PFAS and the Sweeney Water Treatment Plant

October 2018

Cape Fear Public Utility Authority

Reducing Exposure to PFAS Compounds in Drinking Water

- Current regulatory framework for drinking water is not sufficient.
- Additional emerging contaminants are being detected.
- Scientific research on PFAS, like GenX, suggests that reducing exposure protects health.
- An effective response to PFAS includes source control and advanced water treatment.
- CFPUA has developed long-term and interim solutions for PFAS reduction.

Regulating Drinking Water: How Does the Current System Work?

1

The Safe Drinking Water Act authorizes the Environmental Protection Agency (EPA) to set consistent standards for our nation.

2

Groups like the N.C. Department of Environmental Quality (NCDEQ) enforce these standards at the state level.

3

The EPA researches health effects and develops new drinking water rules, while NCDEQ regulates drinking water providers.

4

Water systems –like CFPUA- operate under EPA and NCDEQ rules by:

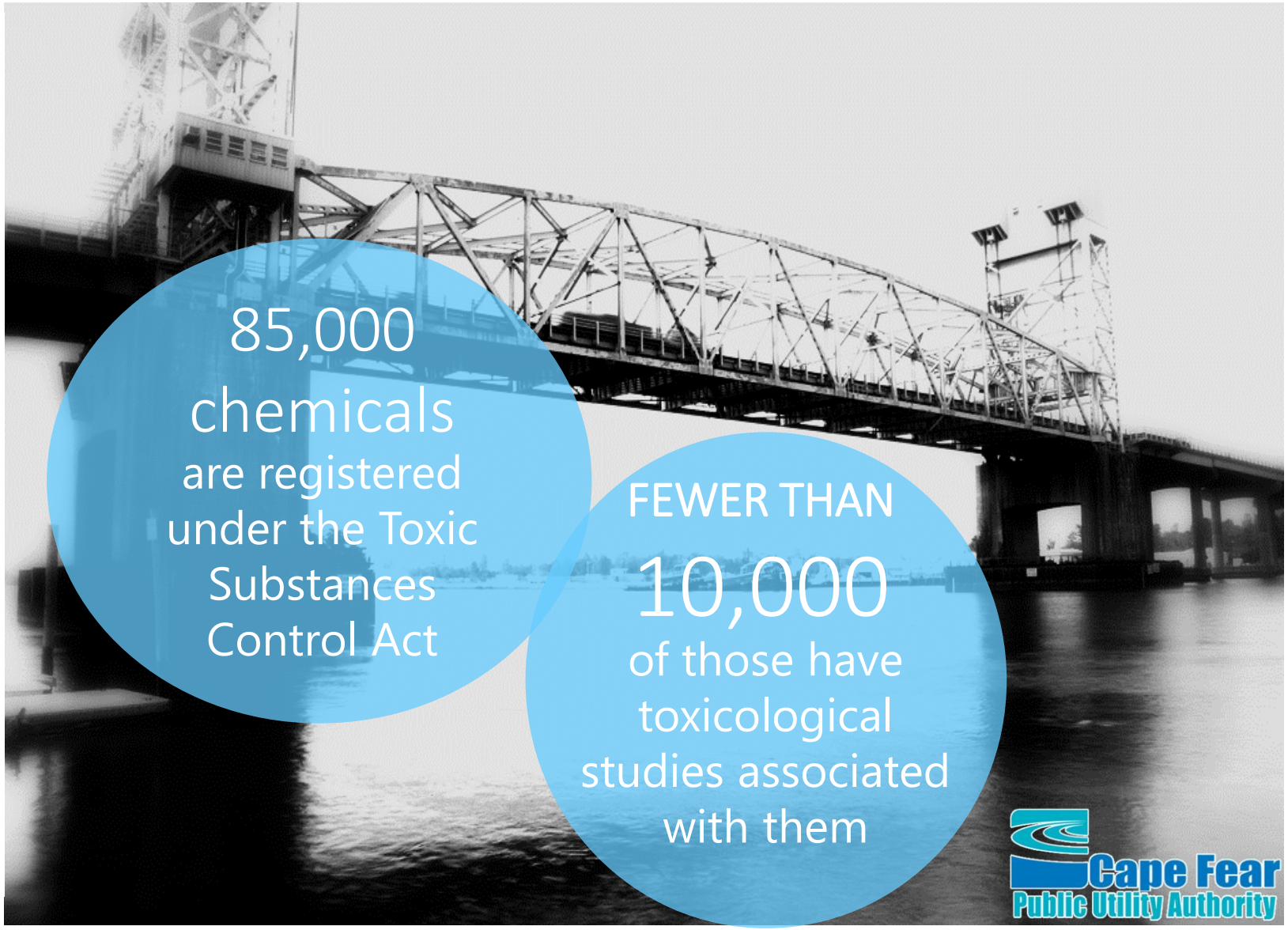
- Regularly monitoring and treating water to the highest standards.
- Issuing public notices if water does not comply with EPA standards.

5

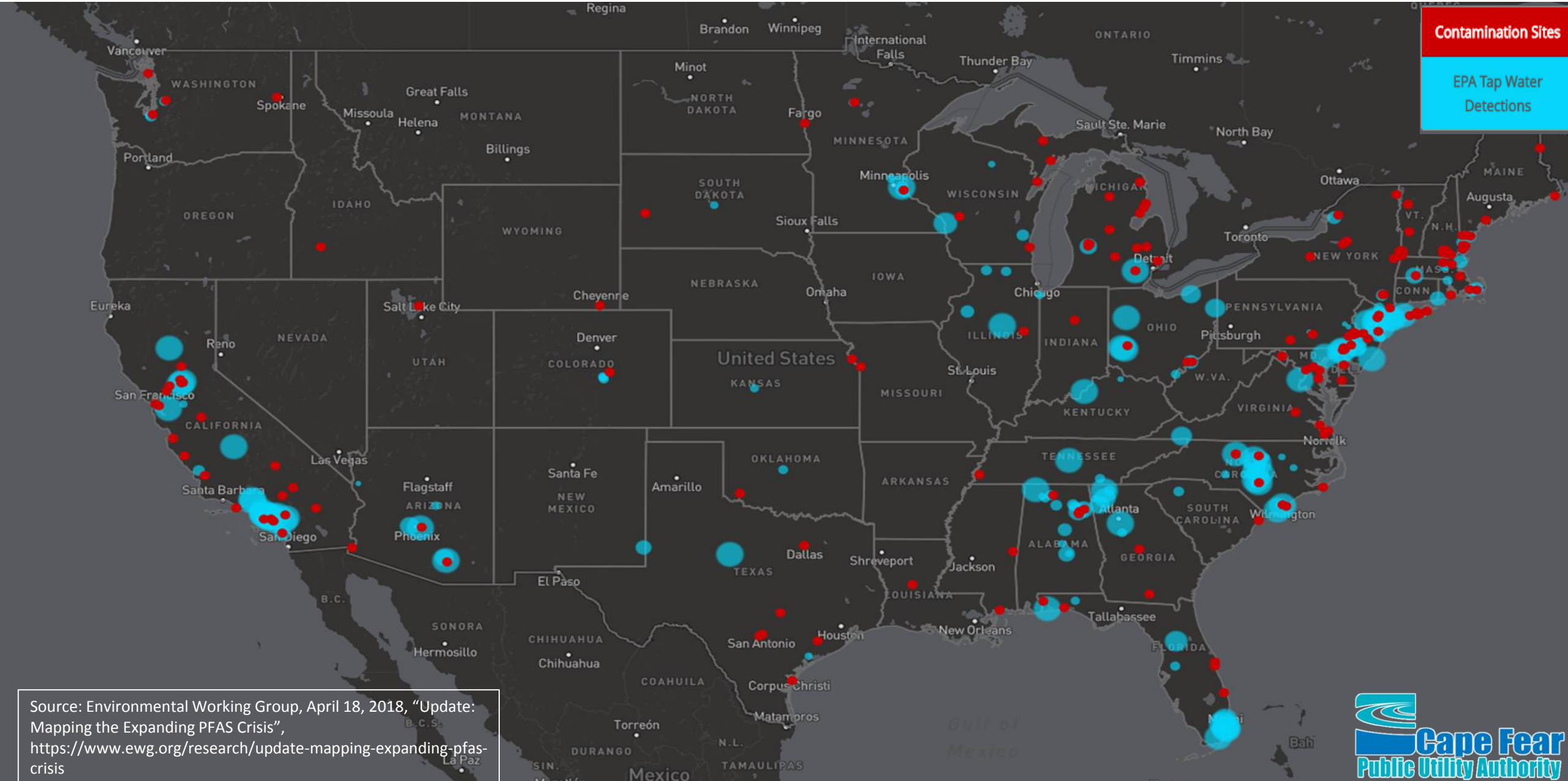
At least once every 6 years, the EPA is required to review these regulations. Revisions are made to maintain or strengthen public safety.

Regulating Drinking Water: The Problem of Emerging Contaminants

- New chemicals are produced faster than drinking water regulations, surface water standards and health science can keep up.
- These new chemicals are being released to the environment before health data has been established and, in some cases, before commercial laboratories can even test for them.
- Per-and polyfluorinated compounds (PFAS), a class of chemicals including GenX, are just one type of emerging contaminant.



A National Problem: Where are PFAS Found in the United States?



Source: Environmental Working Group, April 18, 2018, "Update: Mapping the Expanding PFAS Crisis", https://www.ewg.org/research/update-mapping-expanding-pfas-crisis

Cape Fear Public Utility Authority

PFAS Implications: What Do We Know?

- There are multiple PFAS in the Cape Fear River:
  - Five additional PFAS have now been identified by researchers at UNCW.
- Toxicology studies exist for only a few of the PFAS detected in drinking water.
  - Little is known about the impacts of individual PFAS.
  - Little is known about the impacts of exposure to multiple PFAS.
- Given that there is still much we do not know, public health experts agree that it is prudent to reduce exposure to PFAS.

Cape Fear Public Utility Authority

Protecting Public Health: How Can We Most Effectively Respond to PFAS?

Source Control

+

Advanced Water Treatment

=

Clean water for all designated uses

Cape Fear Public Utility Authority

Source Control in North Carolina

- Established method to measure 14 PFAS in drinking water.
- Developing human health toxicity value for GenX.
- Will initiate steps to evaluate the need for a maximum contaminant level (MCL) for two PFAS compounds.

Environmental Quality

- Began investigation of Chemours facility and its immediate surroundings.
- Required Chemours to stop discharge of waste water containing GenX.
- Regularly samples for PFAS levels in air, ground water and the Cape Fear River.

Cape Fear Public Utility Authority

Reducing Exposure: The Role of Water Utilities

- 20% of total exposure to PFAS is assumed to come from drinking water.
- EPA has recommended actions utilities can take to help communities reduce their exposure through drinking water.
  - Regular monitoring
  - Advanced treatment options
  - Partnership with research organizations
  - Customer education and communication

Cape Fear Public Utility Authority

CFPUA

Action on

PFAS

Worked with:

- UNCW to identify new compounds
- NCDEQ to remain informed on regulatory actions
- NCDHHS to understand health impacts

Legal action against Chemours

"CFPUA filed a lawsuit in federal court, asking Chemours to cease discharges to the Cape Fear River containing per-fluorinated compounds. This lawsuit seeks to hold them accountable for expenses CFPUA has incurred as a result of their discharges."

Continuously monitored levels of PFAS in drinking water and posted results to our website

To share our experience with the public and other organizations, we participated in:

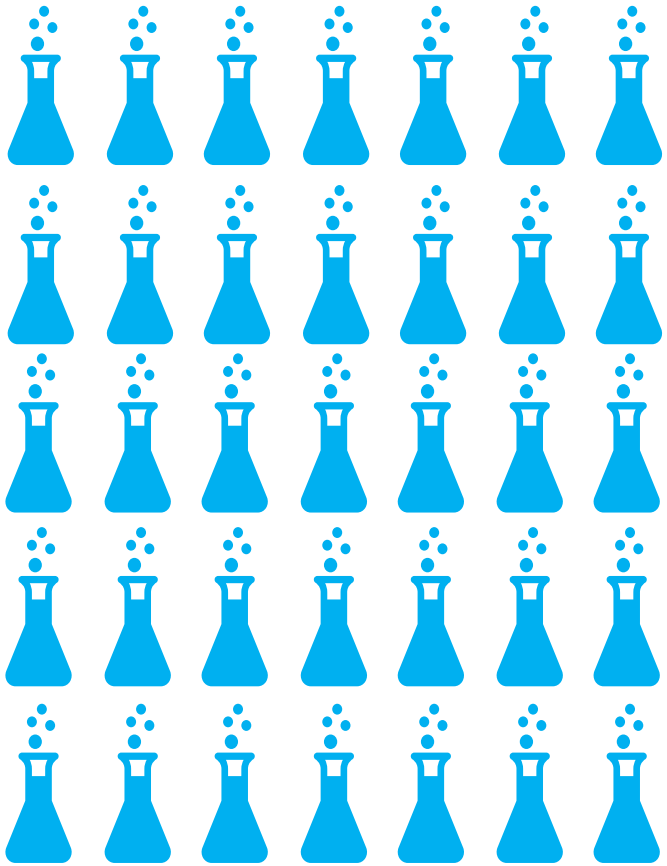
- Interviews
- Forums
- Industry Conferences

Conducted a full pilot study to investigate treatment options for our drinking water treatment plants

Set up free water stations in our groundwater areas

- Ogden Park
- Veterans Park

Regular Monitoring for PFAS in CFPUA Service Areas



CFPUA regularly monitors for **45** different PFAS

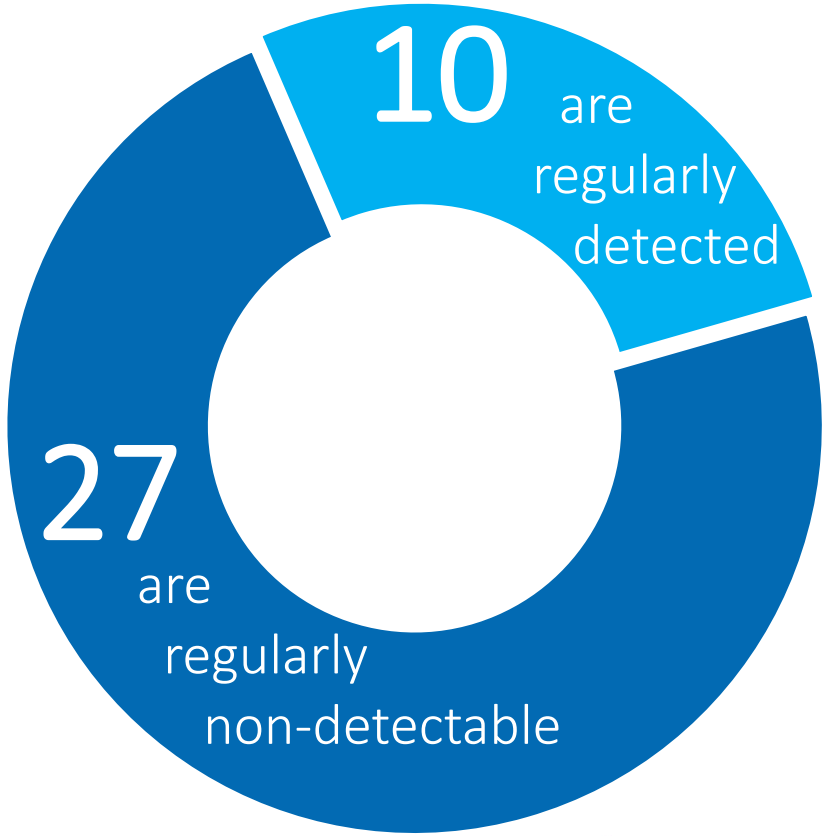
8

PFAS do not have testing standards and results must be estimated

37

PFAS have testing standards

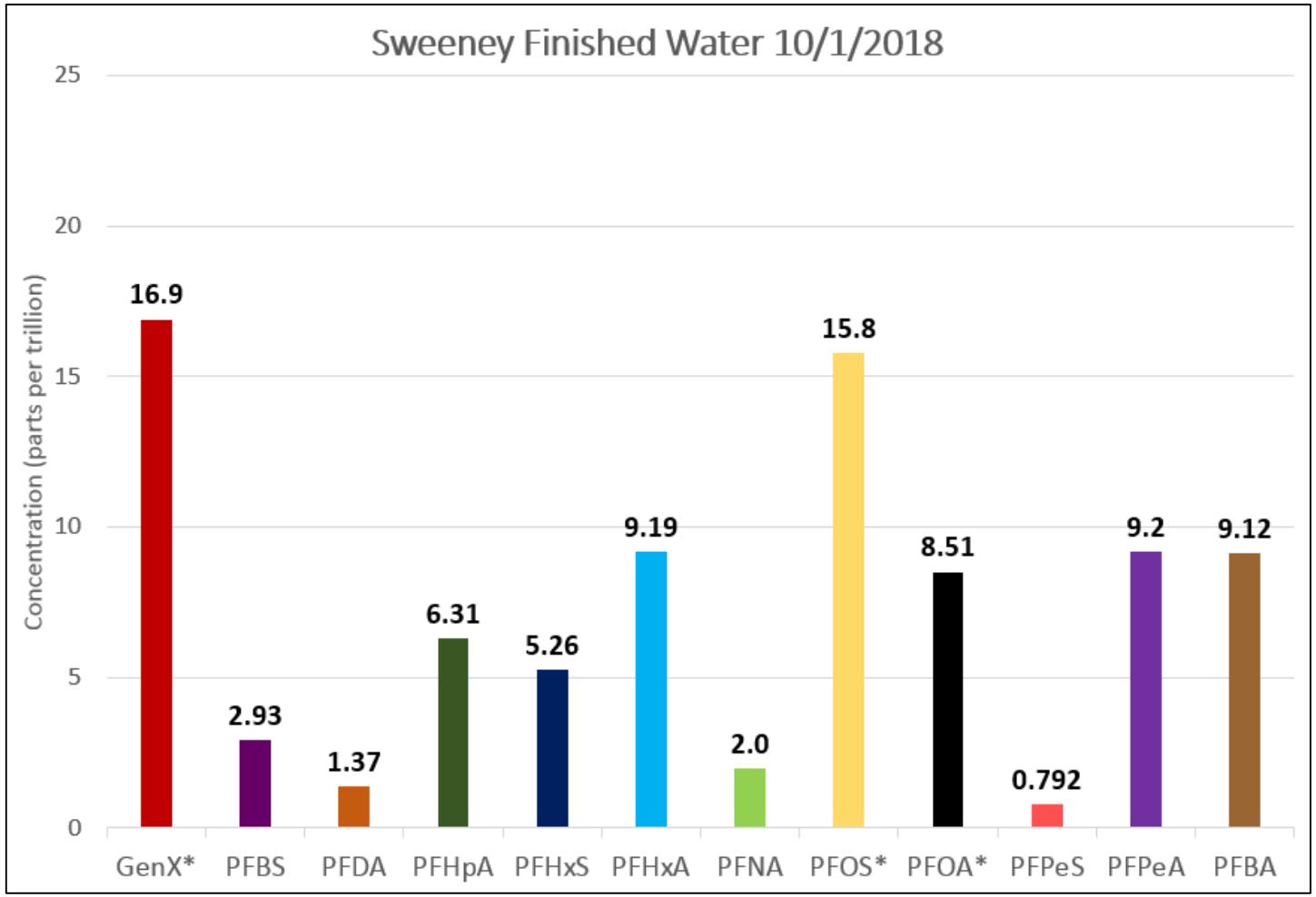
Of the **37** PFAS with testing standards:



Cape Fear Public Utility Authority

PFAS Levels in Water From the Sweeney Plant

- Levels of GenX have fallen significantly after source control measures were put into place.
- Chemours has stopped discharging but PFAS compounds are still detected in the River.
- We continue to obtain new standards and testing capabilities that allow us to measure for more PFAS.
- Combined level of PFAS on 10/1/2018 was **87.38 parts per trillion**.



*PFAS compounds that have health advisories or goals associated with them. North Carolina has set a health goal of 140 ppt for GenX. EPA has set a health advisory of 70 ppt combined for PFOA and PFOS.

Cape Fear Public Utility Authority

How Would an Upgrade at the Sweeney Plant Help?

- Reduce levels of PFAS compounds in drinking water using Granular Activated Carbon (GAC) filtration method.

- What are the benefits of GAC?
  - Reduces levels of PFAS in drinking water.
  - Removes PFAS from the environment.
  - Works with previous treatment investments made in the Plant.

- CFPUA Board Decision on October 10:
  - Design an upgrade for Sweeney Water Treatment Plant.
  - Pursue recovery of costs through legal action and grant applications.

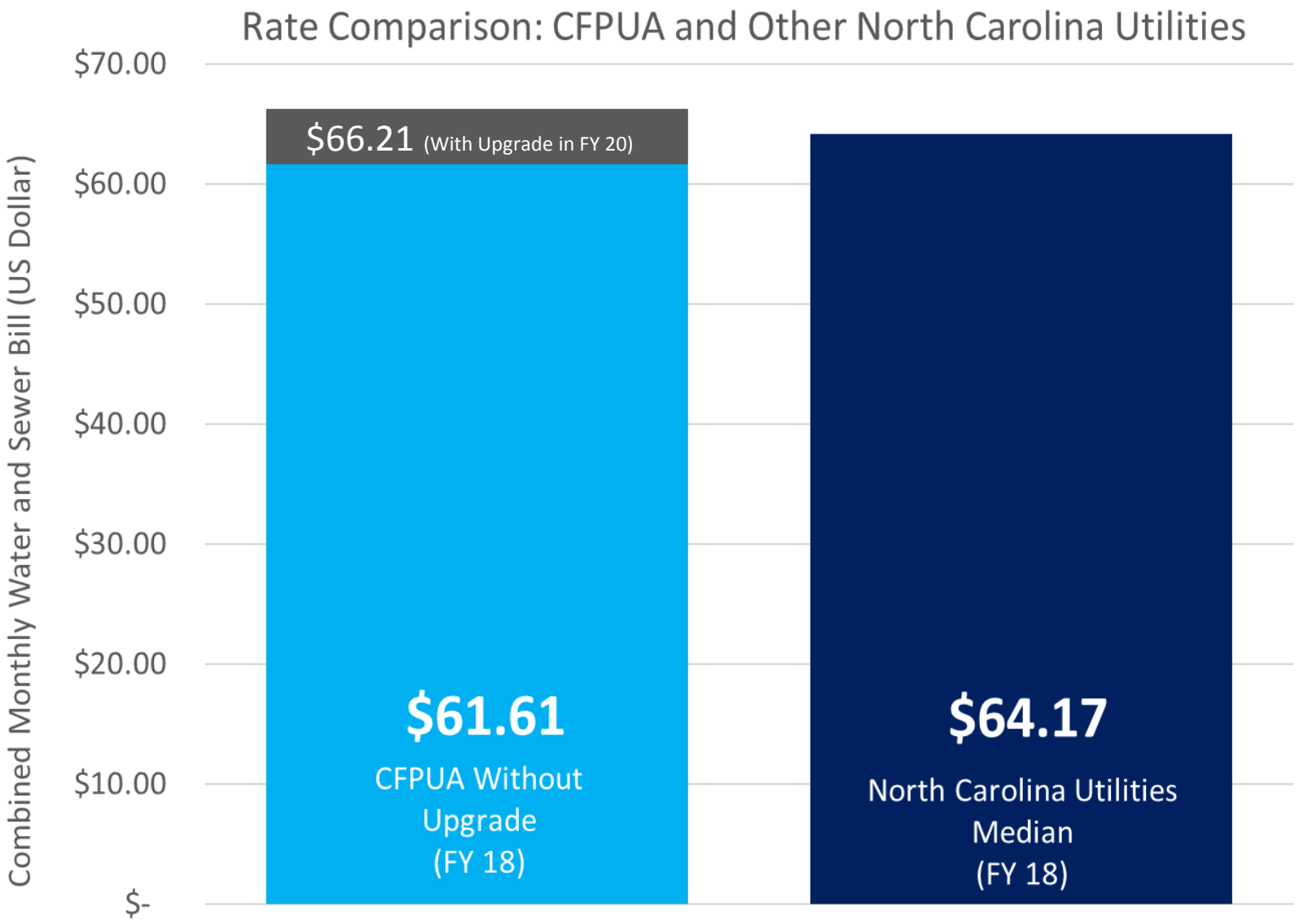
Cape Fear Public Utility Authority

How Does Addressing Source Water Contamination Affect Rates?

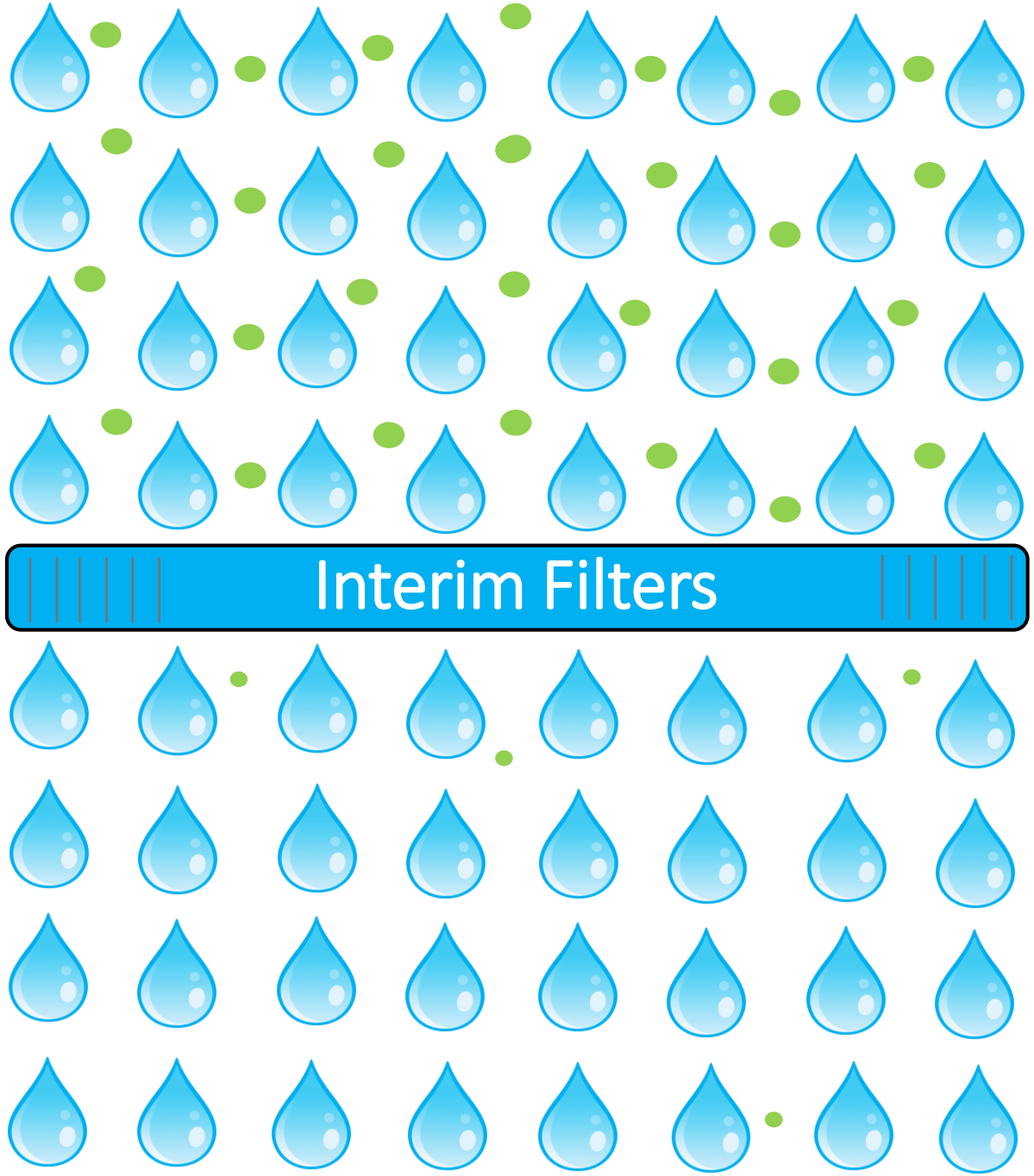
Capital: $46 million which translates to approximately $2.7 million in debt service annually over 25 years.

Operating: $2.9 million starting in FY22, increases thereafter proportional to increased flows.

Rates: Impact to average residential customer's monthly bill is approximately $2.50 starting in FY20 (debt service only) and approximately $4.60 starting in FY22 (debt service and operating costs).



Cape Fear Public Utility Authority



Interim Solution to Reduce PFAS

- What can we do to immediately reduce levels of PFAS in drinking water from the Sweeney Plant?
- CFPUA will utilize existing biological filters and frequently replace the media.
- This is only a temporary solution due to long term water demands in the Sweeney service area.

Cape Fear Public Utility Authority

Reducing Exposure to PFAS Compounds in Drinking Water

- Current regulatory framework for drinking water is not sufficient.
- Additional emerging contaminants are being detected.
- Scientific research on PFAS suggests that reducing exposure protects health.
- An effective response to PFAS includes source control and advanced water treatment.
- CFPUA has developed long-term and interim solutions for PFAS reduction.

Stay in the Know with CFPUA

- News Flash is a helpful tool that allows customers to subscribe to various text and email alerts from CFPUA such as:
  - GenX updates
  - Water quality information
- Our Drinking Water Quality page has information on:
  - The various system drinking water quality testing
  - Information on compounds found in drinking water
  - FAQs with links
- Our Emerging Contaminants page contains:
  - GenX timeline
  - Our presentations and publications on emerging contaminants
  - Testing results for:
    - PFAS
    - 1,4 Dioxane

Thank you

Email communications@cfpua.org for:

- Sweeney Water Treatment Plant tours
- HOA presentations
- School presentations