

Emerging and Legacy Compounds



Toxin taints CFPUA drinking water

By Vaughn Hagerty StarNews Correspondent

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Utility can't filter out chemical produced upriver at Fayetteville plant

WILMINGTON -- A chemical replacement for a key ingredient in Teflon linked to cancer and a host of other ailments has been found in the drinking water system of the Cape Fear Public Utility Authority (CFPUA), which cannot filter it.

Known commercially as GenX, the contaminating compound is made by the Chemours Co. at Fayetteville Works, a 2,150-acre industrial site straddling the Cumberland-Bladen county line along the Cape Fear River, about 100 miles upstream from Wilmington.



Publication (Knappe Study)

Legacy and Emerging Perfluoroalkyl Substances Are Important Drinking Water Contaminants in the Cape Fear River Watershed of North Carolina

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Publication Purpose

ABSTRACT: Long-chain per- and polyfluoroalkyl substances (PFASs) are being replaced by short-chain PFASs and fluorinated alternatives.

For ten legacy PFASs and seven recently discovered perfluoroalkyl ether carboxylic acids (PFECAs), it reported:

- (1) their occurrence in the Cape Fear River (CFR) watershed,
- (2) their fate in water treatment processes, and
- (3) their adsorbability on powdered activated carbon (PAC).

Per- and polyfluoroalkyl substances (PFASs)

PFASs (PFOA and PFOS) have been widely used in the manufacture of products that:

- ▶ keep food from sticking to cookware,
- ▶ make upholstered furniture, carpets and clothing resistant to soil, stains and water,
- ▶ make shoes, clothes and mattresses more waterproof,
- ▶ keep food packaging from sticking to food, and
- ▶ help fight fires at airfields and other places where petroleum-product-based fires are a risk.

PFOA and PFOS – commonly referred to as C8

PFASs

- ▶ PFASs are widespread around the globe.
 - ▶ They are *persistent* in the environment – Possible exposures to PFASs manufactured months or years in the past.
- ▶ **Polyfluoroalkyl Chemicals in the U.S. Population: Data from the National Health and Nutrition Examination Survey (NHANES) 2003–2004 and Comparisons with NHANES 1999–2000**
 - ▶ Scientists detected PFASs in over 98% of the over 2000 blood samples collected during the survey

Why be Concerned?

- ▶ Cape Fear River services at least three NC counties for drinking water.
- ▶ Cancer (for PFOA,) and
- ▶ Thyroid hormone disruption (for PFOS).
- ▶ Changes in cholesterol,
- ▶ Developmental effects to fetuses during pregnancy or to breastfed infants (e.g., low birth weight),
- ▶ Liver effects (e.g., tissue damage),
- ▶ Immune effects (e.g., depressed antibody production in response to vaccination)

Investigation period

- ▶ Friday June 9, New Hanover County held discovery conference call with Chemours to discuss chemical and its release
 - ▶ The company describes GenX as being easier for humans to eliminate than PFOA and with a “favorable toxicological profile”
- ▶ Following week
 - ▶ DHHS releases GenX Health Effects Summary
 - ▶ Multiple meetings with CFPUA, County Leadership, EPA
 - ▶ Began daily conf. calls with Public Health, DEQ, DHHS

Cont.

- ▶ Thursday June 15, meeting with Chemours in New Hanover County
 - ▶ GenX is fully captured in its production process
 - ▶ Discharge into the environment is as a byproduct of another line producing vinyl ether
 - ▶ Consent order (permit) did not specify by-product of vinyl process (presented)
 - ▶ The liquid by-product could be captured and incinerated elsewhere
- ▶ DEQ water sampling along the Cape Fear River began
 - ▶ Raw and finished water, large water supply wells
 - ▶ Delivered to RTP Lab, Test America- replicating Knappe study

Reclamation

Chemours Announces Voluntary Actions to Respond to North Carolina Community

June 20, 2017

Additional Measures Will Eliminate Byproduct GenX Wastewater Emissions From Fayetteville Site in North Carolina

Wilmington, Del., June 20, 2017 – The Chemours Company (Chemours) (NYSE: CC) today announced that it will capture, remove, and safely dispose of wastewater that contains the byproduct GenX generated from fluoromonomers production at its manufacturing plant in Fayetteville, North Carolina. Trace GenX amounts in the Cape Fear River to date have been well below the health screening level announced by the North Carolina Department of Health and Human Services on June 12, 2017, and the company continues to believe that emissions from its Fayetteville facility have not impacted the safety of drinking water. However, Chemours will take these additional steps, embracing its role as a significant employer and member of the community. The capture and removal of this wastewater will commence on June 21, 2017. This action complements the abatement technology already put in place at the Fayetteville site in 2013.

NC DHSS Releases Cancer Data

- ▶ North Carolina Central Cancer Registry during 1996–2015.
- ▶ Pancreatic, liver, uterine, testicular and kidney cancers
- ▶ The incidence rates were compiled for the entire 20-year period and separately for each 5-year interval therein (1996–2000, 2001–2005, 2006–2010 and 2011–2015)
- ▶ Overall, cancer rates in the four counties were similar to state rates

New Hanover County had a higher 20-year rate of testicular cancer during 1996–2015 and a higher 5-year rate of liver cancers during 2006–2010.*

*Rates of both cancers were similar to the state rates during the most recent period (2011–2015)

- ▶ Brunswick County had a lower 20-year rate of pancreatic cancer during 1996–2015; a lower 5-year rate of uterine cancer during 2006–2010; and a lower 5-year rate of pancreatic cancer during 2011–2015 compared with the state

Updated Health Goal

- ▶ Since sharing the preliminary health assessment, NC DHHS continued to review all available health information about GenX and updated the preliminary assessment
- ▶ The updated health goal is 140 ng/L for the most vulnerable population- i.e. bottle-fed infants, the population that drinks the largest volume of water per body weight.
- ▶ Does this mean that the water is safe to drink?
 - ▶ This health assessment is not a boundary line between a “safe” and “dangerous” level of a chemical. Rather, it is a level that represents the concentration of GenX at which no adverse non-cancer health effects would be anticipated over an entire lifetime to the most sensitive population

Additional Dispersion

- ▶ Primarily concerns from Pender, Brunswick, Bladen and New Hanover
- ▶ Expanded to include Robeson and Cumberland
 - ▶ Air, Groundwater

Opportunities and Challenges

- There are three primary questions coming from the community:
 - 1) *Is GenX in my body?*
 - 2) *What factors predict GenX in my body?, and*
 - 3) *Are there any health effects related to GenX in my body?*
- Whose regulatory authority does this fall under
- Collaboration
- Effective Public Communication