PFAS: The CFPUA Experience

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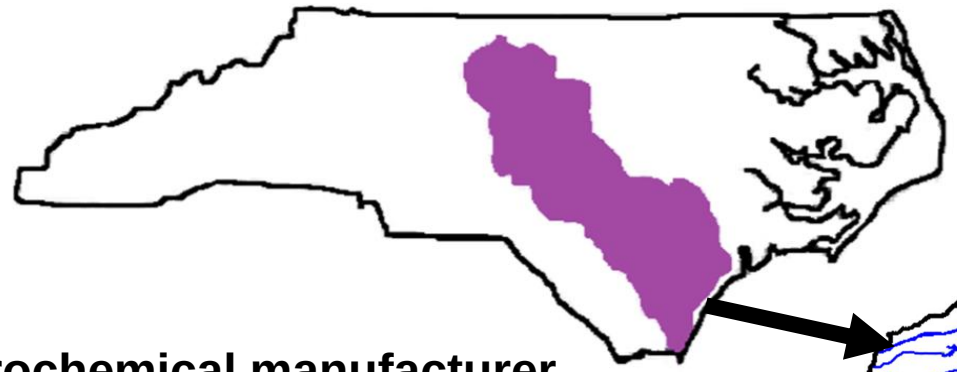
Cape Fear Public Utility Authority

April 24, 2025

Introduction to CFPUA

- Opened July 1, 2008
  - Merger of City of Wilmington and New Hanover County water and sewer services
- Public utility authority administered by an 11-member Authority Board
- Ratepayer-funded; not for profit
- FY2024-25 Operating Budget: $120 million
- 340+ employees
- Serve approximately 200,000 people in Wilmington and New Hanover County (some Pender County customers)
- Annually deliver 7 billion gallons of water
- Annually collect 6.6 billion gallons of wastewater
- Average water production: 19.2 million gallons per day

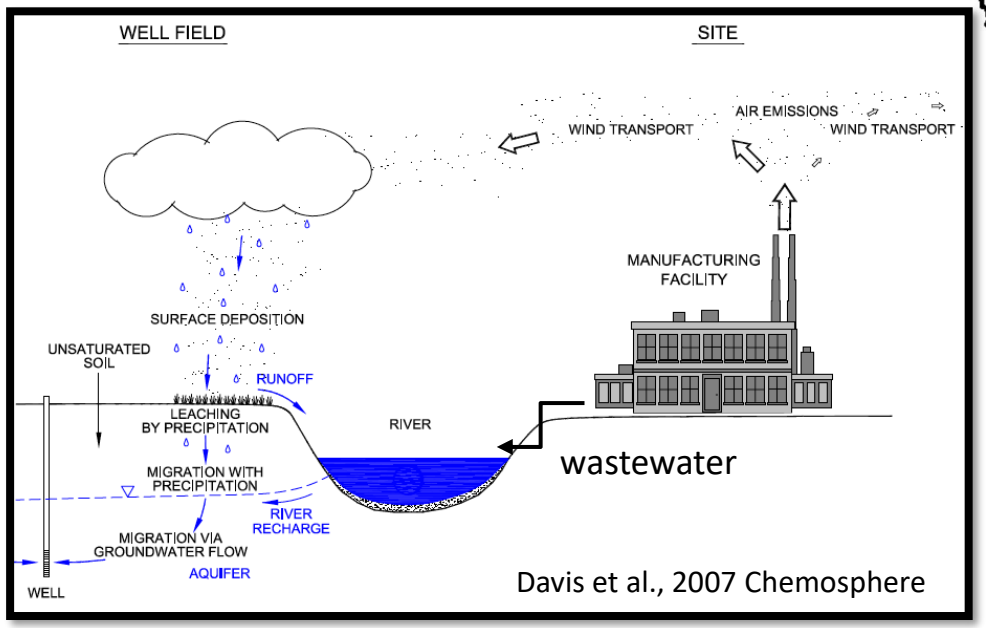
PFAS Manufacturing Above Water Source

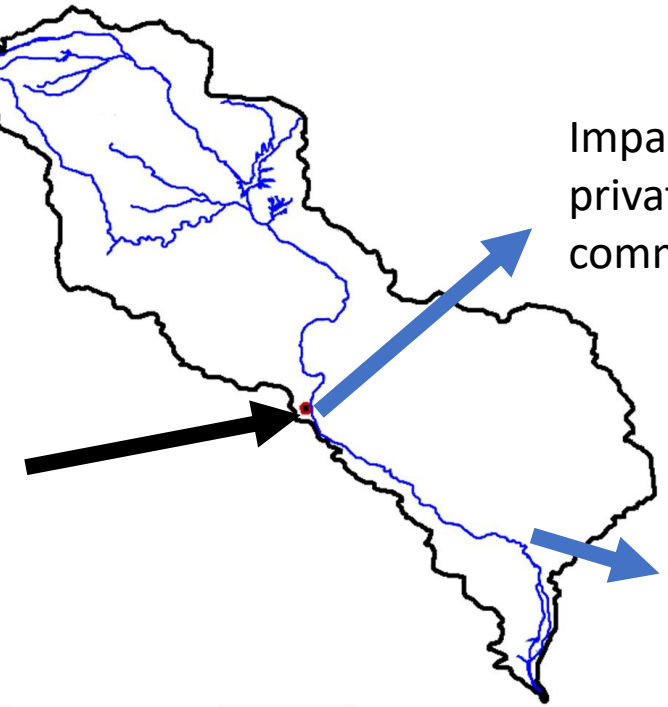


DuPont/Chemours Fayetteville Works Manufacturing Campus

Cape Fear River basin

Fluorochemical manufacturer

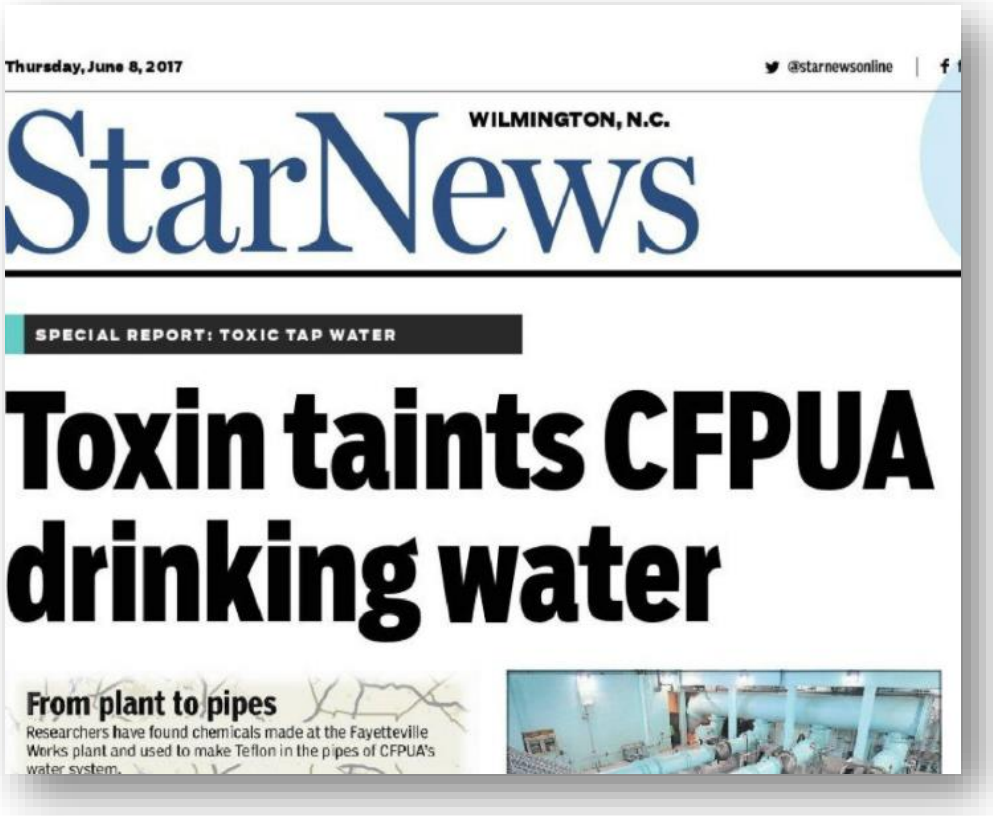




Impacted private well communities

Impacted urban and rural communities

2017: Five-year odyssey begins



Thursday, June 8, 2017 @starnewsonline

WILMINGTON, N.C.

StarNews

SPECIAL REPORT: TOXIC TAP WATER

Toxin taints CFPUA drinking water

From plant to pipes

Researchers have found chemicals made at the Fayetteville Works plant and used to make Teflon in the pipes of CFPUA's water system.

Wilmington StarNews front page, June 8, 2017

- Sparked crisis of confidence in safety of drinking water
- Communitywide call for steps to address contamination
- Legal action against Chemours and DuPont (ongoing)
- CFPUA staff directed to identify and implement effective treatment solution as promptly as possible

PFAS Solution Timeline

Find GenX PFAS

June 2017

Study & Pilot Test

Aug 2017

Design and Fund

Oct 2018

Construct

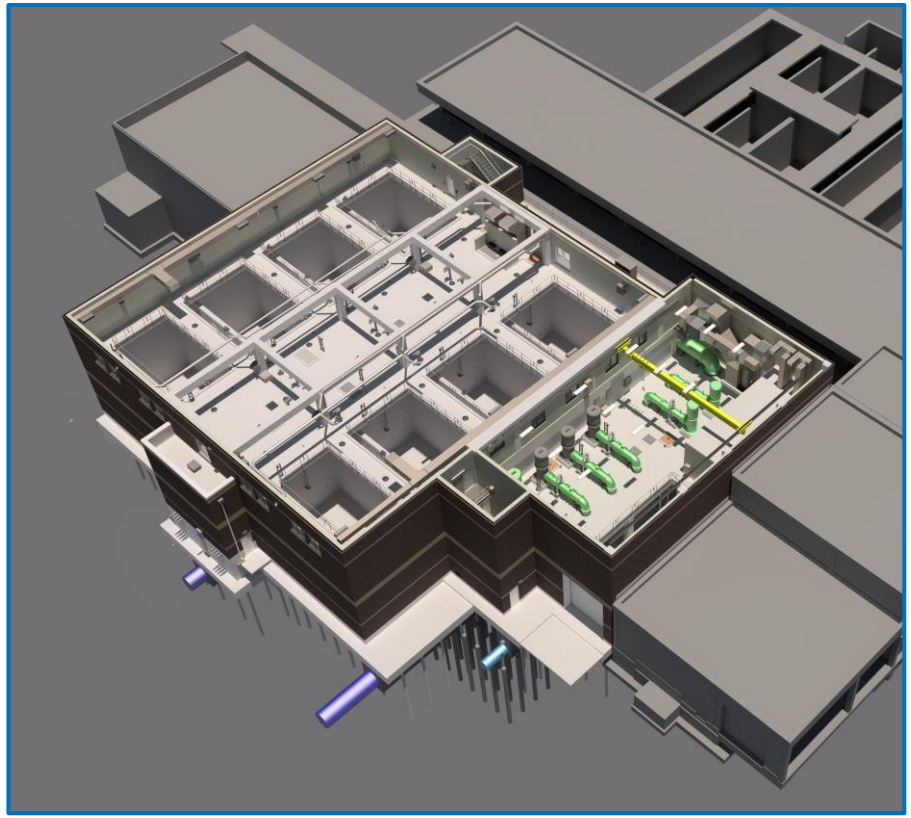
Nov 2019

Startup

Oct 2022

Contactor Design Summary

Granular Activated Carbon Contactor Design Summary	
Number of GAC Contactors	8
Design Flow Rate (each)	3,823 GPM
Type	Concrete Basin
Size (each)	22 x 38 feet
GAC Media Depth	12.5 feet
Contact Time at Design Flow	20 minutes



GAC Treatment Operations

- GAC removes PFAS from water through a process called adsorption (with a “d”)
  - Water flows over the GAC and PFAS compounds cling to the surface area of GAC particles
- Over time as GAC adsorbs PFAS, there is less surface area to treat water
- GAC media must be periodically regenerated to maintain high level of PFAS removal
- **Budgeted for 10-11 GAC media exchanges per year**
  - Filters are drained one by one, and GAC removed
  - Carbon taken offsite by vendor for “regeneration” (PFAS destroyed by exposing GAC to extreme temperatures) and returned to Sweeney for reuse
  - 60-day turnaround per filter

First Federal PFAS Regulations

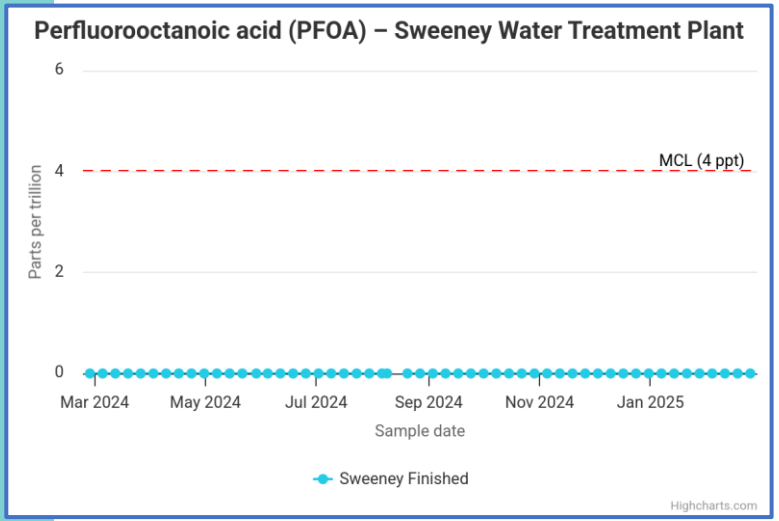
April 2024: EPA finalizes first National Primary Drinking Water Regulation for PFAS compounds

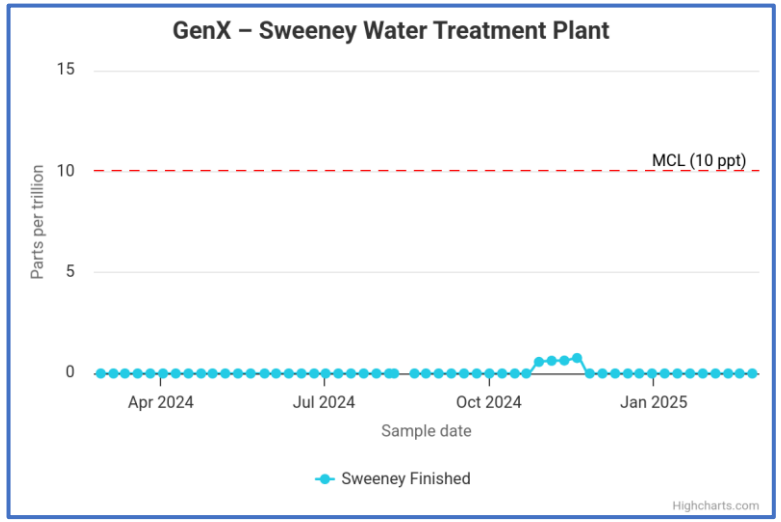
Chemical	Maximum Contaminant Level Goal (MCLG)	Maximum Contaminant Level (MCL)
PFOA	0	4.0 ppt
PFOS	0	4.0 ppt
PFHxS	10 ppt	10 ppt
HFPO-DA (GenX chemicals)	10 ppt	10 ppt
PFNA	10 ppt	10 ppt
Mixture of two or more: PFHxS, PFNA, HFPO-DA, and PFBS	Hazard Index of 1 (unitless)	Hazard Index of 1 (unitless)

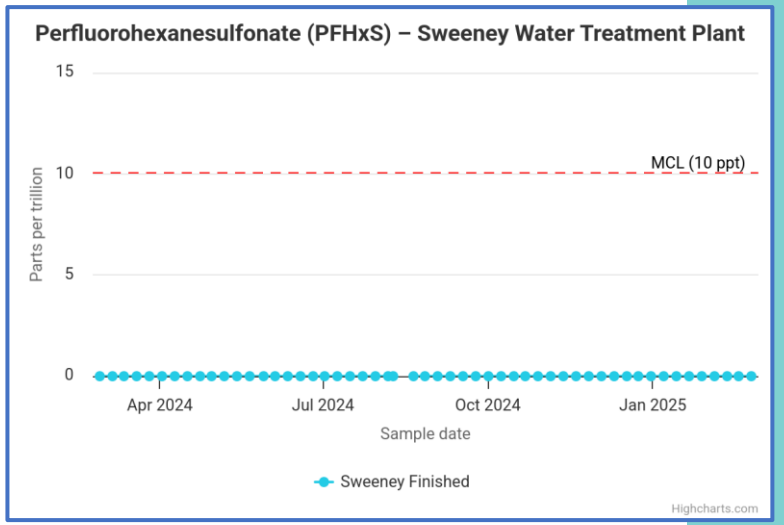
*Compliance is determined by running annual averages at the sampling point

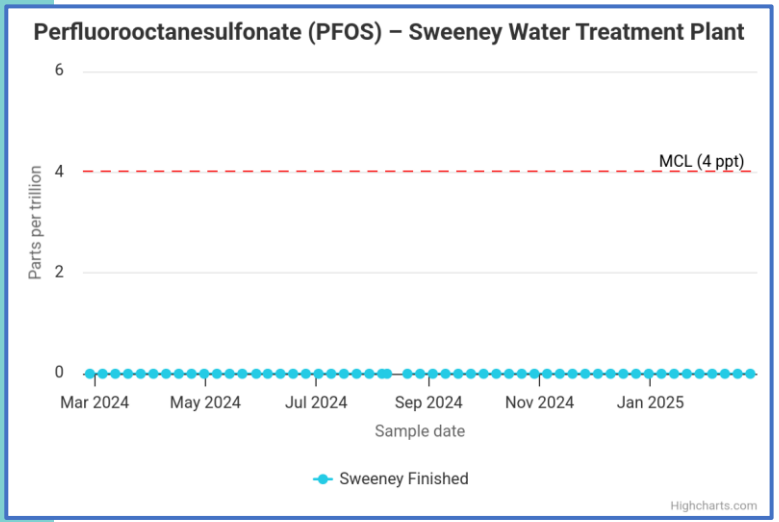
CFPUA is consistently meeting all limits set by the EPA's PFAS rule.

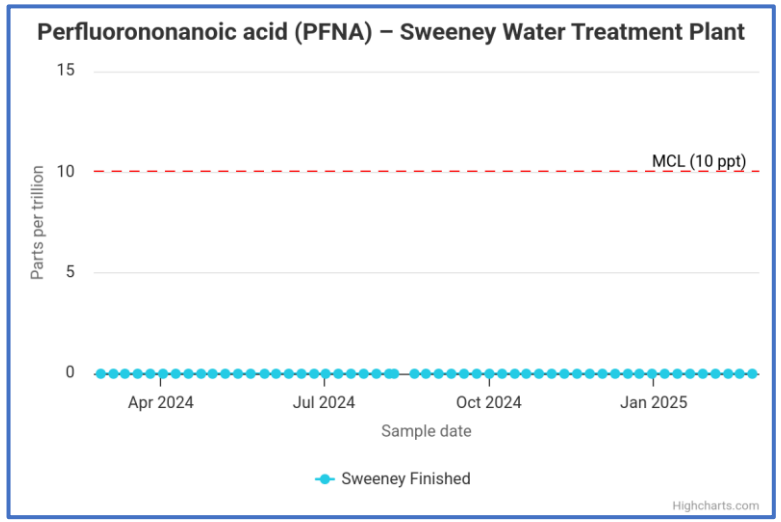
GAC Performance: PFAS MCLs and Hazard Index

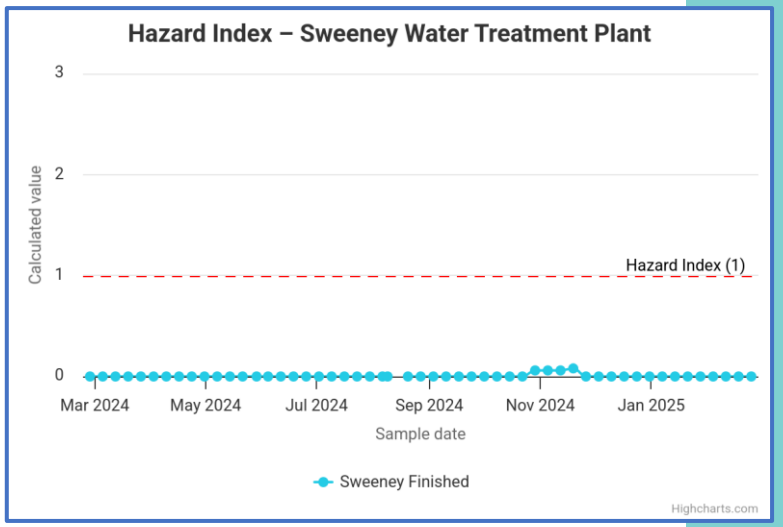












2023-Present: Ultrashort-Chain PFAS

- PFAS initially removed to at or near non-detectable levels in the finished water, but shortly afterwards we saw some breakthrough, especially from short-chain compounds.
  - PFMOAA primary driver, plus PFPrA
- Year One focused on optimization and learning to use and manage the facility.
  - Using PFMOAA as the indicator compound for filter changeout
- Developed more frequent filter changeout schedule, resulting in further reductions in PFAS.

Ultrashort-Chain PFAS

- CFPUA asked NCDEQ to develop Reference Doses (RfDs), Preliminary Health Goals (PHGs), and, if necessary, MCLs for Chemours-specific compounds like PFPrA and PFMOAA.
- Partnering with N.C. Collaboratory to evaluate new novel sorbents to treat ultra-short chain PFAS. Pilot project testing began in 2024.
- 10-year Capital Improvement Project includes a project to reduce PFAS in the Richardson Plant's concentrate.
  - Programmed for Fiscal Year 2028
  - Estimated cost of $10 million
  - Would enhance drinking water treatment and reduce levels of PFPrA in finished drinking water

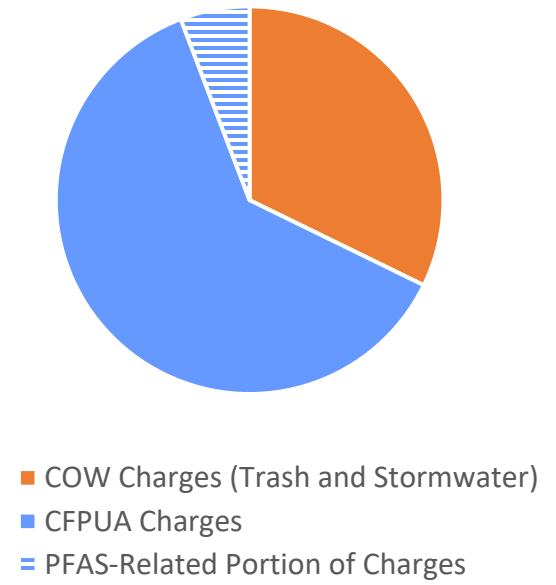
Elected officials visit the N.C. Collaboratory's PFAS pilot project at CFPUA's Sweeney Water Treatment Plant in 2024.

Impact on Bills

CFPUA PFAS-related expenses, June 2017 to February 2025: $81,826,887

- $43 million to construct GAC facility
- Annual operating costs for GAC filters:
  - $3.7 million for Fiscal Year 2023
  - $5+ million for subsequent years
- Biosolids landfill disposal: $4.9 million
- Legal: $10.7 million

Average Monthly CFPUA Bill: ~$75
(Water and Sewer charges only)



Lawsuit Against Polluters

- In October 2017, CFPUA filed a lawsuit against Chemours and Dupont in federal district court for the Eastern District of North Carolina.
- CFPUA and its ratepayers have spent millions of dollars on measures to address the impacts of the companies' PFAS releases, including $43 million for GAC filters at the Sweeney Water Treatment Plant.
- CFPUA believes Chemours and DuPont, rather than our customers, should pay for those and other costs and damages related to the companies' actions.
- Trial date has not been set

Questions?