# INVICTA – WATER







Invicta Water revolutionizes water purification through advanced materials science, ensuring clean and safe water for all. Our mission is to eradicate harmful chemicals from all water sources by harnessing the power of materials science. We believe every person deserves access to clean water, and we are committed to making this a reality.



- →Founded in Burlington, NC (2023)
- → Deep North Carolina Roots

### The PFAS Problem



#### ★ Widespread & Persistent

Harmful contaminants found in the water, soil, and air

- → Pose significant health risks
- → Linked to cancer, liver damage, immune suppression, infertility, and developmental delays
- → 98% of Americans have PFAS in bloodstream

#### Destruction Challenges

- → Difficult to break down and destroy
- → Bioaccumulates in humans and animals
- → Persist in the environment

#### Increasing Regulatory Burden

- → Municipalities face increasing regulation of drinking and wastewater
- → EPA has imposed strict limits:
  - ▶ 4 PPT PFOA & PFOS
  - > 10 PPT (PFHxS, PFNA, HFPO-DA)

#### **Removal Limitations**



- → Current and legacy methods have had mixed success and are costly
- → Existing methods trap PFAS and generate hazardous waste, creating costly, unsustainable disposal challenges

# Massive Remediation Costs



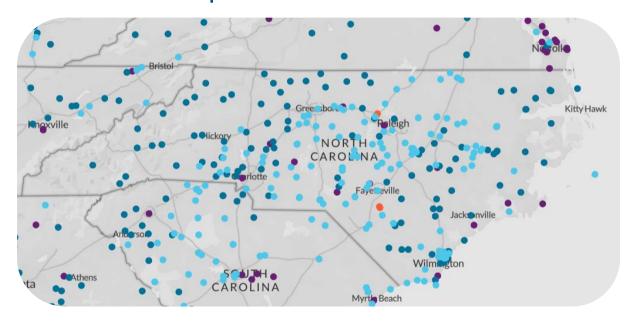
→ The U.S. is expected to spend \$1 trillion on PFAS cleanup over the next decade



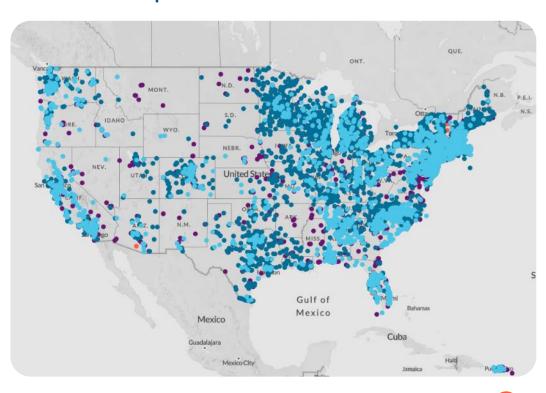


- $\rightarrow$  PFAS tap water contamination in > 7,457 locations
- →83% of sampled waterways
- → Elevated PFAS affects 200M people in the US

#### NC Map of PFAS Contamination



#### **US Map of PFAS Contamination**



- **Drinking Water Above Proposed Limit**
- **Drinking Water Below Proposed Limit**

Other Known Sites

Military Sites



## How it Works



# Stripping

- → Removing PFAS from Waterflow
- → Separation of clean water from dirty water

- ➤ Applicable to PFAS
- > Applicable to other chemicals (opens other markets)



Discharged back to the water supply



#### Step 2 Enrichment

- → Reducing the volume of water
- →Increasing the concentration of PFAS



#### Step 3 Destruction

- → PFAS adsorbs to boron nitride (BN) crystals
- →BN crystals exposed to UV light which causes catalytic reaction that breaks down PFAS
- →Treated water leaves no toxic or harmful byproducts behind





## **Pilot Success**

# Results from recent pilots of Invicta's water treatment system

Complete Removal in Drinking Water Sources

Pittsboro & Burlington, NC

**100%** Reduction

(PFOA, PFOS, PFHxS)

Complete Removal in Reverse Osmosis Waste

Raleigh, NC

**100% Reduction** 

(PFOA, PFOS, PFHxS, PFNA)

Significant Reduction in Industrial Wastewater

South Carolina Industrial Process

**98.7%** reduction (PFOA)

**100%** reduction (PFOS, PFHxS, PFNA)

Significant Reduction in Industrial Wastewater

ensuring full regulatory compliance

Wake Forest, NC

99.7% reduction (PFOA)

**100%** (PFOS, PFHxS)

Significant reductions in PFAS levels were achieved, with most locations reaching 100% removal, and all post-treatment values falling well below EPA limits,







Pittsboro, NCTown of PittsboroDrinking Water



- Cary, NC Town of CaryDrinking Water
- Wake Forest, NC
   Private Property
   Remediation of former Textile Mill
- Burlington, NC
   City of Burlington
   Wastewater\* (waiting for final DEQ approval)

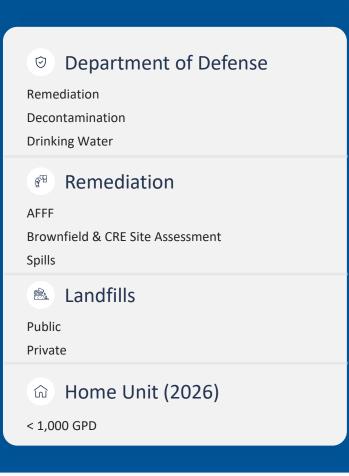
- Spartanburg County, SC
   Manufacturing
   Industrial Wastewater
- Southeast, US
   Multiple Customers

   Reverse Osmosis Waste
- Laurens County, SC MunicipalityDrinking Water





**Drinking Water Publicly Owned Treatment Works Community Wells** Wastewater **Publicly Owned Treatment Works Private Processors Industrial Dischargers** Textiles Metal Finishing Food and Beverage Production Semiconductors **Chemical Industry** 



**Waste Processing Reverse Osmosis** IX INVICTA WATER Destroying **PFAS** Forever

# INVICTA – WATER

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