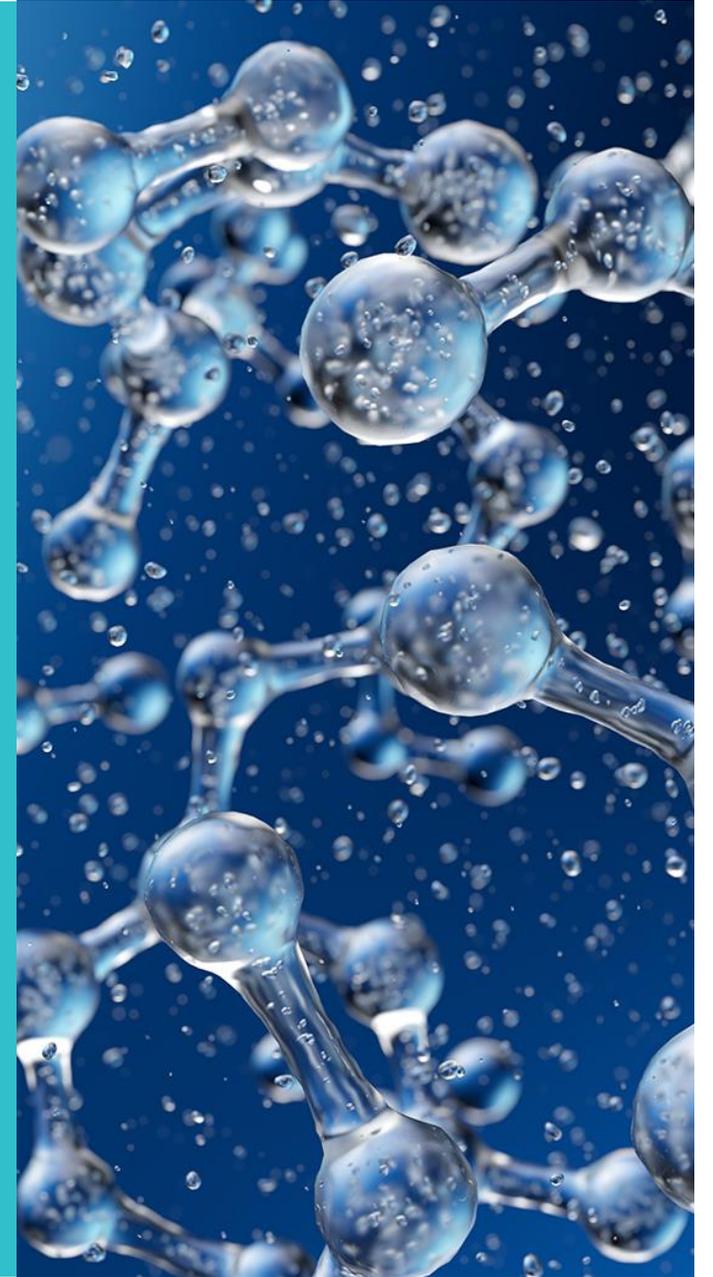




# ENSPIRED SOLUTIONS®

*FOREVER CHEMICALS GONE FOREVER®*

Illinois Environmental Regulatory Group  
September 9, 2025





**ENSPIRED**  
SOLUTIONS™

FOREVER CHEMICALS GONE FOREVER™



**Technology Introduction**



**Commercial-scale PFAS Destruction Equipment**



**Technology Applications – Case Studies**



**Questions?**





# ENSPIRED SOLUTIONS

PFAS destruction innovation startup

Women-owned and women-led

Founded in 2021

Headquartered in Lansing, Michigan, USA

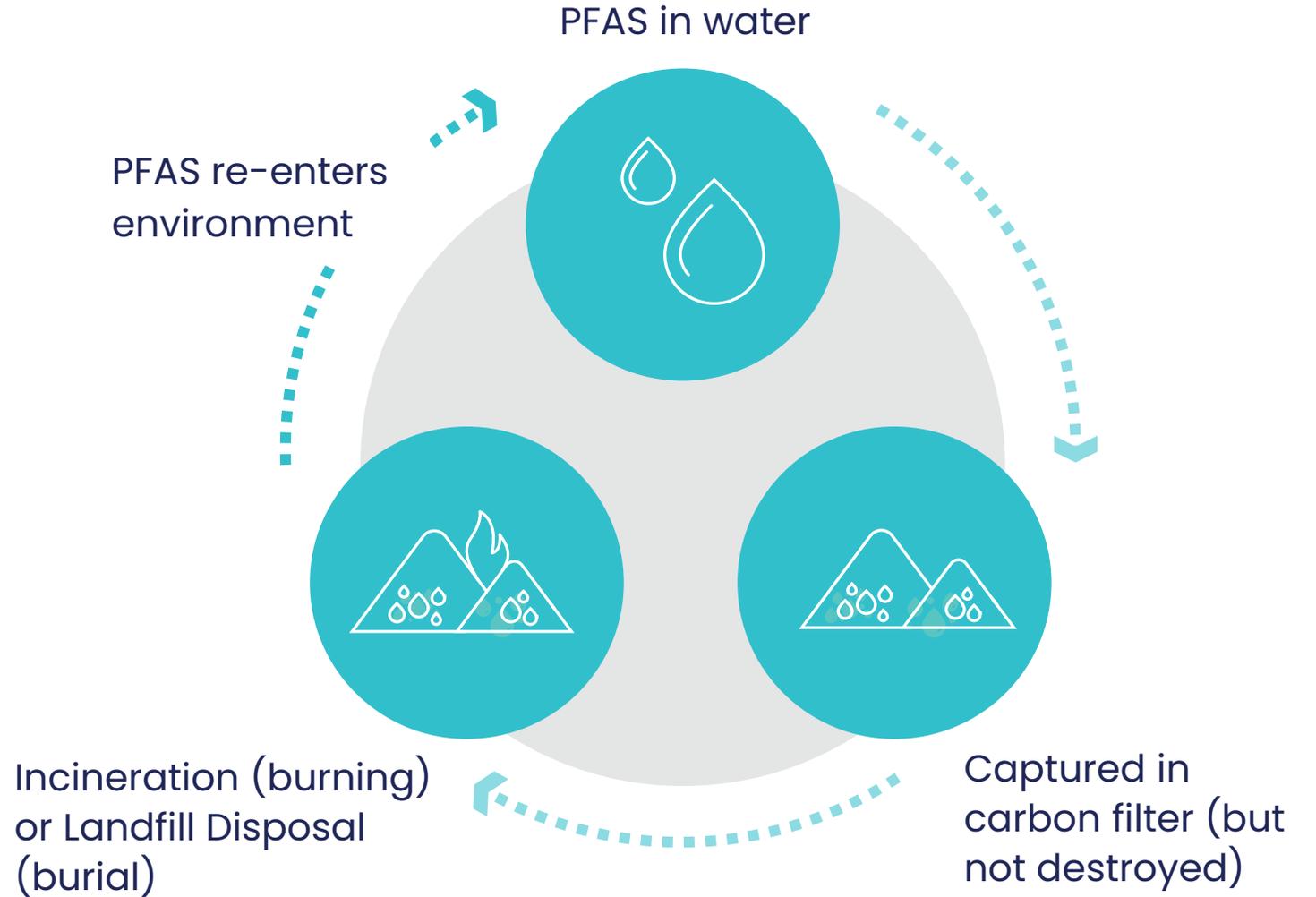
**SBA WOSB**  
Woman Owned Small Business



An aerial photograph of the ocean's surface, showing intricate patterns of waves and ripples. The color palette is a gradient of blues, from deep navy at the bottom to bright cyan and turquoise at the top. The text is overlaid on the upper left portion of the image.

# **TECHNOLOGY INTRODUCTION**

# Current methods





## PFAS in water



Our photo-activated reductive defluorination (PRD) process destroys PFAS and breaks the cycle of capture, disposal and re-release.

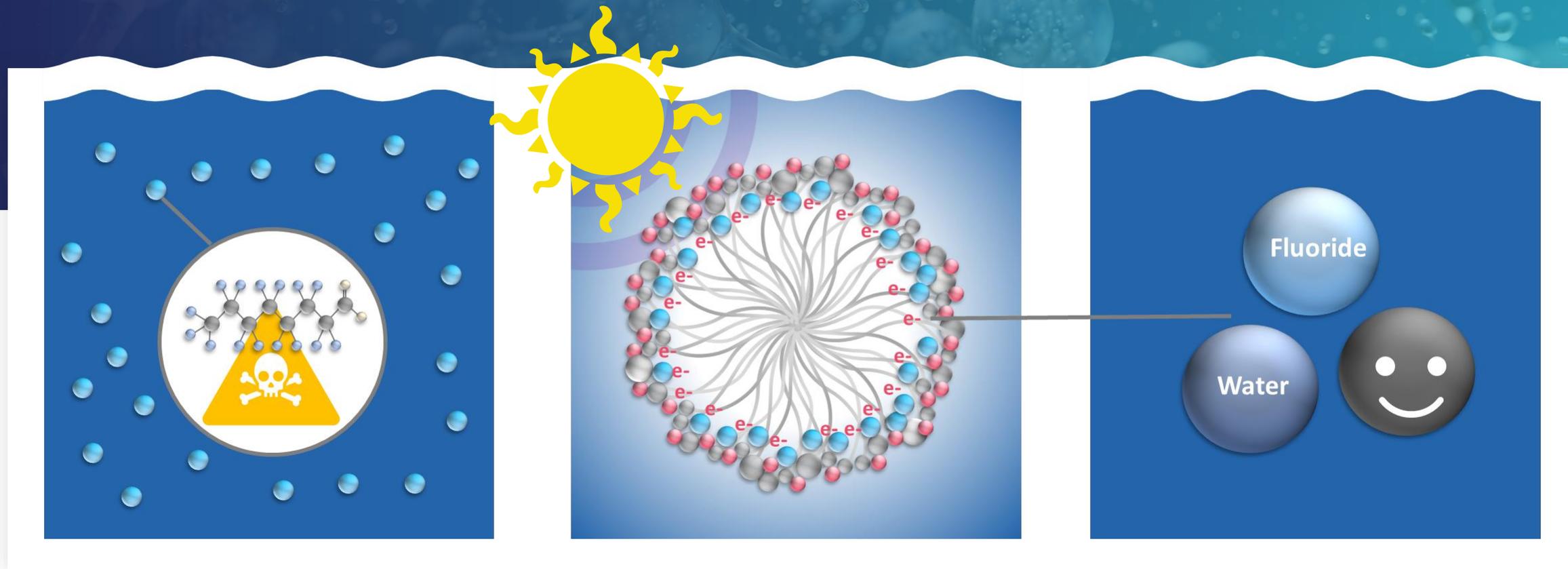


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**Non-toxic Discharge**



# How Photo-activated Reductive Defluorination (PRD) Works





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# Recognized technology



U.S. Department of Defense

## USEPA + Dept. of Defense

AWARD-WINNING CHEMISTRY



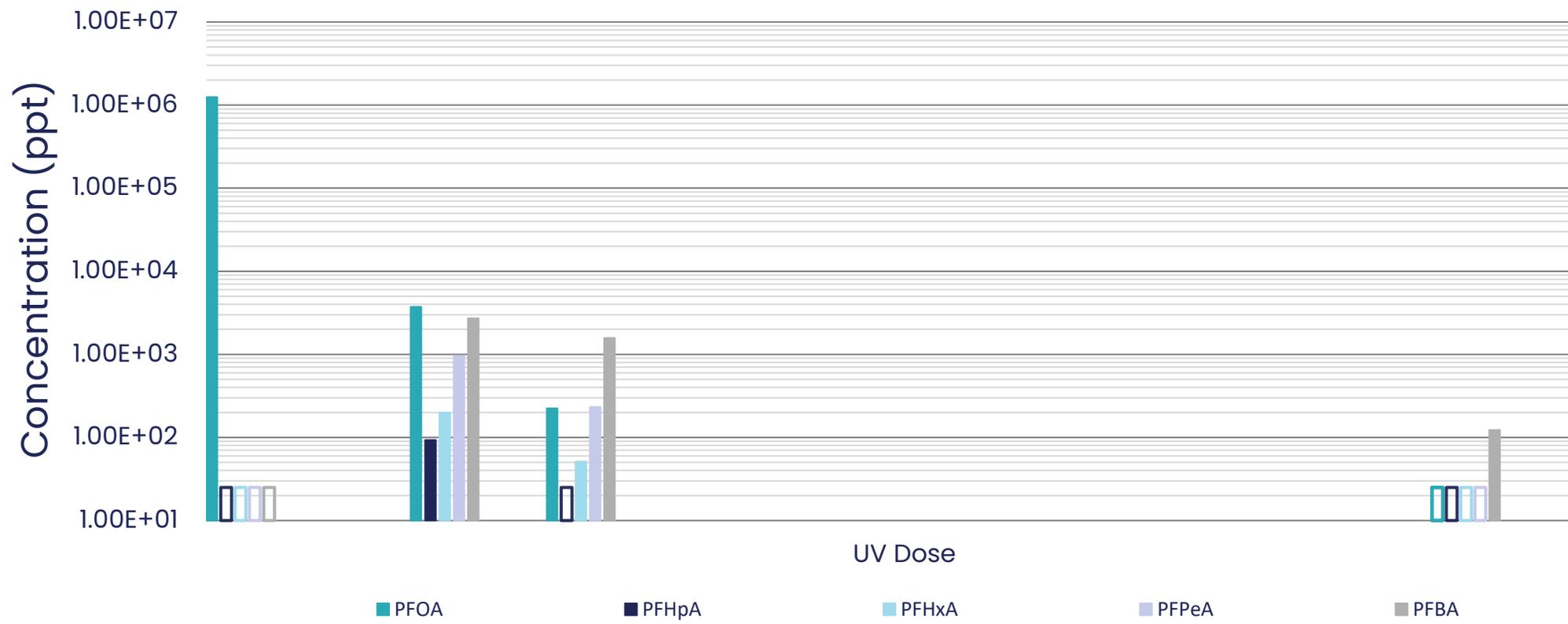
PFAS  
*Destruction*



Energy  
*Efficiency*



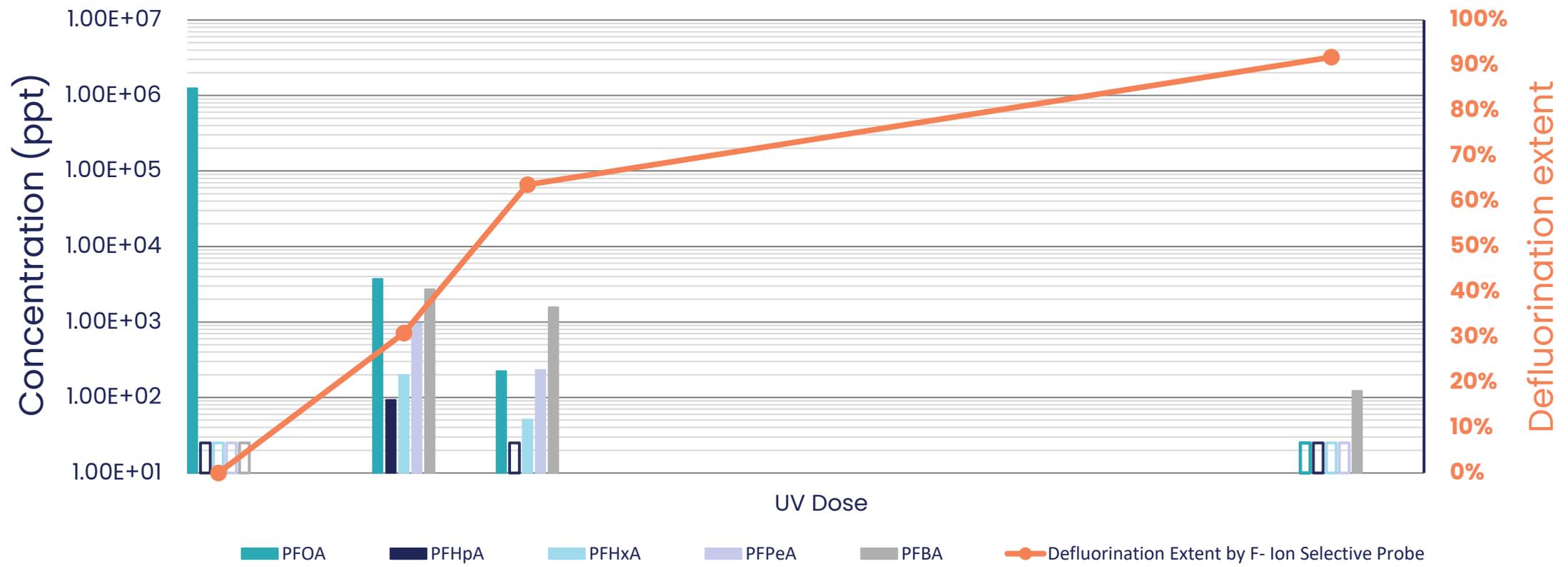
# 1.25 ppm PFOA Spiked DI Water Sequential Mineralization



\*Hollow bars represent non-detect



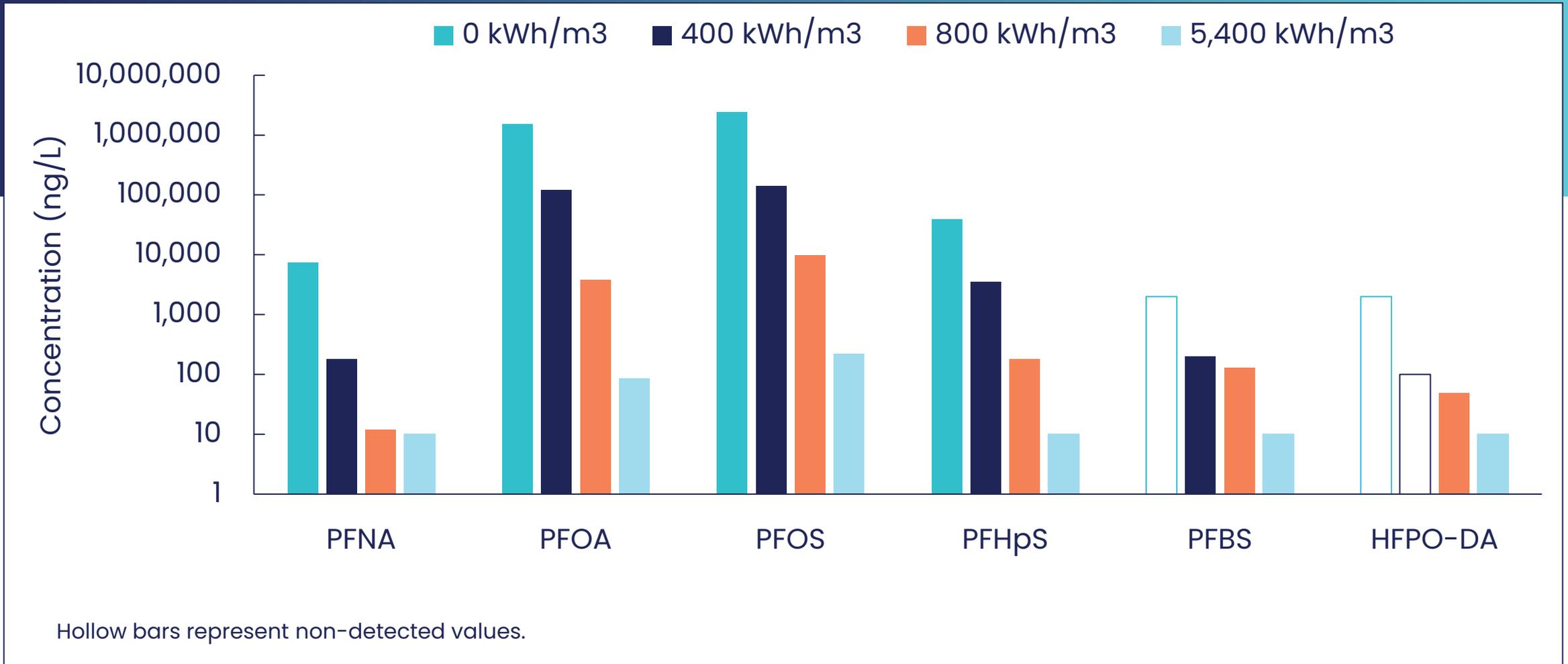
# 1.25 ppm PFOA Spiked DI Water Sequential Mineralization



\*Hollow bars represent non-detect



# Destruction of PFAS in Surface Water Foamate Generated by Allonnia SAFF®



An aerial photograph of turbulent blue water with white foam, creating a dynamic and textured background. The water's surface is covered in intricate patterns of white foam and deep blue troughs, suggesting a powerful current or a storm's wake.

# **COMMERCIAL-SCALE PFAS DESTRUCTION EQUIPMENT**



# PFASigator<sup>®</sup>

By Enspired Solutions<sup>®</sup>

## Forever Chemicals Gone Forever<sup>®</sup>

# PFASigator Specifications



<b>PHYSICAL DIMENSIONS, INCLUDING FRAME</b>	8' (Length) x 7' (Height) x 5.4' (Width)
<b>ESTIMATED WEIGHT</b>	4,500 lbs - Shipping Weight
<b>POWER REQUIREMENT</b>	480V 3 Phase 30 amp
<b>WASTE STREAM INLET</b>	1" 150# Flanged Connection
<b>FRESHWATER INLET</b>	1" 150# Flanged Connection
<b>TREATED WATER OUTLET</b>	1" 150# Flanged Connection
<b>DATA ACCESS</b>	Network Connection Required Where 4G Service is Unreliable
<b>HEAD PRESSURE AT WASTE STREAM INLET</b>	Head Pressure Required at Waste Stream Inlet (e.g., Holding Tank)
<b>DRAINAGE AT TREATED WATER OUTLET</b>	Discharge pump is capable of pumping up to 10 feet of head into a downstream tank or treatment process.

# PFASigator Sequencing



PFAS destruction occurs

Treated solution is discharged back to the waste treatment system

Concentrated PFAS solution enters and reagents are mixed

# PFASigator Monitoring & Control

- Automatic batch loading & discharging
- Automatic reagent dosing
- Real-time fluoride measurement confirms PFAS mineralization
- Remote monitoring & control

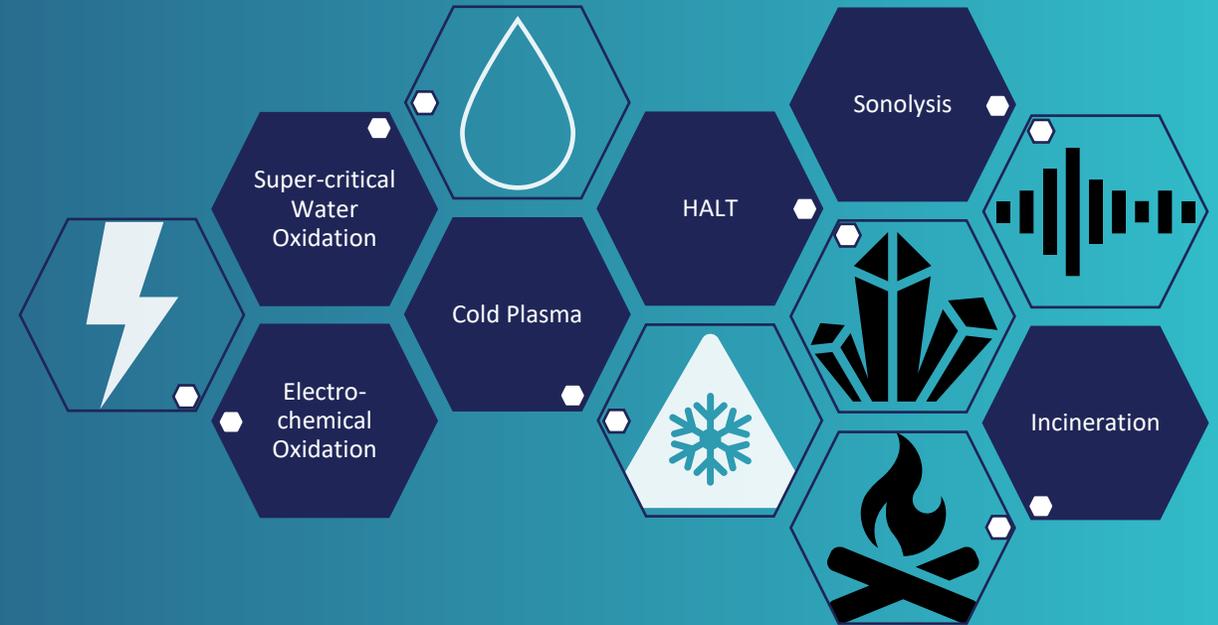


# PFAS Destruction Considerations



## Photo-activated Reductive Defluorination

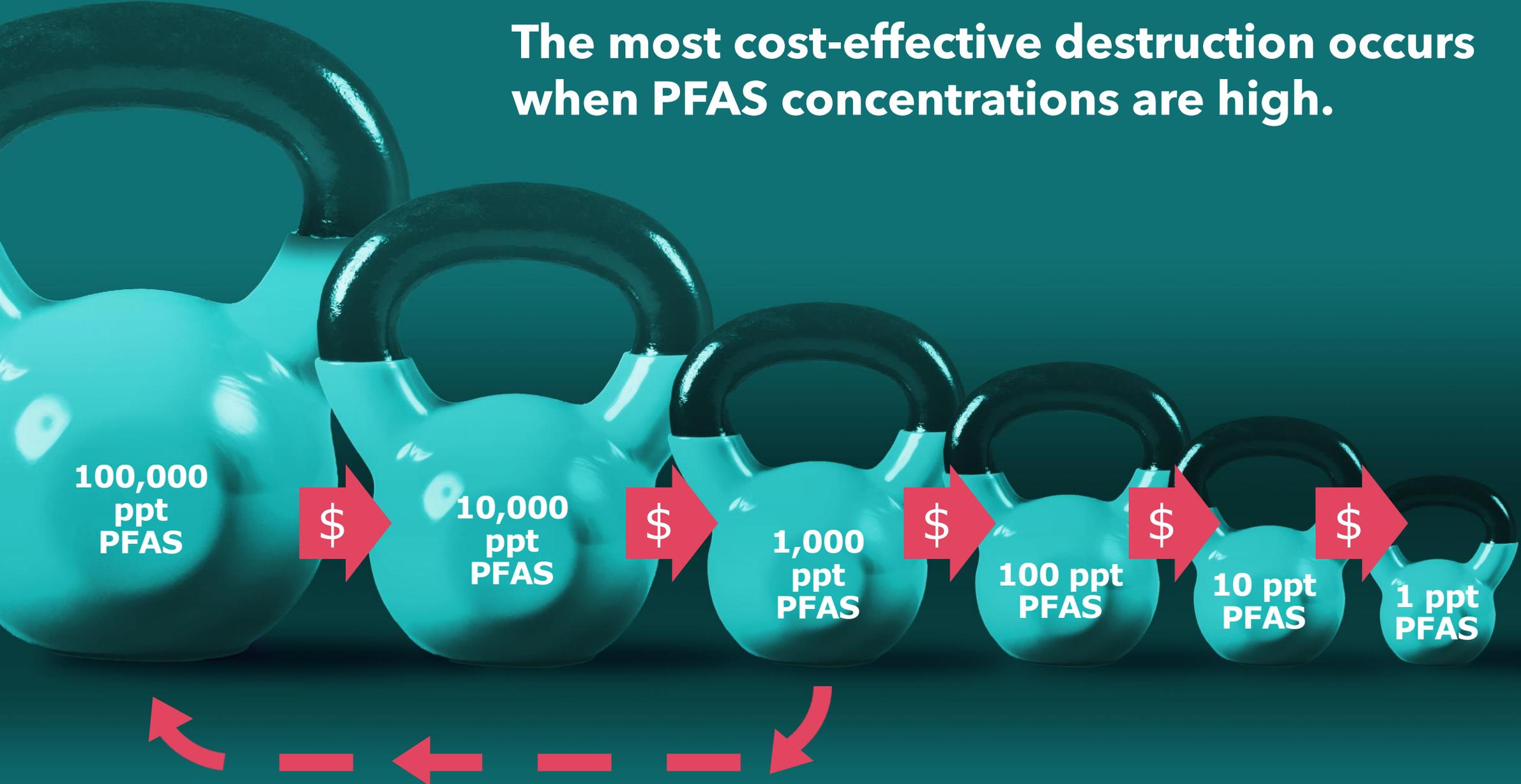
<b>Energy use</b>	⚡
<b>Safe</b>	✓
<b>Tunable reaction</b>	✓
<b>No toxic byproducts</b>	✓
<b>Automated</b>	✓
<b>At commercial scale</b>	✓
<b>Buy or lease</b>	✓
<b>Owner operated</b>	✓



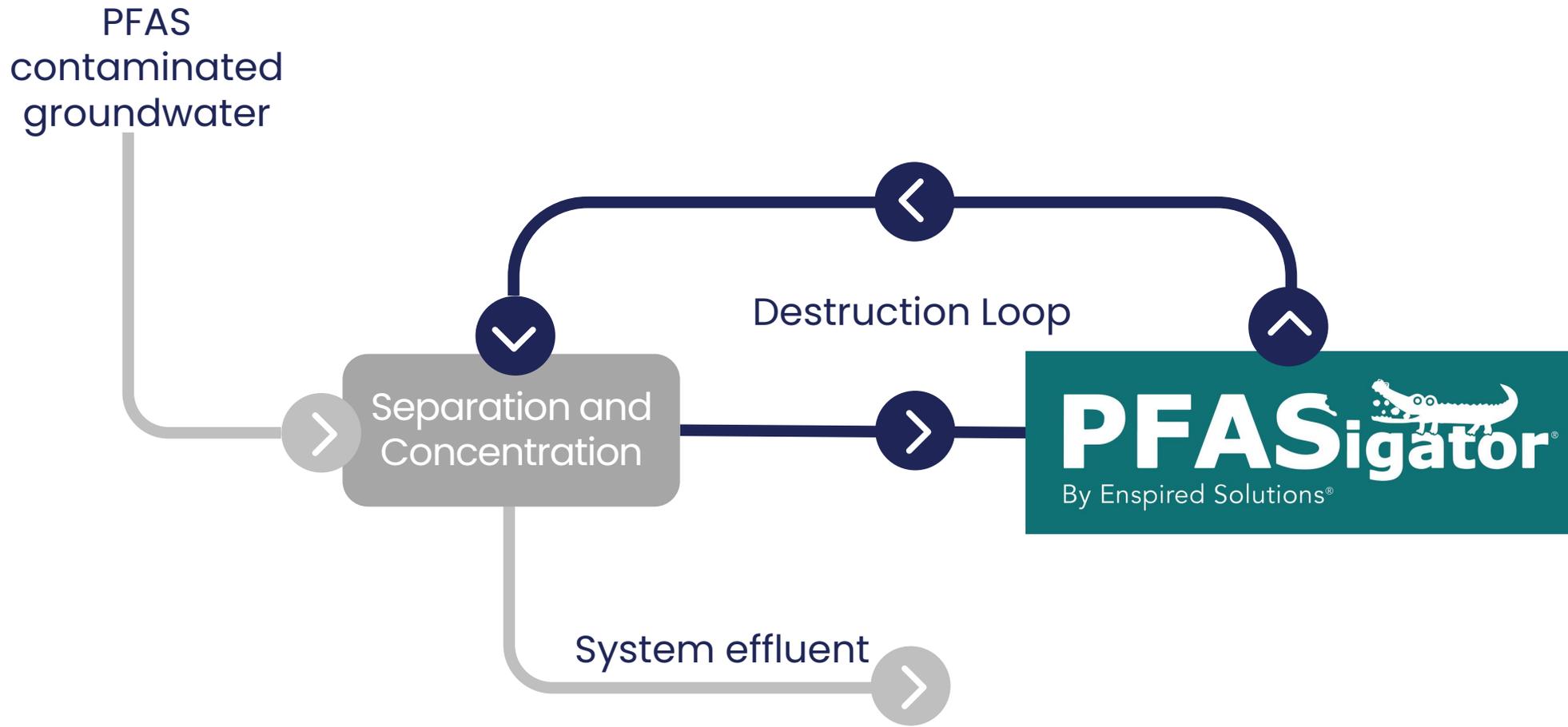


# **TECHNOLOGY APPLICATIONS - CASE STUDIES**

The most cost-effective destruction occurs when PFAS concentrations are high.

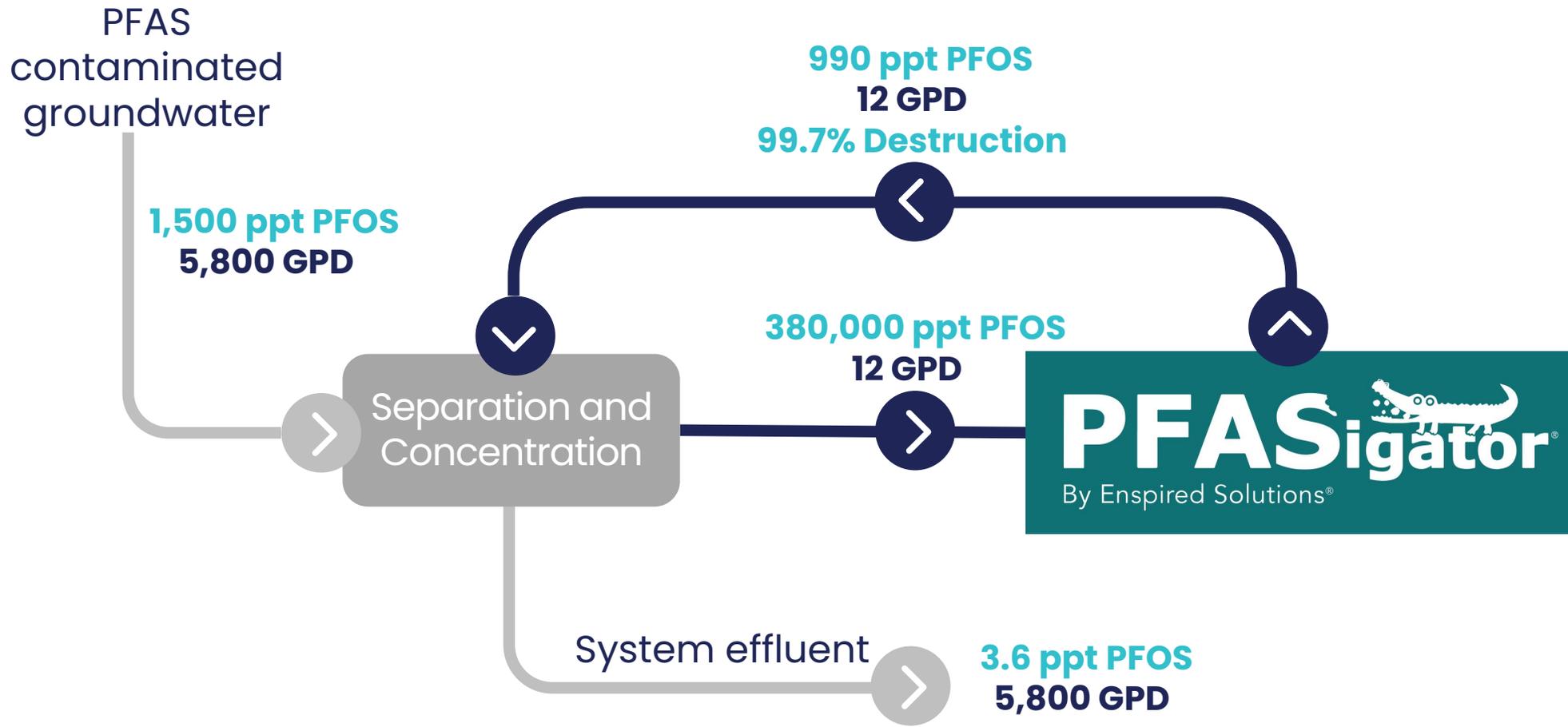


# Field Pilot Recirculating Process Flow

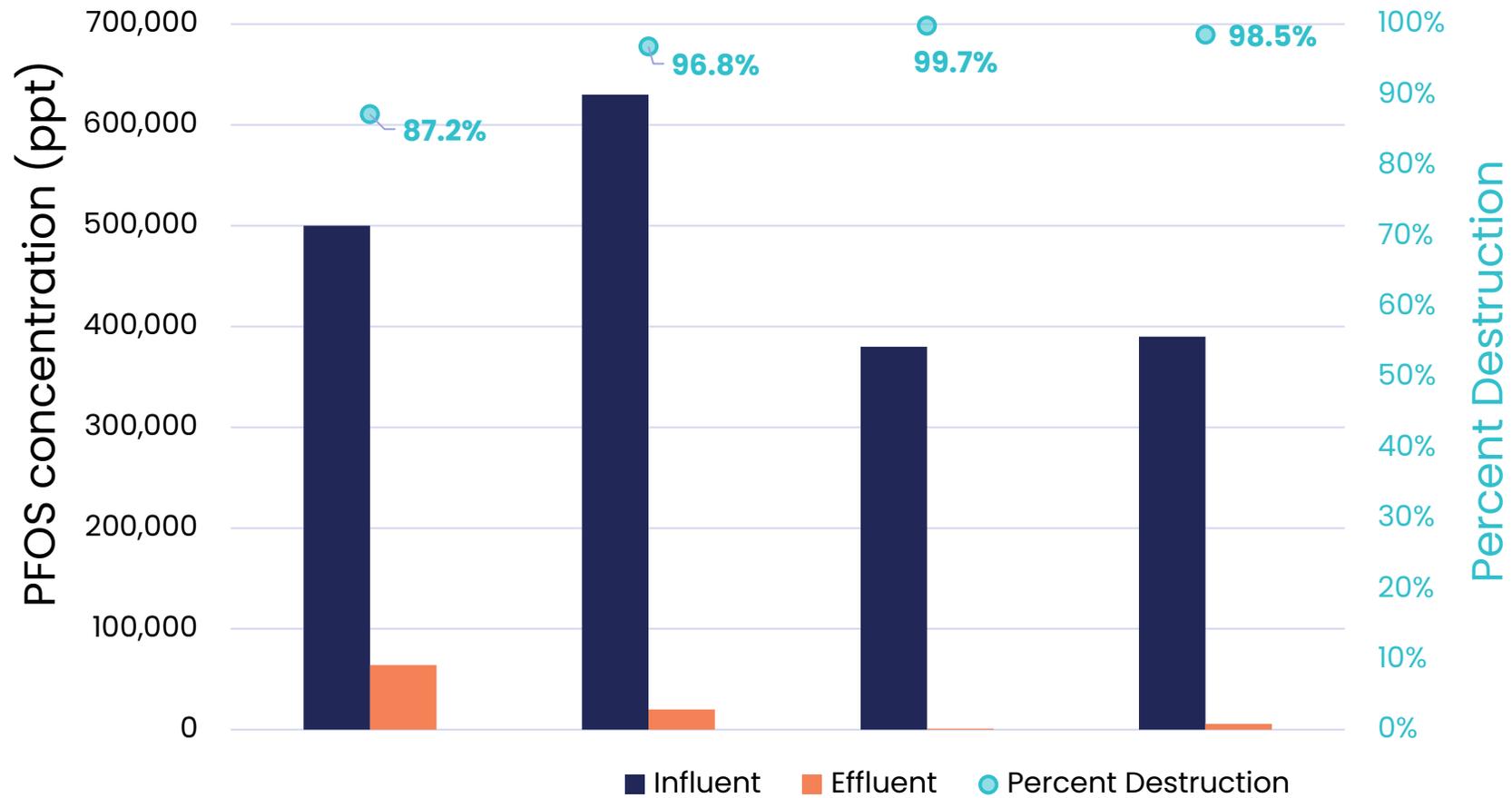




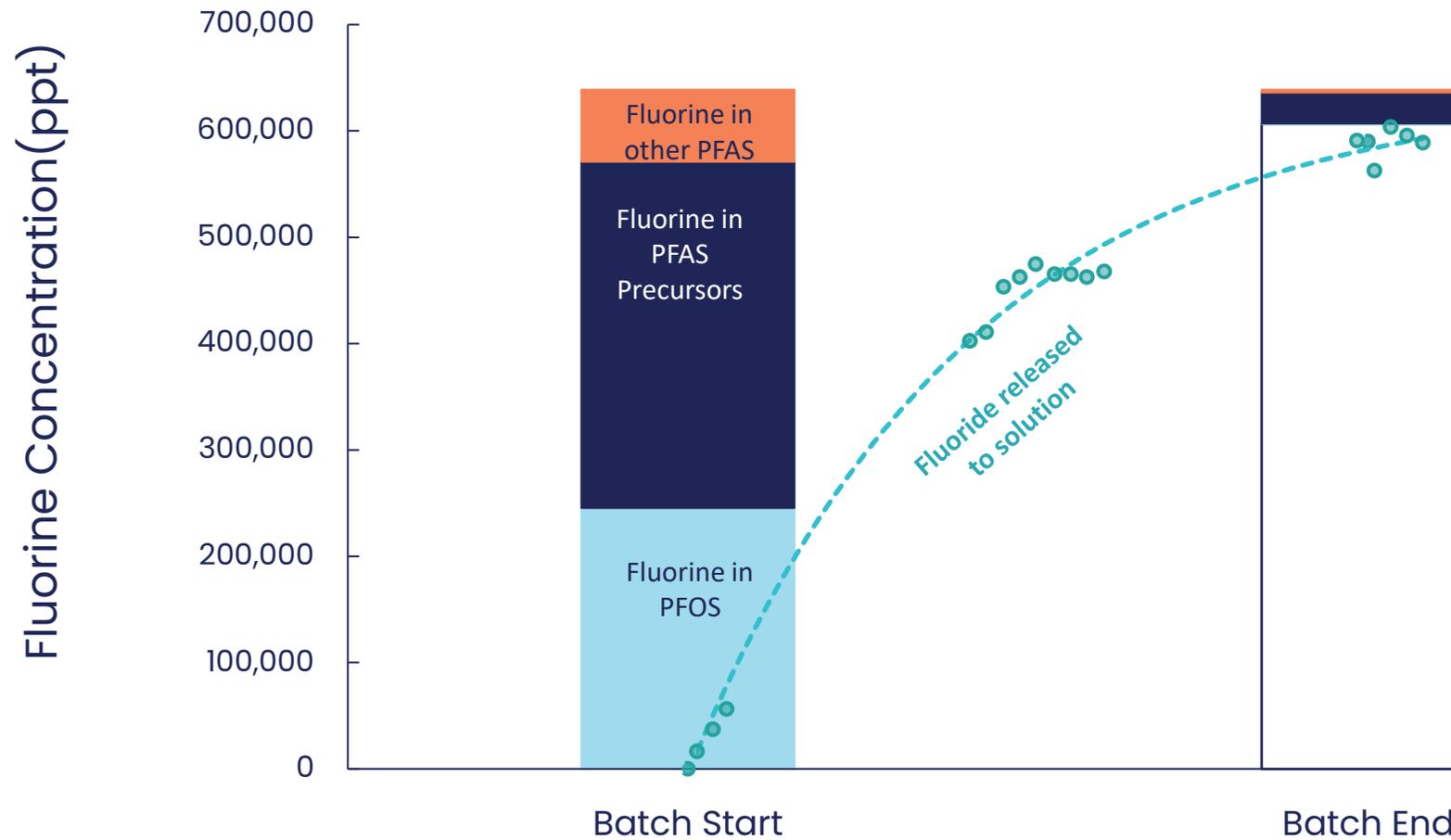
# Field Pilot PFOS Destruction Performance



# Field Pilot PFOS Destruction Performance



# Fluoride Mass Balance



## Fluorine/Fluoride Mass Balance

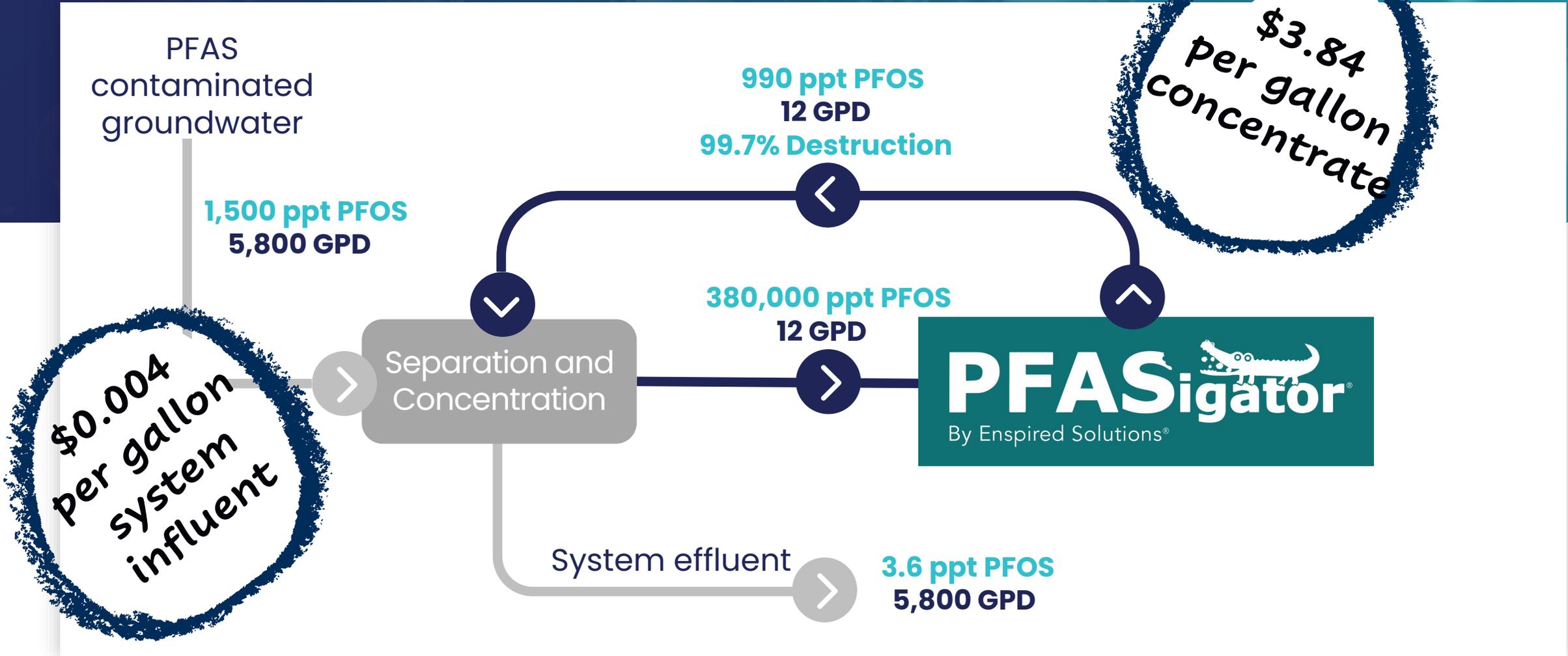
Fluorine - Start:  
638,847 ppt

Fluorine - End:  
32,517 ppt

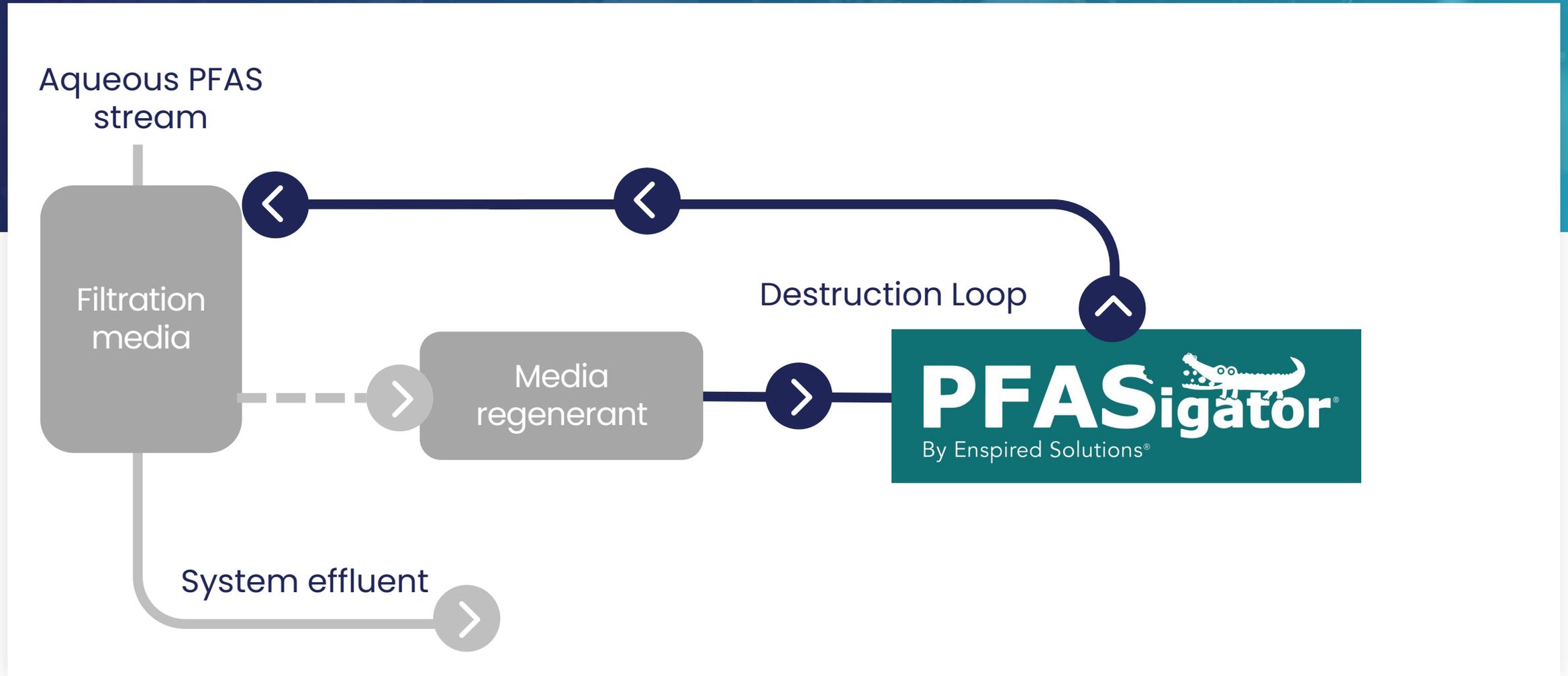
Fluorine Decrease:  
606,330 ppt

Fluoride Detected:  
580,600 ppt (97%)

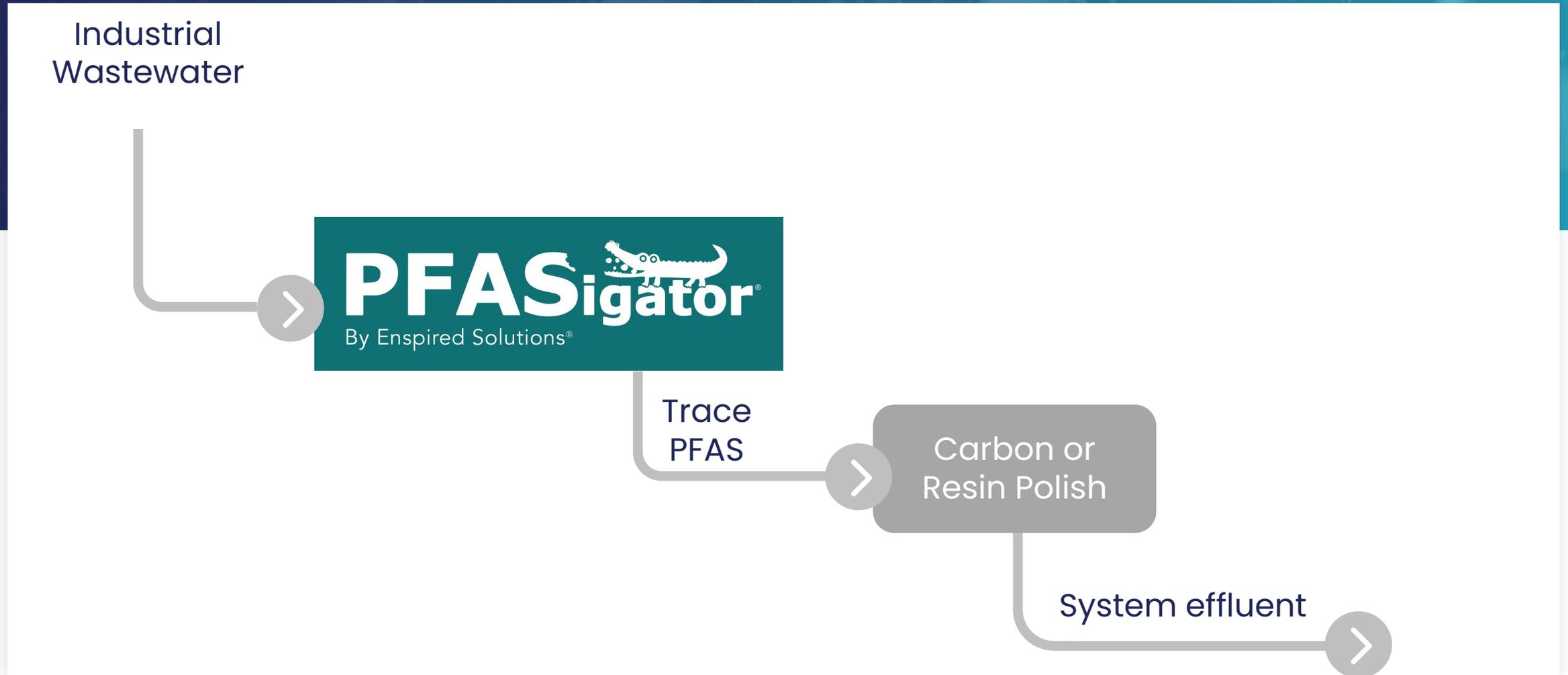
# Field Pilot PFOS Destruction Performance



# High Flow Recirculating Process Model (> Million GPD)



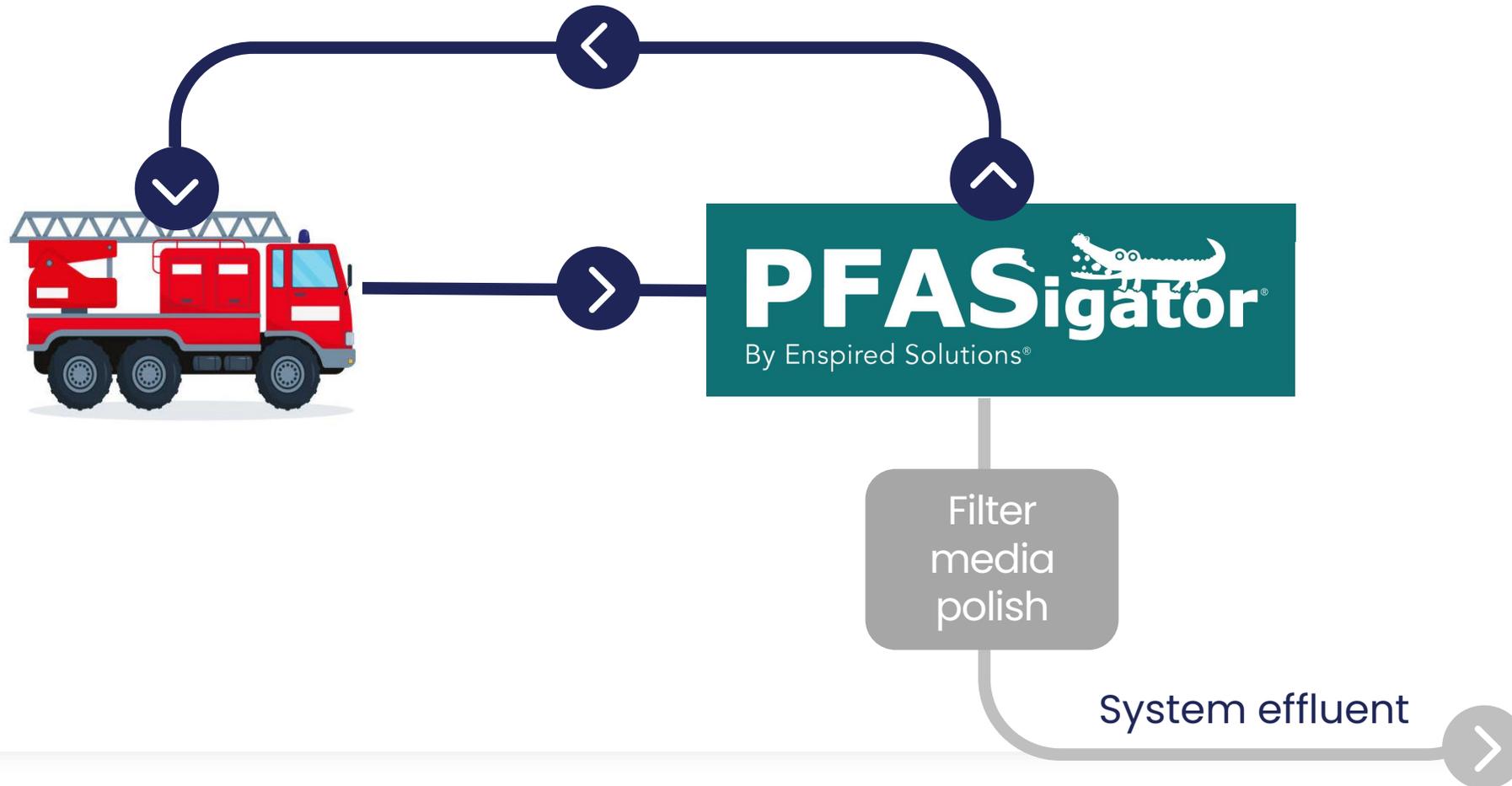
# Low Volume (200–400 GPD), High PFAS Concentration Treatment with Polish Model



Novel Approach  
for Firetruck & Fire  
System  
Decontamination



# Recirculating Fire System Decontamination



# Firetruck Decontamination

**20** times PFAS removed and destroyed compared to a single water rinse



Minimum firetruck downtime

Simultaneous cleaning and destruction

No waste left on-site

PFAS removal maximized and rebound minimized

Process meets or exceeds existing guidelines

# Advantages of Enspired Solutions' Photo-activated Reductive Defluorination

Low Energy Use

Modular Design

Tunable Reaction

Small Footprint

No Toxic Byproducts

**PFASigator**  
By Enspired Solutions®

Familiar Equipment

Zero PFAS Off-site

Automated

Safe

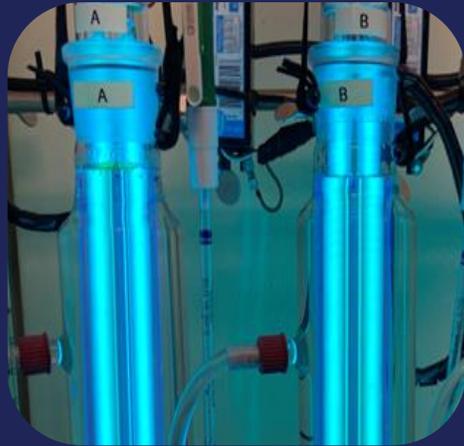
Remote data monitoring



# PFASigator Implementation Roadmap



**ENSPIRED**  
SOLUTIONS™



Screening Test

Treatability Test

Field Pilot

Equipment  
Sale/Lease





GENNETT  
USDOT  
600382

PFASigator  
By Enspired Solutions



LEARN MORE AT  
EnspiredSolutions.com



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Thank you!

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