

- Chemours, a DuPont spinoff, contaminated the Cape Fear River in North Carolina with large quantities of PFOA replacement chemical, GenX, plus at least 25 other PFAS that state officials are struggling to identify and created test standards to analyze. DuPont is a known chronic polluter of PFAS due to their high profile case in the Ohio River Valley regarding PFOA/C8 used to make Teflon.
- 250,000 residents use the lower Cape Fear River as their primary source of drinking water, including residents in the Wilmington area. The impacted areas include large coastal communities that rely on tourism and fishing to support their local economies. The region also attracts a large retirement community. Brunswick county is the fastest growing county in the state and North Carolina is the 5th fastest growing state in the nation.
- The world's largest hog slaughterhouse is located eight miles from Chemours and draws their tap water from the Cape Fear River. Smithfield Foods uses this tap water to rinse and package their meat. Multiple PFAS have been found in their water including PFOA, PFOS and GenX.
- Chemours also polluted the air around their Fayetteville, NC facility with multiple PFAS contaminating approximately 763 groundwater wells. PFAS have been detected in rainwater as far as 80 miles from the factory.
- There are no federal or state drinking water standards for GenX or the 25 other PFAS detected by NCDEQ in our water.
- Multiple reports of health problems reported by area residents that are in some cases rare cancers and non-genetic.
- We demand a nationwide PFAS Human Exposure Study that includes all known PFAS--not just the already well documented PFOA and PFOS.
- PFAS should be regulated as a class of highly toxic chemicals because it is too time consuming and costly to individually regulate the 5,000 - 10,000 PFAS estimated in use today. Congress should look to the Madrid Statement for guidance.
- Manufacturers must provide standards for all PFAS produced, including byproducts. The EPA should begin rodent toxicology on all known PFAS.
- All public utilities should conduct mandatory comprehensive PFAS testing and the EPA should set the Method Detection Limit to 1 ppt.
- Congress should deny all federal contracts--including defense contracts--to chronic PFAS polluters for an adequate period of time and require them to pay for remediation and clean-up.
- Set the Maximum Contaminant Level (MCL) for all PFAS to 1 ppt in light of the recent CDC study, again citing the Madrid Statement.

Thank you for the honor and privilege to testify on behalf of the 250,000 residents in southeastern North Carolina suffering from PFAS contamination in our drinking water. My name is Emily Donovan. I am a founding member of Clean Cape Fear. We're educators, environmentalists, doctors, faith leaders, scientists, and concerned citizens all working together to hold Chemours/DuPont accountable for decades of pollution. We formed shortly after learning toxic chemicals linked to cancers and other serious health problems were detected in our finished tap water.

In June 2017, our local newspaper (StarNews) alerted the public to a recently published scientific study that found alarming quantities of PFAS chemicals in our finished tap water.¹ The Cape Fear River is the primary drinking source for Brunswick, New Hanover, and Pender counties. This river provides a quarter of a million residents with their tap water.

The source of the PFAS contamination was coming from Chemours' discharge pipes in Fayetteville, NC -- approximately 80 miles upstream from Wilmington, NC. Everything about our PFAS contamination story is eerily similar to DuPont's Teflon/C8 water crisis in the Ohio River Valley that played out nationally for the past 17 years. In NC, we are dealing with a DuPont spinoff--Chemours, and a C8 replacement--GenX.

GenX is the trade name given to the chemical DuPont used to replace C8/PFOA. PFOA was voluntarily phased out of production in 2013 due to the growing body of research linking human exposure with PFOA to serious health problems including ulcerative colitis, high cholesterol, pregnancy induced hypertension, thyroid disease, testicular cancer, and kidney cancer.²

¹ <http://www.starnewsonline.com/news/20170607/toxin-taints-cfpua-drinking-water/1>

² <http://www.c8sciencepanel.org/>

In February 2017, Chemours/DuPont settled 3,550 lawsuits worth \$670.7 million with residents in Ohio and West Virginia.³ Numerous court documents later revealed DuPont knew PFOA caused serious harm to humans as early as the 1950s and 60s. DuPont even dumped barrels of PFOA waste into the ocean--weighing them down with rocks so they'd sink to the bottom of the ocean floor.⁴ It is clear to the public eye that companies like DuPont were more focused on greed and profits rather than corporate responsibility and environmental stewardship.

We were a community in shock. Our region is known for its pristine beaches, and beautiful waterways. We have the fastest growing county in North Carolina and our state is one of the top five fastest growing states in the nation. When we learned Chemours was threatening our drinking water mass protests erupted all over the city of Wilmington.

Four months later, we would discover the Wilmington area was not the only victims of Chemours/DuPont chronic corporate irresponsibility. Chemours habitually contaminated the groundwater surrounding their facility through air emissions. To date, over 763 private wells surrounding the Chemours facility are contaminated with dangerous PFAS from the known--PFOA, GenX, to the unknown--Nafion byproduct 2 and multiple others. Scientists from the University of North Carolina Wilmington (UNCW) have detected GenX in the rainwater on their Wilmington campus--approx. 80 miles from the Chemours' facility.⁵ GenX was also discovered in local honey.⁶

North Carolina created a provisional health goal for GenX of 140 ppt based on numerous animal studies which showed signs of cancer, benign tumors, kidney disease, liver problems, thyroid dysfunction, and reproductive

³ <https://www.delawareonline.com/story/news/2017/02/13/dupont-and-chemours-pay-670m-settle-pfoa-litigation/97842870/>

⁴ <https://theintercept.com/2015/08/11/dupont-chemistry-deception/>

⁵ <https://www.wral.com/genx-found-in-rain/17360557/>

⁶ <http://www.whqr.org/post/genx-compound-makes-way-honey#stream/0>

issues.⁷ There is an alarming lack of scientific data available for PFAS chemicals--considering how many are allowed to be made and consumed.

The EPA estimates there are between 5,000 - 10,000 PFAS chemicals in existence, yet there are only federal drinking water standards for two PFAS: PFOA and PFOS. There are no federal or state drinking water standards for GenX -- or the 25 other PFAS North Carolina's Department of Environmental Quality (NCDEQ) is currently analysing in our drinking water.⁸

PFAS, as a class of chemicals, are persistent--meaning they live forever in our environment, resurfacing and recycling themselves through our bodies, our food chain, and our ecosystems. PFAS bioaccumulate in our blood and body tissue--causing serious problems for those with chronic exposure.⁹ These chemicals also disrupt the endocrine system--altering cellular development and putting our most vulnerable populations at risk for immediate and later life health problems.

This lack of information became the motivation to form Clean Cape Fear. Two weeks after the public learned about GenX in our drinking water, we began hosting public forums called Water Wednesdays. We invited leading scientists, public officials, medical professionals, and water specialists to participate in panel discussions. We created a comprehensive website to help the general public access highly technical information and easily follow our evolving water crisis.

Emerging PFAS, like GenX, are not easily filtered out using conventional water treatment methods.

Wilmington's Cape Fear Public Utility Authority (CFPUA) is one of the most advanced water treatment facilities in the region and they were unable to remove these PFAS from our finished tap water. GenX sticks to the

⁷ <https://theintercept.com/2016/03/03/new-teflon-toxin-causes-cancer-in-lab-animals/>

⁸ https://www.epa.gov/sites/production/files/2018-08/documents/r4_combined_presentations_.pdf

⁹ <http://greensciencepolicy.org/madrid-statement/>

filters and clogs them prematurely rendering these filters useless way before their intended expiration dates. This allowed dangerous toxins like PFOA and PFOS to easily pass through into our finished tap water--along with all the mystery PFAS that lack test standards or toxicological health advisories. Upgrading the multiple regional water utilities has become an expensive burden for ratepayers in our region. We are expected to see increased water bills for a problem we did not create.¹⁰

In July 2017, Clean Cape Fear pressured local utilities to provide emergency alternative sources of clean, toxic chemical free, water to members of our community that could not afford expensive under sink filters or bottled water. This is important to remember because without test standards for the mystery PFAS in our water, our community lacked a clear path to demand Chemours provide clean water alternatives to Brunswick, New Hanover and Pender county residents. Scientists could tell us how many PFAS were in our water, but they could not tell us their levels of toxicity, our margins of exposure, or the acceptable dose for these toxic mixtures. State and local public officials continued to tell residents the water was safe to drink--solely based on a lack of information.

This lack of information caused a lot of public outrage. In August 2017, Clean Cape Fear secured a \$200,000 donation to put temporary reverse osmosis filling stations in all the public schools in Leland, NC. Parents at Belville Elementary School tested their school's tap water and found 19 different PFAS totalling 167 ppt. There were no health advisories for 16 of the 19 PFAS detected. There were no recommended dose levels. There were no toxic mixture studies to explain how these 19 different mystery PFAS interact with each other or impact the health of human cellular development.

Many of these school children were raised on chronic exposures, at alarmingly high doses, to these mystery PFAS since birth. Respected medical professionals were concerned with the impact these mystery PFAS

¹⁰ <http://www.starnewsonline.com/news/20180411/cleaner-water-could-cost-brunswick-cfpua-water-customers>

would have on this vulnerable part of our community's population. Unfortunately, parents were continually told by Brunswick county officials the water was safe to drink--disregarding an abundance of caution--and seemingly basing their decision on local political motivations rather than the public health and wellbeing of the children they served . The Brunswick County Manager refused to allow the water donations within their county public schools, ultimately denying approximately 3,500 public school students access to toxic chemical free water for cooking and drinking during the school day.

The EPA allowed Chemours to manufacture GenX under a 2009 consent order requiring the company capture 99% of their GenX discharge. Chemours claimed they did not discharge and manufacture GenX into the Cape Fear River. Instead, they told local officials during a closed door meeting the source of the GenX contamination was an accidental chemical reaction coming from their vinyl ether production process--commonly referred to as a "byproduct."¹¹ Apparently, when water molecules react with certain chemicals in the vinyl ether process line, a byproduct is created that was 100% GenX. Unfortunately, federal permit requirements do not regulate PFAS byproducts and this permit loophole left our community vulnerable to corporate malpractice.

Dr. Detlef Knappe is a Professor of Civil, Construction, and Environmental Engineering at NC State University. His research lab published the 2016 water study detecting GenX in our drinking water. GenX was found at levels as high as 4,500 ppt with the average level detected at 631 ppt.¹² This means Wilmington, and surrounding area, residents were chronically consuming a daily dose of 631 ppt of GenX--just one of seven PFAS detected from the NC State study.

Also, GenX was only 12% of the PFAS detected in our finished tap water from the NC State study. However, due to a lack of test standards, the remaining 88% of the PFAS detected in our finished tap water--and

¹¹ <http://www.wect.com/story/35673089/2017/06/Thursday/chemours-not-committed-to-zero-percent-genx-discharge>

¹² <https://shared-assets.adobe.com/link/610df538-febe-4035-5fa2-db4af5378a57>

regularly consumed by our community, still remain a mystery regarding their long-term impact on our communities' public health.

Dr. Jamie DeWitt, an East Carolina University professor and North Carolina's leading toxicological researcher on PFAS chemicals, has stated publicly "the true impacts of GenX may take years to become known because cancer takes time to reveal itself in humans."¹³ I am here to testify that Wilmington area residents, like the residents of Parkersburg, WV nearly 20 years ago, are already experiencing alarming signs of obscure and rare cancers, immune disorders, and diseases in populations too young to pass off as normal.

Multiple children are suffering from rare kidney cancers that are not genetic. A Wilmington photographer documented their stories shortly after our water crisis became public.¹⁴ I, personally, did not have to look far to find loved ones suffering from serious health problems. My own inner circle is filled with loved ones suffering from the trauma of cancer treatments, benign tumors, and terminal diagnoses.

Tom Kennedy lives in Wilmington, NC. He was diagnosed in December 2016 with stage 2b non-genetic breast cancer. By August 2017, he learned the cancer had metastasized to his brain and bones into stage 4 terminal cancer. He does chemotherapy every three weeks to stop the growth of his cancer. Unfortunately, this treatment is poison and eventually will cause its own kind of complications. Tom is in his early 40s. He has a wife and two daughters. He is the primary source of income for his family. His eldest daughter attends my weekly faith-based youth program. This cancer is robbing the Kennedy family from the best years of their lives.

Sarah McLaughlin also lives in Wilmington, NC. She was diagnosed with stage 3 colon cancer earlier this year. She is currently undergoing chemotherapy. Sarah is married and has one teenage daughter who is also in my

¹³ <http://www.starnewsonline.com/news/20170629/nc-study-no-cancer-spike-in-lower-cape-fear>

¹⁴ <https://www.facebook.com/viriniagatesphotography/>

youth program. Sarah is a middle school history teacher in her early 40s. Chemotherapy and the worry of an uncertain future is robbing her and her family from enjoy the best years of their lives.

Kara Kenan lives in Leland, NC. She was diagnosed, three years after moving to the Wilmington area, with Invasive Ductal Carcinoma, Stage 3b--a form of breast cancer that feeds on estrogen hormones. Her tumor was approximately the size of a large lime, which was alarming considering she completed a breast exam a few months prior that showed no signs of cancer. Her lymph nodes were impacted as well. After moderately aggressive chemotherapy she is halfway through a 10-year treatment of estrogen suppressing drug therapy. Kara has also undergone a cholecystectomy to remove her failing gallbladder that simply stopped working--it was non-fatty with no stones. Kara was in her mid 30s when she was diagnosed with breast cancer. She is a decorated veteran who served in 9/11 and Operation Iraqi Freedom with the US Air Force, Air National Guard. She served her country for six years. Kara is married and has a school aged daughter who is best friends with my own child. Continuous medical procedures and the threat of recurring cancer is robbing her and her family from the best years of their lives.

Kara's mother, Margaret Musacchio, is in her early 60s and has a rare blood cancer with no previous family history, no diet risk factors or genetic makeup. She was diagnosed in 2016 with Thrombocythemia after completing multiple lab tests and undergoing a bone marrow biopsy. This blood cancer causes her bone marrow to produce too many platelets. She has been on oral chemotherapy for over two years and must remain on it for the rest of her life. This disease puts Margaret at increased risk for stroke, anemias, and potentially could transform into an acute leukemia which would prove fatal. She has lived in the Wilmington area for the last fifteen years.

Margaret's husband, Robert Musacchio, is in his early 70s. He is Kara's stepfather. He was diagnosed with a blood cancer about a month before Margaret received her diagnoses back in 2016. Robert has Stage 0 Chronic Lymphocytic Leukemia which could transform into a much more serious leukemia. In June 2017,

Robert was also diagnosed with a very aggressive bladder cancer, high grade invasive papillary urothelial carcinoma Stage pT1. He had a cystoscopy procedure to diagnose, then a Turb T procedure to scrape the inside of his bladder to remove the small cancer seen during the diagnostic procedure and a chemotherapy solution was applied in his bladder. More cancers were found at that time and he underwent a radical cystoprostatectomy in July 2017 and also had his appendix removed during the surgery. Robert now lives with a urostomy appliance to enable him to void urine as he no longer has a bladder. He lived a healthy lifestyle and was a nonsmoker. Robert, his wife, and his stepdaughter are all being robbed from the best years of their lives and wonder on a daily basis if the PFAS contaminated water they cooked with, bathed in, cleaned their clothes with, and regularly drank is to blame for their rare and bizarre medical conditions.

David Donovan lives in Leland, NC. He is my husband and father to our beautiful boy/girl twins. He was diagnosed with a meningioma in June 2012 after living in Leland for three years. He was in his early 40s at the time. This was a benign brain tumor that grew to the size of a golf ball located behind his nose and eyes compressing his optic nerves, olfactory bulb, central nervous system, and pituitary gland. The tumor was successfully removed and he never needed chemotherapy. He must get routine MRIs to ensure the tumor does not grow back and regularly visit an endocrine specialist for additional monitoring. He has no previous family history of brain tumors. He is also an identical twin--his brother never developed any of David's medical conditions leading us to believe David's tumor was caused by environmental exposures.

I did not have to search far to find painful stories of medical suffering and should give us all pause. In fact, after conducting a quick search for cancer spikes in our region, North Carolina's Department of Health and Human Services discovered that testicular cancer is on the rise in our region.¹⁵ Brunswick, Pender and New Hanover counties also have almost double the rate of thyroid cancers than the state and national average.¹⁶

¹⁵ <http://www.starnewsonline.com/news/20170629/nc-study-no-cancer-spike-in-lower-cape-fear>

¹⁶ <https://statecancerprofiles.cancer.gov/>

PFAS have three defining qualities that make them extremely dangerous. They bioaccumulate in our blood and body tissue. They are persistent--meaning they live forever in the environment, never breaking down, always recycling themselves into our ecosystem and food chain. They are endocrine disrupting chemicals that even at the smallest doses can alter our cellular and hormonal development. Exposure to these toxic chemicals present themselves differently in each human. We need a nationwide PFAS human exposure study that searches for more than just PFOA and PFOS. The families in southeastern NC that have been chronically exposed to these toxic PFAS deserve to know what was in their water and how deadly these mystery PFAS are when combined together.

Our story of GenX and the other mystery PFAS being detected in our water should prove that banning 1 or 2 PFAS is no longer a viable option. Contrary to what the EPA claims on its website,¹⁷ replacing longer chain PFAS with shorter chain PFAS is not deemed a safe or responsible solution to PFAS management, per current international scientific consensus. Multiple world renowned scientists and scholars created the Madrid Statement in 2015 outlining exactly how nations can prevent further harm from these toxic chemicals.¹⁸

Immediately, we need all PFAS--and their byproducts, regulated as a class of highly toxic chemicals--regardless of their chain length. We need PFAS manufacturers to provide standards for all PFAS--including byproducts. Doing this will allow states, like North Carolina, to respond quickly to these emerging threats.

Sixty days after Chemours was asked to stop dumping PFAS into the Cape Fear River, the EPA detected two new PFAS from the Chemours outfall--Nafion byproduct 1 and 2.¹⁹ Nafion byproduct 2 has nine fluorinated carbons, making it longer than PFOA--which has eight fluorinated carbons. Nafion byproduct 2 is also a sulfonate--like PFOS--which tend to be more toxic than carboxylic acids like PFOA.

¹⁷ <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/risk-management-and-polyfluoroalkyl-substances-pfass>

¹⁸ <http://greensciencepolicy.org/madrid-statement/>

¹⁹ <https://www.ncdhhs.gov/news/press-releases/state-seeks-stop-additional-chemical-discharges-cape-fear-river>

These byproducts were detected in August 2017 and we still do not have public knowledge on if test standards have been completed. Over a year has passed and our community is still left wondering how much Nafion byproduct 2 were we drinking, how much lingers in our water supply today, or what is a safe dose to consume of these mystery PFAS.

There are acceptable ways for PFAS standards to be maintained in a secure manner at the federal level to protect manufacturers' confidential business information. The EPA should immediately begin rodent toxicology studies on all know PFAS. Additionally, the EPA 537 method should be updated to include new PFAS as standards become available. Mandatory comprehensive PFAS testing should be required of all public utilities to identify nationally, where containations are occurring. The Method Detection Limit (MDL) for PFAS testing should be set to 1 ppt. The public has a right to know how many drops of PFAS are in our drinking water due to these chemicals persistence and bioaccumulative effects.

Chemours/DuPont has proven they are chronic polluters with little to no regard to public health and corporate environmental stewardship. We urge Congress to deny federal contracts to chronic PFAS polluters--like DuPont/Chemours. These company should not be rewarded for their poor stewardship. Not a single defense contract or taxpayer dollar should be given to these corporations until they can show an adequate period of restraint and control. Additionally, PFAS polluters should be legally bound to pay for all cleanup of impacted communities. We also urge the federal government to set the Maximum Contaminant Level (MCL) for all PFAS to 1 ppt in light of the recent CDC study.²⁰

Lastly, it's important to remind everyone that Chemours' Fayetteville Works Site is also located a short eight miles away from the world's largest hog slaughterhouse owned by Smithfield Foods. Smithfield Foods was

²⁰ <https://www.propublica.org/article/suppressed-study-the-epa-underestimated-dangers-of-widespread-chemicals>

purchased by a Chinese conglomerate in 2013 making it, at that time, the largest Chinese buyout of a US company in history.²¹

The slaughterhouse is located downstream of Chemours and draws its processing and drinking water from the Cape Fear River using the Bladen Bluffs Water Treatment Plant.²² This water is used to rinse and package Smithfield Foods' pork products for worldwide distribution. To date, no scientific studies have been done to determine if the PFAS contaminated water used in the pork packaging process is cross contaminating the meat--further exposing millions of pork consumers worldwide to these toxic chemicals.

Thank you for the opportunity to testify before the House Environmental Subcommittee and raise awareness at a national level to the mounting dangers of PFAS exposures. I pray you all find the moral courage to protect our most valuable economic resource--human life--from the continued exposure to these dangerous chemicals.

²¹ <https://www.pbs.org/newshour/show/whos-behind-chinese-takeover-worlds-biggest-pork-producer>

²² <http://www.starnewsonline.com/news/20170807/news-update-dealing-with-toxic-genx>