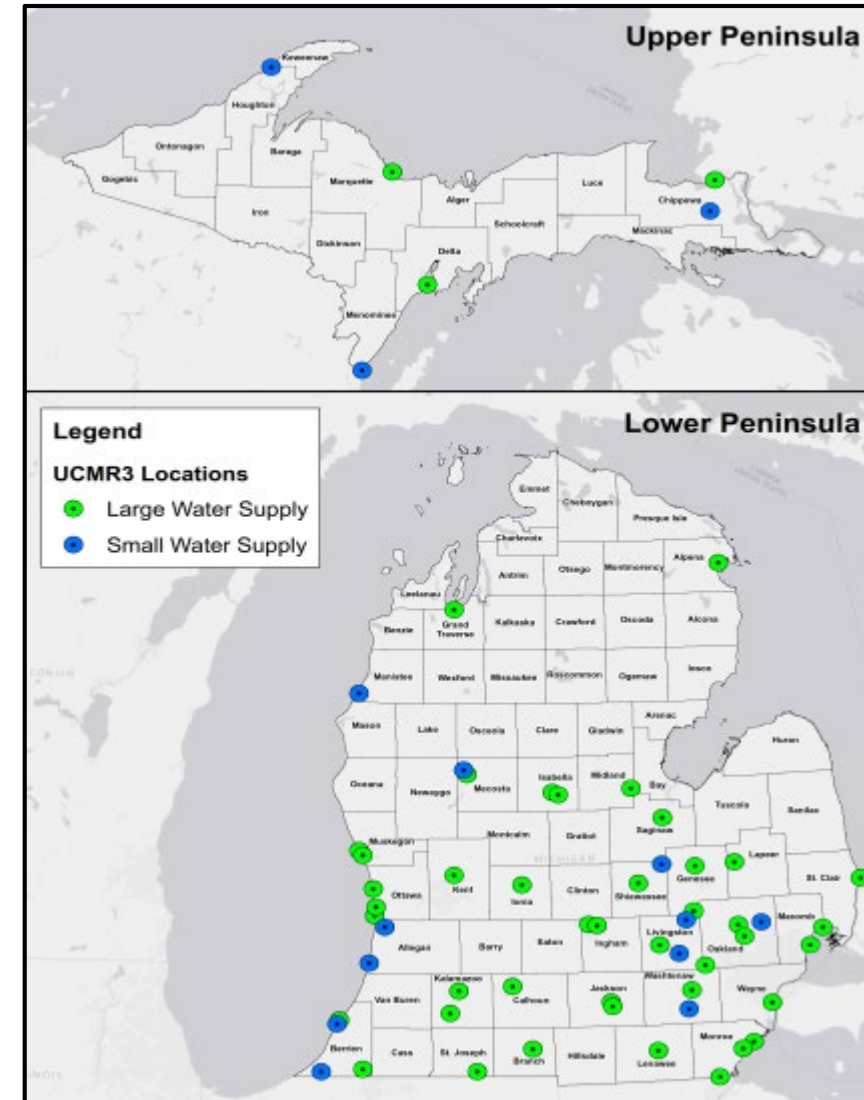
John Cuthbertson

April, 16, 2019

UCMR3 – Michigan Results

- USEPA UCMR3 Study - Michigan:
 - 162 Samples
 - 136 Large Public Water Supplies
 - 26 Small Public Water Supplies
 - PFAS Detected in 2 Supplies
 - **Plainfield Township** – PFOS 60 ppt
 - **Ann Arbor** – PFOS 43 ppt

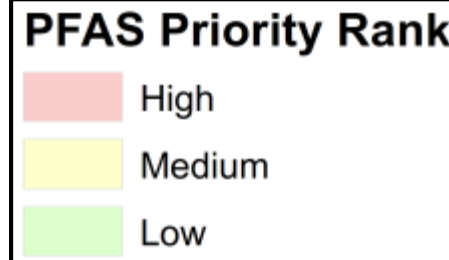
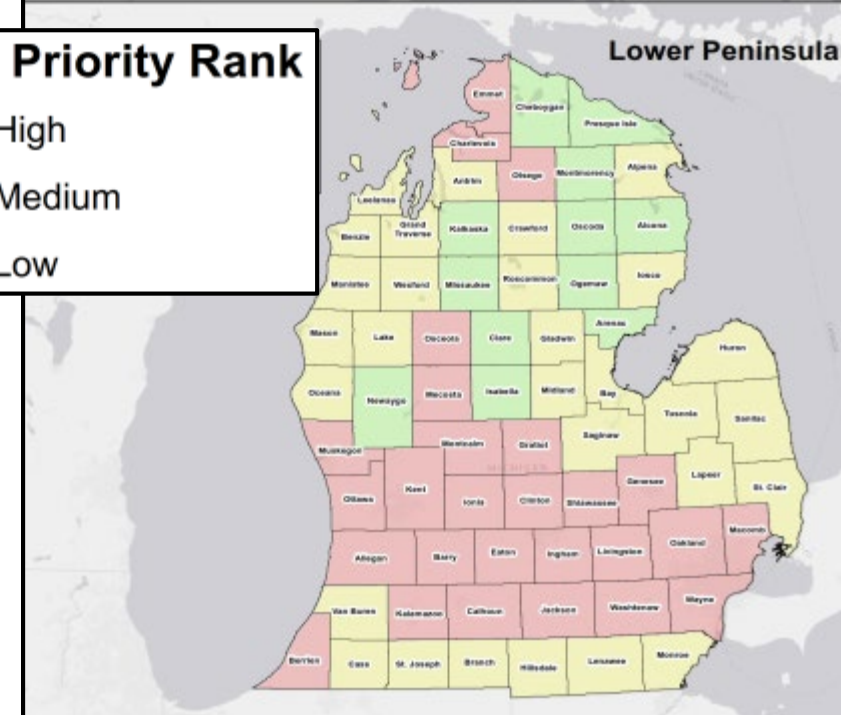
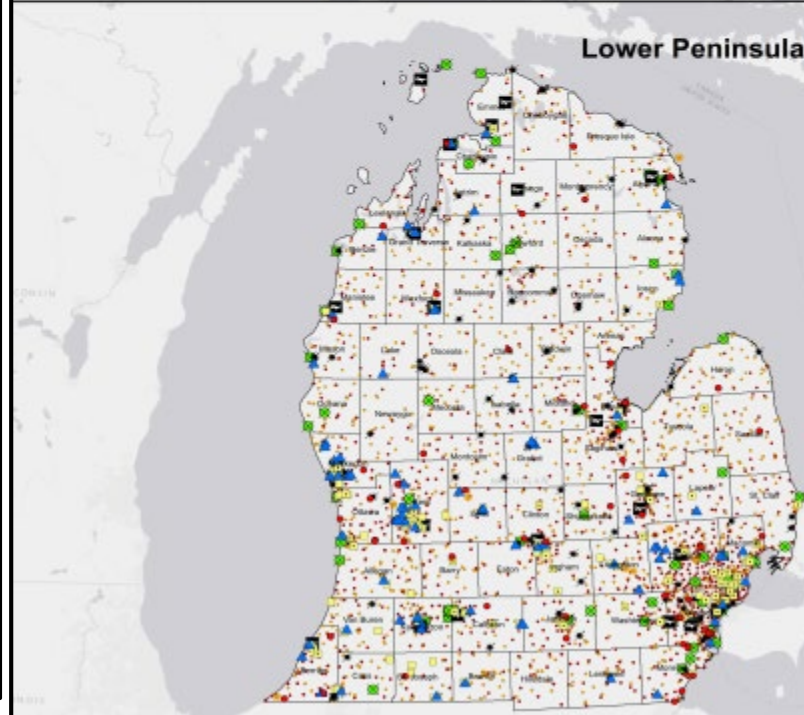
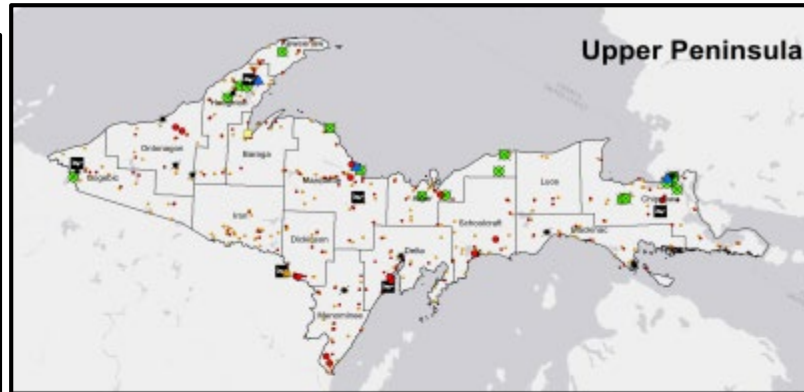
PFAS	Minimum Reporting Limit (MRL) (ng/L)	Total Locations	PWS ≥ MRL
PFOS	40	162	2
PFOA	20		0
PFNA	20		0
PFHxS	30		0
PFHpA	10		0
PFBS	90		0



Potential PFAS Sources

Legend

- Active Landfills
- ▲ Superfund Sites
- Electroplaters
- Plating and Polishing Sites
- Airports
- Petroleum Terminals
- Petroleum Bulk Stations
- ✱ Paints & Allied Products
- Military Sites
- Fire Stations
- Historic Landfills

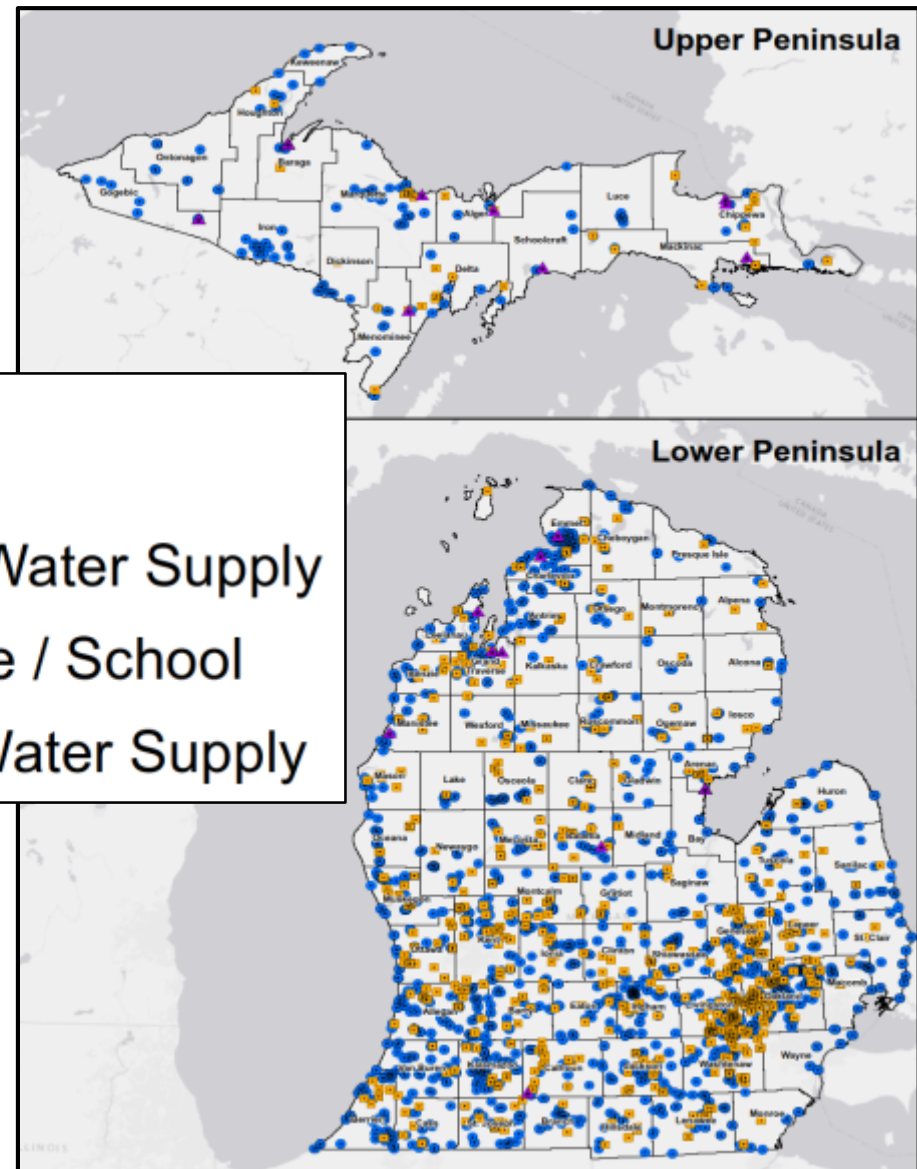


Michigan PFAS Statewide Sampling

- 1,742 Locations Sampled
 - 1,113 Community Water Supplies
 - Municipalities
 - Apartment Complexes
 - Subdivisions
 - Condominiums, etc.
 - 461 Schools
 - 150 Daycares
 - 18 Tribal Entities
- 75% of Michigan Residents

Legend

- Public Water Supply
- Daycare / School
- ▲ Tribal Water Supply



Challenges

- Sampling Logistics
 - 2,283 Total Samples | 3 Sampling Teams
 - Resampling of 70 Locations
 - Detailed Field Documentation
 - Completed in 9 Months
 - Emergency Sampling Response
- QA/QC Procedures
 - 10% Validation
 - USEPA vs Method 537 Comparison
 - 5% Field Duplicate / Field Reagent Blanks
- Data Processing
 - Weekly Status Updates
 - Weekly Letters



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Drinking Water PFAS Results

5.8 Million

Non-Detect

1.4 Million

Total PFAS < 10ppt

490,000

Total PFAS > 10ppt

3,500

PFOS+PFOA > 70ppt

89.7% (1,563)

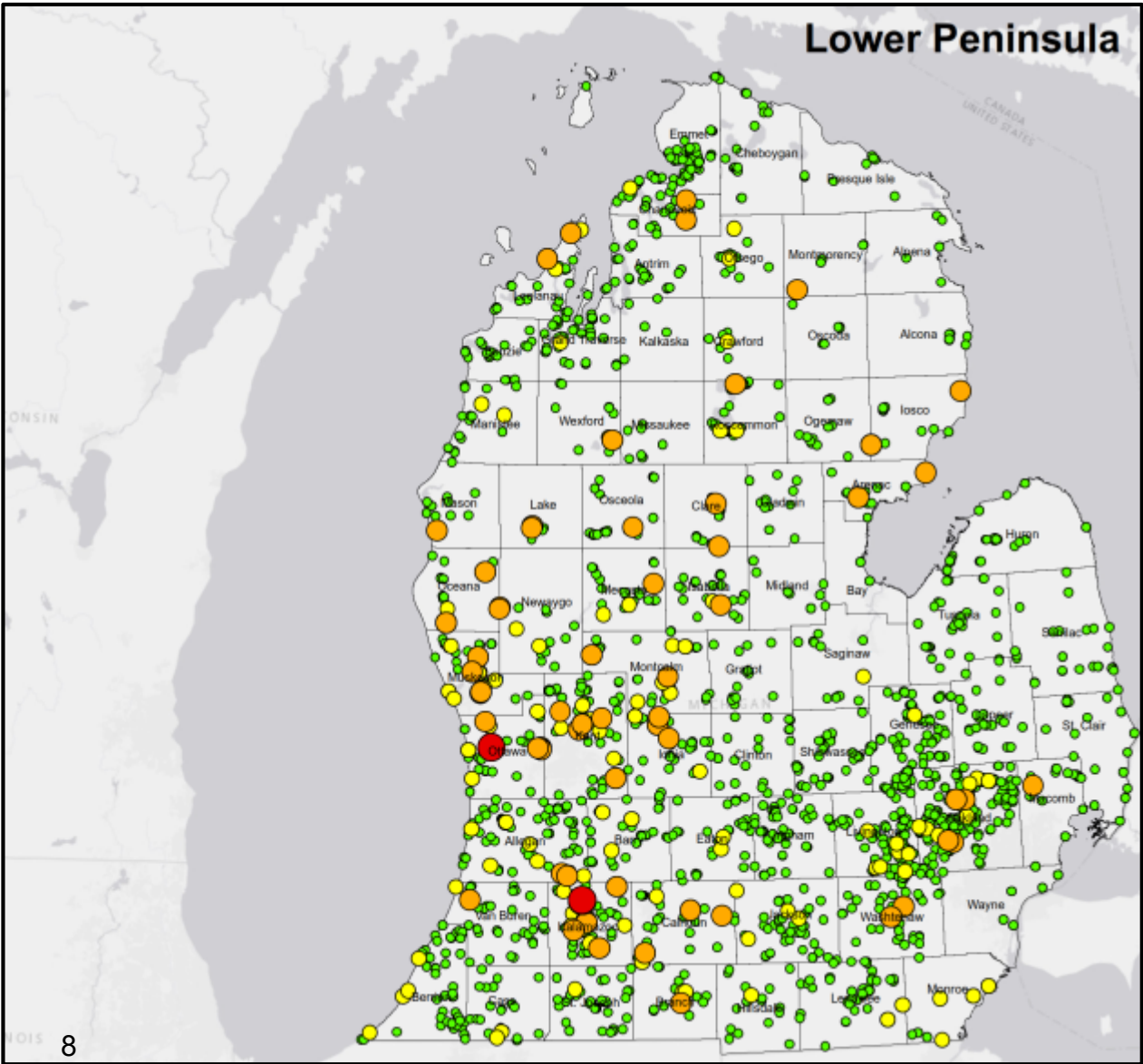
6.6% (115)

3.6% (62)

0.1% (2)

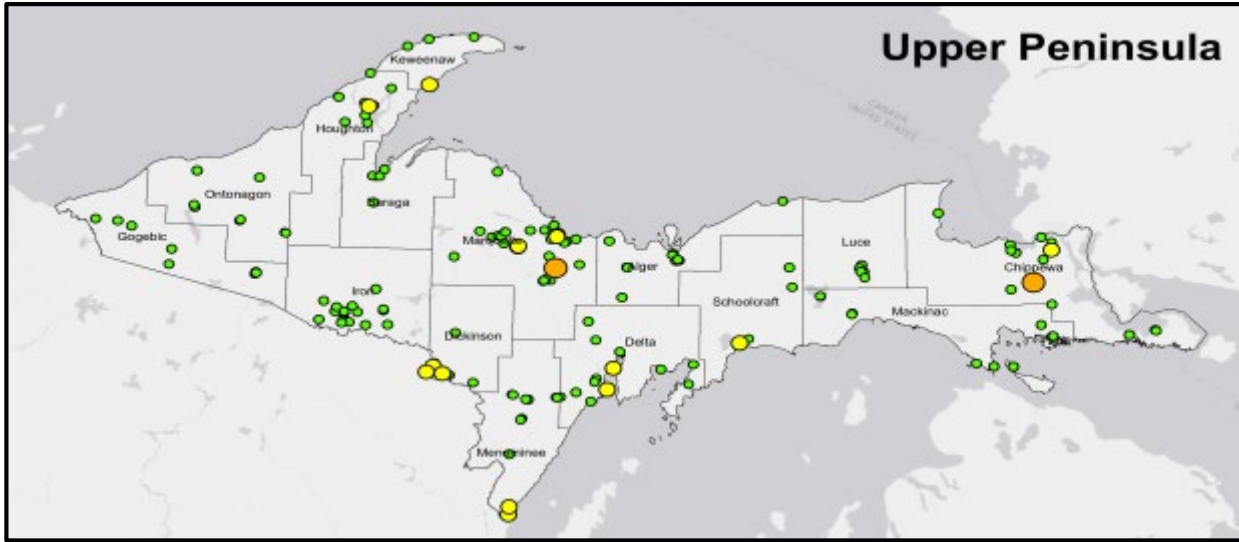
1,742 Individual Facilities

Drinking Water PFAS Results cont.

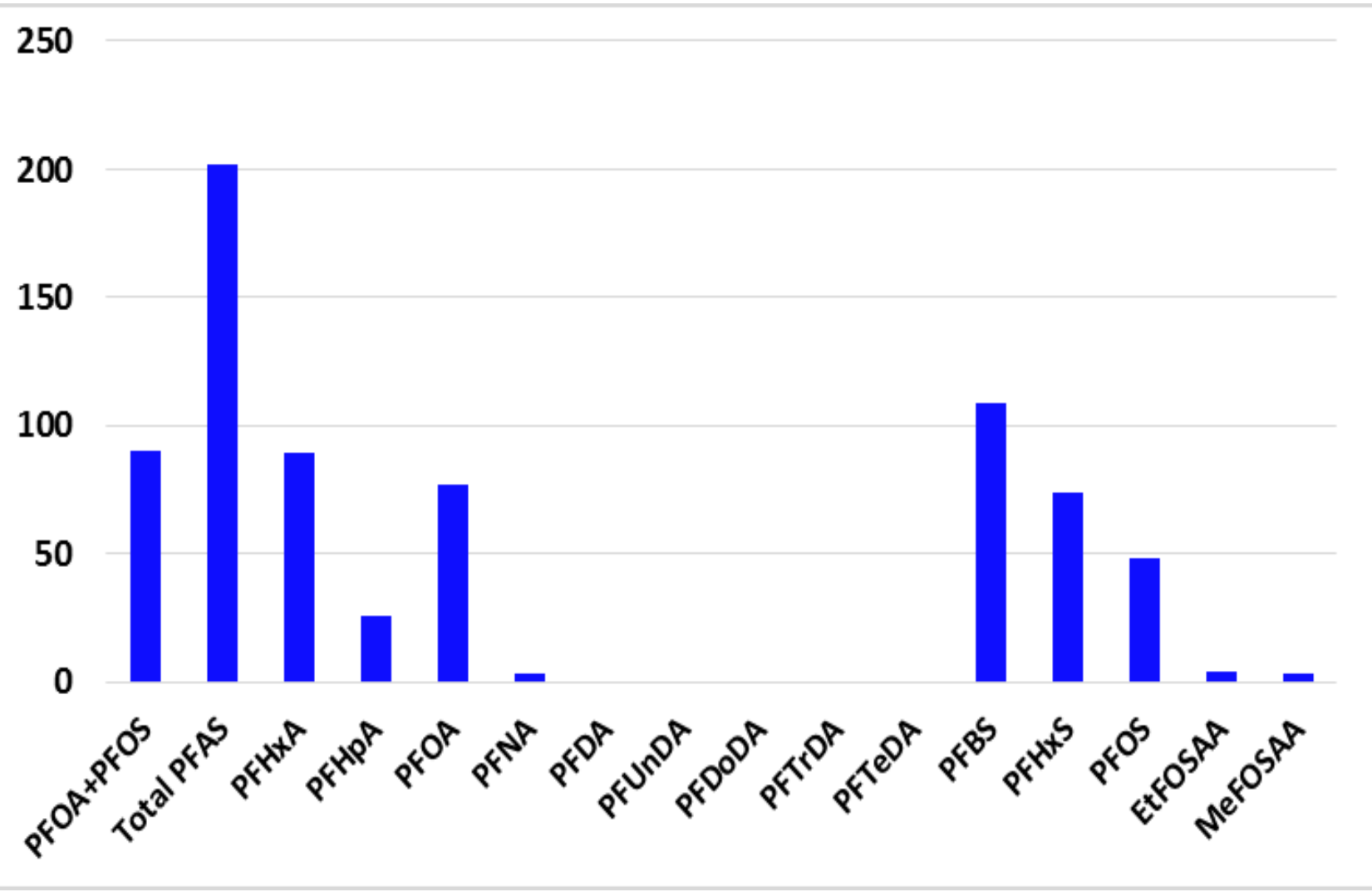


Legend Units: ng/L or ppt

- Non-Detect
- Total PFAS < 10
- Total PFAS >= 10
- PFOA + PFOS > 70

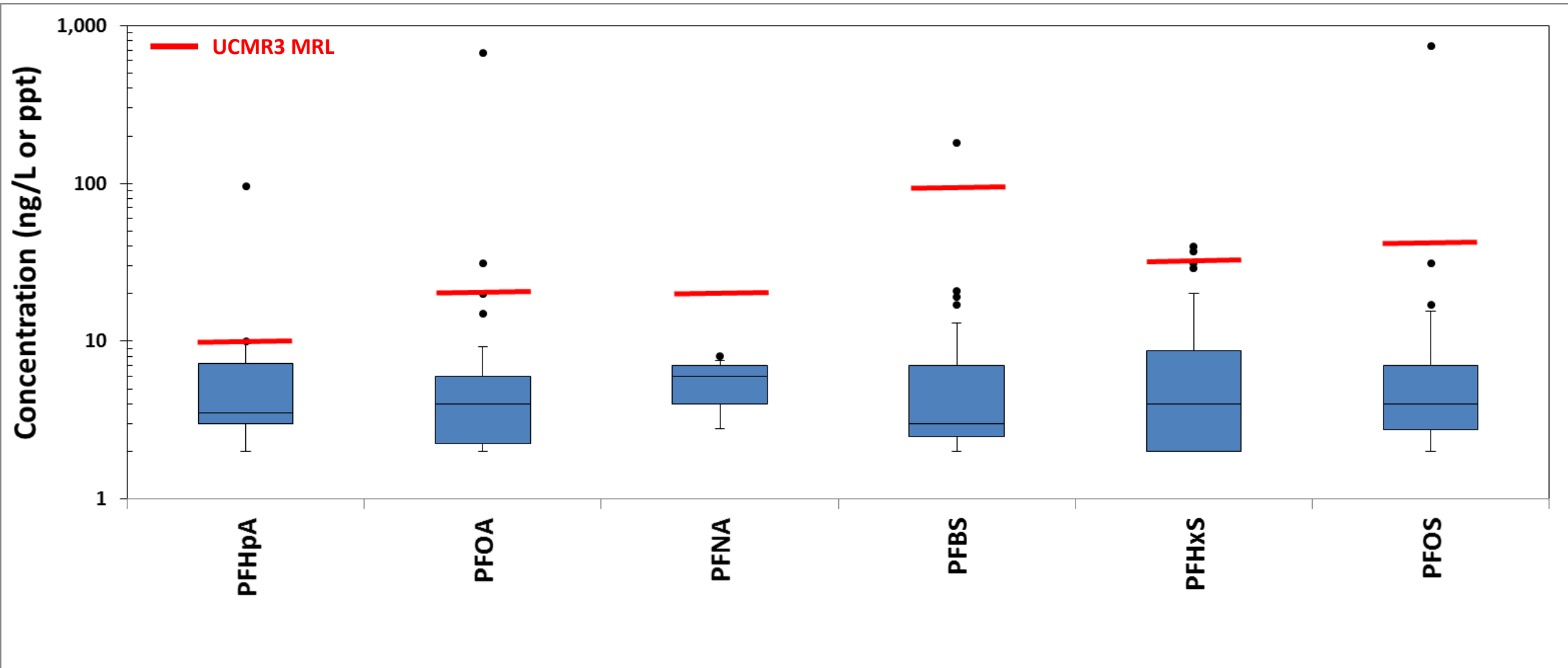


Number of PFAS Detections



PFAS	% Detection
PFBS	4.8
PFHxA	3.9
PFOA	3.4
PFHxS	3.2
PFOS	2.1
PFHpA	1.1
EtFOSAA	0.2
PFNA	0.1
MeFOSAA	0.1

PFAS Drinking Water Detections



City of Parchment

July 26th

July 26th

July 27th

July 29th



**PFOS+PFOA = 1,410 ppt
(20 times above criteria)**



News Conference

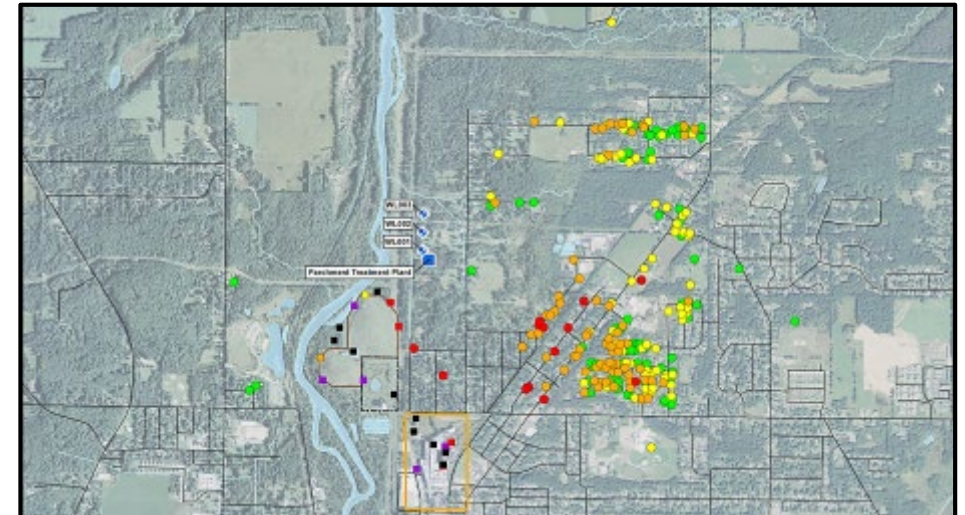


Bottle Water is Provided



State of Emergency

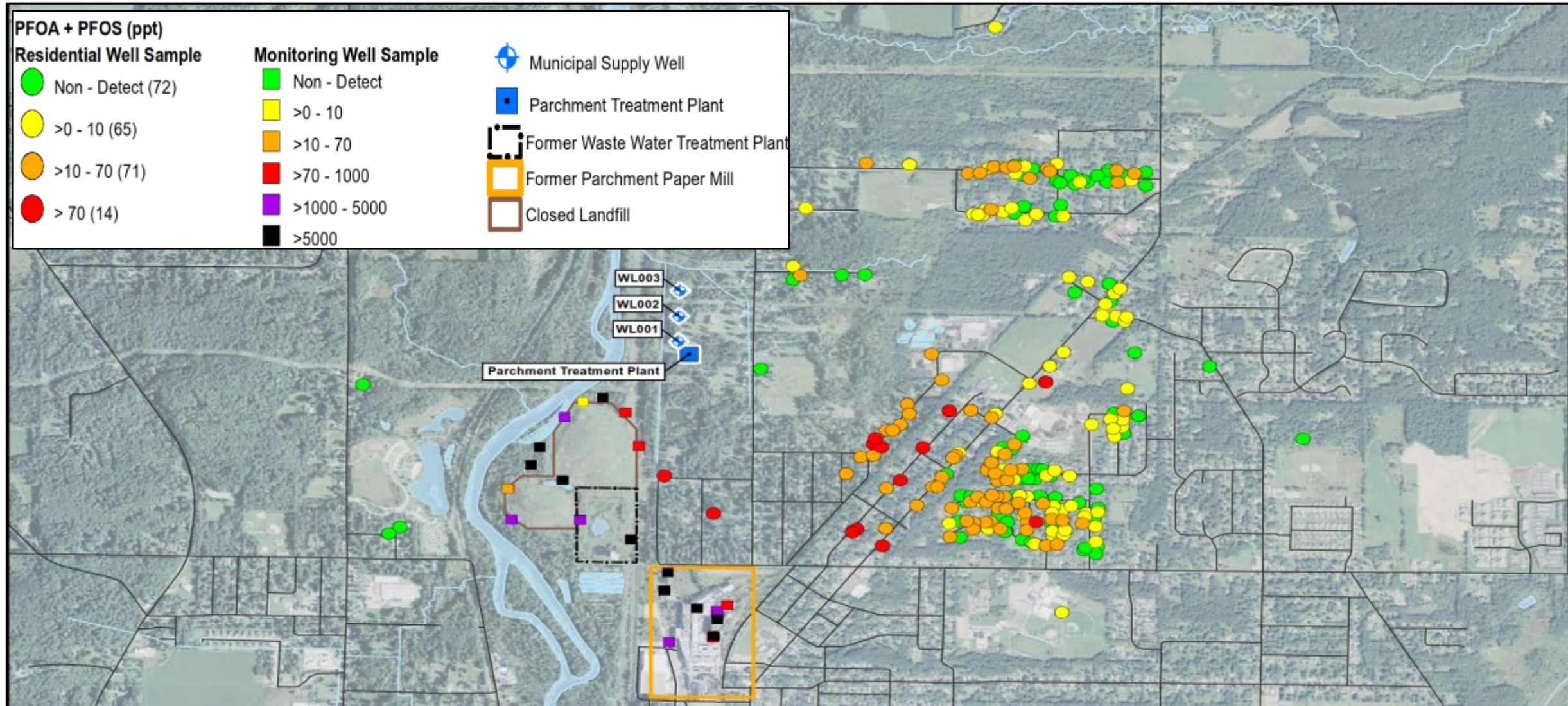
September 12th



Water Distribution System is Flushed and Connected to the City of Kalamazoo

Samples Collected:
> 60 Municipal
> 210 Residential Wells
> 20 Monitoring Wells

City of Parchment cont.



Conclusions

- UCMR3 evaluation is not sufficient to evaluate potential PFAS impacts to the drinking water systems
- The statewide study provides a much better evaluation of potential impact to the drinking water systems in Michigan
- A total of 89.7% of detections were Non-Detect and only two facilities were above the drinking water criteria
- Rapid response is needed and address exceedances above criteria
- Adequate planning for implementation of a statewide sampling effort is required for a successful program
- Concurrent investigation of potential PFAS sources are needed in areas without municipal water in order to evaluate potential impact to private residential wells

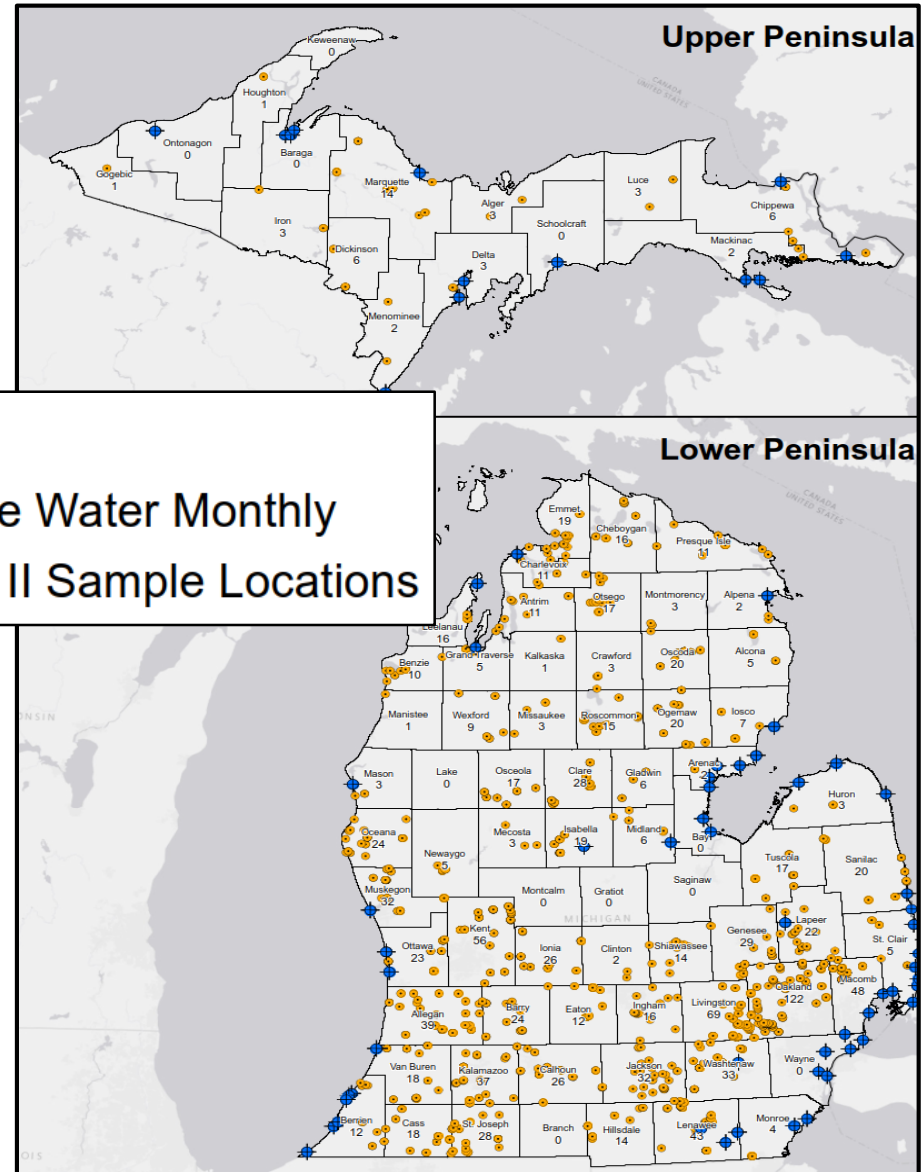


Next Steps

- Phase II Sampling
 - 750 Additional Locations
 - Commercial / Medical Offices
 - Adult Foster Cares / Motels
 - Children Camps / Parks
- Monthly Sampling of 60 Surface water Facilities
- MCL Development by Dec. 2019

PFAS	MDHHS Public Health Drinking Water Screening Level
PFOA	9 ng/L (parts per trillion [ppt])
PFOS	8 ng/L (ppt)
PFNA	9 ng/L (ppt)
PFHxS	84 ng/L (ppt)
PFBS	1000 ng/L (ppt)

April 4, 2019





Thank You!

T: 616-481-4009

E: John.Cuthbertson@aecom.com