House Committee on Oversight and Reform
Subcommittee on Environment
Written Testimony by Emily Donovan, resident of Winnabow, NC
Executive Summary

Chemours, a DuPont spinoff, contaminated the Cape Fear River in North Carolina with large quantities of PFOA replacement chemical, GenX and 50+ other PFAS state officials are still struggling to identify and create test standards to analyze. Many of these PFAS are not regulated under TSCA because they are not commercial products and only exist as by-products of the manufacture of other compounds. DuPont is a known chronic polluter of PFAS due to its high profile case in the Ohio River Valley regarding PFOA/C8 used to make Teflon.

350,000 residents use the lower Cape Fear River as their primary source of drinking water, including residents surrounding the Wilmington, NC area. 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 NC is the 5th fastest growing state in the nation. Even though Wilmington, NC has a very sophisticated drinking water treatment plant, many PFAS are persistent and difficult to remove from drinking water. Several of the PFAS in the Cape Fear River have also been detected in the finished drinking water.

Chemours and other manufacturers that use PFAS should not be allowed to continue to pollute our waterways with unfettered amounts of PFAS. All discharges of PFAS should be restricted through Clean Water Act permits. That's why the Pappas amendment to the NDAA is so important.

Chemours also polluted the air around their Fayetteville, NC facility with multiple PFAS contaminating approximately 631 groundwater wells. GenX was found in local honey near the plant. In 2018, FDA tested 20 produce sold at a local farmers' market near the plant, 19 tested positive for PFAS contamination. PFAS associated with Chemours have been detected in rainwater as far as 80 miles from the factory. Representative Haley Stevens has introduced a bill that would regulate PFAS as hazardous air pollutants under the Clean Air Act. Representative Andy Levin also has an amendment in the NDAA that would prevent incineration of PFAS waste from re-polluting the air and surrounding communities.

Two municipal wells in Wilmington and Wrightsville Beach were closed due to PFAS contamination. Groundwater from the Castle Haynes aquifer in northern New Hanover county tested positive for PFAS.

But we don't even know the full scope of contamination. There may be other communities like mine that don't yet know that they have contaminated wells and groundwater because there are currently no federal reporting or monitoring requirements. The Capito-Gillibrand amendment to the Senate NDAA would require reporting of hundreds of PFAS chemicals to the Toxic Release

Inventory. The Kildee amendment to the House version of the NDAA would require monitoring of PFAS in drinking water sources. A Capito-Carper-Barrasso amendment to the Senate NDAA would require additional monitoring of PFAS in tap water. All of these amendments are important to better understand the full scope of contamination so we can identify polluted communities and take action.

There are no federal or state drinking water standards for GenX or the 40+ other PFAS detected by NCDEQ in our water. PFAS are still showing up regularly at levels above 70 ppt in finished tap water in Brunswick and New Hanover counties.

In 2018, the GenX Exposure Study revealed Wilmington residents have 2x more PFOS in their blood than the national average and 3x more PFOA. Additionally, four newly identified PFAS coming from Chemours were found consistently in residents blood: Nafion Byproduct 2 (99% samples), PFO4DA (98%), PFO5DoDA (87%), and Hydro-EVE (76%). None of these compounds are regulated under TSCA because they only exist as the by-products of the production of other commercial products (e.g. Nafion polymer). Participants have an average of 23.5 ppb of PFAS in their blood. Adverse health effects for PFOA are seen as low as 2.5 ppb.

We know DuPont/Chemours has released over 50 PFAS compounds into our air and water and yet we only have health effects data for 11 of those compounds. We know that the US EPA and our state regulators need in vivo data (i.e. toxicology studies on rodents) to establish health advisory levels and drinking water regulations.

There are multiple reports of health problems reported by area residents that are in some cases rare cancers and non-genetic. Confirmed thyroid cancer clusters in Brunswick, Pender, and New Hanover Counties--which all use the contaminated Cape Fear River as their primary source of drinking water. Several previous studies have demonstrated that PFAS affect thyroid function. There is virtually no way for chronically contaminated communities to further protect themselves from exposures to PFAS. No consumer product labeling exists. PFAS are not listed as hazardous substances, nor are they monitored or regulated, despite the growing body of scientific evidence confirming their toxicity as a class.

My community and others that have been polluted for decades need to be cleaned up and polluters like 3M and DuPont should be required to pay their fair share to clean up the mess they created. That’s why the Dingell-Kildee Superfund amendment to the House NDAA is so important.

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

The source of the PFAS contamination is coming from Chemours' air and wastewater discharge pipes in Fayetteville, NC -- approximately 80 miles upstream from Wilmington, NC. We are 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.

Everything about our PFAS contamination story is eerily similar to DuPont's Teflon/C8 water crisis in the Ohio River Valley which 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 under pressure from EPA 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.[1]

DuPont built their Fayetteville, NC facility in 1968[2] and based on public disclosure began discharging GenX and other PFAS into the Cape Fear River in 1980. In 2002, DuPont began making PFOA at their Fayetteville, NC site after 3M stopped supplying them with the chemical.[3]

In 2005, reports of PFOA groundwater contamination reached the public and concerned citizens began questioning DuPont's ability to safely produce C8 in NC. A local Fayetteville resident became worried when her young cows started dying. DuPont did nothing to address NC residents' concerns, all while fighting litigation in West Virginia related to similar water contamination problems. State regulators also dismissed the public's concerns claiming the groundwater sample results were not high enough to trigger intervention. State regulators allowed DuPont to conduct its own investigation and monitoring without further state or federal intervention.[4] Eventually, through court documents, the pubic would learn DuPont executives knew exactly how toxic PFOA was and the extent of their irresponsible manufacturing practices in West Virginia, New Jersey, and North Carolina.

In fact, Chemours recently filed a lawsuit against DuPont claiming DuPont executives commissioned a panel of experts in 2010 to assess the financial liabilities of their historical legacy of PFAS contamination. The panel gave a series of recommendations, including

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[1] http://www.c8sciencepanel.org/

[2] https://www.robesonian.com/archive/39232/view-full_story-13464398-article-dupont_works_marks_40_years

[3] https://www.wral.com/timeline-tracking-the-route-of-genx-in-the-cape-fear-river/16869639/

[4] https://www.fayobserver.com/news/20180325/duponts-c8-leak-in-fayetteville-spurs-fears-of-health-crisis

spending $60 million dollars to end their harmful PFAS discharges. Ultimately, DuPont decided to not spend the $60 million dollars; but rather to spinoff their looming PFAS liability into a new company. Let that sink in. Ten years ago, DuPont executives could have ended the PFAS contamination to our river. Instead, they began “Project Beta” the code name for the Chemours spinoff. Project Beta ended in 2015 when Chemours officially became owner of DuPont’s PFAS products, production facilities, and pending liabilities.[5]

While DuPont was crafting the spinoff details for Project Beta, PFOA was finally phased out at the Fayetteville, NC site in 2013 per the voluntary agreement with the US EPA.[6] DuPont then began making GenX as a replacement chemical for PFOA. The EPA allowed DuPont to manufacture GenX under a 2009 consent order requiring the company capture 99% of their GenX discharge.[7]

In 2015, DuPont also merged with Dow Chemicals to form DowDuPont. It would appear in our opinion, for DuPont, these decisions were about profits and shareholder value--not public health, or environmental stewardship. DuPont’s official announcement regarding the Chemours spinoff stated: "As we move forward, we are committed to continuing to execute our strategy to deliver value for shareholders today, while positioning DuPont for a successful future."[8]

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[5] http://www.ncpolicywatch.com/2019/07/01/chemours-throws-dupont-under-the-bus-alleges-company-chose-to-discharge-pfas-into-the-cape-fear-river/

[6] https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/fact-sheet-20102015-pfoa-stewardship-program

[7] https://www.starnewsonline.com/news/20170619/questions-remain-over-genx-consent-order

[8] https://www.prnewswire.com/news-releases/dupont-completes-spin-off-of-the-chemours-company-300107397.html

By February 2017, Chemours/DuPont would settle 3,550 lawsuits worth $670.7 million with residents in Ohio and West Virginia.[9] 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.[10] 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.

Chemours claimed their GenX production process did not discharge any manufactured 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 polyvinyl ether production process--this accidental chemical reaction is commonly referred to as a "byproduct".[11] Apparently, when water molecules react with certain chemicals in the polyvinyl ether process line, a byproduct is created that is 100% GenX. The same 2009 EPA consent order approving DuPont to make GenX commercially, also had a boilerplate statement allowing GenX to be discharged as a byproduct. This "byproduct GenX", which is structurally the exact same chemicals as the commercially made GenX, is what scientists found in our raw and finished tap water.[12] Unfortunately, federal permit requirements do not regulate PFAS byproducts and this permit loophole left our community vulnerable to corporate malpractice for decades.

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[9] https://www.delawareonline.com/story/news/2017/02/13/dupont-and-chemours-pay-670m-settle-pfoa-litigation/97842870/

[10] https://theintercept.com/2015/08/11/dupont-chemistry-deception/

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

[12] https://www.starnewsonline.com/news/20170619/questions-remain-over-genx-consent-order

In 2015, the US EPA published a study showing 12 novel perfluoroalkyl ether carboxylic and sulfonic acids in the Cape Fear River. Dr. Detlef Knappe is a Professor of Civil, Construction, and Environmental Engineering at NC State University. His research lab worked with EPA scientists to 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.[13] 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. There was no official health goal or advisory from the EPA regarding GenX. State health officials were left scrambling to determine a health protective level for this compound.

It's important to note, GenX was only 12% of the total 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 regularly consumed by our community, still remain a mystery regarding their long-term impact on our communities' public health.

It was not until June 2017 that our community became aware of the drinking water problem when our local newspaper (StarNews) alerted the public to the recently published NC State University scientific study that found alarming quantities of Genx and other PFAS chemicals in our finished tap water.[14] The Cape Fear River is the primary source or drinking water for Brunswick, New Hanover, and Pender counties. This river provides a quarter of a million residents with their tap water.

[13] https://shared-assets.adobe.com/link/610df538-febe-4035-5fa2-db4af5378a57
[14] http://www.starnewsonline.com/news/20170607/toxin-taints-cfpua-drinking-water/1

By September 2017, residents around the Fayetteville Chemours site would learn their private wells were contaminated with levels of GenX. The source of that contamination was air emissions. Per a NCDEQ presentation dated December 11, 2018, 613 private wells surrounding the Chemours facility were contaminated with various levels of PFAS from the known--PFOA, GenX, to the less known--Nafion byproduct 2 and multiple others.[15] Chemours is required, by a newly issued consent order, to continue testing private wells until a clear boundary of no detection is reached. As of July 2019, contaminated wells are still being detected.[16]

Scientists from the University of North Carolina Wilmington (UNCW) detected GenX in the rainwater on their Wilmington campus--approx. 80 miles from the Chemours' facility.[17] GenX was also discovered in local honey.[18] In 2018, the FDA sampled 20 produce items from a local farmers' market near the Fayetteville facility and found PFAS in 19 of the samples. GenX was found in collard greens and cabbage. One collard greens sample had as much as 1,148 ppt of the total PFAS mixture.[19]

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 issues.[20] There is an alarming lack of scientific data available for PFAS chemicals--considering how many are allowed to be made and consumed. In our area,

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[15] https://files.nc.gov/ncdeq/GenX/DEQCombinedPresentation-121118InfoSession.pdf

[16] https://www.chemours.com/Fayetteville-Works/en-us/assets/downloads/fay-dw-compl-plan-final-draft-4-25-2019-complete.pdf

[17] https://www.wral.com/genx-found-in-rain/17360557/

[18] http://www.whqr.org/post/genx-compound-makes-way-honey#stream/0

[19] https://www.fda.gov/media/127848/download

[20] https://theintercept.com/2016/03/03/new-teflon-toxin-causes-cancer-in-lab-animals/

we know DuPont/Chemours has contaminated our air and water with over 50 different PFAS compounds; yet, we only have health effects data for 11 of those compounds.

The damages caused to our region are vast and multi-layered. Also in 2017, Wilmington's public utility discovered a municipal well was contaminated with GenX. Cape Fear Public Utility Authority (CFPUA)'s Westbrook Aquifer Storage and Recovery (ASR) Well had large quantities of GenX and other PFAS.[21] To date, CFPUA still struggles to address the contamination caused to their well.[22] Additionally, the Town of Wrightsville Beach has shut down well #11 due to detection of GenX and 43 other PFAS.[23]

In the fall of 2018, results from the GenX Exposure Study, led by Dr. Jane Hoppin, Associate Professor in the Department of Biological Sciences and Deputy Director of the Center for Human Health and the Environment at NC State University, revealed Wilmington residents had 2x more PFOS in their blood than the national average and 3x more PFOA. Participants had an average of 23.5 ppb of total PFAS mixture in their blood. Adverse health effects for PFOA are seen as low as 2 ppb. The average levels for legacy PFAS compounds including PFOA, PFOS, PFHxS, PFNA, PFDA were seen at approximately 18.5 ppb.

The study also found approximately 5 ppb of four newly identified PFAS discharged by Chemours: Nafion Byproduct 2 (99% samples), PFO4DA (98% samples), PFO5DoDA (87% samples), and Hydro-EVE (76% samples). It's important to note how rare it is to see 99% and

[21] https://www.starnewsonline.com/news/20170712/cfpua-to-drain-genx-tainted-water-from-aquifer
[22] https://www.cfpua.org/CivicAlerts.aspx?AID=978&ARC=2141
[23] https://www.wwaytv3.com/2019/03/20/wrightsville-beach-files-lawsuit-after-genx-compounds-found-in-drinking-water/

98% of samples contain the same toxin. This study did not find GenX in any of the participants blood; however, the samples were taken in November 2017--five months after Chemours stopped discharging GenX into the Cape Fear River. The method reporting limit was set at 2 ppb.[24] To this day, there is zero toxicity data on the 4 newly identified PFAS found in Wilmington residents' blood. Residents are left wondering if their illnesses are related to what's in their blood. Physicians are unable to screen for risk factors. Residents have no way of altering their lifestyles to minimize any health risks associated with these toxins in their blood.

While GenX was not detected in residents' blood that does not mean GenX is not toxic. A recent poster presented by Dr. Linda S. Birnbaum, Ph.D., D.A.B.T., A.T.S, Director, National Institute of Environmental Health Sciences and National Toxicology Program, at a March 2019 Society of Toxicology meeting highlights how GenX inhibits two proteins at the b-brain barrier, potentially leading to neurotoxicity effects.

In January 2019, NC residents learned the US EPA issued a Notice of Temporary Objection regarding the international transport of GenX waste from a Chemours facility in the Netherlands for "recycling" in Fayetteville, NC. Apparently once the European GenX waste arrived in Fayetteville half was shipped for disposal in other states and the other half was reprocessed for commercial use through the Fayetteville facility. Essentially, due to the United States' lax reglations regarding PFAS, we've become the international dumping ground for Chemours' waste streams in global areas where PFAS regulations are more strict.[25]

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[24] https://chhe.research.ncsu.edu/the-genx-exposure-study/

[25] http://www.ncpolicywatch.com/2019/01/25/chemours-says-its-been-re-importing-genx-waste-from-netherlands-to-fayetteville-plant-for-five-years/

The US EPA estimates there are between 5,000 - 10,000 PFAS chemicals in existence. US EPA's current PFAS Action Plan appears to only address two PFAS--PFOA and PFOS.[26] Both compounds are no longer in commercial use. This action plan is not health protective for the quarter of a million residents downstream of Chemours who've been severely contaminated by DuPont/Chemours. Nor is it health protective for the millions of Americans exposed to PFOA replacements like GenX without any clear understanding of its true toxicity and potential paths of exposures. Currently there are no laws regulating air emissions of PFAS.

There are zero enforceable federal drinking water standards for PFAS. Any actions taken by a public utility to filter out these compounds are completely voluntary. This lack of oversight allows water utilities to legally provide ratepayers with clear water, but not necessarily health protective, clean water. To date, the EPA has only created Lifetime Health Advisory Limits for two PFAS: PFOA and PFOS. By its own admission, the EPA states those health advisories "are non-enforceable and non-regulatory".[27]

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.[28] 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.

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[26] https://www.epa.gov/sites/production/files/2018-08/documents/r4_combined_presentations_.pdf
[27] https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos
[28] http://greensciencepolicy.org/madrid-statement/

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.

To date we still lack a full and complete understanding of the PFAS in our drinking water. Emerging PFAS, like GenX, are not easily filtered out using conventional water treatment methods. Wilmington's Cape Fear Public Utility Authority (CFPUA) has 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 filters and clogs them prematurally 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.[29]

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

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

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 doses for these toxic mixtures. State and local public officials continue to tell residents the water is 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 are no health advisories for 16 of the 19 PFAS detected. There are no recommended dose levels. There are 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 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.

Because there are no enforceable drinking water standards for PFAS, residents in our region are given access to vastly different information depending on the county they live in--even though we all use the same raw water as our source for finished tap water. For example, Brunswick County PU and CFPUA customers are able to monitor levels of PFAS in their water by viewing weekly or biweekly sample results. However, residents living in Pender county are not afforded access to similar data. In fact, Pender County does not provide weekly or monthly publicly accessible water reports for PFAS. Their website links to an annual water utility report which shows data for GenX only, no other PFAS are reported--although numerous PFAS are regularly detected in the finished tap water at neighboring New Hanover county.[30] Unfortunately, this is perfectly legal due to the EPA's inability to regulate PFAS in any meaningful and health protective way.

In 2018, the Agency for Toxic Substance & Disease Registry (ATSDR) finally released a report recommending the US EPA create more health protective advisories for PFOA, PFOS, and PFHxS----many of these chemicals are still being detected in our region's finished tap water. This report was originally suppressed from the public due to the White House's concerns of its "potential public relations nightmare."[31] The current US EPA non-enforceable health advisory limits for PFOA/PFOS is 70 ppt combined. The ATSDR's draft report recommends a health protective drinking water advisory of 7 ppt of PFOS, 11 ppt of PFOA and PFNA, and 74 ppt of PFHxS.[32] Based on these recommendations, some residents in our region are being served water at or above the ATSDR's suggestions to the US EPA. It's important to note, these

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[30] http://www.pendercountync.gov/utl/wp-content/uploads/sites/14/2019/07/Pender-County-2018-Consumer-Confidence-Report-062719-1.pdf

[31] https://www.eenews.net/stories/1060081697

[32] https://chemicalwatch.com/67897/us-atsdr-releases-suppressed-pfas-tox-profile

recommendations typically represent the highest dose humans can consume before showing signs of adverse health effects. I'm not convinced these levels are safe enough for those of us chronically contaminated by DuPont/Chemours toxins.

Even if the US EPA adopts the ATDSR's recommended levels for these four PFAS it would not be enough. These recommendations simply do not apply to people living in chronically contaminated communities--like those of use who've endured decades of chronic exposure to DuPont/Chemours toxic PFAS. It would not protect our infants who are already born contaminated. It would not protect those of us already suffering from illnesses caused by a lack of oversight and accountability from the people responsible for making these chemicals.

More and more scientific studies are being published confirming how dangerous PFAS are to public health. This includes replacement PFAS. In April 2019, reports confirmed nursing mothers transfer PFAS to their newborn infants via breast milk.[33] Studies confirm that PFAS cross the placental barrier and contaminate the developing fetus; and, a recent study of Faroes Island residents confirms women with gestational diabetes are at higher risk of transferring PFAS to their unborn children.[34] The US EPA's current Lifetime Health Advisory Limit for PFOA and PFOS does not apply to infants already born with PFAS contaminated blood.

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".[35] I am here

[33] https://theintercept.com/2019/04/30/breast-milk-pfas-chemicals/
[34] https://www.umass.edu/newsoffice/article/study-finds-pfas-chemicals-transfer-mother
[35] http://www.starnewsonline.com/news/20170629/nc-study-no-cancer-spike-in-lower-cape-fear

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.[36] 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 in 2018. She underwent chemotherapy and is currently cancer free. Sarah is married and has one teenage daughter who is also in my youth program. Sarah is a middle school history teacher in her early 40s. The trauma of chemotherapy and the worry of her diagnosis robbed Sarah and her family from enjoying the best years of their lives.

[36] https://www.facebook.com/virginiagatesphotography/

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. Kara was most recently diagnosed with hypothyroidism. 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 an 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 of 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. This 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.[37] Brunswick, Pender and New Hanover counties also have almost double the rate of thyroid cancers than the state and national average.[38]

Heather Stapleton, PhD is the Dan and Bunny Gabel Associate Professor of Environmental Ethics and Sustainable Environmental Management at Duke University. She is currently completing a thyroid cancer cluster study of North Carolina and states the following:

"Our research revealed a cluster of thyroid cancer in and around Wilmington, NC, in an area where there is known PFAS contamination in the drinking water. Given that PFASs have been shown to interfere with thyroid hormone regulation, and has been associated with thyroid disorders in human studies, we think there is an urgent research need to determine if the rates of thyroid cancer in this area are associated with chronic PFAS exposure." - Heather M. Stapleton, PhD; Kate Hoffman, PhD

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

[37] http://www.starnewsonline.com/news/20170629/nc-study-no-cancer-spike-in-lower-cape-fear
[38] https://statecancerprofiles.cancer.gov/

hormonal development. Exposure to these toxic chemicals present themselves differently in each human.

We must regulate PFAS as a class of highly toxic substances. A June 2019 news article reported on a new PFOA study. The article states: “If you look at the data, pancreatic tumors are present at very, very low concentrations from PFOA,” Birnbaum told the audience at the conference. “If you use the pancreatic tumors in the rats in the NTP study to calculate what would really be a virtually safe dose, you’re getting down at about .1 ppt. Well, that’s really low. And that’s only for one PFAS.” Birnbaum suggested that regulators might ultimately issue one drinking water standard for the entire class, which contains thousands of compounds.”[39]

Our story of GenX and the other mystery PFAS being detected in our water should prove that banning one or two PFAS is no longer a viable option. Contrary to what the EPA claims on its website,[40] 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.[41]

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

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39 https://theintercept.com/2019/06/18/pfoa-pfas-teflon-epa-limit/?fbclid=IwAR37PSIGHXtZKUifbbx7VKqe4kbLfjQTLrCkvN2YqwjP57VZQ8zOaEF4LNg

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

41 http://greensciencepolicy.org/madrid-statement/

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 US EPA publicly disclosed sample results for two new PFAS from the Chemours outfall--Nafion byproduct 1 and 2.[42] This was not the first time these chemicals were identified in the Cape Fear River. They were detected in river samples by US EPA scientists and later published in a 2015 paper.[43] 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. Nafion byproduct 2 is also in the blood of 99% of Wilmington residents who participated in the GenX Exposure Study.[44]

These byproducts were detected in August 2015 and we still have no public knowledge on if test standards needed to accurately determine drinking water concentrations have been completed. Nor do we know how toxic these chemicals are, or what risk factors families and their physicians should be monitoring for in our community. We deserve a fighting chance to alter our diets and lifestyle habits to counteract the threat these toxins present in our body. They were put in our bodies without our consent.

We are still finding new PFAS released from Chemours. In June 2019, Chemours disclosed to NCDEQ the discovery of 4 newly identified PFAS--one of the compounds, DFSA, was detected

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[42] https://www.ncdhhs.gov/news/press-releases/state-seeks-stop-additional-chemical-discharges-cape-fear-river

[43] https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=NERL&dirEntryId=312590

[44] https://chhe.research.ncsu.edu/wordpress/wp-content/uploads/2018/11/Community-event-BLOOD-slides.pdf

at 80,000 ppt. Chemours has concerns with the test method used and disputed the results.[45] We believe chemical companies should not be allowed to manufacture PFAS if they can't properly monitor and manage their process water and waste streams. If the original chemical maker can't properly control their own air emissions and discharge pipes, how are we to believe their customers down the supply chain will do any better? PFAS discharges should also be regulated and subject to permits. PFAS should be regulated as a toxic pollutant under the Clean Water Act and as Hazardous Air Pollutants under the Clean Air Act.

PFAS manufacturers should be required to disclose test methods and analytical standards for all PFAS generated at their facilities both as commercial products and as byproducts and/or degradants. They should also be required to report releases to the Toxic Release Inventory. There are acceptable ways for PFAS standards to be maintained in a secure manner at the federal and state level to protect manufacturers' confidential business information. Chemours never voluntarily provided this information. Any data we currently have access to was gained via the 2019 consent order.

Based on sample results from Chemours' process wastewater, we know low levels of PFOA and PFOS are showing up in lab results.[46] Technically, these two compounds are no longer in commercial use in the United States. How are they still showing up inside process wastewater? In our minds, this illustrates how volatile the manufacturing process of these compounds can be and the public health threat they present. PFAS manufacturers should be required to disclose

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45 https://www.chemours.com/Fayetteville-Works/en-us/assets/downloads/11-ncdeq-sampling-data-dfsa-06102019.pdf

46 https://www.chemours.com/Fayetteville-Works/en-us/assets/downloads/2018-09-analysis-intake-water-captured-process-water.pdf

every drop of these toxic PFAS. These companies have failed to show corporate responsibility repeatedly. Their irresponsible behavior has become a massive public health crisis. It is time for meaningful federal oversight and reform regarding how PFAS chemicals are made, sold, and disposed.

We are equally concerned with the lack of oversight regarding the disposal methods surrounding the entire lifecycle of PFAS chemicals. Due to their permanent behavior and existing widespread contamination, these compounds should be limited to essential uses only--not dictated by supply chain demand or the very PFAS manufacturers whose motivations could be clouded by profits, but by a national and/or international convention of imparticial scientists, regulators, and key industry stakeholders all committed to eliminating PFAS from convenience products. Human life is at stake. The prosperity of our humanity is at stake.

The US EPA should immediately begin toxicology studies on rodents for all PFASs demonstrated in human serum. Additionally, the EPA 537 method should be annually updated to include new PFAS as standards become available. Mandatory comprehensive PFAS testing should be required of all public utilities to identify nationally, where drinking water contaminations are occurring. The Method Detection Limit (MDL) for PFAS testing should be set to 1 ppt. The public has a right to know every drop of PFAS are in their drinking water.

Chemours/DuPont have proven they are chronic polluters with little to no regard to public health and responsible corporate environmental stewardship. Chemours executives were career DuPont employees. They knew the risks and liabilities they inherited. They intentionally did nothing for two years after the spinoff to address discharges they knew were potential liabilities.

They estimated the price of those liabilities within their spinoff agreement. Instead, Chemours executives hedged their bets on not getting caught. All corrective behaviors or actions taken by Chemours in NC have been forced by a court of law. Polluters like Chemours and Dupont should clean up the mess they made and should be required to pay for it under Superfund.

We urge Congress to deny federal contracts to chronic PFAS polluters--like DuPont/Chemours. These companies should not be rewarded for their poor stewardship. Not a single defense contract or taxpayer dollars 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 ATSDR draft toxicity study.[47]

Thank you for the opportunity to testify before the House Committee on Oversight and Reform Subcommittee on the Environment 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.

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