

Madison Metropolitan Sewerage District

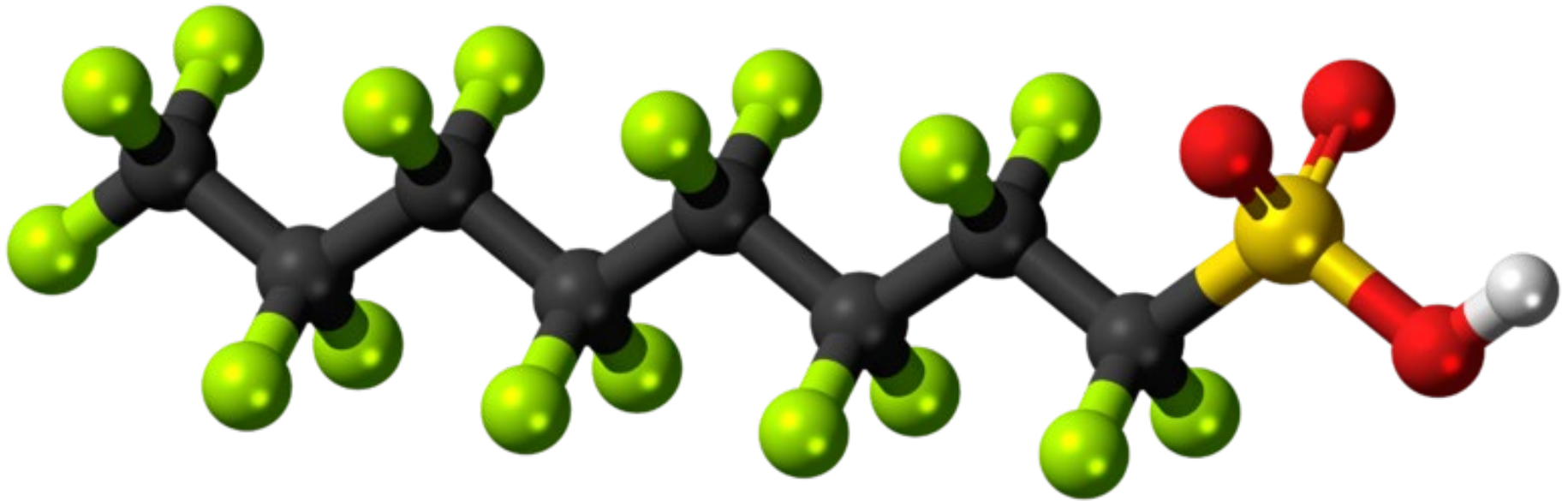
Phase 1 PFAS Sampling Results



Madison Metropolitan Sewerage District

What is PFAS?

Per- and polyfluoroalkyl Substances



What is the concern?

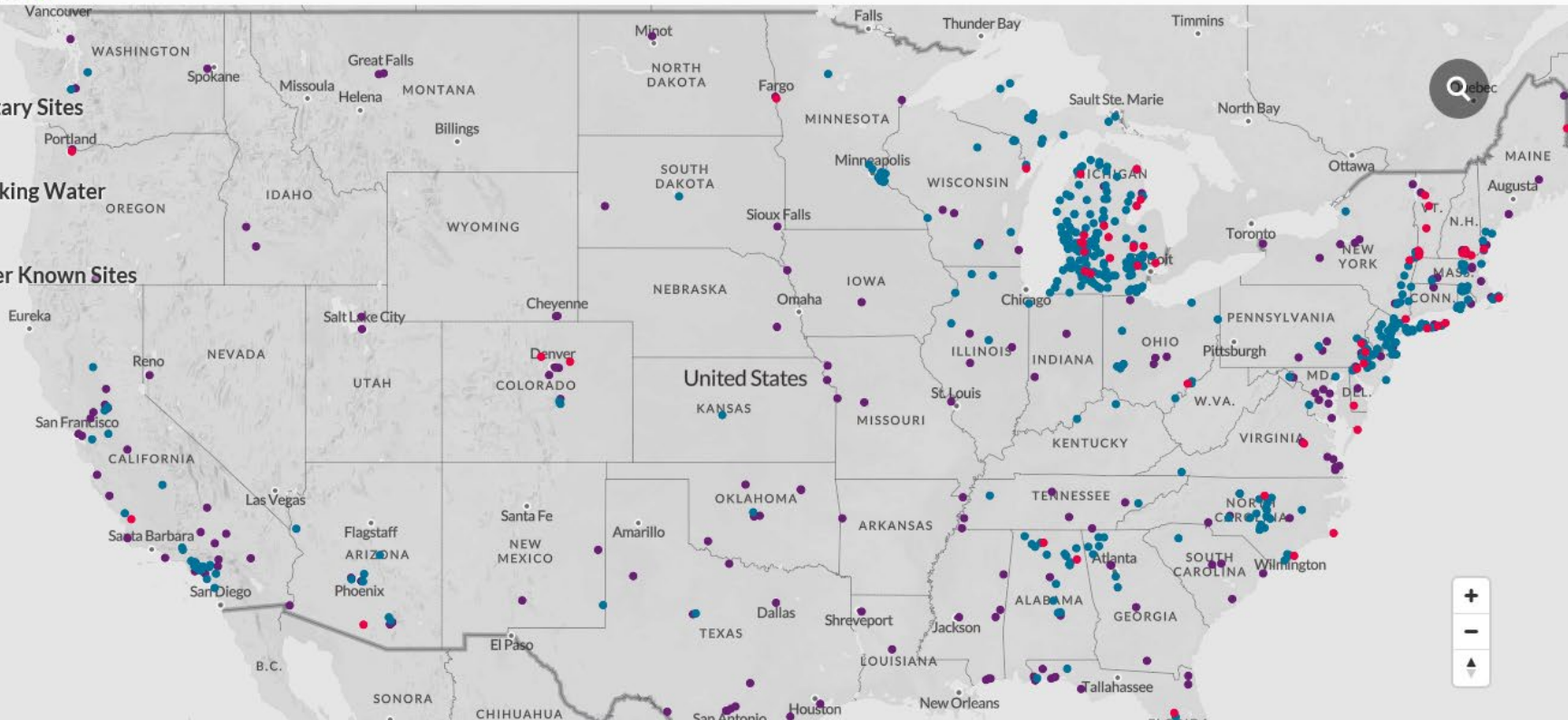


PFAS Contamination in the U.S.



- On** Military Sites
- On** Drinking Water
- On** Other Known Sites

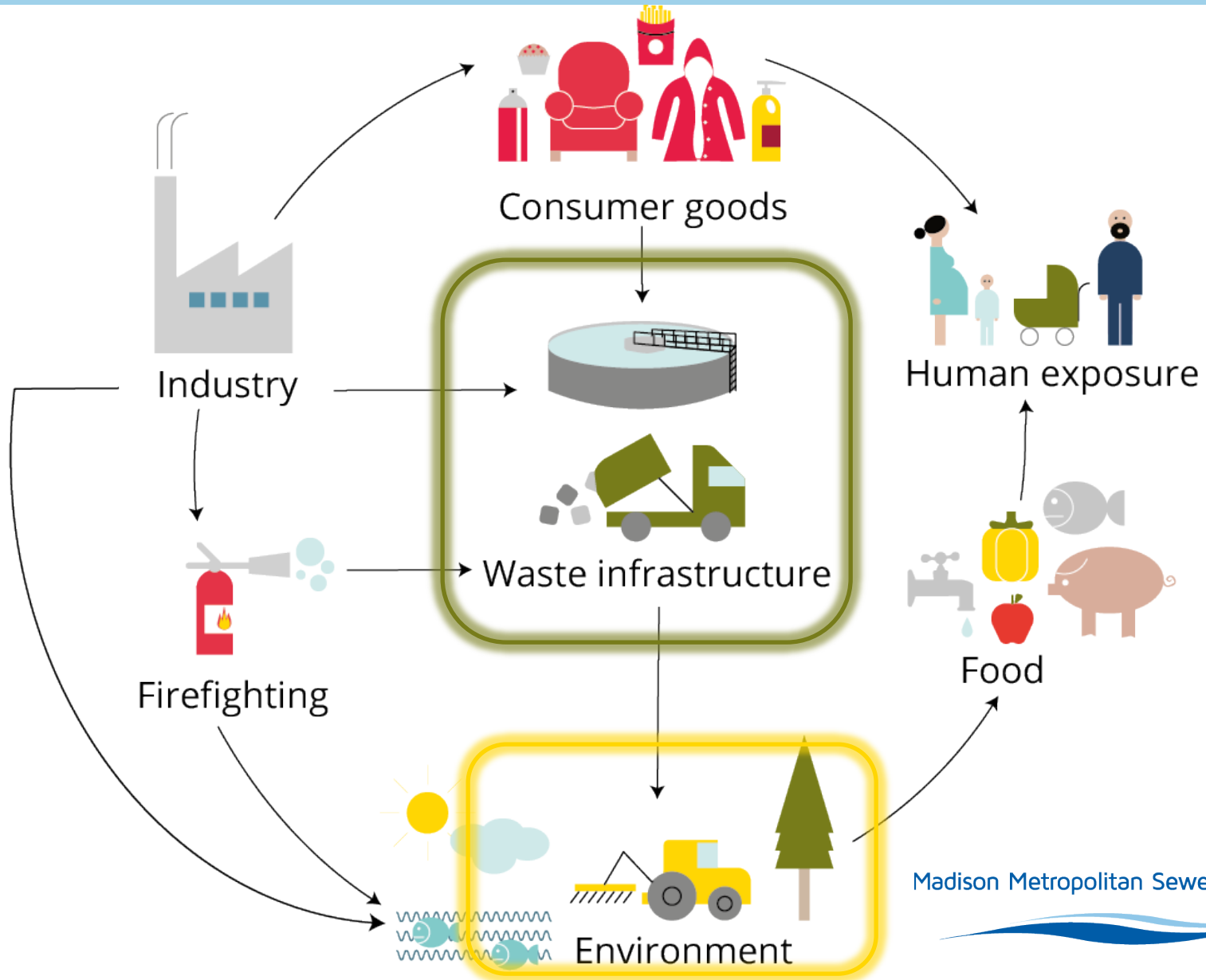
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Exposure



Reflect the Communities We Serve



District Action Plan

Madison Metropolitan Sewerage District



Background and actions to
address per- and polyfluoroalkyl
substances (PFAS)

Last revised June 4, 2019

<https://madsewerpfasinitiative.org/>

Data Gaps to Answer

What is coming to the plant in wastewater?

Hypothesis: PFAS in influent will be a mix of precursor and PFAS compounds

What is coming to the plant in treatment polymer?

Hypothesis: Polymers will not be a source of PFAS

What is leaving the plant in treated effluent, biosolids and struvite?

Hypothesis:

- *PFAS and precursors present in treated effluent and biosolids*
- *Effluent concentrations higher than influent due to transformation of precursors*
- *Effluent contains short chain PFAS and biosolids long-chain PFAS due to partitioning*
- *PFAS compounds will not partition to the struvite*



Sampling and Analysis



Influent Wastewater



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Influent Wastewater

	PS08	PS18	PS07	PS11	PS02	Weighted Average
Percent of Total PFAS Attributed to Influent	40%	32%	16%	7%	6%	
PFOA (ng/L) or (ppt)	2.2	7.8	11	2.2	3.3	5.13
PFOS (ng/L) or (ppt)	2.6	12	6.2	3.5	6.9	6.86



Polymers

	Polymer 1	Polymer 2	Polymer 3
PFOA (ug/Kg) or (ppb)	<MDL	<MDL	<MDL
PFOS (ug/Kg) or (ppb)	<MDL	<MDL	0.48

<MDL = level below the laboratory Method Detection Limit which is considered zero



Treated Effluent



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Treated Effluent

PFOA (ng/L) or (ppt)

9.7 - 11

PFOS (ng/L) or (ppt)

3.7



Treated Effluent

	District Effluent	Proposed State Std. Public Water Supply	Proposed State Std. All other waters
PFOA (ng/L) or (ppt)	9.7 - 11	20	95
PFOS (ng/L) or (ppt)	3.7	8	8



Influent vs. Effluent



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Influent vs. Effluent

	Influent (weighted avg.)	Effluent
PFOA (ng/L) or (ppt)	5.13	9.7 - 11
PFOS (ng/L) or (ppt)	6.86	3.7

For *general* comparison purposes only.

Samples taken on the same day do not represent the same water before and after treatment due to the hydraulic retention time of the plant.



Biosolids



Biosolids

	Class A Cake	Class B Metrogro
PFOA (ug/Kg) or ppb	16	1.2 – 1.6
PFOS (ug/Kg) or ppb	19	8 – 10

State of MI Action Level
–
20 – 150



Struvite

PFHxA

0.06 ug/kg or ppb

All other compounds at a level below the laboratory Method Detection Limit which is considered zero



Recap: Key Points

What is coming to the plant?

PFAS in influent as expected

PFAS *types* as expected

No significant PFAS in polymer

What is leaving the plant?

No significant PFAS in struvite

PFAS in effluent below proposed state standards

PFAS in biosolids are same as other utilities



Next Steps

Phase 2

Effects of treatment processes

Class A and Class B biosolids

Collection system sources



Thank You

DOING OUR PART FOR PFAS

<https://madsewerpfasinitiative.org/>

Across the nation, communities and public entities are struggling with how to best address the issue PFAS, or per- and polyfluoroalkyl substances, in our environment.

Learn more about what Madison Metropolitan Sewerage District is doing to address PFAS in wastewater and beneficial biosolids and the role individuals and businesses have in helping reduce PFAS use and contamination.