

STATE OF NORTH CAROLINA
COUNTY OF BLADEN

IN THE OFFICE OF
ADMINISTRATIVE HEARINGS
22 EHR 03913

The Chemours Company FC, LLC,)
)
 Petitioner,)
)
 v.)
)
 North Carolina Department of)
 Environmental Quality,)
)
 Respondent.)
)
)

**MOTION TO INTERVENE BY CAPE
FEAR RIVER WATCH**

N.C.G.S. § 1A-1, Rule 24
N.C.G.S. § 150B-23
26 N.C.A.C. 03.0117

NOW COMES Cape Fear River Watch (“River Watch”), by and through undersigned counsel and pursuant to N.C. Gen. Stat. § 150B-23(d), 26 N.C. Admin. Code 3.0117, and Rule 24 of the North Carolina Rules of Civil Procedure, and hereby files this Motion to Intervene, seeking to intervene as a party in the above-captioned contested case, with all the rights of a party (Respondent-Intervenor), in order to protect its rights with respect to the National Pollutant Discharge Elimination System (“NDPES”) Permit NC0090042 issued by Respondent North Carolina Department of Environmental Quality, (“Department”) to Petitioner The Chemours Company FC, LLC (“Chemours”) and appealed by Chemours in this contested case on October 14, 2022.

In support of this Motion, River Watch shows the following:

INTRODUCTION

1. River Watch works to protect its members who live near and rely on the Cape Fear River downstream of the Chemours’ Fayetteville Works Facility from the company’s toxic discharges of per- and polyfluoroalkyl substances (“PFAS”). River Watch’s interest in preventing Chemours’ PFAS pollution dates back to 2017 and involves extensive

community education, advocacy, and litigation in state and federal court, culminating in the NPDES permit at issue in this contested case.

2. River Watch is one of three parties—with Chemours and the Department—who negotiated, signed, and continues to implement the 2019 consent order and 2020 addendum giving rise to this NPDES permit. The permit is the result of the addendum requirements resulting from years of River Watch advocacy. Since 2017, the organization has worked to combat the PFAS pollution at issue in this permit—in particular, the contamination that is reaching the Cape Fear River and its tributaries from the company’s groundwater.

3. Because of River Watch’s persistent interest in eliminating the PFAS coming from Chemours’ groundwater and in the rigorous implementation and enforcement of the consent order and addendum, the organization has also been engaged in the permitting process challenged in this case. The organization provided detailed feedback on Chemours’ application and draft permit by submitting three comment letters and participating in the public hearing process. River Watch’s involvement in the consent order and addendum and extensive input throughout the permitting process helped shape this permit.

4. For these reasons, River Watch seeks to intervene in this contested case proceeding to defend the Department’s issuance of the NPDES permit and the terms thereof to protect itself and its members from the direct and immediate harm associated with any decisions that would limit enforcement of the consent order or increase the amount of PFAS contamination in the Cape Fear watershed. To deny River Watch and its members intervention now would irrevocably harm their ongoing interest in preventing Chemours’ PFAS pollution from reaching the Cape Fear River.

5. Counsel for River Watch have conferred with counsel for Chemours and the Department regarding their position about this proposed intervention. The Department consents to the relief requested. Chemours takes no position on the motion.

PARTIES

6. Cape Fear River Watch is a § 501(c)(3) nonprofit public interest organization headquartered in Wilmington, North Carolina that has engaged residents of the Cape Fear River watershed through programs to preserve and safeguard the river since 1993. River Watch has more than 1,000 members throughout the Cape Fear River basin, including members who live near; drink water from; and fish, swim, and boat on the Cape Fear River downstream of Chemours' facility. River Watch's mission is "to protect and improve the water quality of the Cape Fear River Basin for all people through education, advocacy and action."

7. Chemours is a Delaware limited liability company registered to do business in North Carolina and the current owner and operator of the Fayetteville Works Facility located in Bladen County, North Carolina.

8. Respondent North Carolina Department of Environmental Quality is an agency of the State of North Carolina established pursuant to N.C. Gen. Stat. § 143B-279.1 *et seq.* vested with the statutory authority to enforce the State's environmental protection laws, including laws enacted and rules adopted to protect the water quality of the State. N.C. Gen. Stat. Ch. 143, Art. 21.

FACTUAL BACKGROUND

I. Cape Fear River Watch's interest in controlling Chemours' PFAS pollution into the Cape Fear River, including groundwater pollution

9. River Watch's interest in Chemours' PFAS pollution began in 2017, when the organization first learned that Chemours, a chemical manufacturing facility in Fayetteville,

North Carolina, had been dumping toxic PFAS into the Cape Fear River—the drinking water supply for over 350,000 North Carolinians—for four decades. Ex. 1, Sargent Aff. ¶¶ 8–9.

10. River Watch works to protect the Cape Fear watershed, as well as the organization’s members who live near, drink water from, and rely on the Cape Fear River. *Id.* ¶¶ 3–7; *see also* Ex. 2, Levitan Aff. ¶ 3; Ex. 3, Schnitzler Aff. ¶¶ 2, 8, 11. Upon learning of Chemours’ PFAS pollution, River Watch acted to protect it and its members’ interests—through advocacy, litigation, and community education. Ex. 1, Sargent Aff. ¶ 7.

11. Initially, River Watch focused on educating the community about Chemours’ contamination of the area’s drinking water supplies and the watershed. *Id.* ¶¶ 10–11. This focus changed after it became evident that the North Carolina Department of Environmental Quality was not taking the steps necessary to protect the organization and its members’ interests, as well as the health and safety of the public.

12. For instance, by the summer of 2018, it was apparent that Chemours had heavily contaminated the groundwater beneath and surrounding its facility with PFAS and that the polluted groundwater was leaking into the Cape Fear River and its tributaries. The Department, however, had not yet acted to ensure that Chemours would stop groundwater discharges into the Cape Fear River and downstream drinking water supplies. *Id.* ¶ 12.

13. To protect the organization’s interests, River Watch initiated multiple lawsuits in the summer of 2018. It first requested a declaratory ruling from the Department, asking that it order Chemours to immediately discontinue all discharges of PFAS from its facility. *Id.* When the Department denied River Watch’s request, the organization appealed the decision to the New Hanover County Superior Court. Ex. 4,

Petition for Judicial Review, *Cape Fear River Watch v. N.C. Dep't of Env't Quality*, 18 CVS 2462 (New Hanover Cnty. Sup. Ct. 2018).

14. River Watch also sent Chemours notices of intent to sue under the Clean Water Act and Toxic Substances Control Act. Ex. 1, Sargent Aff. ¶ 13. The Clean Water Act notice letter alleged violations due to unpermitted discharges of the company's groundwater pollution into the Cape Fear. *Id.* When the company did not remedy its violations during the notice period, River Watch filed a lawsuit against Chemours in the U.S. District Court for the Eastern District of North Carolina. Ex. 5, Complaint, *Cape Fear River Watch v. Chemours Company FC, LLC*, 7:18-CV-159-D (E.D.N.C. 2018). The organization alleged that the company's past and present operations were contaminating the groundwater through leaking pipes, sumps, drains, ditches, and other point sources. *See id.* ¶¶ 42, 93. Because the groundwater is connected to the Cape Fear River and its tributaries, River Watch alleged that Chemours' was illegally discharging PFAS into surface waters without an NPDES permit under the Clean Water Act. *Id.* ¶¶ 90–100.

15. River Watch initiated these lawsuits to protect itself and its members who had been (and continue to be) harmed by Chemours' PFAS pollution. Many of River Watch's members are worried about their health given the PFAS in their drinking water. Ex. 2, Levitan Aff. ¶ 5–8; *see also* Ex. 1, Sargent Aff. ¶¶ 3, 42. Others have local businesses and economic interests that are harmed by Chemours' pollution. *See* Ex. 3, Schnitzler Aff. ¶¶ 11–14 (explaining that the PFAS in the municipal water harms his coffee company's business interests).

II. Cape Fear River Watch's interest in the consent order, addendum, and Chemours' groundwater treatment system

16. Following River Watch's lawsuits against Chemours and the Department, in the summer and fall of 2018, the organization entered into settlement negotiations with the

two parties. Ex. 1, Sargent Aff. ¶ 16. During those negotiations, one priority for River Watch was to ensure that the company's severe groundwater pollution would not continue to contaminate the Cape Fear River and its tributaries indefinitely, thereby continuing to endanger downstream communities and the organization's members. *Id.*

17. The negotiations between River Watch, Chemours, and the Department resulted in a proposed consent order. *Id.* ¶¶ 15–16. As anticipated by the consent order, River Watch sought and was granted intervention in the Department's pending enforcement action against Chemours in Bladen County Superior Court. *Id.* ¶ 17. The final consent order was entered by the Bladen County Superior Court in February 2019. Ex. 6, Consent Order, *North Carolina v. The Chemours Company FC, LLC*, 17 CVS 580 (2019).

18. The consent order included several provisions to address Chemours' groundwater pollution into the Cape Fear River and its tributaries. Paragraph 12 of the consent order required Chemours to develop a plan to reduce as much PFAS pollution from groundwater into surface waters as possible in the near-term. *See id.* ¶ 12. The consent order also required Chemours to capture and treat a groundwater-fed stream that was polluting the Cape Fear. *See id.* ¶ 12(e). Finally, it required the company to implement long-term groundwater remediation measures that met certain minimum requirements under the order. *Id.* ¶ 16.

19. In August 2019, Chemours submitted the mandatory plan under paragraph 12 of the consent order. Among other things, the consent order required Chemours' plan to include information on how it would achieve maximum feasible reductions of PFAS pollution from groundwater into surface waters. This plan was an essential part of the consent order, which provided that the three parties, upon agreeing on remedial measures, would move to amend the order to incorporate such remedial measures. *Id.* ¶ 12(f).

Chemours' plan, however, was severely lacking and did not include measures for preventing its groundwater pollution into surface waters—even though the company had determined that groundwater is a significant source of PFAS into the Cape Fear River. Ex. 1, Sargent Aff. ¶ 22.

20. From August to December 2019, River Watch attended numerous meetings and sent technical letters to ensure that Chemours would address groundwater contamination into the Cape Fear and its tributaries. *Id.* ¶¶ 22–24. In 2020, the three parties again entered extensive settlement negotiations to determine Chemours' obligations under paragraph 12 of the consent order. Several months of negotiations culminated in an addendum that was entered by the Bladen County Superior Court in October 2020. *See* Ex. 7, Addendum to Consent Order Paragraph 12, *North Carolina v. The Chemours Company FC, LLC*, 17 CVS 580 (2020).

21. The addendum to the consent order required Chemours to take significant actions to address its groundwater pollution into the Cape Fear River. In particular, the company is required to install an underground barrier wall between its site and the Cape Fear River to block the groundwater flowing into the river, and then to pump up contaminated groundwater from behind the wall so that the groundwater does not flow around it. *Id.* ¶ 3(b). The addendum further required Chemours to treat the groundwater for PFAS before discharging the treated water into the Cape Fear River. “[A]t a minimum,” the addendum required Chemours to remove 99 percent of its PFAS from the groundwater. *Id.* ¶ 3(b)(ii). This treatment system is known as the “groundwater treatment system.”

III. Cape Fear River Watch's interest in the NPDES Permit

22. In 2021, Chemours applied for an NPDES permit—the permit at issue in this case—to discharge treated groundwater from its groundwater treatment system into the Cape Fear River. Beyond implementing the addendum's minimum requirements, this

permit establishes how much PFAS (and other pollutants) Chemours could release into the Cape Fear River.

23. Given River Watch's interest in full implementation and enforcement of the consent order and addendum, the organization closely followed progress on this NPDES permit. Ex. 1, Sargent Aff. ¶¶ 29, 33. River Watch sent comments to the Department on the permit application on December 8, 2021—before a draft permit was even issued. *Id.* ¶ 33; *see also* Ex. 1, Sargent Aff., Attach. A. Due to River Watch's close involvement with the site, the organization was familiar with other PFAS treatment technology installed by Chemours under the consent order and addendum—technology that had performed well over the past year. The organization thus urged the Department to consider the performance of already installed treatment technology at the site when reviewing Chemours' pending permit application for the groundwater treatment system, as required by the Clean Water Act. *See* Ex. 1, Sargent Aff., Attach. A at 3.

24. On March 25, 2022, the Department released a draft NPDES permit for public comment. River Watch requested that the agency hold a public hearing on the draft permit. Ex. 1, Sargent Aff. ¶ 36.

25. On May 2, 2022, River Watch submitted a second comment letter on the NPDES permit, again reiterating the Department's obligation to consider what the available PFAS treatment technology could achieve—including existing treatment systems installed at the site—when setting permit limits. *Id.* ¶ 35. The organization emphasized that the PFAS limits in the draft permit failed to reflect what the existing treatment technology could achieve and were therefore too high. *See* Ex. 1, Sargent Aff., Attach. B at 5–12.

26. Public hearings were scheduled for June 21 and June 24, 2022. The organization's executive director and members spoke at both public hearings. Ex. 1, Sargent

Aff. ¶ 36. Also on June 24, 2022, River Watch submitted its third comment letter on the permit. Many of the organization's members submitted written comments to the Department as well. *Id.* ¶¶ 36–37; *see also* Ex. 1, Sargent Aff., Attach. C.

ARGUMENT

I. Cape Fear River Watch is Entitled to Intervention with All Rights of a Party.

27. River Watch is entitled to intervene as a party of right under Rule 24(a)(2) of the North Carolina Rules of Civil Procedure because “(1) it has a direct and immediate interest relating to the [litigation], (2) denying intervention would result in a practical impairment of the protection of that interest, and (3) there is inadequate representation of that interest by existing parties.” *Virmani v. Presbyterian Health Servs. Corp.*, 350 N.C. 449, 459, 515 S.E.2d 675, 683 (1999); *see also Winchoski v. Piedmont Fire Prot. Sys., LLC*, 251 N.C. App. 385, 390, 796 S.E.2d 29, 34 (2016); *Hinton v. Hinton*, 250 N.C. App. 340, 347, 792 S.E.2d 202, 206 (2016). As explained below, River Watch meets these requirements and is entitled to intervene in this contested case as a full party.

28. First, River Watch should be permitted to intervene as a full party due to its and its members' direct, immediate, and longstanding interest in this permit and protecting River Watch's members from Chemours' pollution. River Watch has two key interests here: (1) protecting the consent order and addendum and the organization's ability to implement and enforce them, and (2) protecting its members from unnecessary toxic PFAS pollution.

29. The permit was issued because of the consent order and addendum. *See* Ex. 7, Addendum to Consent Order Paragraph 12 ¶ 3; Ex. 1, Sargent Aff. ¶¶ 12–20, 22–23. Chemours has raised the addendum's requirements as part of its basis for this contested case. Pet'r's Pet. for a Contested Case Hr'g 1–2 (Oct. 14, 2022). Therefore, this Court will be asked to interpret and apply the consent order and addendum, which will directly affect

River Watch's interest in ensuring that Chemours fully complies with the commitments made in Bladen County Superior Court.

30. As for River Watch's second interest in protecting its members from Chemours' pollution, the organization has a direct and immediate interest in ensuring that the PFAS in Chemours' groundwater is properly controlled through the groundwater treatment system—as made clear by River Watch's prior lawsuits, years of advocacy, and direct involvement in the consent order and addendum and their enforcement. Since River Watch discovered that Chemours' groundwater pollution is a major source of PFAS into the Cape Fear River and its tributaries, the organization has been acting to stop that pollution. For instance, the organization's allegations against Chemours in federal court focused on the company's groundwater pollution. Ex. 5, Complaint ¶¶ 34–36, 90–100. In the ensuing state court settlement negotiations, River Watch worked to address Chemours' contaminated groundwater. Ex. 1, Sargent Aff. ¶ 16. The resulting consent order thus contained multiple provisions requiring cleanup of that pollution. *See, e.g.*, Ex. 6, Consent Order ¶¶ 12, 16. And when the company's remediation measures under paragraph 12 of the consent order were negotiated, River Watch again prioritized the cleanup of the groundwater pollution—resulting in an addendum to the order that required installation of the groundwater treatment system. Ex. 7, Addendum to Consent Order Paragraph 12 ¶ 3(b). The permit at issue in this case thus represents the culmination of nearly half a decade of River Watch's advocacy to control Chemours' PFAS pollution in the groundwater and to prevent the company's chemicals from harming its members.

31. Second, denying intervention would impair River Watch's interest in implementing and enforcing the consent order and addendum to which it is a party. Unless it is allowed to intervene, River Watch will not be able to adequately enforce and implement the requirements of these orders. *See* Ex. 1, Sargent Aff. ¶¶ 20, 44–45. The addendum

specifies that Chemours' groundwater treatment system must remove a "minimum" of 99 percent of the company's PFAS, reflecting the parties' limited knowledge at the time about the effectiveness of the available treatment technology for Chemours' particular facility. Ex. 7, Addendum to Consent Order Paragraph 12 ¶ 3(b)(ii). The 99 percent reduction requirement thus represented the floor and not the ceiling of what Chemours was required to do to reduce its PFAS pollution. Indeed, the goal of the consent order and addendum has always been to prevent as much PFAS as possible from leaving Chemours' site.

32. When assessing the permit at issue in this case, the Department took into consideration the "minimum" reduction requirement in the addendum, but also ensured that the permit would comply with federal and state water quality laws. In its analysis, the agency determined that these laws required Chemours to remove more than 99 percent of its PFAS before discharging its groundwater into the Cape Fear River and issued permit limits accordingly.

33. If this Court denies intervention, it will allow Chemours to argue for circumventing and eroding its obligations under the consent order and addendum without one of the three key players at the table. This would gravely impair River Watch's longstanding interest in the permit, the consent order and addendum, and in controlling Chemours' groundwater pollution. Ex. 1, Sargent Aff. ¶¶ 44–45.

34. In addition, if a decision in this contested case results in a less protective permit, thus allowing more PFAS into the Cape Fear River, River Watch's members (who have already suffered for years from Chemours' pollution) would suffer from additional, preventable PFAS contamination. Given what is at stake for the organization and its members, denying intervention would seriously impair the organization.

35. Moreover, without a seat at the table during potential settlement or mediation discussions, River Watch cannot ensure that its interest in upholding the consent

order and addendum will not be harmed during future negotiations between the present parties. Given the severity of Chemours' PFAS pollution, any weakening of this permit without River Watch's input would threaten the organization and its members.

36. Finally, the Department cannot and does not represent River Watch's interest in the consent order and addendum. As the state agency charged with administration of the state's water quality laws, the Department has wide-ranging and potentially conflicting responsibilities to entities across the state, including the issuance of permits to industrial applicants such as Chemours. River Watch, on the other hand, only represents its respective members who drink water from and rely on the Cape Fear River and its tributaries and live near and downstream from Chemours. River Watch's focused interest here is in protecting its members and safeguarding the health of the Cape Fear watershed—an interest that cannot be protected by an agency that represents the broader public. *See, e.g., Letendre v. Currituck Cnty.*, 261 N.C. App. 537, 817 S.E.2d 920 (2018) (table decision), *writ denied, temporary stay dissolved*, 372 N.C. 59, 822 S.E.2d 638 (2019) (holding the county whose interests were to protect the general public did not represent a private landowner who would suffer different, “special damages”)); *In re Sierra Club*, 945 F.2d 776, 780 (4th Cir. 1991) (allowing intervention because the state environmental agency “should represent all of the citizens of the state” and the environmental group represented a “subset” of citizens with unique concerns and did not need to engage in the same balancing act as the state); *Feller v. Brock*, 802 F.2d 722, 729 (4th Cir. 1986) (holding agency representation was inadequate because “the government's position is defined by the public interest, as well as the interests of a particular group of citizens”).

37. The Department's inability to represent River Watch's interests is clear from the litigation leading to the consent order and addendum, as well as this permitting process. River Watch has had to extensively advocate for its and its members' interests

since discovering Chemours' widespread contamination of the air, water, and soil in southeastern North Carolina in 2017. Ex. 1, Sargent Aff. ¶¶ 12–27. The addendum that required Chemours to apply for and receive the challenged permit was the result of River Watch suing both Chemours *and* the Department. *Id.* ¶ 16. Even in this permitting process, River Watch has argued for permit limits even more protective than those proposed or ultimately adopted by the state. *See, e.g.*, Ex. 1, Sargent Aff., Attach. B at 12. Indeed, River Watch has consistently argued (contrary to the Department) that Chemours can not only meet the limits in the Department's final permit, it can reduce its pollution even further.

38. Given the Department's history of inadequate enforcement and the agency's broader interest and responsibilities, the Department's interests regarding Chemours' pollution are adverse to River Watch's and its members'. *See Feller*, 802 F.2d at 730 (holding that even when a government agency's interest appears to align on the merits of a particular legal question, past conduct and different overall interests can indicate inadequate representation).

39. In the alternative, River Watch is entitled to permissive intervention pursuant to Rule 24(b)(2) of the North Carolina Rules of Civil Procedure and Section 150B-23(d) of the North Carolina Administrative Procedure Act. A moving party seeking to intervene under Rule 24(b)(2) shall be permitted to intervene in an action "when an applicant's claim or defense and the main action have a question of law or fact in common." N.C. Gen. Stat. § 1A-1, Rule 24(b)(2). In addition, any person interested in a contested case may intervene and participate in the proceeding to the extent deemed appropriate by the administrative law judge." N.C. Gen. Stat. § 150B-23(d); 26 N.C. Admin. Code 3.0117 (implementing N.C. Gen. Stat. § 150B-23(d)). The issues in this proceeding, which impact River Watch's ability to fulfill its mission to protect and improve the water quality of the

Cape Fear River Basin for downstream communities, involve common questions of law and fact to those presently before the Court.

II. The Motion to Intervene is Timely.

40. North Carolina Rules of Civil Procedure require that motions to intervene be timely. N.C. Gen. Stat. § 1A-1, Rule 24. Courts consider the following five factors in determining timeliness: “(1) the status of the case, (2) the possibility of unfairness or prejudice to the existing parties, (3) the reason for the delay in moving for intervention, (4) the resulting prejudice to the applicant if the motion is denied, and (5) any unusual circumstances.” *Hamilton v. Freeman*, 147 N.C. App. 195, 201, 554 S.E.2d 856, 859 (2001); *State Emp.’s Credit Union, Inc. v. Gentry*, 75 N.C. App. 260, 264, 330 S.E.2d 645, 648 (1985)). Courts “rarely den[y motions to intervene] as untimely prior to the entry of judgment.” *Hamilton*, 147 N.C. App. at 201, 554 S.E.2d at 859.

41. River Watch’s motion to intervene is timely. Chemours filed this contested hearing petition less than four weeks ago and, upon information and belief, the parties have yet to file prehearing statements. The parties have not initiated discovery and hearings have not occurred, let alone an entry of judgment. Because the case has barely commenced, intervention will not cause unfairness or prejudice to Chemours or the Department.

42. River Watch, on the other hand, would be greatly prejudiced if it is not permitted to continue being involved in the implementation and enforcement of the consent order and addendum as a party in this case. If this Court denies intervention, River Watch would suffer serious harm to its organizational interests—in implementing and enforcing the consent order and addendum, in preventing Chemours’ groundwater pollution from reaching the Cape Fear River, and in protecting its members who live near and downstream of the facility from the company’s toxic PFAS.

CONCLUSION

WHEREFORE, based upon the foregoing and good cause shown, River Watch respectfully requests that this Court grant River Watch's Motion to Intervene and enter an order allowing the organization to intervene as a Respondent-Intervenor. A Proposed Order granting intervention is submitted with this Motion. River Watch has not attached a responsive pleading, as the Rules for the North Carolina Office of Administrative Hearings do not require responsive pleadings to accompany a Motion to Intervene. *See* 26 N.C. Admin. Code 3.0117. Following receipt of an order allowing the Motion to Intervene, the organization will file a Prehearing Statement according to the schedule set by the Court. Respectfully submitted this 10th day of November 2022.

/s/ Irena Como

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CERTIFICATE OF SERVICE

I certify that on this date the foregoing **MOTION TO INTERVENE** has been served by the OAH electronic filing system on counsel for the parties who have appeared in this matter.

This the 10th day of November, 2022.

/s/ Irena Como
Attorney for Cape Fear River Watch

EXHIBIT 1

STATE OF NORTH CAROLINA
COUNTY OF BLADEN

IN THE OFFICE OF
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22 EHR 03913

The Chemours Company FC, LLC,)
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AFFIDAVIT OF DANA SARGENT

I, Dana Sargent, being first duly sworn, depose and say:

1. My name is Dana Sargent, and I am over the age of eighteen (18) and competent to give this statement. I have personal knowledge of the matters stated herein and reside in Wilmington, North Carolina.

2. I am the Executive Director of Cape Fear River Watch (“River Watch”) and have been since January 2019. I have a Master of Science in Environmental Sciences and Policy from The Johns Hopkins University and have engaged in environmental advocacy for more than a decade. I became a member of River Watch in 2013 and started volunteering with the organization when I moved to Wilmington nine years ago. I first assisted River Watch with communications and advocacy, then served on River Watch’s advocacy committee and Board of Directors before becoming Executive Director.

3. River Watch is a § 501(c)(3) nonprofit public interest organization headquartered in Wilmington, North Carolina that, since 1993, has engaged residents of the Cape Fear River basin through programs to preserve and safeguard the river. We have more than 1,000 members in the Cape Fear River basin—including members who live near,

drink water from, and fish, swim, and boat on the Cape Fear River downstream of the Fayetteville Works Facility owned and operated by The Chemours Company.

4. Our mission is “to protect and improve the water quality of the Cape Fear River Basin for all people through education, advocacy and action.” We work to protect the entire watershed from pollution, including toxic chemicals such as the per- and polyfluoroalkyl substances (“PFAS”) that have been released from Chemours’ site for four decades, and continue to be pumped into our rivers, streams, and drinking water sources.

5. PFAS are a class of synthetic chemicals known to cause harm to human health and the environment. PFAS have been associated with cancer, liver and thyroid disease, and negative impacts on fertility and fetus development, among other devastating human health concerns. PFAS don’t break down in the environment, and some of the chemicals persist in our bodies. The Cape Fear River basin has some of the highest levels of PFAS pollution in the state and across the country.

6. We advocate on behalf of the river basin at the local, state, and national levels. At the local level, River Watch conducts water quality monitoring throughout the basin and holds education seminars for residents and members on issues affecting the Cape Fear River. River Watch also engages with residents of the Cape Fear watershed through programs to preserve and safeguard the Cape Fear River. For example, we lead monthly volunteer clean-ups in the watershed. Our staff and volunteers guide monthly kayaking trips in the watershed, conduct summer camps for children, and work with the school system to educate children about water quality. At the state and federal levels, we work alongside numerous state and federal agencies and organizations on water quality improvement and environmental protections.

7. Given our organization's priorities, we have been actively involved in advocacy and litigation efforts to eliminate and prevent further PFAS pollution from Chemours' facility for more than five years.

8. Our organization found out about Chemours' PFAS pollution from a local news article in 2017 announcing that the company had been dumping dangerous amounts of these chemicals into our drinking water source for years. When we heard the news, I was as confused and angry as the rest of my community.

9. At that time, I was contracted to work with River Watch on pollution from animal agriculture and to combat local and federal efforts to weaken water quality protections. When the news broke about Chemours' pollution of our river and our community, my entire job—and a lot of what River Watch does as an organization—shifted. We all had to spring into action to learn about Chemours' pollution, explain what was happening to the public, and do our best to protect the Cape Fear River and the communities that depend on it.

10. After the news broke out about Chemours' pollution in 2017, we held numerous events in the community, inviting researchers, physicians, and other experts to field questions and share what we had learned about the scope of the pollution. We wanted to provide answers and support for community members who were hurt, concerned, and confused about the impact of PFAS on the health of their loved ones.

11. In 2018, we hosted another event in our historic theatre here in Wilmington where we screened the film "The Devil We Know," a documentary about Chemours' predecessor, DuPont, and the PFAS pollution they dumped in the Ohio River. After the film, we hosted a panel discussion with Rob Bilott, the lawyer who fought DuPont over that pollution. The entire theatre—all three levels—was packed, and the tone of the event was incredibly somber because the movie ends where our story began: with DuPont creating the

company, Chemours, to absorb much of the liability from its PFAS pollution; with Chemours taking over DuPont's PFAS chemical manufacturing in North Carolina; and with Chemours causing one of the biggest environmental and public health disasters in our state's history.

12. By May 2018, the North Carolina Department of Environmental Quality ("Department") had investigated Chemours' PFAS pollution for nearly a year and collected data showing the significant scope of the contamination. The Department, however, had yet to require the company to take sufficient action to stop the pollution entering the Cape Fear River and contaminating our members' drinking water source. In response, we sought a declaratory ruling from the Department ordering Chemours to immediately discontinue all discharges of PFAS from its facility. When the Department denied our request, in July 2018, we appealed the decision to New Hanover County Superior Court. As a part of our case in New Hanover County Superior Court, River Watch emphasized that both the organization and its members were suffering as a result of Chemours' PFAS pollution.

13. At the same time, in May 2018, we sent Chemours notices of intent to sue under the Clean Water Act and Toxic Substances Control Act arguing, among other violations, that the corporation was illegally discharging PFAS into groundwater and surface waters. We raised concerns about the direct discharges into the groundwater and surface water, but also focused on PFAS in the groundwater being discharged to surface waters, exacerbating the pollution crisis. Because Chemours did not remedy its violations within the mandatory notice period and continued to release PFAS into the environment in violation of the Clean Water Act and Toxic Substances Control Act, we sued Chemours in federal court in August 2018.

14. One of the key claims of our 2018 federal lawsuit against Chemours was that the company's past and present operations contaminated the groundwater through leaking

pipes, sumps, drains, ditches, and many other sources; and that the contaminated groundwater beneath the site was flowing into surface waters (including the Cape Fear River and two of its tributaries). We alleged that these were unpermitted discharges in violation of the Clean Water Act.

15. During this ongoing litigation, the North Carolina Department of Environmental Quality released a draft consent order for public comment requiring Chemours to take some limited measures to control its PFAS pollution. The Department's draft order had numerous deficiencies, including a failure to sufficiently control Chemours' groundwater contamination. We submitted comments on the draft order that urged the Department to require Chemours to eliminate its PFAS pollution, including the pollution coming from its groundwater.

16. As a result of these lawsuits and River Watch's engagement in the public process, our organization entered into months-long negotiations with Chemours and the North Carolina Department of Environmental Quality to achieve a consent order that—contrary to the Department's draft order—would achieve meaningful reductions of PFAS pollution. In November 2018, River Watch, the Department, and Chemours reached a proposed consent order that required the company to take many actions to control its pollution. For instance, it required Chemours to achieve maximum feasible reductions in PFAS pollution coming from its site (including from onsite groundwater) into surface waters in the near term. The proposed order additionally required Chemours to develop and implement a long-term groundwater remediation plan that complied with state law and that would, at a minimum, reduce groundwater contamination to Cape Fear River and two tributaries by at least 75 percent. The proposed consent order also required treatment of the company's PFAS air emissions and thousands of private drinking water wells polluted by Chemours.

17. As a result of the proposed consent order, in December 2018, River Watch sought and was granted the right to intervene in a pending lawsuit in Bladen County Superior Court between the Department and Chemours.

18. The proposed consent order was released for public comment, and between November 2018 and February 2019, the North Carolina Department of Environmental Quality received public comments on the consent order and worked to revise the order in response to comments. Because of the importance of the consent order for stopping Chemours' pollution and protecting the public, River Watch spent significant time educating our members and the community on what the order required Chemours to do and what, if implemented properly, the order could achieve. We created factsheets, wrote op-eds, and held public meetings to educate our members and hear their concerns.

19. The Bladen County Superior Court issued the final consent order in February 2019. The final order included a provision that Chemours capture and treat a groundwater-fed stream onsite known as Old Outfall 002 to remove a minimum of 99 percent of the PFAS before discharging that wastewater into the Cape Fear River.

20. Under the consent order, River Watch has enforcement power over twelve distinct provisions, including those addressing Chemours' groundwater contamination of the Cape Fear River and its tributaries. We also have an ongoing obligation to ensure that the consent order is fully implemented to protect our members, who have already been exposed to Chemours' PFAS pollution for years. The consent order is intended to stop PFAS from flowing into the Cape Fear, so our organization takes its responsibility of monitoring the activities under the order very seriously. I am very concerned that the outcome of this contested case could interfere with ongoing implementation of the consent order and our ability to ensure that Chemours complies with the order.

21. Because the consent order is so important to our organization and our members, we remain heavily involved in implementation and enforcement of the consent order even after the order was finalized. We have reviewed and provided extensive input on documents and reports produced under the consent order, including those that relate to Chemours' groundwater contamination of surface waters. Some of these reports showed that Chemours was failing to meet the benchmarks set by the consent order or neglecting its responsibilities altogether. River Watch has repeatedly alerted the Department to Chemours' delays and failures and reminded both the state agency and Chemours of the company's obligations under the order.

22. For example, in August 2019, Chemours submitted its PFAS Loading Reduction Plan, as required by paragraph 12 of the consent order. But Chemours' plan fell short of the order's requirements. Most problematically, despite Chemours' own determination and admission that its groundwater was a major source of PFAS contamination in the Cape Fear River, the plan did not include any remedial measures for preventing groundwater contamination of surface waters. We met with the Department and Chemours on many occasions to discuss the need for Chemours to address the facility's groundwater contamination.

23. Following months of continuous pressure from River Watch and the Department to fix these issues, Chemours submitted an additional report that included some remedial options for its groundwater contamination of the Cape Fear and its tributaries. We provided technical comments on this report, including comments on Chemours' proposed groundwater remediation

24. River Watch also submitted extensive comments on Chemours' deficient Corrective Action Plan, or its long-term plan for groundwater remediation of its site. Chemours had polluted over 70 square miles with toxic PFAS. Our comments outlined how

Chemours' Corrective Action Plan did not comply with state groundwater laws or the consent order. We were alarmed about the severity and extent of the groundwater contamination and that the groundwater was still flowing into the Cape Fear River. We spent a lot of time and effort distilling highly technical information and drafting this comment letter. Many of our members also submitted comments on the plan. After the Department received public comments, in April 2020, the agency announced that Chemours' plan was clearly deficient and rejected it.

25. For much of 2020, River Watch, the Department, and Chemours negotiated intensely over the implementation of paragraph 12 of the consent order, which required Chemours to achieve maximum feasible reductions in PFAS pollution coming from its site (including from onsite groundwater) into surface waters. In August 2020, the parties finally agreed on a proposed 33-page addendum to the consent order, spelling out these remediation requirements. After the proposed addendum was released for public comment and revised in response to comments, it was finalized and issued by the Bladen County Superior Court in October 2020.

26. The addendum requires the company to build an underground barrier wall between the Cape Fear River and its contaminated site to prevent heavily polluted groundwater from freely flowing into the Cape Fear River and its tributaries. So that groundwater would not flow over or around the barrier wall, the addendum also required that the company pump out polluted groundwater from behind the wall and remove a minimum of 99 percent of the PFAS.

27. During this time, and over the next couple of years, River Watch continued to engage on implementation and enforcement of the consent order beyond the provisions involving groundwater contamination. For instance, we commented on Chemours' toxicity

studies, PFAS mass loading model, and drinking water plans for downstream communities whose wells had been contaminated.

28. We have also continued to host numerous events, some small and some large, in order to reach out to community members and hear their concerns—many of which included national experts on PFAS, water treatment, epidemiology, and water policy. In addition to hosting events, we continue to participate in countless public education panels and other meetings regarding PFAS contamination in the Cape Fear River.

29. Because we are a party to the consent order, we have been significantly involved in Chemours' NPDES permit processes. In July 2020, the North Carolina Department of Environmental Quality issued a draft discharge permit for Chemours that was a key part of the consent order. The consent order required Chemours to capture and treat an onsite, groundwater-fed stream known as Old Outfall 002 to remove a minimum of 99 percent of the PFAS before discharging that wastewater into the Cape Fear River. Unfortunately, the Department's draft permit for that discharge contained weak PFAS limits that would allow unnecessary toxic PFAS into the Cape Fear River and downstream drinking water supplies. River Watch was particularly concerned about this discharge permit because Old Outfall 002 is highly contaminated, contributing approximately 25 percent of the PFAS contamination to the Cape Fear River at the time. We commented on the draft permit and advocated for stricter limits.

30. After the permit was issued, Chemours began operating a treatment system for Old Outfall 002 using a type of treatment technology known as granular activated carbon. We diligently reviewed sampling reports as they were released by Chemours to ensure the treatment system performed well and was not releasing significant amounts of PFAS into the Cape Fear. After the first couple of months, Chemours' treatment system consistently removed PFAS to nearly non-detectable levels. We were excited to see that the

technology was working, but because it was only installed at part of the property, we remained worried about the pollution reaching the Cape Fear River through other parts of the site, including through the groundwater.

31. In the summer of 2021, in preparation to construct the underground barrier wall between its site and the Cape Fear River—a key requirement of the consent order addendum, Chemours submitted another discharge permit application to the Department. The discharge permit is required because the addendum requires Chemours to pump up and treat its contaminated groundwater before discharging it into the Cape Fear River. The permit covers the discharge of the treated groundwater into the river and its limits restrict how much pollution, including PFAS, Chemours can release through that discharge.

32. Chemours was planning to use another granular activated carbon treatment system for its contaminated groundwater. Because the system for Old Outfall 002 was performing well, we were hopeful that this treatment system would as well. We remained concerned, however, that a weak permit would allow significant amounts of unnecessary PFAS into the Cape Fear River and downstream drinking water supplies. This was a risk that our members could not afford to take after being exposed to Chemours' PFAS pollution for decades.

33. After Chemours submitted its permit application for the discharge from its groundwater treatment system, in December 2021, River Watch submitted comments to the Department encouraging the agency to consider the effectiveness of the treatment technology used at Old Outfall 002 when evaluating other discharge permits. We encouraged the state to set limits for discharges from the groundwater treatment system supported by the performance of existing technology at the site. *See Attach. A.*

34. In March 2022, the Department released a draft discharge permit for the groundwater treatment system for public comment. The draft permit was not nearly

protective enough. The limits for PFAS only required Chemours to reduce its PFAS by 99 percent—the minimum requirement under consent order addendum (which was negotiated before we knew how well the technology would perform on Chemours’ PFAS). Because PFAS concentrations in Chemours’ groundwater are so high, however, even a 99 percent reduction would have allowed far too much PFAS into the Cape Fear River, threatening the health and safety of our members.

35. In May 2022, River Watch commented on the draft permit explaining that the technology at Old Outfall 002 proved that Chemours could reduce PFAS by more than 99 percent and that the state was required to consider that technology when setting limits for the groundwater treatment system’s discharge permit. Attach. B. In our comments, we explained in detail how the state should calculate technology-based limits for this permit.

36. We also requested a public hearing on the draft discharge permit for the groundwater treatment system, which the Department later granted. I spoke at both the virtual and in-person public hearings, asking that the state listen to the voices of our community and impose strict pollution limits in accordance with the law. River Watch members and the general public submitted more than 100 written comments and also spoke at the hearings. I was very proud of our members because this issue—reducing toxic pollution in drinking water—is not only emotionally draining, but technically complex. The general public should not have to know this much about industrial pollution, but it’s something our members live with every day. They showed up to the hearings and told the agency exactly why they were authorized and required to do more to protect North Carolinians downstream. It was powerful to hear the voices of those still hurting from Chemours’ pollution.

37. In June 2022, we submitted a third set of written comments again emphasizing the need for stricter limits and informing the state of its legal obligations to impose them. *See Attach. C.*

38. When the final discharge permit for the groundwater treatment system was issued in September 2022, we were pleased. River Watch has spent years advocating for the remediation of PFAS from the groundwater at the Chemours' facility and this permit contained strong enough limits to ensure that Chemours would adequately treat that contaminated groundwater so that unnecessary PFAS wouldn't continue to flow into the Cape Fear River.

39. Because of our mission and dedication to water quality in the Cape Fear River basin, we have worked tirelessly to ensure the PFAS contamination from Chemours is kept out of our rivers, streams, and drinking water sources. The discharge permit for the groundwater treatment system follows years of advocacy and litigation by our organization and our members.

40. Now, Chemours is challenging the discharge permit for their groundwater treatment system, alleging that the limits (that are based on what the company has already achieved at another part of the facility) are too stringent. Chemours goes as far as to say that the limits conflict with the consent order addendum—the addendum negotiated by River Watch. In asking this Court to rule that Chemours be allowed to release more PFAS into the Cape Fear River—further threatening our members with more toxic PFAS—Chemours yet again attempts to evade accountability for its and its predecessor's years of contamination. I was devastated to find out that Chemours was challenging the discharge permit. The company has been working on a “good neighbor” public relations campaign claiming they care about the community and the environment, and yet here again, they are trying to undo safeguards protecting folks downstream.

41. If Chemours' permit is not upheld, River Watch and its members will be seriously injured. We have funneled our limited resources and staffing toward hosting events; attending public meetings; informing the public; litigating; negotiating the consent order and its addendum; submitting comments and letters to the state; conducting and support research; and advocating at the local, state, and national level to ensure something is done to clean up the PFAS pollution from Chemours' facility. We've fought to clean up Chemours' groundwater pollution through our heavy involvement in negotiating and enforcing the consent order and addendum, as well as the discharge permit for the groundwater treatment system—a permit that exists solely because of the consent order and addendum. If this permit is vacated, it would be a serious blow to all of our years of advocacy, litigation, and dedication to this issue.

42. Moreover, our environment, our members, and community are threatened by Chemours' challenge to its discharge permit. If the permit is revoked and more PFAS is allowed into the Cape Fear River as a result, our environment and our members will be subject to even more toxic PFAS that can and should be kept out of our water. Our members will continue to feel unsafe drinking from, and fishing, swimming, and playing in the Cape Fear River. Our members have suffered for too long. Unnecessarily increasing their exposure is simply wrong.

43. I am also deeply concerned that the North Carolina Department of Environmental Quality will not adequately represent the interests of our members and downstream communities in this litigation. Over the past five years, River Watch has had to invest significant resources, including filing a lawsuit against the state agency, in order for the Department to strictly control Chemours' PFAS pollution into the Cape Fear River. Without River Watch's separate lawsuits and involvement in the consent order and

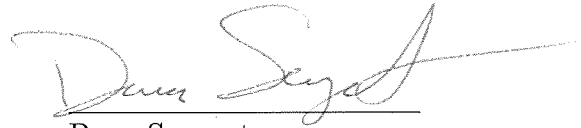
addendum negotiations, the consent order and addendum would be weaker—they would not have addressed Chemours’ groundwater contamination at nearly the same level.

44. River Watch has been the primary local environmental advocate fighting to address Chemours’ pollution since we learned about it in 2017. We are a well-known and well-respected organization. I get calls nearly every day from community members with concerns about their health, their children’s health, or their fear that they have hurt their family and friends by serving them contaminated water in their own homes. They feel scared, angry, and guilty. Our members and the community turn to us with questions about Chemours’ pollution because they know we have been their strongest advocates over the past half-decade. They also have told us that they often cannot get in touch with the state. It’s hard for them to trust a regulator you can’t get in touch with, especially after you have discovered that you’ve been drinking contaminated water for years—water that should have been protected by the state.

45. Chemours’ PFAS are in our water and in our homes. They have had a devastating impact on our communities and we at River Watch understand what is at stake. We should be granted the right to intervene in the lawsuit filed by Chemours to protect the integrity of the consent order and its addendum—and to protect the interests of our organization, our members, and communities living downstream of Chemours’ facility.

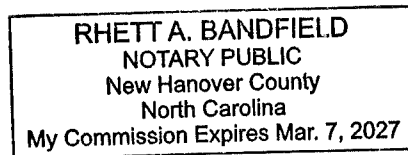
46. For these reasons, and for the health and well-being of our members, we request a court order allowing River Watch to intervene in this lawsuit. This order will redress my concerns regarding representation in a lawsuit over the discharge permit that River Watch has worked to make a reality over many years—in its capacity as an advocacy group and as a party to the underlying consent order and addendum.

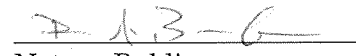
I swear/affirm that the foregoing is true and correct to the best of my knowledge,
information, and belief. Executed on November 7, 2022.


Dana Sargent

THE STATE OF NORTH CAROLINA
COUNTY OF New Hanover

Subscribed and sworn to before me, a notary public this the 7th day of November 2022.




Notary Public

My commission expires: 7 MAR 2027

ATTACHMENT A

December 8, 2021

Via Electronic Mail

Julie Grzyb
Deputy Director
Division of Water Resources
N.C. Department of Environmental Quality
julie.grzyb@ncdenr.gov

*Re: Effective Implementation of PFAS Control Technology at Chemours’
Fayetteville Works Facility*

Dear Ms. Grzyb:

This month marks a milestone for the Department of Environmental Quality’s efforts to control contamination from Chemours’ Fayetteville Works Facility. The agency now has a full year of monitoring data documenting the success of the first major water pollution control technology implemented by the company, the wastewater treatment plant that treats PFAS-laden water ultimately discharged through Outfall 003. That data makes clear that the treatment plant is remarkably effective at controlling PFAS discharges from the site. As the Division of Water Resources considers pending NPDES permit applications for the facility, including for the Groundwater Treatment System (GWTS), the agency must consider the success achieved over the last year.

Both Chemours’ GWTS application and existing data support relying on Outfall 003 data to set technology-based limits. First, Chemours cites “operational experience at Outfall 003” as a basis for believing that the proposed facility “will successfully address treatment requirements.”¹ Moreover, the water that will be treated at the proposed facility is not meaningfully different than the water treated at Outfall 003, with the exception of PFAS concentration. The company’s Outfall 003 application identified iron as a potentially problematic pollutant and estimated an influent concentration of 11.7 mg/L.² The facility has been designed to remove iron and, therefore, it has not presented an issue. The estimated influent to the GWTS has an iron concentration of 8.56 mg/L and the facility is being designed to treat up to 12.8 mg/L.³ Therefore, iron is unlikely to present an issue for the GWTS. The company has not identified any other pollutant of concern.⁴

¹ Chemours Fayetteville Works NPDES Permit Application Update: Groundwater Treatment System, Attachment A.5 (Engineering Report) at 17 (June 2021) (GWTS Engineering Report).

² Parsons, Chemours Fayetteville Engineering Report on Wastewater Treatability at 8, 13 (July 2019) (Outfall 003 Engineering Report).

³ GWTS Engineering Report at 13.

⁴ Chemours has also identified manganese as a constituent that exceeds surface water standards, though it has not identified any operational complications due to manganese. The manganese level in Outfall 003 influent, 0.195 mg/L, is higher than the maximum projected for the GWTS, 0.15 mg/L. See Outfall 003 Engineering Report at 13, GWTS Engineering Report at 13.

Chemours' discharge monitoring reports from Outfall 003 demonstrate that even highly contaminated PFAS discharges can be controlled. Since the upset associated with startup in October 2020, the treatment plant has dramatically reduced Outfall 003's PFAS contamination of the Cape Fear River. From November 2020 through October 2021, GenX discharges have been below detection levels for 45 of 48 samples and have not exceeded 2.3 ppt.⁵ PFMOAA has been below detection levels for 32 of 48 samples and has not exceeded 16 ppt. PMPA has been below detection levels in all 48 samples.

In addition, early results from the flow-through cells installed in seeps A, B, C, and D suggest that those control technologies are similarly effective. In September and October alone, the flow-through cells treated more than 32 million gallons of water and removed nearly 60 pounds of PFAS.⁶ Average removal efficiency for three of four cells was 99.9% or greater.⁷ Even during wet weather flows, all cells removed at least 99.3% of PFAS. These reductions significantly exceed what is required under the consent order, even for the GWTS, through technology that lacks the extensive pre-treatment components of the GWTS. The GWTS will be capable of much better, more consistent performance.

The performance of Seep B's flow-through cell is particularly relevant. Seep B has concentrations of PFAS that are occasionally significantly higher than those at Outfall 003 and projected concentrations in the GWTS, with concentrations as high as 510,000 ng/L. In the October 1, 2021 sample, the flow-through cell reduced the PFAS concentration from 510,000 ng/L to 200 ng/L for Total Table 3+ PFAS (20 compounds)—achieving a removal efficiency greater than 99.9%.⁸ The GWTS is being designed to process higher-concentration flows, including concentrations up to 528,000 ng/L. Considering the data from Seep B's flow-through cell, which lacks pre-treatment that will be included with the GWTS, there is no basis for allowing detectable discharges of PFAS from the GWTS.

Seep B Sampling Results⁹			
Date	Influent (ng/L)	Effluent (ng/L)	Efficiency (% removal)
June 12, 2021	130,000	ND	100
June 15, 2021	160,000	18	99.99
June 24, 2021	220,000	18	99.99
July 14, 2021	230,000	2.4	>99.9
July 31, 2021	210,000	3.4	>99.9
August 17, 2021	250,000	ND	100
August 20, 2021	270,000	ND	100
August 28, 2021	220,000	ND	100
September 9, 2021	230,000	4.9	>99.9
September 23, 2021	460,000	530	99.9

⁵ This assessment is based on discharge monitoring reports from November 2020 through October 2021, which Chemours submitted to the Department pursuant to its Outfall 003 NPDES permit.

⁶ Geosyntec Consultants, Interim Seep Remediation Operation and Maintenance Report #5 at 11 (Nov. 30, 2021).

⁷ Seep Remediation Report #5 at 13. Cell C was less efficient during September and October due to complications from high flows. *Id.* at 13.

⁸ Geosyntec, Interim Seep Remediation: Seep B Effectiveness Demonstration Report: Chemours Fayetteville Works, Table 2 (Nov. 3, 2021).

⁹ This information was compiled from Table 3b in Interim Seep Remediation Reports 2, 3, 4, and 5, which have been submitted by Chemours to the Division.

October 1, 2021	510,000	200	>99.9
October 21, 2021	270,000	140	99.9
October 29, 2021	270,000	75	>99.9

The agency must use this information when assessing future permit limits in NPDES permits for Chemours' facility, as the Division recognized in response to comments on the draft permit for Outfall 003.¹⁰ Based on the data collected over the last year, none of the uncertainties identified by the Division at that time remain.¹¹ The EPA's NPDES Permit Writers' Manual describes how the data from the Outfall 003 treatment system should inform permit limits for other applications of the technology, including statistical analysis that accounts for variability.¹² EPA guidance provides a basis for calculating both a daily maximum limit and a monthly average limit based on the available data.

The consent order has resulted in significant reductions in PFAS discharges from Chemours' site. It will result in additional reductions as it is fully implemented. The Division's permitting decisions will determine the degree of those additional reductions. The consent order represents the *minimum* reduction Chemours has committed to going forward, though the company has erroneously relied on the consent order as the only reductions it is required to make. The Division must not make that same error.

The Division must use its permitting authority to keep as much of these dangerous chemicals out of the Cape Fear River as possible so that downstream communities are no longer exposed to Chemours' pollution. The results from Outfall 003 and the flow-through cells show that reductions far beyond those required by the consent order are achievable. The consent order has forced Chemours to install technology that is, by all accounts, extremely effective at keeping PFAS out of the drinking water for more than 300,000 North Carolinians. DEQ must act on the knowledge we now have and require Chemours to implement technologies that are clearly applicable and effective to the maximum extent feasible.

Sincerely,



Geoffrey R. Gisler
Senior Attorney

cc:

Dana Sargent, Cape Fear River Watch

¹⁰ See Division of Water Resources, Fact Sheet: NPDES Permit No. NC0089915 at 10 (2020) (describing lowering limits based on discharge data).

¹¹ See Division of Water Resources, Response to Comments: NPDES Permit No. NC0089915 at 1 (2020) (describing uncertainty related to pilot studies).

¹² U.S. Environmental Protection Agency, NPDES Permit Writers' Manual at 5-47, https://www.epa.gov/sites/default/files/2015-09/documents/pwm_chapt_05.pdf.

Kemp Burdette, Cape Fear River Watch
Bill Lane, N.C. DEQ
Sushma Masemore, N.C. DEQ
Francisco Benzoni, N.C. DOJ

ATTACHMENT B

May 02, 2022

VIA E-MAIL

Sergei Chernikov
North Carolina Department of Environmental Quality
1601 Mail Service Center
Raleigh, N.C. 27699-1601
publiccomments@ncdenr.gov

**Re: Cape Fear River Watch Comments on Chemours' draft NPDES Permit
No. NC0090042**

Dear Dr. Chernikov:

The Southern Environmental Law Center submits these comments on draft NPDES Permit No. NC0090042 on behalf of Cape Fear River Watch. The draft permit proposes to authorize Chemours' Groundwater Treatment System (GWTS) to discharge up to 2.38 million gallons of treated groundwater, surface water, and stormwater each day. The Groundwater Treatment System is the final major piece of the consent order to be implemented and, as required by the consent order, is expected to remove at least 99% of the PFAS entering the system. Yet because the groundwater is so contaminated, a 99% reduction still results in unacceptably high levels of PFAS—120 ng/L of GenX, 640 ng/L of PFMOAA, and 130 ng/L of PMPA. The draft permit improperly and unlawfully adopts these high levels of PFAS as permit limits because the Division of Water Resources relied on the consent order as the basis for its technical analysis, rather than evaluating the performance of the best available technology, specifically the Outfall 003 treatment system. Because the Outfall 003 treatment system has nearly eliminated PFAS discharges, the final GWTS permit must include much lower limits for GenX, PFMOAA, and PMPA.

I. The Draft Permit Proposes Limits That Are Too High for Chronically Exposed Communities.

DEQ's decision to propose the draft permit must be understood in the context of the communities most directly affected. As DEQ has determined, there are numerous sources of PFAS into the Cape Fear watershed.¹ That contamination all flows downstream towards the communities that have already been heavily impacted by Chemours' toxic pollution. Retesting of 2014 and 2015 samples downstream of Chemours facility revealed that people have been drinking water with PFAS concentrations that are far higher than previously suspected. A 2014 sample below Chemours' outfall had PFAS concentrations of about 990,000 ng/L.² Another sample near the drinking water intake for people in Wilmington

¹ See *Emerging Compound Facility Sampling*, N.C. DEPT ENV'T QUALITY, <https://perma.cc/5GBM-KWB3> (last visited Apr. 25, 2022).

² Adam Wagner, *NC State-Led Study Shows Cape Fear River Had 'Incredibly High' Levels of Chemicals*, THE NEWS&OBSERVER (Oct. 10, 2019), <https://www.newsobserver.com/article235963052.html> (last visited Apr. 25, 2022).

and Brunswick County had levels of 130,000 ng/L.³ Detlef Knappe at N.C. State University determined that these high concentrations are the “current best estimate of what people in the Wilmington area were drinking for [...] 37 years.”⁴ And that sampling may only cover the tip of the iceberg, as Chemours has determined that the facility has historically released 250 PFAS that cannot be identified by targeted analytical methods.⁵ Not only are the communities downstream particularly vulnerable, they continue to be exposed to PFAS in their drinking water⁶ because Chemours and other dischargers continue to release the chemicals. Given the ongoing pollution, the susceptibility of impacted communities, and the fact that PFAS toxicity assessments consistently reveal that the chemicals are more harmful than previously thought, DEQ must keep PFAS out of the Cape Fear watershed when possible.

The agency has recently taken action to address even lower levels of PFAS in groundwater. DEQ has required Chemours to initiate an expanded groundwater screening analysis in response to groundwater PFAS levels ranging from 30 ng/L to 390 ng/L.⁷ The agency must provide similar protection to downstream surface water users.

Last, although we have learned a lot about Chemours’ site over the last five years, there is much we do not know about the company’s release of PFAS into the Cape Fear River. In the second quarter of 2021, Chemours estimated that it released 118.5 kg of PFAS into the river.⁸ In the fourth quarter of 2021, the company estimated that it released half that total—61.1 kg.⁹ Despite that significant reduction, PFAS levels in the raw water intake for Cape Fear Public Utility Authority and Brunswick County were approximately the same, reaching more than 300 ng/L in December 2021.¹⁰ There is so much still to learn about how PFAS are entering the Cape Fear River. DEQ must take advantage of every opportunity to ensure that PFAS are kept on Chemours’ site and out of the river; the draft permit fails to do so.

II. The Draft Permit Violates Controlling Law That Requires DEQ to Impose Protective Limits Based on Performance of Control Technology.

The high limits in the draft permit are the result of DEQ’s failure to conduct a case-by-case technology-based effluent limitation (TBEL) analysis as required by law. Rather than evaluating the performance of available technology and basing the permit limits on that performance, DEQ has relied on the consent order’s 99% reduction requirement. That requirement is not based on technological performance and was instead negotiated long

³ *Id.*

⁴ *Id.*

⁵ The Chemours Company FC, LLC, *PFAS Non-Targeted Analysis And Methods Interim Report* (June 2020), available at <https://perma.cc/5XN9-7Q2Z>.

⁶ See *Latest PFAS Test Results*, CAPE FEAR PUB. UTIL. AUTH., <https://perma.cc/ZL3B-552V> (last visited Apr. 25, 2022); *Water Test Results – Unregulated Compounds*, BRUNSWICK CNTY., <https://perma.cc/SM8Y-J5BX> (last visited Apr. 25, 2022).

⁷ Geosyntec Consultants of NC, *Framework to Assess Table 3+ PFAS in New Hanover, Brunswick, Columbus, and Pender Counties* Appendix B p.2 (Feb. 2022), available at <https://perma.cc/27T9-FXRV>.

⁸ Geosyntec Consultants of NC, *Cape Fear River PFAS Mass Loading Assessment – Fourth Quarter 2021 Report* Table 4 (Mar. 2022), available at <https://perma.cc/MJ44-U267>.

⁹ *Id.*

¹⁰ *Latest PFAS Test Results*, *supra* note 6.

before Chemours submitted any sampling data from Outfall 003 or its application for the GWTS.

DEQ's decision to adopt limits based on the minimum reduction required by the consent order rather than the level of pollution control achievable by the proposed technology is contrary to the very purpose of TBELs. As EPA's NPDES Permit Writers' Manual states: "[o]ne of the major strategies of the Clean Water Act [] in making 'reasonable progress toward the national goal of eliminating the discharge of all pollutants' is to require effluent limitations based on the capabilities of the technologies available to control those discharges."¹¹ A valid TBEL analysis is essential because "[t]echnology-based treatment requirements under section 301(b) of the Act represent the minimum level of control that must be imposed in a permit."¹² DEQ's approach upends this core component of the Clean Water Act.

If DEQ had applied the case-by-case technology-based limit analysis as required, permit limits would be dramatically lower. As shown below, the Outfall 003 facility is nearly identical to the GWTS, treats similar influent, and will be operated in a similar manner. Therefore, it is the appropriate model technology for the GWTS and must be the basis for establishing permit limits.

A. DEQ is required to do a case-by-case TBEL analysis that is consistent with state rules and federal regulations.

There are two methods by which DEQ may set TBELs. One is through application of effluent limitation guidelines promulgated by the EPA. The second, which applies here, is through a case-by-case TBEL analysis. Without effluent limitation guidelines set by EPA, DEQ is required to do a case-by-case TBEL analysis using available information on control technology. This is established in both state and federal law and outlined in EPA's NPDES Permit Writers' Manual.

In the absence of established effluent limitation guidelines, North Carolina rules mandate that DEQ conduct a case-by-case TBEL analysis "using . . . available information in order to achieve the purposes of Article 21" of Chapter 143 of the North Carolina General Statutes,¹³ which are "to maintain, protect, and enhance" the state's water quality.¹⁴ As DEQ has acknowledged that effluent limitation guidelines are inapplicable here,¹⁵ the agency must implement case-by-case limits, and it does not have the discretion to ignore available, relevant information when setting such limits.

The provision of state law that mandates a case-by-case TBEL analysis implements federal law. North Carolina can only issue permits that "apply, and insure compliance with,

¹¹ U.S. ENV'T PROT. AGENCY, NPDES PERMIT WRITERS' MANUAL 5-1 (Sept. 2010), *available at* <https://perma.cc/QS7Y-X84E>, relevant chapters included as Attachment 1 ("NPDES Permit Writers' Manual").

¹² 40 C.F.R. § 125.3(a).

¹³ 15A N.C. Admin. Code 2B.0406(b)(3).

¹⁴ N.C. GEN. STAT. § 143-211(b).

¹⁵ N.C. DEP'T ENV'T QUALITY, FACT SHEET NPDES PERMIT NO. NC0090042 7 (2020), *available at* <https://perma.cc/PW2P-5HK4> ("GWTS NPDES Fact Sheet").

any applicable requirements of section[] 301” of the Clean Water Act.¹⁶ Federal regulations state that “[t]echnology-based treatment requirements under section 301(b) of the Act represent the minimum level of control that must be imposed in a permit.”¹⁷ Those regulations go on to identify factors that the “permit writer shall apply” and issues the permit writer “shall consider.”¹⁸ All state permitting programs must implement these provisions of federal law “and must be administered in conformance with” the requirements.¹⁹

The EPA’s NPDES Permit Writers’ Manual outlines the process mandated by federal regulations. As discussed in more detail below, the manual identifies specific regulatory factors that must be considered,²⁰ provides resources for developing limits,²¹ and includes guidance related to statistical analysis used to develop permit limits.²² Finally, the manual includes recommendations for how to document the development of limits in the fact sheet.²³

DEQ did not follow applicable state law, federal law, or the EPA’s NPDES Permit Writers’ Manual when establishing limits in the draft permit. That decision resulted in limits that are significantly higher than can be justified under a proper analysis, are contrary to the purpose of the permitting program, and risk exposing communities in southeastern North Carolina to high levels of avoidable PFAS contamination.

B. TBELs must be based on the performance of the applicable technology.

The central error in DEQ’s analysis is the agency’s reliance on the consent order to establish limits. There are two foundational flaws in that approach. First, the minimum reductions required by the consent order were negotiated before there was any available information about the proposed treatment system or the nearly identical Outfall 003 treatment system. Second, DEQ omitted any analysis of how much PFAS the proposed technology can remove—an analysis that is central to setting limits based on best available technology.

The consent order’s minimum reduction requirement is an inappropriate substitute for the required TBEL analysis because it was adopted in October 2020—before Chemours had even proposed a design for the GWTS,²⁴ and before there was any available data on the effectiveness of the proposed technology at Chemours’ site. Since the addendum’s requirement was negotiated, Chemours has applied the proposed technology (granular activated carbon) in multiple applications to treat for PFAS throughout the site. The

¹⁶ 33 U.S.C. § 1342(b)(1)(A).

¹⁷ 40 C.F.R. § 125.3(a).

¹⁸ *Id.* § 125.3(c)(2).

¹⁹ *Id.* § 123.25(a)(36) (requiring state programs to have legal authority to implement Subpart A of part 125, criteria and standards for imposing technology-based requirements).

²⁰ See NPDES Permit Writers’ Manual, *supra* note 11 at 5-46–5-47.

²¹ *Id.* at 5-47–5-48.

²² *Id.*

²³ *Id.* at 5-48.

²⁴ Geosyntec Consultants of NC, *Engineering Report – Treatment of Groundwater and Upgradient Seeps Waters* 5 (June 2021), available at <https://perma.cc/5XY6-Y628> (report included as Attachment A.5 in Chemours’ GWTS application and begins on PDF page 81) (“2021 Engineering Report”).

parties to the addendum did not have the benefit of (now available) data demonstrating the effectiveness of that technology. At the time the consent order addendum was negotiated, no data was available from the Outfall 003 treatment system.²⁵ The flow-through cells had not yet been installed in Seeps A through D.²⁶ The stormwater treatment system had not been designed or constructed.²⁷ The minimum reduction requirement was based on a theoretical system without knowledge of what technology Chemours would implement, much less the effectiveness of the technology.

The negotiations that resulted in the addendum's 99% reduction requirement cannot substitute for compliance with state and federal law on TBELs. Case-by-case TBELs for PFAS must be based on a specific analysis of best available technology. When setting such limits, the permit writer is required to consider certain factors, including:

- The age of equipment and facilities involved;
- The process employed;
- The engineering aspects of the control techniques;
- Process changes;
- The cost of achieving such effluent reduction; and
- Non-water quality environmental effects.²⁸

These factors are to be used “to select a model treatment technology and derive effluent limitations on the basis of that treatment technology.”²⁹ As discussed below, conducting this required analysis would result in much more protective limits in Chemours' permit.

C. Permit limits based on control technology performance would be much more stringent than the proposed limits.

1. The Outfall 003 treatment system is the model facility for the GWTS.

The proposed GWTS process is functionally identical to the Outfall 003 treatment system. The GWTS includes a process of chemical oxidation to precipitate metals, including iron,³⁰ as does the Outfall 003 treatment system.³¹ After oxidation, the GWTS will separate

²⁵ Discharge monitoring reports for the Outfall 003 treatment system were not available until the end of November 2020. See CHEMOURS OUTFALL 003, NPDES NO. NC0089915 DISCHARGE MONITORING REPORTS (2020–2022), available at <https://perma.cc/8YND-XT5M> (“Outfall 003 DMRs”).

²⁶ The earliest seep data was submitted in April 2021, and the treatment technology had only been installed for seep C. See Geosyntec Consultants of NC, *Interim Seep Remediation Seep C Effectiveness Demonstration Report* Table 1 (Apr. 2021), available at <https://perma.cc/96B5-MPVG>. Since then, there have been at least six reports reporting seep data, including monitoring data for treatment technology installed at the remaining seeps. See, e.g., Geosyntec Consultants of NC, *Interim Seep Remediation Operation and Maintenance Report #7* (Mar. 2022), available at <https://perma.cc/53JR-QYZZ>.

²⁷ See Geosyntec Consultants of NC, *Stormwater Treatment System Capture and Removal Efficiency Report 1* (Sept. 2021), available at <https://perma.cc/63J5-X9PG>.

²⁸ 40 C.F.R. § 125.3(d)(3).

²⁹ NPDES Permit Writers' Manual, *supra* note 11 at 5-46.

³⁰ See 2021 Engineering Report, *supra* note 24 at 16.

³¹ N.C. DEP'T ENV'T QUALITY, FACT SHEET NPDES PERMIT NO. NC0089915 3 (2020), included as Attachment 2 (“Outfall 003 Fact Sheet”).

solids through ultrafiltration or similar technology;³² the Outfall 003 treatment system includes this as well.³³ Next, the filtrate will be pumped to the GAC adsorption process as solids are treated separately,³⁴ similar to the Outfall 003 system.³⁵ Chemours acknowledges the similarity between the two systems. In its application, the company stated: “The design of the GWTS is similar to the design of the treatment system for Outfall 003.”³⁶

Chemours has also recognized that the Outfall 003 treatment system is the model system for establishing effluent limits for the GWTS. The company stated in its application that because the two treatment systems are similar, “[t]he effluent data that has been submitted to NCDEQ with EPA Form 2C for permit number NC0089915” for Outfall 003 “is therefore considered to be suitable to estimate the expected effluent data for the GWTS.”³⁷

The best available technology regulatory factors³⁸ further support using the Outfall 003 treatment system and the sampling data from that system as the basis for setting technology-based effluent limits for the GWTS. Both are newly constructed, built for the purpose of controlling PFAS. They employ the same processes. The engineering aspects of the control techniques are identical. Neither Chemours nor DEQ has identified any difference in cost associated with the GWTS that could serve as the basis for distinguishing between the two facilities.

2. Permit limits based on demonstrated performance of the Outfall 003 system would be dramatically lower than those in the draft permit.

The EPA’s NPDES Permit Writers’ Manual provides guidance on how to derive permit limits once a model treatment technology is selected. Applying EPA’s method to Outfall 003 effluent data supports setting PFAS limits for the GWTS near detection levels. Chemours’ proposed operation of the GWTS further supports those limits.

The Outfall 003 treatment system has been extraordinarily successful by any metric. The table below summarizes the data available from discharge monitoring reports submitted by the company from October 2020 through January 2022.

³² 2021 Engineering Report, *supra* note 24 at 16.

³³ Outfall 003 Fact Sheet, *supra* note 31 at 3.

³⁴ 2021 Engineering Report, *supra* note 24 at 16.

³⁵ Outfall 003 Fact Sheet, *supra* note 31 at 3–4.

³⁶ Chemours Company, Chemours Fayetteville Works NPDES Permit Application for the Groundwater Treatment System 3 (June 13, 2021), *available at* <https://perma.cc/5XY6-Y628>. (“GWTS NPDES Application”).

³⁷ *Id.*

³⁸ *See* 40 C.F.R. § 125.3(d)(3).

Outfall 003 Treatment System Performance				
	GenX	PFMOAA	PMPA	Total Table 3+ (17 compounds)
Total Sampling events ³⁹	62	62	62	15
Total Non-Detect Sampling Events ⁴⁰	59	46	62	15
Percent Non-Detect	95%	74%	100%	100%
Minimum Daily Effluent (ng/L)	<2	<2	<10	<42
Maximum Daily Effluent (ng/L)	2.3	16	<10	<42
Average Daily Effluent (ng/L)	2.01	2.65	<10	<42
Minimum Monthly Effluent (ng/L)	0.42	0.55	<10	<42
Maximum Monthly Effluent (ng/L)	2	2.925	<10	<42
Average Monthly Effluent (ng/L)	1.715	2.166	<10	<42

Although the effluent levels for Outfall 003 have been remarkably consistent, there is some slight variability. The EPA NPDES Permit Writers' Manual explains how permit writers can provide for such variability by establishing daily and monthly limits that are higher than the long-term average. The manual describes EPA's approach of evaluating the performance of the model technology and setting limits based on the 95th and 99th percentile of effluent levels to establish monthly average and daily maximum limits, respectively.⁴¹ Setting limits based on these percentiles is reasonable because facilities can be expected to "design and operate their treatment systems to achieve the long-term average performance level consistently because facilities with well-designed and operated model technologies have demonstrated that it can be done."⁴² When necessary, a variability factor can be applied to provide additional assurance that permit limits are achievable.⁴³

Due to the consistency of the Outfall 003 data and Chemours' statement that the effluent of the Outfall 003 treatment system and GWTS will be similar, DEQ would be justified in applying EPA's approach to Outfall 003 data to set effluent limits for the GWTS based solely on the 99th and 95th percentiles for daily max and monthly average limits.⁴⁴ But the agency could also apply a variance factor to those values to provide additional assurance. As part of its application for the Outfall 003 treatment system, Chemours identified a variance factor of 1.46 as appropriate for assessing expected effluent levels from

³⁹ Chemours' discharges on October 29, 2020 violated the terms of the permit and are, therefore, excluded from this analysis. See CHEMOURS OUTFALL 003, NPDES NO. NC0089915 DISCHARGE MONITORING REPORT (Oct. 2020), available at <https://perma.cc/N9C3-63DP>.

⁴⁰ The reporting levels for GenX, PFMOAA, and PMPA are 2 ng/L, 2 ng/L, and 10 ng/L, respectively.

⁴¹ NPDES Permit Writers' Manual, *supra* note 11 at 5-20 (summarizing ELG process); see *id.* at 5-47 (describing detailed statistical analysis for complex data sets).

⁴² *Id.* at 5-19.

⁴³ *Id.*

⁴⁴ In its application to discharge thermal oxidizer wastewater, Chemours applied the 95th percentile analysis to calculate a proposed limit using BAT. After concluding that "[g]ranular activated carbon (GAC) is generally regarded as [BAT] for removal of PFAS compounds from water," the company calculated the 95th percentile of the available data. See CHEMOURS, BEST AVAILABLE TECHNOLOGY FOR OUTFALL 102 1 (January 22, 2020), included as Attachment 3. DEQ must use a similar process here.

a GAC treatment system.⁴⁵ Even if DEQ were to apply Chemours' 1.46 variance factor to daily max and monthly average values identified through the process described in the Permit Writers' Manual, the permit limits would be much lower than proposed. The following chart includes limits based on the EPA's process alone and with Chemours' variability factor.

Comparison of TBEL-Derived Limits and Proposed Limits			
	GenX	PFMOAA	PMPA
Daily Max (99th percentile) (ng/L)	2.23 ng/L	10.14 ng/L	10 ng/L
Monthly Average (95th percentile) (ng/L)	2.0 ng/L	2.16 ng/L	10 ng/L
Daily Max (99th percentile w/ Chemours' variance factor) (ng/L)	3.27 ng/L	14.81 ng/L	14.6 ng/L
Monthly Average (95th percentile w/ Chemours' variance factor) (ng/L)	2.92 ng/L	3.19 ng/L	14.6 ng/L
DEQ's proposed permit limits	120 ng/L	640 ng/L	130 ng/L

DEQ has previously misinterpreted the EPA's statistical analysis when setting permit limits for Chemours. In the final fact sheet for the Outfall 003 permit, the agency stated that "the proposed limits are even tighter [than EPA's 95th percentile recommendation] since Monthly Average and Daily Maximum limits in this permit are based on the 99th percentile."⁴⁶ But DEQ's limits were not based on the 99th percentile. Requiring 99% of PFAS to be removed from influent is not the same as setting effluent limits based on the 99th percentile of effluent concentrations. As shown in the chart above, the 99% reduction requirement relied on by DEQ for the draft permit limits is far more lenient than EPA's approach of using the 95th percentile or the 99th percentile to establish limits, even when Chemours' variance factor is applied.

3. The GWTS's increased volume and influent PFAS concentrations do not negate the use of Outfall 003 effluent data to set limits.

The primary difference between Outfall 003 treatment system and GWTS is the influent that they treat. The pollutants are the same—GenX, PFMOAA, and PMPA remain the most significant PFAS among the Table 3+ chemicals analyzed.⁴⁷ The influent into the GWTS, however, is a higher volume and has a higher concentration of PFAS generally. But

⁴⁵ Parsons, *Chemours Fayetteville Engineering Report on Wastewater Treatability* 10 (July 2019), included as [Attachment 4](#).

⁴⁶ Outfall 003 Fact Sheet, *supra* note 31 at 16.

⁴⁷ See GWTS NPDES Application, *supra* note 36 at Appendix A.1.

although these factors may require a larger facility, they do not affect the suitability of the Outfall 003 system as the best available technology for setting permit limits.

The GWTS is designed to treat higher volumes of water than the Outfall 003 system, but there is no evidence that the larger system will be less efficient at controlling PFAS discharges. As designed, the GWTS will treat an average flow of 1.756 million gallons per day (mgd) compared to the Outfall 003 system's average of 0.72–1.44 mgd.⁴⁸ This slight variation simply means that the chemical precipitation, flocculation, sedimentation, filtration, and carbon adsorption processes are designed to process more water for the GWTS (1,000–1,500 gallons per minute (gpm)) than for the Outfall 003 system (500–1,000 gpm).⁴⁹

Higher PFAS influent concentrations also do not justify deviating from the Outfall 003 effluent data. An analysis of Outfall 003 data shows that influent concentration did not have a significant effect on effluent concentration. The system removed all GenX whether the influent was 1,300 ng/L or 17,000 ng/L.⁵⁰ PFMOAA was completely removed at influent levels of 14,000 ng/L and 66,000 ng/L.⁵¹ PMPA was eliminated in every sample even though influent ranged from 1,900 ng/L to 6,000 ng/L.⁵² Variability in influent concentration is therefore not a basis for distinguishing between the treatment systems.

The data from Chemours' flow-through cells further demonstrate that higher influent concentrations for the GWTS cannot justify the proposed limits. Although the flow-through cells use a more basic design, sampling data from the cells demonstrates that granular activated carbon can reduce PFAS discharges to much lower levels than proposed in the draft permit even considering higher concentrations. Sampling data from the flow-through cell in Seep B is particularly relevant because it processes the most water of the four flow-through cells, has been less affected by sedimentation than other cells, and treats one of the two seeps with flow that will be treated by the GWTS. Data from July 2021 to March 2022 is included in the chart below.

⁴⁸ Chemours Company, Chemours Fayetteville Works NPDES NC0003573 Permit Application Update, Attachment D-Form2D 1 (July 9, 2019), included as [Attachment 5](#) ("NPDES NC0003573 Form2D").

⁴⁹ See GWTS NPDES Application, *supra* note 36 at Appendix A.1; see also NPDES NC0003573 Form2D, *supra* note 48 at 1.

⁵⁰ Influent to the Outfall 003 system measured 1,300 ng/L GenX on October 12, 2021 and 17,000 ng/L on October 5, 2021. See Outfall 003 DMRs, *supra* note 25 at 479.

⁵¹ Influent to the Outfall 003 system measured 14,000 ng/L PFMOAA on October 19, 2021 and 66,000 ng/L on January 26, 2021. See *id.* at 479, 90.

⁵² Influent to the Outfall 003 system measured 1,900 ng/L PMPA on January 25, 2022 and 6,000 ng/L on November 5, 2020. See *id.* at 616, 4.

Seep B Flow-Through Cell Performance					
Date ⁵³	Total Table 3+ Influent (20 PFAS) (ng/L)	Total Table 3+ Effluent (20 PFAS) (ng/L)	GenX Effluent (ng/L)	PFMOAA Effluent (ng/L)	PMPA Effluent (ng/L)
07/14/2021	230,000	2.4	<2	<2	<10
07/31/2021	210,000	3.4	3.4	<2	<10
08/17/2021	250,000	ND	<2	<2	<10
08/20/2021	270,000	ND	<2	<2	<10
08/28/2021	220,000	ND	<2	<2	<10
09/09/2021	230,000	4.9	2.6	2.3	<10
09/23/2021	460,000	530	30	260	130
10/01/2021	510,000	200	17	100	61
10/15/2021	270,000	140	8.7	76	40
10/29/2021	270,000	75	5.2	36	27
11/12/2021	260,000	49	5.1	20	19
11/28/2021	270,000	39	3.2	17	16
12/15/2021 ⁵⁴	250,000	3,300	310	850	440
12/29/2021 ⁵⁵	240,000	44	4.9	21	13
01/08/2022	190,000	32	2.3	13	14
01/15/2022	220,000	48	5.6	22	14
01/31/2022	200,000	480	24	260	83
02/15/2022	240,000	200	12	96	37
03/01/2022	270,000	520	34	250	110

These data show that even with no pretreatment, granular activated carbon removes nearly all PFAS from highly concentrated seeps. Except for the sample taken on December 15, 2021, which was marked as “may not be precise or accurate” by the lab processing the sample, every sample from the flow-through cells would meet the proposed limits for the GWTS. GenX has not exceeded 34 ng/L, nearly 75% less than the proposed limit. PFMOAA has not exceeded 260 ng/L, 60% less than the proposed limit. PMPA matched the proposed limit for the GWTS in one sample, though 15 of the 17 remaining samples were less than half the proposed limit, and no PMPA was detected in 6 samples. The GWTS’s higher influent concentrations therefore do not justify higher proposed limits.

⁵³ See Geosyntec Consultants of NC, *Interim Seep Remediation Operation and Maintenance Report #4 Table 3b* (Sept. 2021), available at <https://perma.cc/YTB9-G6EB>; Geosyntec Consultants of NC, *Interim Seep Remediation Operation and Maintenance Report #5 Table 3b* (Nov. 2021), available at <https://perma.cc/F5B5-KEAZ>; Geosyntec Consultants of NC, *Interim Seep Remediation Operation and Maintenance Report #6 Table 3b* (Jan. 2022), available at <https://perma.cc/E3F2-5UKQ>; *Interim Seep Remediation Operation and Maintenance Report #7*, *supra* note 26 at Table 3b. The tables referenced are included as a combined document in [Attachment 6](#).

⁵⁴ Data from 12/15/2021 are included for completeness. The Operation and Maintenance Report notes, however, that these data “may not be accurate or precise.” See *Interim Seep Remediation Operation and Maintenance Report #6*, *supra* note 53 at Table 3b.

⁵⁵ PFMOAA and PMPA Data from 12/29/2021 are included for completeness. The Operation and Maintenance Report notes, however, that these data “may not be accurate or precise.” *Id.*

4. Chemours' application supports setting limits at or near the detection level for at least GenX, PFMOAA, and PMPA.

Although Chemours' application did not apply the regulatory factors for evaluating best available technology, the company's submission supports setting permit limits at or near detection levels for GenX, PFMOAA, and PMPA. As described in the application, the treatment system will consist of three GAC adsorption trains consisting of three GAC columns each.⁵⁶ Critically, "the lead column will act as the primary contaminant remover" and will be monitored to determine when breakthrough occurs.⁵⁷ When breakthrough occurs, the middle column will become the lead, the lag column will become the middle, and the former lead column will be filled with new GAC and placed in the lag position.⁵⁸

If operated as intended, the treatment system will likely reduce GenX, PFMOAA, and PMPA to non-detectable levels after treatment in the middle column. The lag column, which will always contain new GAC, will treat water that enters the column with no detectable GenX, PFMOAA, or PMPA. The system is designed to achieve non-detect levels of the indicator PFAS after just two-thirds of treatment. The permit limits must reflect that design.

5. None of DEQ's previous rationales for declining to adopt protective TBELs have merit in this permitting process.

In response to comments on the Outfall 003 draft permit, DEQ identified several reasons for not adopting protective limits in the final permit. The agency stated that more stringent limits could not be imposed because (1) bench studies showed that "effluent concentrations of indicator PFAS compounds . . . are highly variable," (2) the treatability study was conducted under controlled conditions for a short period of time and that there could be complications when the technology is implemented in the field, (3) treatment below 99% reduction would be more difficult as influent concentrations decline, and (4) there was not an "implemented and successfully operating" facility to use for comparison.⁵⁹ None of these explanations are valid under the current circumstances.

The agency's previous concerns about bench studies showing variability are no longer valid. There has been very little variability in the effluent concentrations from the Outfall 003 system. Moreover, both the flow-through cells installed in seeps A through D and the stormwater treatment system have shown similar potential to control PFAS. The flow-through cells are far less sophisticated than the GWTS, with essentially no pretreatment of influent, yet have consistently reduced PFAS levels significantly below the proposed limits.⁶⁰ The stormwater treatment system's early results are similar to Outfall

⁵⁶ 2021 Engineering Report, *supra* note 24 at 19–20.

⁵⁷ *Id.* at 20.

⁵⁸ *Id.* at 20–21.

⁵⁹ N.C. DEPT ENV'T QUALITY, RESPONSES TO COMMENTS CHEMOURS PERMIT NC0089915 1–2 (Sept. 2020), included as Attachment 7 (emphasis in original).

⁶⁰ See *Interim Seep Remediation Operation and Maintenance Report #7*, *supra* note 26 at Tables 3a, 3b, 3c, 3d.

003, reducing GenX, PFMOAA, and PMPA levels below detection levels for the significant majority of samples.⁶¹

Similarly, DWR's concerns that treatability studies were conducted under controlled environments and not at full scale are no longer applicable given the success of the Outfall 003 treatment system. Even the flow-through cells, which are subject to environmental fluctuations that will not exist with the GWTS, regularly remove 99.99% of PFAS and rarely achieve less than 99% removal efficiency.⁶²

The agency's concerns regarding the difficulty in removing more than 99% of PFAS as concentrations decrease is premised on an improper connection between the permit limits and the consent order. As discussed above, permit limits must be based on the concentrations that the technology can achieve. Chemours' ability to meet a limit based on the concentration that the technology can achieve is not hindered by decreasing concentrations in groundwater. For instance, if DEQ were to implement a limit of 10 ng/L for PMPA (given Outfall 003 treatment system's ability to achieve non-detect for all 62 samples taken), Chemours should be able to meet that limit regardless of diminishing levels in the influent or groundwater. In fact, it would become easier over time for Chemours to achieve that limit because the granular activated carbon filters would simply take longer to become saturated, and the company would need to change out the filters less often. Although under the consent order Chemours must reduce PFAS by 99%, Condition A(6) in the draft permit already provides an exception if influent concentrations drop to a level that the 99% requirement cannot be mathematically demonstrated.

Finally, there is plainly an "implemented and successfully operating" facility that can be used to establish the permit limits. The Outfall 003 treatment system has essentially eliminated GenX, PFMOAA, and PMPA from its discharge; the nearly identical GWTS must be held to that standard.

6. Final permit limits must be based on a lawful TBEL analysis.

Based on the available data, there is no legal basis for the proposed limits. DEQ must conduct a lawful TBEL analysis and cannot include limits higher than those described above. Specifically, daily maximum limits for GenX, PFMOAA, and PMPA cannot exceed 4 ng/L, 15 ng/L, and 15 ng/L, respectively. Likewise, monthly average limits for GenX, PFMOAA, and PMPA cannot exceed 3 ng/L, 4 ng/L, and 15 ng/L, respectively.

III. DEQ Has Not Properly Analyzed Compliance With the Toxic Substances Standard.

In addition to including valid technology-based effluent limits in the permit, DEQ must ensure that water quality standards will not be violated. If there is a "reasonable potential" that water quality standards will be exceeded, DEQ must also include water

⁶¹ *Stormwater Treatment System Capture and Removal Efficiency Report*, *supra* note 27 at 13.

⁶² *See Interim Seep Remediation Operation and Maintenance Report #7*, *supra* note 26 at Tables 3a, 3b, 3c, 3d, 4a, 4b, 4c, 4d.

quality-based effluent limits in the permit.⁶³ In particular, DEQ must assess compliance with the toxic substances standard for Chemours' permit.

A. DEQ is required to implement limits to prevent PFAS from entering the Cape Fear River at levels that will harm public health.

Chemours PFAS discharges, which contain mixtures of many PFAS, threatens to violate the state toxic substances standard, which requires that:

the concentration of toxic substances, either alone or in combination with other wastes, in surface waters shall not render waters injurious to aquatic life or wildlife, recreational activities, public health, or impair the waters for any designated uses.⁶⁴

North Carolina defines toxic substances as:

any substance or combination of substances [...], which after discharge and upon exposure [...], either directly from the environment or indirectly [...], *has the potential* to cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions or suppression in reproduction or growth) or physical deformities in [...] organisms or their offspring.⁶⁵

PFAS are toxic substances under state law. PFAS are known to harm human health. They have been found to cause developmental effects to fetuses and infants, kidney and testicular cancer, liver malfunction, hypothyroidism, high cholesterol, ulcerative colitis, lower birth weight and size, obesity, decreased immune response to vaccines, reduced hormone levels, delayed puberty, and other harmful health effects.⁶⁶ Studies have further indicated that exposure to mixtures of various PFAS can cause more severe health effects.⁶⁷

DEQ has stated in its lawsuit against Chemours that PFAS “meet the definition of ‘toxic substance’” under North Carolina rules.⁶⁸ DEQ therefore must thoroughly analyze

⁶³ 40 C.F.R. § 122.44(d)(1)(i); *see also* 33 U.S.C. § 1311(b)(1)(C); 15A N.C. Admin. Code 2H.0112(c) (stating that DWR must “reasonably ensure compliance with applicable water quality standards and regulations”).

⁶⁴ 15A N.C. Admin. Code 2B.0208(a).

⁶⁵ 15A N.C. Admin. Code 2B.0202(54) (emphasis added).

⁶⁶ Arlene Blum et al., *The Madrid Statement on Poly- and Perfluoroalkyl Substances (PFASs)*, 123(5) ENVTL. HEALTH PERSPECTIVES A-107 (2015), <https://perma.cc/V5EV-4LQH>; *see also* U.S. DEP’T OF HEALTH & HUM. SERVS., TOXICOLOGICAL PROFILE FOR PERFLUOROALKYLS 5–7, fig. 2-1, fig. 2-2 (2021), <https://perma.cc/NJ8A-PFP9>; AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY, PERFLUOROALKYLS - TOXFAQS™ 1 (Mar. 2020), *available at* <https://perma.cc/N948-CHME>.

⁶⁷ *See, e.g.,* Emma V. Preston et al., *Prenatal Exposure to Per- and Polyfluoroalkyl Substances and Maternal and Neonatal Thyroid Function in the Project Viva Cohort: A Mixtures Approach*, 139 ENV’T INT’L 105728 1–2 (2020), <https://perma.cc/DJK3-87SN>.

⁶⁸ N.C. DEQ Amended Complaint at 32, *North Carolina v. Chemours*, 17 CVS 580 (2018), included as Attachment 8 (stating that “the process wastewater from [Chemours] Fluoromonomers/Nafion® Membrane Manufacturing Area contains and has contained substances or combinations of

whether Chemours' discharges have a reasonable potential to "render waters injurious to aquatic life or wildlife, recreational activities, public health, or impair the waters for any designated uses."⁶⁹ DEQ failed to do so here—particularly in determining whether the proposed permit will protect public health.

B. DEQ did not appear to conduct any analysis on compliance with the toxic substances standard.

As justification for the proposed PFAS permit limits, DEQ states in the fact sheet, "No toxics in toxic amounts."⁷⁰ But the permitting documents do not include any analysis of whether Chemours' discharge could result in toxic amounts of PFAS in the Cape Fear River. DEQ did not assess whether discharges of GenX, PFMOAA, and PMPA at 120 ng/L, 640 ng/L, and 130 ng/L—along with the numerous other PFAS discharged by Chemours⁷¹—could harm public health under the toxic substances standard.⁷²

DEQ instead appears to admit that it did not consider water quality-based effluent limits for PFAS. DEQ or the Fact Sheet states that "The Technology Based Effluent Limits were the guiding criteria used to develop permit limitations for HFPO-DA, PFMOAA, and PMPA," and suggests that it needs EPA to develop PFAS criteria or the state to adopt standards before it can implement water quality-based effluent limits.⁷³ But DEQ cannot wait for numeric standards or criteria to act. The toxic substances standard is a narrative standard, which, unlike numeric standards, "do not specify numerical limitations on the concentration of a particular pollutant in the water."⁷⁴ That does not mean they can be ignored. Permit limits "must control all pollutants" which "have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."⁷⁵ EPA has emphasized that "narrative standards have the same force and effect as other state water quality standards."⁷⁶ And courts have affirmed that "permits must incorporate discharge limitations necessary to ensure that the water quality standards are met," including "narrative criteria."⁷⁷ EPA has issued rules explaining how permit writers must implement limits "[w]here a State has not established

substances which meet the definition of 'toxic substance' set forth in 15A N.C.A.C. 2B .0202," referring to GenX and other PFAS).

⁶⁹ 15A N.C. Admin. Code 2B.0208(a). To be clear, capturing and treating the contaminated groundwater will reduce PFAS levels in the Cape Fear River. That does not necessarily mean that the levels allowed by the discharge will not cause or contribute to a violation of the toxic substances standard.

⁷⁰ GWTS NPDES Fact Sheet, *supra* note 15 at 10.

⁷¹ See Chemours Company – Fayetteville Works, *List of PFAS Compounds* (June 2021), available at <https://perma.cc/3JW5-WGZA> (list included as Attachment F-3 of Chemours' 2021 Application for NPDES Permit NC0003573 and begins on PDF page 225).

⁷² 15A N.C. Admin. Code 2B.0208(a).

⁷³ GWTS NPDES Fact sheet, *supra* note 15 at 7.

⁷⁴ *Am. Iron & Steel Inst. v. E.P.A.*, 115 F.3d 979, 989 (D.C. Cir. 1997).

⁷⁵ 40 C.F.R. § 122.44(d)(1)(i).

⁷⁶ National Pollutant Discharge Elimination System; Surface Water Toxics Control Program, 54 Fed. Reg. 23868, 23872 (June 2, 1989).

⁷⁷ *Am. Iron & Steel Inst.*, 115 F.3d at 989; see also *Am. Paper Inst., Inc. v. E.P.A.*, 996 F.2d 346, 350 (D.C. Cir. 1993) ("[P]ermits must incorporate limitations necessary to meet standards that rely on narrative criteria to protect a designated use as well as standards that contain specific numeric criteria for particular chemicals.").

a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion.”⁷⁸ DEQ must assess limits for PFAS in order to ensure compliance with the toxic substances standard.

C. The limited analysis of in-stream concentrations cited by DEQ is flawed.

DEQ appears to rely on Chemours’ modeling for GenX in the Cape Fear River⁷⁹ for part of its permitting analysis. It is unclear whether DEQ used this modeling to assess compliance with the toxic substances standard. EPA has stated that “[t]he permit writer should clearly identify the information and procedures used to determine the need for [water quality-based effluent limits]” in order to provide “the public a transparent, reproducible, and defensible description of how each pollutant was evaluated, including the basis (i.e., reasonable potential analysis) for including or not including a [water quality based effluent limit] for any pollutant of concern.”⁸⁰ The permit and fact sheet lack the required transparent explanation for PFAS.

If DEQ has in fact relied on Chemours’ modeling to determine the need for a water quality-based effluent limit for PFAS, then its analysis is inherently flawed. First, the modeling was submitted as part of the application for Outfall 002 and does not address the additional pollution proposed to be discharged from Outfall 004.

Second, Chemours only modeled GenX, a single compound. Chemours acknowledges in its application and other submissions that it has found more than 100 additional PFAS in wastewater and groundwater, and that many more could be found in this discharge.⁸¹ As DEQ is aware, other PFAS outside of GenX are harmful to human health. The agency therefore cannot rely on Chemours’ modeling of a single compound to assess compliance with the toxic substances standard unless the company can show that the rest of the class of chemicals behaves similarly. Chemours has not shown that here.

Third, Chemours’ modeling relies on the outdated health goal for GenX of 140 ng/L, finding that the company’s release of GenX would be “diluted to below” the health goal.⁸² But as DEQ has recently acknowledged, EPA’s final toxicity assessment for GenX now has a much lower reference dose for the chemical.⁸³ In other words, GenX is far more harmful than previously thought—as is the case with other PFAS that have been studied more closely.⁸⁴ Modeling based on the outdated health goal cannot justify protection of public health and compliance with the toxic substances standard.

⁷⁸ 40 C.F.R. § 122.44(d)(1)(vi).

⁷⁹ GWTS NPDES Fact sheet, *supra* note 15 at 5.

⁸⁰ NPDES Permit Writers’ Manual, *supra* note 11 at 6-30.

⁸¹ *List of PFAS Compounds*, *supra* note 71.

⁸² Geosyntec Consultants of NC, *Mixing Zone Report* 13–14, 19 (Oct. 2019), *available at* <https://perma.cc/3JW5-WGZA>, included as Attachment 9 (“Cormix Report Addendum”).

⁸³ See Letter from Sushma Masemore, N.C. Dep’t Env’t Quality to Dawn Hughes, Chemours Fayetteville Works (Nov. 3, 2021), included as Attachment 10.

⁸⁴ In 2016, EPA established a lifetime health advisory of 70 parts per trillion (“ppt”) for the combined concentrations of PFOA and PFOS in drinking water. EPA has since updated toxicity assessments for the chemicals, suggesting that the health values for the chemicals should be magnitudes lower. The updated toxicity assessments would translate to health advisories of .006 ppt for PFOA and .029

Fourth, Chemours improperly attempts to include its own PFAS contamination as “background concentrations” in its modeling.⁸⁵ Occasionally in permitting decisions, DEQ will consider background concentrations of the pollutant at issue so that dischargers are not saddled with cleaning up pollution caused by upstream sources. This is not the situation here. Chemours is responsible for the PFAS contamination in Willis Creek, aerial deposition on the Cape Fear River and its tributaries, on-site and off-site groundwater contamination, and PFAS coming from the seeps. But in its modeling, Chemours labels the PFAS contamination from all of these sources as “background concentration in the river.”⁸⁶ Chemours then subtracted the background concentration from its discharge concentration so that it would only model (and therefore be held accountable for) the “excess concentration” over background levels.⁸⁷ DEQ cannot allow the company to get credit during the permitting process for its widespread contamination.

To the extent that DEQ has relied on Chemours’ modeling for any assessment of water quality-based effluent limits for PFAS, such reliance is improper.

D. DEQ must also consider Chemours’ ongoing PFAS through Outfall 002 from other sources of contamination.

As Outfall 004 is only an internal outfall to Outfall 002, DEQ must also consider other sources of PFAS from the Chemours facility into Outfall 002 and how the flows combined will affect downstream communities. Chemours’ Outfall 002 levels, even without the GWTS discharge, remain significant. In September and December of 2021, the open channel to Outfall 002 had concentrations of 2,500 and 3,200 ng/L of just Table 3+ PFAS alone⁸⁸—not to mention the hundreds of PFAS at the facility that are not measured by targeted methods.⁸⁹ Adding on the maximum amount of PFAS allowed by the proposed permit could significantly increase the amount of PFAS leaving Outfall 002. DEQ must therefore take these other sources of PFAS into consideration when assessing compliance with the toxic substances standard.

IV. DEQ Must Address Technical Issues.

There are several technical issues that DEQ must address in the final permit. Specifically, DEQ or Chemours should clarify the following.

ppt for PFOS. Garret Ellison, *No Safe PFAS Exposure Level? EPA Toxicity Drafts Point That Way*, MLIVE (Nov. 20, 2021), <https://perma.cc/8FYG-NRJP>; see ENV’T PROT. AGENCY, PROPOSED APPROACHES TO THE DERIVATION OF A DRAFT MAXIMUM CONTAMINANT LEVEL GOAL FOR PERFLUOROOCTANOIC ACID (PFOA) (CASRN 335-67-1) IN DRINKING WATER, External Peer Review Draft (2021), <https://perma.cc/K3DN-7BHU>; ENV’T PROT. AGENCY, PROPOSED APPROACHES TO THE DERIVATION OF A DRAFT MAXIMUM CONTAMINANT LEVEL GOAL FOR PERFLUOROOCTANE SULFONIC ACID (PFOS) (CASRN 1763-23-1) IN DRINKING WATER, External Peer Review Draft (2021), <https://perma.cc/8L5B-YUNA>.

⁸⁵ Cormix Report Addendum, *supra* note 82 at 6–7.

⁸⁶ *Id.* at 6.

⁸⁷ *Id.* at 7.

⁸⁸ When all 20 compounds were measured, PFAS levels reached 2,800 ppt in September 2021 and 3,300 ppt in December 2021. See Geosyntec Consultants of NC, *Characterization of PFAS in Process and Non-Process Wastewater and Stormwater* Table A1 (Mar. 2022), available at <https://perma.cc/XQY2-9J3F>.

⁸⁹ *PFAS Non-Targeted Analysis*, *supra* note 5.

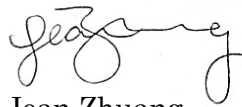
- Ultrafiltration pore size. Successful removal of total organic carbon and dissolved organic carbon will depend on the pore size of the ultrafiltration membrane pore size. Because dissolved organic carbon can cause desorption of short-chain PFAS, ensuring that the ultrafiltration system removes carbon <45 µm will promote better GAC performance. DEQ should clarify the required filtration pore size.
- GAC disposal/regeneration. Certain methods of GAC regeneration and disposal, specifically incineration, can result in widespread dispersal of PFAS—similar to the effects of Chemours’ prior air emissions. DEQ should ensure in the permit that used GAC is disposed of responsibly.
- Breakthrough threshold. Chemours has not identified the specific breakthrough threshold that it will use to determine when to change GAC in the first treatment container. Chemours should specify the threshold it will use to trigger changeover.
- Unit consistency. DEQ uses both µg/L and ng/L in the draft permit. DEQ should use consistent units throughout. We recommend use of ng/L.

Thank you for your consideration of these comments. Please do not hesitate to contact us at 919-967-1450 or via email (ggisler@selcnc.org, jzhuang@selcnc.org) to discuss this matter further.

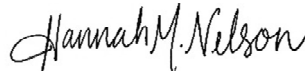
Sincerely,



Geoff Gisler
Senior Attorney



Jean Zhuang
Staff Attorney



Hannah Nelson
Associate Attorney

cc:
Dana Sargent, CFRW
Kemp Burdette, CFRW
Sushma Masemore, NCDEQ
Bill Lane, NCDEQ

ATTACHMENT C

June 24, 2022

VIA E-MAIL

Sergei Chernikov
North Carolina Department of Environmental Quality
1601 Mail Service Center
Raleigh, N.C. 27699-1601
publiccomments@ncdenr.gov

**Re: Cape Fear River Watch and North Carolina Sierra Club
Supplemental Comments on Chemours' Draft NPDES Permit
No. NC0090042**

Dear Dr. Chernikov:

The Southern Environmental Law Center submits these supplemental comments on draft NPDES Permit No. NC0090042 on behalf of Cape Fear River Watch and North Carolina Sierra Club. Since submitting our May 2, 2022 comments, which we incorporate here by reference, we have reviewed additional discharge monitoring reports that further support the conclusion that permit limits must be much lower than currently proposed.

I. Additional Data Supports Limits Proposed in Prior Comments.

Our May 2, 2022 comments were based in part on discharge monitoring reports from October 2020 through January 2022.¹ Since that time, we have reviewed discharge monitoring reports from February 2022 through April 2022 that we received from the Division. As with prior reports, GenX, PFMOAA, and PMPA were not detected in the 13 samples reported.² These data support limits at or near the level of detection for each of the three indicator compounds.

In addition to requesting discharge monitoring reports from the Division, we also requested and reviewed other documentation supporting the limits in the draft permit. In a draft response to our December 2021 letter, Division staff raised several issues—including whether we properly excluded a sample taken on October

¹ Letter from Geoff Gisler, SELC, to Sergei Chernikov, N.C. Dep't of Env't Quality at 9-10 (May 2, 2022), <https://perma.cc/3UJW-V7R7> (hereinafter SELC May 2022 Comments).

² See *Chemours Outfall 003, NPDES No. NC0089915 Discharge Monitoring Reports (2020–2022)*, <https://perma.cc/KDT5-8PDD> (hereinafter Chemours 2020-2022 DMRs).

29, 2020.³ The sample reported levels of 25 ng/L GenX, 1,200 ng/L of PFMOAA, and 130 ng/L of PMPA.⁴ This data was properly excluded.

The high levels of PFAS detected on October 29, 2020 were caused by Chemours' failure to properly install the treatment system. Citing Chemours for four permit violations, the Division described the system at that time as "not properly designed" and cited Chemours for "[t]he failure to install a properly designed system."⁵ The Division cannot rely on sampling data for a system that was out of compliance or improperly designed to justify the limits here. The Clean Water Act requires the Division to set technology-based limits "on the basis of the design and expected operation of the control technologies," not a malfunctioning system.⁶ Case-by-case technology-based effluent limits, therefore, cannot be set to accommodate a system that is "not properly designed." The Division must set limits based on the expected operation of a well-designed system—not on a system that the Division has determined was faulty and in violation of permit requirements and state law. Here, that expected operation is reflected in the operation of the Outfall 003 treatment system from November 2020 to the present, after Chemours resolved issues at the treatment system.

The Division's draft response erroneously includes a table that incorporates the illegal discharge on October 29, 2020.⁷ Based on that error, the agency mistakenly concludes that "the facility cannot meet the GenX limit of 0.002 – 0.004 µg/L that is suggested by SELC."⁸ As shown in our May 2, 2022 comments, the highest GenX concentration recorded during lawful operation of the Outfall 003 system was 2.3 ng/L on September 7, 2021.⁹ All of the available evidence confirms that a properly designed GAC treatment system can meet the limits proposed in our May 2, 2022 comments. The Division's attempt to justify the limits in the draft permit based on illegal discharges caused by Chemours' failure to properly design the Outfall 003 system is arbitrary and capricious.

II. Seep Data Supports More Stringent Permit Limits.

In our previous comments, we indicated that sampling from Seep B supported more stringent permit limits.¹⁰ In the Division's draft response to our

³ *Responses to the SELC Comments: Pre-Draft Chemours Permit NC0090042* at 1-2, N.C. DEP'T OF ENV'T QUALITY (Dec. 13, 2021), <https://perma.cc/J7YY-57RF> (hereinafter DEQ Draft Response).

⁴ Chemours 2020-2022 DMRs, *supra* note 2.

⁵ Letter from Sheila Holman, N.C. Dep't of Env't Quality, to Dawn Hughes, Chemours at 3 (Jan. 26, 2021), <https://perma.cc/5YHC-33RM> (2021 Notice of Violation).

⁶ EPA, *NPDES Permit Writers' Manual* at 5-20 (Sept. 2010), <https://perma.cc/Q5N8-WVMC>.

⁷ DEQ Draft Response, *supra* note 3, at 2.

⁸ *Id.*

⁹ SELC May 2022 Comments, *supra* note 1; Chemours 2020-2022 DMRs, *supra* note 2. Even the Division's chart concedes that the illegal October 29, 2020 discharge is less than 25% of the limit in the draft permit for Outfall 004.

¹⁰ SELC May 2022 Comments, *supra* note 1, at 9-10.

December 2021 letter, staff questioned whether we properly excluded certain seep data that showed an overall reduction of less than 99% for the flow-through cells.¹¹ We properly focused on Seep B both in our December 2021 and May 2022 comments.

The seep data must be put in context. The flow-through cells are not as sophisticated as the Outfall 003 treatment system or the GWTS and are exposed to variability that will not affect the performance of the GWTS. They do not include pretreatment, are in the floodplain, and are subject to sedimentation caused by heavy rain.¹² Although the Outfall 003 treatment system had some sedimentation during startup, those issues were caused by improper design of the system that has been resolved.¹³ Therefore, the only relevant data from the flow-through cells is how they perform when not impeded by flooding or sedimentation—two challenges that the GWTS will not face.

Data from Seep B is most representative of conditions like the GWTS. The Seep B flow-through cell has performed consistently, has had the fewest sedimentation issues, and treats the largest volume of water.¹⁴ In addition, unlike Seeps C and D, water from Seep B will be treated by the GWTS.¹⁵ Therefore, it is appropriate to limit review of flow-through cell data to Seep B.

III. There is No Rational Basis for Allowing PFAS Discharges at the Levels Proposed.

The Division's draft response to our December 2021 letter also suggested that iron and manganese in the groundwater prevented the Division from relying on Outfall 003 effluent data to set permit limits.¹⁶ That argument lacks merit for multiple reasons. Most significantly, Chemours has identified the Outfall 003 treatment system as representative of the expected effluent at Outfall 004.¹⁷

¹¹ DEQ Draft Response, *supra* note 3, at 1-2.

¹² See, e.g., Geosyntec Consultants of NC, *Onsite Seeps Long-Term Loading Calculation Plan: Chemours Fayetteville Works* at 4 (Oct. 2020), <https://perma.cc/G4ZM-QRFK> (discussing flooding); see also Geosyntec Consultants of NC, *Interim Seep Remediation Operation and Maintenance Report #8: Chemours Fayetteville Works* at 5, 6, 14 (May 31, 2022), <https://perma.cc/RB2Y-2NMX>.

¹³ Letter from Dawn M. Hughes, Plant Manager, Chemours – Fayetteville Works, to Sheila Holman, Assistant Sec'y for the Env't, N.C. Dep't of Env't Quality, & Danny Smith, Director, Division of Water Res. (Feb. 25, 2021), <https://perma.cc/YK9A-8HRH> (Chemours discussing fixes to system to resolve issues).

¹⁴ Geosyntec Consultants of NC, *Interim Seep Remediation Operation and Maintenance Report #8: Chemours Fayetteville Works* at 12-13 (May 31, 2022), <https://perma.cc/RB2Y-2NMX> (table showing Seep B treats the largest volume of water).

¹⁵ Sergei Chernikov, *Fact Sheet: NPDES Permit No. NC0090042* at 2, N.C. DIV. WATER RES. (Apr. 27, 2020), <https://perma.cc/8UAT-2CDK>.

¹⁶ DEQ Draft Response, *supra* note 3.

¹⁷ Chemours Co., *Chemours Fayetteville Works NPDES Permit Application for the Groundwater Treatment System* at 3 (June 13, 2021), <https://perma.cc/5XY6-Y628> (hereinafter GWTS NPDES Application).

Moreover, both the company and the Division have relied on Outfall 003 treatability studies to support the GWTS analysis.¹⁸ Given the performance of the Outfall 003 treatment system, nothing supports the limits proposed in the draft permit.

A. The GWTS will not be impaired by soluble iron or manganese.

The Division's draft response cites iron and manganese as potential confounding factors for the GWTS but does not identify any basis for such a conclusion. There has been no supporting documentation in the Division's response to our March 24, 2022 public records request, the agency's Laserfiche repository, or the company's application. The Division instead discusses iron and manganese as hypothetical issues that may arise when treating groundwater. Review of the evidence before the agency demonstrates that those hypothetical concerns do not apply here.

The record shows that iron and manganese will not disrupt the GWTS. In the Division's draft response to our comments, the agency states that "Chemours is designing the system to remove dissolved iron."¹⁹ The company's Engineering Report states that Chemours has designed a system with "[c]hemical oxidation and pH adjustment . . . to precipitate metals, such as iron, to prevent downstream contamination or fouling of the granulated activated carbon (GAC) media."²⁰ The system **"will be designed to help ensure complete oxidation of reduced iron species."**²¹ Metals will be removed by "ultrafiltration membranes or some other suitable separation technology."²² The Engineering Report also confirms that "[p]ilot studies have been completed by vendors to verify the effectiveness of their proposed pretreatment methods."²³ Chemours is using the pilot studies "to inform... pretreatment dosing chemistry."²⁴ Notably, the company cites past treatability studies, including the treatability study for Outfall 003, as the basis for its confidence in the proposed system.²⁵ The Outfall 003 treatability study demonstrated that pretreatment significantly reduced soluble iron such that it did not create an issue for PFAS removal.²⁶ Although the company described ongoing

¹⁸ See Geosyntec Consultants, *Engineering Report – Treatment of Groundwater and Upgradient Seeps Water* at 17 (June 2021), <https://perma.cc/5XY6-Y628> (report included as Attachment A.5 in Chemours' GWTS application and begins on PDF page 81) (hereinafter 2021 Engineering Report). In response to our March 24, 2022 public records request, the Division responded that Chemours' report references the Outfall 003 treatability studies and that the agency had not yet received treatability studies for Outfall 004.

¹⁹ DEQ Draft Response, *supra* note 3, at 1.

²⁰ 2021 Engineering Report, *supra* note 18, at 7.

²¹ *Id.* at 16 (emphasis added).

²² *Id.* at 7.

²³ *Id.* at 15.

²⁴ *Id.*

²⁵ *Id.* at 17.

²⁶ Parsons, *Engineering Report: Old Outfall 002 GAC Pilot Study Results Addendum* at app. A (Jan. 2020), <https://perma.cc/37CY-44K9> (Appendix of conventional parameter figures).

treatability studies that would provide additional information related to the GWTS specifically, it relies on “**current operational experience at Outfall 003 elsewhere at the facility**”²⁷ to support its conclusion that the system will be effective. Chemours has demonstrated, therefore, that soluble iron will not interfere with GAC performance at the GWTS.

The Division’s insistence that soluble iron is an issue unique to Outfall 004 has no basis in fact. In the Outfall 003 Engineering Report, Chemours stated that it would include chemical precipitation “to remove iron which would otherwise cause fouling/plugging in the downstream GAC adsorption process.”²⁸ The company went on to specifically address how it will remove dissolved iron (Fe^{+2}), stating that chemical precipitation “will be applied to oxidize soluble ‘ferrous’ iron (Fe^{+2}), thereby transforming it to insoluble ‘ferric’ iron (Fe^{+3}) which will precipitate (come out of solution) in the form of ferric hydroxide [$\text{Fe}(\text{OH})_3$].”²⁹

The Division provides no evidence that iron or manganese will pose problems at the GWTS. It has not shown that chemical precipitation at the GWTS will not effectively prevent iron from interfering with the filters. Although the Division claims that “manganese acts very similar to iron and may present identical problems,”³⁰ the agency provides no explanation for this statement. Chemours did not cite manganese as an issue in its application documents. As a result, there is no evidence to support the position that manganese will not be effectively managed by the company’s pretreatment process.

The ubiquity of groundwater treatment systems that remove iron and manganese support the conclusion that Chemours’ pretreatment system will work. High levels of iron and manganese in groundwater are common, and both small and large entities regularly remove the metals from drinking water. The American Ground Water Trust describes elevated iron levels as “a common water quality issue.”³¹ It is a “common water quality issue” that is regularly addressed through filtration systems like the pretreatment planned for the GWTS. Chemours’ home filtration systems remove dissolved iron.³² The Environmental Protection Agency has recommended chemical oxidation and physical separation—the process proposed by Chemours—to treat iron and manganese.³³ Numerous companies in North Carolina offer home filtration systems that will remove iron from

²⁷ 2021 Engineering Report, *supra* note 18, at 17 (emphasis added).

²⁸ Parsons, *Chemours Fayetteville Engineering Report on Wastewater Treatability* at 8 (July 2019) <https://perma.cc/99ZS-ZEZ6>.

²⁹ *Id.*

³⁰ DEQ Draft Response, *supra* note 3, at 1.

³¹ Am. Groundwater Trust, *Solutions to Iron Problems* (2002), <https://perma.cc/PA45-C429> (originally published in THE AM. WELL OWNER, 2002, No. 3).

³² *Id.*

³³ Asher Keithley, *Session 6: Iron and Manganese Control in Groundwater Systems*, UNITED STATES EPA OFF. OF RSCH. & DEV. (Oct. 15, 2020), <https://perma.cc/4E8V-D9B4>.

groundwater.³⁴ The U.S. Forest Service has used technology to remove iron at its facilities for more than 20 years.³⁵ Minnesota advises well users that filters are effective at removing iron at levels as high as 15 mg/L,³⁶ which is significantly higher than encountered at the Chemours site.³⁷ Penn State University has offered similar guidance to well users in Pennsylvania.³⁸ Iron and manganese in groundwater is a common issue with a simple solution.

The Division's assertion that iron or manganese would prevent the GWTS from performing similarly to the Outfall 003 treatment system suffers another significant flaw—the agency has not offered any explanation as to how the proposed facility will control these metals such that it can achieve the required 99% reduction but not greater reductions. There is no evidence or analysis supporting that distinction, and the Division has not argued that Chemours will be able to effectively manage dissolved iron or manganese, but only to the extent necessary to achieve 99% reduction.

All available evidence indicates that the GWTS will achieve effluent levels as low as Outfall 003. The technology is the same. The process is the same. Chemours and the Division have relied on the same treatability analysis. The company has cited the Outfall 003 as representative of what to expect with the GWTS. The Division's reliance on hypothetical confounding factors to allow higher levels of PFAS to be discharged is arbitrary and capricious.

B. There is no evidence that higher influent concentrations will result in higher effluent concentrations.

The draft response also argues, without support, that higher influent concentrations support higher effluent limits. Higher influent concentrations will, at most, mean that the GAC in the lead chamber will be changed more frequently. Due to the basic mechanism of PFAS removal using GAC, the system will remove

³⁴ See, e.g., Culligan Water, *High Iron Water* (last updated 2022), <https://perma.cc/Y5NG-TKHJ> (describing home water treatment systems that are available to remove iron in North Carolina); N.C. Water Consultants, *Can a Water Softener Remove Iron from the Tap Water in Your North or South Carolina Home?* (May 2, 2018), <https://perma.cc/MZ35-35TD> (same); Progressive Water Sols., *Iron, Sulphur, and Manganese Removal*, Durham, NC (last updated 2022), <https://perma.cc/X3AX-D49Y> (same); Action Well & Pump, *Excessive Iron in Well Water: Hazards, Signs, & Removal Techniques* (May 5, 2021), <https://perma.cc/F4YS-9JBV> (same); John Woodard, *How to Remove Iron from Well Water*, FRESH WATER SYS. (Oct. 25, 2019), <https://perma.cc/2DYR-ZUGG> (same); Mountain Water Sys., *Softeners & Iron Filters for Your Water Issues in Asheville* (last updated 2022), <https://perma.cc/JNS2-ATKR> (same).

³⁵ Brenda Land, *Iron and Manganese in Drinking Water*, UNITED STATES FOREST SERV. (Sept. 1999), <https://perma.cc/6N3N-7FUF>.

³⁶ Minn. Dep't of Health, *Iron in Well Water* (Aug. 26, 2019), <https://perma.cc/WMP4-7Y7F>.

³⁷ See GWTS NPDES Application, *supra* note 17.

³⁸ See Brian Swistock & William Sharpe, *Iron and Manganese in Private Water Systems*, PennState Extension (2022), <https://perma.cc/K7GM-N5RW>.

PFAS until the GAC is saturated beyond the replacement threshold.³⁹ At that point, Chemours will replace the GAC in the lead chamber. Overall performance should remain consistent, if mandated by permit.

C. Permissive effluent limits allow Chemours to increase pollution.

The Division suggests in its draft response that, because Chemours has not yet released more pollution from its Outfall 003 treatment system, it will not do so in the future.⁴⁰ But that is irrelevant. Less stringent limits unequivocally allow Chemours to discharge more pollution. Lax limits cannot be salvaged by relying on the company's goodwill or through operation and maintenance plans, which are targeted at allowable limits. The facility will be designed to comply with the permit limits and once the permit is finalized, the agency does not have authority to require pollution control beyond those limits through the operation and maintenance plan.⁴¹ The limits must, therefore, be set properly.

IV. The Division Must Evaluate the Effect of New Health Advisory Levels.

Last week, EPA announced a new, final health advisory level for GenX and new interim health advisory levels for PFOA and PFOS.⁴² The new health advisory levels are substantially lower than previous levels and require the Division to evaluate compliance with the toxic substances standard.⁴³

V. The Division Must Go Beyond the Consent Order.

In general, the Division's wait-and-see approach—without any evidence showing that the GWTS would perform less effectively than the Outfall 003 system—puts the risk on downstream communities by erring on the side of allowing more pollution. The Outfall 003 system has performed exceptionally well since November 2020, demonstrating that a properly designed facility does not need a “start-up” period to remove nearly all detectable PFAS.⁴⁴ As a result, there is no basis for delaying implementation of protective limits. In fact, Chemours has met the GenX and PMPA limits proposed in our May 2022 letter in every sample taken

³⁹ See Mohammed F. Rahman, Sigrid Peldszus, & William B. Anderson, *Behavior and Fate of Perfluoroalkyl and Polyfluoroalkyl Substances (PFASs) in Drinking Water Treatment: A Review*, 50 *Water Rsch.* 318-40 at 331-32 (2013), <https://perma.cc/JL95-EHCH>.

⁴⁰ DEQ Draft Response, *supra* note 3, at 2.

⁴¹ N.C. Dep't of Env't Quality, *Draft NPDES Permit No. NC0090042* at 23 (revised March 14, 2022), <https://perma.cc/V9CE-P8TV> (Part II, Section C, Condition 2).

⁴² EPA, *Technical Fact Sheet: Drinking Water Health Advisories for Four PFAS (PFOA, PFOS, GenX chemicals, and PFBS)* (June 2022), <https://perma.cc/E9DA-HNQL>.

⁴³ See SELC May 2022 Comments, *supra* note 1, at 12-16.

⁴⁴ To the extent a start-up period is necessary, the proper mechanism is to specify a prescribed period during which limits will not be enforced. If a start-up period is necessary, the Division should set meaningful permit limits consistent with those described in our May 2, 2022 letter and delay enforcement for two months.

at Outfall 003 since November 2020.⁴⁵ The company has met the PFMOAA limit proposed in 74 of 75 samples taken over that time period.⁴⁶ Effluent at Outfall 003 has been less than our proposed monthly average limits every month.⁴⁷ The limits are reasonable, achievable, and mandated by controlling law.

Ultimately the agency offers only one supported reason for its draft limits: they are consistent with the consent order's 99% reduction requirement. The consent order has resulted in significant reductions at the site—it cannot, however, supplant a lawful permitting analysis.

The consent order addendum that ensures Chemours' eventual groundwater treatment system would remove at least 99% of PFAS before discharging wastewater into the Cape Fear River was entered on October 12, 2020. At that time, none of the parties had effluent data that demonstrated the effectiveness of the Outfall 003 system. It was not clear that the system would work as well or as consistently as it has. Because the 99% reduction has been legally mandated since the addendum was entered, the only issue before the Division in this permitting process is whether the remaining 1% of PFAS will be controlled or discharged into the Cape Fear River.

Regrettably, the draft permit allows the entire 1%, a concentration of greater than 1,300 ppt for analyzed PFAS, to be discharged into the river. The Division ignores the available data and controlling law to allow this pollution, as laid out in more detail in our May 2, 2022 comments. Even more, those concentrations only represent a sliver of the overall impact of the discharge because there could be hundreds of other PFAS in Chemours' discharge. Chemours has identified 257 other potential PFAS at its facility that it cannot currently quantify.⁴⁸

Communities in southeastern North Carolina have endured Chemours' pollution for too long and cannot be asked to trust that the company will operate the groundwater treatment system to remove more PFAS than required. The Division must impose the most stringent limits possible. Based on extensive data from Outfall 003, those limits must be set at or near detection levels. The draft permit includes limits that are unacceptable, allow avoidable PFAS pollution, and continue to put the burden of Chemours' pollution on families downstream.

⁴⁵ Chemours 2020-2022 DMRs, *supra* note 2; SELC May 2022 Comments, *supra* note 1.

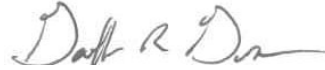
⁴⁶ Chemours 2020-2022 DMRs, *supra* note 2; SELC May 2022 Comments, *supra* note 1.

⁴⁷ Chemours 2020-2022 DMRs, *supra* note 2; SELC May 2022 Comments, *supra* note 1.

⁴⁸ Chemours Co., *PFAS Non-Targeted Analysis and Methods Interim Report: Process and Non-process Wastewater and Stormwater* at 4 (June 30, 2020), <https://perma.cc/5M7A-B6RJ>.

Thank you for your consideration of these comments. Please do not hesitate to contact us at 919-967-1450 or via email (ggisler@selcnc.org) to discuss this matter further.

Sincerely,

A handwritten signature in dark ink, appearing to read "Geoff Gisler".

Geoff Gisler
Senior Attorney

A handwritten signature in dark ink, appearing to read "Jean Zhuang".

Jean Zhuang
Staff Attorney

cc:

Dana Sargent, CFRW
Kemp Burdette, CFRW
Sushma Masemore, NCDEQ
Bill Lane, NCDEQ
Erin Carey, NC Sierra Club
Cynthia Satterfield, NC Sierra Club

EXHIBIT 2

STATE OF NORTH CAROLINA

COUNTY OF BLADEN

IN THE OFFICE OF
ADMINISTRATIVE HEARINGS
22 EHR 03913

The Chemours Company FC, LLC,)

Petitioner,)

v.)

North Carolina Department of)
Environmental Quality,)

Respondent.)

AFFIDAVIT OF JOANNE LEVITAN

I, Joanne Levitan, being first duly sworn, depose and say:

1. My name is Joanne Levitan, and I am over the age of eighteen (18) and competent to give this statement. I have personal knowledge of the matters stated herein. I currently live in Leland, North Carolina, which is in Brunswick County. My husband and I moved here in 2016.

2. I am a member of Cape Fear River Watch (“River Watch”), and I have been for several years now. As a member, I closely follow River Watch updates, I attend events hosted by the organization, I sign onto River Watch’s petitions, and I take action in response to action alerts sent out by the organization.

3. I joined River Watch in 2018 because I am concerned about my family and my community’s water quality. My family’s drinking water is from Brunswick County municipal water, which comes from the Cape Fear River downstream of Chemours’ Fayetteville Works facility. Chemours, a chemical manufacturer, has been dumping toxic chemicals called per- and polyfluoroalkyl substances (“PFAS”) into the Cape Fear—our drinking water supply—for decades.

4. My husband and I first learned about the PFAS pollution in the Cape Fear River in 2017 when the Wilmington Star-News broke the story that Chemours was the source of the toxic chemicals in our drinking water. We were building our home at the time, and we were shocked and horrified. We had moved here a year earlier because we love the water. As longtime paddlers, we fell in love with the Cape Fear, Town Creek, Sturgeon Creek, Brunswick River—all of the nearby waters. We never imagined that we were building a home in the middle of what would be one of the biggest environmental and public health crises North Carolina has ever faced.

5. Unfortunately, learning about Chemours' pollution changed a lot for us. We felt a lot of stress and anxiety about the impact that the toxic chemicals would have on our health. I know that PFAS have been linked to thyroid problems, hormonal issues, and cancer. We had to stop drinking our water because I did not want my husband and I to suffer from additional health risks. I was also worried about family members and others who visited us in our home, like our nieces and great-nieces, especially since PFAS can affect fertility and fetus development.

6. After the news broke out, we immediately stopped drinking our water, knowing that it was full of the company's toxic chemicals. We didn't really have any other choice. We rented a water cooler and began having jugs of water delivered to the house. We used this purchased water for drinking, cooking, and even washing our produce.

7. After a couple of months of using these jugs of water—because we knew that Brunswick County's municipal water would continue to be contaminated with Chemours' PFAS—we decided to invest in a treatment system that could remove PFAS. We installed a reverse osmosis filtration system under our kitchen sink. Now, we use our filtered water for cooking and drinking.

8. Even though the reverse osmosis filtrations system provides some reassurance that the water coming from that faucet is much safer, Chemours' pollution continues to impact our everyday lives. The water coming from the other parts of our house are unfiltered—like the water that makes our ice in the fridge or the water that we have to use to shower, wash our hands, and brush our teeth. So, I am concerned about the impact that using that water could have on our health. And I know that when Chemours' PFAS pollution increases—because Brunswick County has not yet installed treatment for PFAS—the PFAS in the unfiltered water in my home likely increases.

9. Not only that, Chemours' pollution into the Cape Fear impacts my family financially. The reverse osmosis filter was costly to install and is extremely expensive to maintain—we have to change the filters every six months. We also have to pay a lot more for our monthly water usage because the filter consumes a ton of water to operate. For every gallon of filtered water we get, the filter consumes over six gallons. This significantly drives up the cost of our already expensive water bill. I also understand that Brunswick County is investing over \$120 million in a municipal drinking water treatment system to remove Chemours' chemicals and that those costs will likely be passed onto ratepayers, including us. This would burden us even further financially. It's extremely unfair and frustrating that we, and the rest of my community, have to front the cost of Chemours' pollution—either through impacts to our health or through exorbitant home filtration systems.

10. Chemours' pollution also affects me and my family even outside our home. When we go into town to visit a restaurant, for instance, we have to purchase bottled water or bring our own filtered water to avoid contaminated municipal water, which is more expensive and a hassle. Some places don't even provide the option to purchase bottled water.

11. We should not have to worry about something as simple and basic as safe drinking water.

12. Because I am so concerned about my health and the health of my community, I have worked to be an advocate for my family and my community. Over the past few years, I have spent a lot of time learning about PFAS and reading the resources that River Watch and other environmental organizations in this area share. I try to follow all the news regarding PFAS in this area—not only so I can educate myself, but also so that I can inform my community.

13. I am the administrator of our neighborhood's Facebook group and when I see a new article or study regarding PFAS, I share it with the nearly 2,000 members in the group. To this day, there are people in our community who do not know about Chemours' PFAS pollution into the Cape Fear and our drinking water, including those who have purchased a new home in the area without knowing about the contamination. I feel awful for those who are still unaware and may be unknowingly drinking polluted water. So, I have taken it on myself to be active online to ensure that new members to our neighborhood are aware of the PFAS in our water. I also try to share information outside of our immediate neighborhood.

14. I also do what I can to fight back against Chemours' continued pollution. I sign petitions that River Watch and other organizations put out, and I write my own comments urging the state to protect our communities.

15. For example, when the North Carolina Department of Environmental Quality released the draft discharge permit for Chemours' groundwater treatment system—the draft version that had high limits for Chemours' PFAS, I was very upset and knew I had to get involved. I personally submitted comments telling the state that the draft permit simply allowed too much unnecessary PFAS pollution to be pumped into the Cape

Fear River. I commented that the technology exists to capture and remove these toxic chemicals and that the state should be setting limits based on what removal that technology could achieve. In addition to my own personal comments, I joined petitions organized by River Watch demanding that the state do the right thing with this discharge permit.

16. I also attend events organized by River Watch advocating against Chemours' PFAS pollution. Most recently, when Chemours came to Leland Cultural Rights Center to tout their "good neighbor" initiative with the intent to expand their operations in southeastern North Carolina, I joined forces with other members of River Watch and the greater Brunswick County community to protest outside the building. The company was required to hold a public hearing under the consent order between River Watch, Chemours, and the state, but Chemours wasn't even accepting public comments—they were simply giving presentations of how they supposedly were being a responsible company. That day, those gathered outside in protest shared sad stories about loved ones with cancer and problems with their pregnancies. It was devastating to hear. It was also hard to be out there—it was a very hot day with nearly 95 percent humidity, and Chemours only allowed ten people into the building at a time, but it was really important that our community showed up and made our voices heard.

17. When the final discharge permit for Chemours' groundwater treatment system was released and it had strict limits for Chemours' PFAS pollution, I was so relieved. I thought that finally, this permit would require Chemours to really clean up its discharge, and that eventually we would feel a lot safer about the water flowing into our home.

18. But our initial excitement didn't last because Chemours soon filed a lawsuit challenging the permit. It is so disappointing that after everything, Chemours is still

fighting cleanup of its pollution. The company's recent actions only further confirm that they have no desire to be the good neighbors they advertise themselves as.

19. And unfortunately, I am concerned that the state will not do enough to defend the final discharge permit for Chemours' groundwater treatment system. Over the past several years, River Watch and the public has had to do a ton of advocacy to push the state to properly control Chemours' pollution. I do not feel confident that the North Carolina Department of Environmental Quality will do everything in its power to protect our and our community's interests. River Watch, on the other hand, fully and adequately represents my interests in this proceeding. The organization has consistently advocated to protect my community and I trust them to continue that advocacy on our behalf.

20. A court order allowing River Watch to intervene in the lawsuit filed by Chemours challenging its discharge permit for the groundwater treatment system would ensure that my interests as outlined in my affidavit are adequately represented.

I swear/affirm that the foregoing is true and correct to the best of my knowledge, information, and belief.

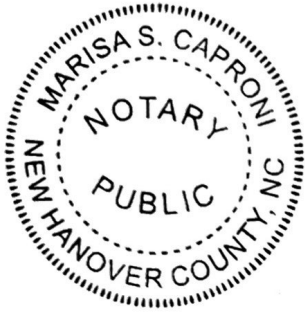
Executed on November 4, 2022.



Joanne Levitan

THE STATE OF NORTH CAROLINA
COUNTY OF Brunswick

Subscribed and sworn to before me, a notary public this the 4th day of November 2022.



Marisa S. Caproni
Notary Public

My commission expires: July 1, 2024

EXHIBIT 3

STATE OF NORTH CAROLINA
COUNTY OF BLADEN

IN THE OFFICE OF
ADMINISTRATIVE HEARINGS
22 EHR 03913

The Chemours Company FC, LLC,

Petitioner,

v.

North Carolina Department of
Environmental Quality,

Respondent.

AFFIDAVIT OF STEVEN SCHNITZLER

I, Steven Schnitzler, being first duly sworn, depose and say:

1. My name is Steven Schnitzler. I am over the age of 18 and competent to give this affidavit. All of the following information is based on my experience and personal knowledge.

2. I am a member of Cape Fear River Watch ("River Watch"). I joined River Watch because I am concerned about Chemours' GenX and other pollution from per- and polyfluoroalkyl substances ("PFAS"), and I want to help advocate for the protection of the precious water resources upon which my family, my business, and my community depend.

3. I have lived in Wilmington, North Carolina, for the past 28 years. I am the CEO of Port City Java, a coffee company with over 25 locations, including in Brunswick, Pender, and New Hanover counties. I have worked for Port City Java for the past 25 years, and I served as its Director of Operations before assuming the role of CEO in 2008.

4. I am active in my community and have served as a board member for many local organizations, including the Full Belly Project, the Carousel Center, a local child advocacy group, and Wilmington Health Access for Teens. In 2010, I was nominated by the State of North Carolina as Corporate Citizen of the Year.

5. Only a few years ago, I learned about Chemours' GenX and other PFAS contamination of the Cape Fear River, which polluted Wilmington's municipal drinking water supply. Because my family gets our water from a private well and we were told that Chemours' pollution affected the Cape Fear and municipal water supplies, I believed at the time that my family's water was safe. We were so relieved—we felt comfortable using the water from our well for drinking, cooking, and cleaning, and continued to do so.

6. That said, I did worry about my family's past exposure to Chemours' harmful chemicals. When my wife and I first moved to Wilmington, decades ago, we lived downtown and relied on municipal water, which comes from the Cape Fear River. During the ten years that my wife and I lived downtown, we had and raised two children. For many years, my whole family drank municipal water. We drank it at home; our children drank municipal water while at school; my wife drank municipal water while working as a teacher at Williston Middle School; I drank municipal water at work. We used the water at home for other activities as well, like cooking, showering, and brushing our teeth. For a long time, we were exposed to Wilmington's municipal water that was heavily polluted by Chemours' PFAS.

7. About 18 years ago, I moved with my wife and children to a new home where we source our water from a well instead of from municipal water. At home, my family was drinking and using well water. Before we found out about Chemours' PFAS pollution, my wife and kids continued to be exposed to the contaminated municipal water through work, school, and other activities in downtown Wilmington. After we found out about Chemours' pollution, we knew to try to avoid the municipal water, but did not have reason to believe that our water at home was not safe.

8. But everything changed about six months ago, when my neighbors and I started to learn that even our well water could be contaminated with Chemours' PFAS

pollution. I received a letter from Chemours notifying me about the chance to have the well water at my home tested for PFAS. I immediately followed the steps in the letter to get my well tested. While my wife and I anxiously waited for several weeks to get the results of that testing, we bought bottled water for our family to use in our home. Eventually, the results we received showed that the levels of PFAS in the water were too low to get free water under the consent order between River Watch, the State, and Chemours.

9. It is hard to be relieved though because it is hard to know whether I can trust these results. Pretty much all of my neighbors around me have PFAS in their wells—people north, south, east, and west of our home. A few of them may have low levels, but many of them have higher levels and are getting bottled water shipped to them and receiving offers for filters under the consent order. I know that groundwater travels beneath the surface, it moves over time. That means the PFAS chemicals can move over time too, and that's reflected in the consent order, which requires the wells to be re-tested annually. How can I be sure that there wasn't PFAS in my well the weeks or months before that one sample? How can I be sure that there won't be PFAS in my well the weeks or months after that one sample? I know my well will be tested next year, but what if the PFAS migrates to my well many months before that and we spend months unknowingly drinking contaminated water? It's very stressful and disturbing.

10. I am especially concerned about the possibility of my wife drinking contaminated water, given her health history, which includes diagnoses of Hodgkin's Lymphoma, breast cancer, and a thyroid condition. I don't know if her breast cancer or thyroid condition were caused by the years of drinking municipal water in Wilmington contaminated by Chemours' chemicals and now, potentially polluted well water, but it's possible.

11. The contamination of the municipal water supply in Wilmington also deeply affects me as a local businessman.

12. Port City Java's cafés rely on municipal water and are therefore impacted by Chemours' PFAS pollution into the Cape Fear River. The cafés use filtered water for preparing beverages, but do not have the expensive treatment systems required to remove PFAS, which I understand are reverse osmosis systems.

13. When the news broke out about Chemours' PFAS pollution, we had customers asking about our coffee and complaining. I understand and share the frustration and concern of our customers. Port City Java needs clean, safe water because we use water for everything—brewing coffee, preparing other beverages, making ice, etc. But the reality is that the company cannot afford to remove PFAS at each of our individual locations. At some point, we got quotes for retrofitting each café with a reverse osmosis system. I recall that installation would have initially cost approximately \$10,000 at each of the dozen cafés Port City Java operated at the time. That doesn't even include ongoing operation and maintenance costs. Reverse osmosis systems consume far more water in order to function, meaning that each of our locations would be paying far more for our monthly municipal water usage, on top of the cost of treatment. We had 165 employees at the time. As stressed out and angry as we were about the contaminated water, we couldn't make decisions that could jeopardize the whole business and put all of those people out of work. We find ourselves in an impossible scenario.

14. Chemours' PFAS pollution also affects the business because it impacts the local economy and tourism in the area. The region relies extremely heavily on tourism, and, therefore, Port City Java does as well. If tourism is threatened by Chemours' pollution, it harms my business. People do not want to visit a tourist area where the drinking water is contaminated. Not only that, one reason people come to this area to visit is for the local

seafood, and Chemours' PFAS also threatens the local seafood—the oysters, clams, and fish. People do not want to eat local seafood from a poisoned environment. I am concerned about the impact that Chemours' pollution has had, and could continue to have, on the local economy.

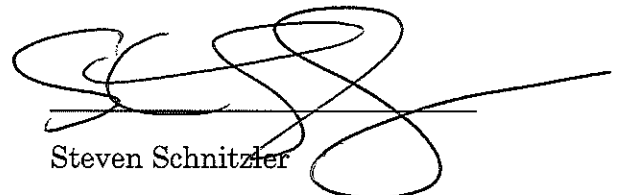
15. I am aware that a permit issued by the North Carolina Department of Environmental Quality limits the amount of PFAS that Chemours can discharge into the Cape Fear River. I am also aware that Chemours has since challenged that permit and that if Chemours' were successful, it could allow more PFAS into the Cape Fear River. This would harm my professional interests. In particular, if more PFAS is allowed into the Cape Fear, it would mean more PFAS in the water that Port City Java uses for its operations.

16. A court order allowing River Watch to intervene in the lawsuit filed by Chemours challenging its discharge permit for the groundwater treatment system would ensure that my personal and business interests as outlined in my affidavit are adequately represented.

17. River Watch fully and adequately represents my interests in this proceeding.

I swear/affirm that the foregoing is true and correct to the best of my knowledge, information, and belief.

Executed on November 3, 2022



Steven Schnitzler

THE STATE OF NORTH CAROLINA
COUNTY OF New Hanover

Subscribed and sworn to before me, a notary public, this 3rd day of November, 2022.

Kayla Whitley

Notary Public

My commission expires: June 7, 2026



EXHIBIT 4

FILED

STATE OF NORTH CAROLINA
COUNTY OF NEW HANOVERIN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION

NEW HANOVER COUNTY, C.S.C.

CAPE FEAR RIVER WATCH,

Petitioner,

v.

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENTAL QUALITY,

Respondent.

PETITION FOR JUDICIAL REVIEW

Petitioner Cape Fear River Watch respectfully seeks review, pursuant to N.C. Gen. Stat. § 150B-4, § 150B-43, and § 150B-45, of a Final Decision Denying Request for Declaratory Ruling issued by the North Carolina Department of Environmental Quality ("DEQ") ("decision") on June 15, 2018.¹ In the decision, DEQ affirms that Chemours Company FC, LLC and E.I. du Pont have caused widespread air and water pollution and that immediate action is necessary to protect public health. Yet the agency denied the request to formalize those findings and fulfill its statutory obligation to reduce or eliminate the pollution. Cape Fear River Watch now appeals DEQ's decision.

NATURE OF THE CASE

1. In this action, Petitioner seeks a declaration of law applying the clear mandate of N.C. Gen. Stat. § 143-215.3(a)(12), which requires DEQ to take immediate protective action if it determines that there is (1) a "generalized condition of water or air pollution which is causing imminent danger to the health or safety of the public," and that (2) "it creates an emergency

¹ N.C. Dept. of Environmental Quality, Final Decision Denying Request for Declaratory Ruling (June 15, 2018) (hereinafter "NC DEQ Final Decision"), included as Exhibit 1. On June 8, 2018, Petitioner stipulated to a seven-day extension of the thirty-day time limit for DEQ to make its written decision to grant or deny Petitioner's Request under N.C. Gen. Stat. 150B-4(a1)(1).

A TRUE COPY
CLERK OF SUPERIOR COURT
NEW HANOVER COUNTY
BY: *Charlotte A. Ramey*
Deputy Clerk of Superior Court

requiring immediate action to protect the public health and safety or to protect fish and wildlife.”²

2. The Chemours Company FC, LLC (“Chemours”) and E.I. du Pont de Nemours and Company (“DuPont”)³ (collectively, “the companies”) have knowingly polluted North Carolina’s public water sources with GenX⁴ and other toxic perfluoroalkyl and polyfluoroalkyl substances (collectively, “PFAS compounds”) for nearly four decades, causing widespread and dangerous contamination of the state’s surface and groundwaters.⁵ Despite nearly a year of DEQ investigation and enforcement actions, GenX and other PFAS compounds continue to be released into the water, air, and soil through Chemours’ stack emissions, stormwater and wastewater conveyance ditches and pipes, unlined sedimentation basins, contaminated equipment, and numerous leaks and spills.

3. On March 7, 2018, Cape Fear River Watch filed a Request for Declaratory Ruling with the DEQ Secretary.⁶ The request asked DEQ to issue a ruling declaring that:

- a. Previous and ongoing activities of Chemours Company FC, LLC and E.I. du Pont de Nemours and Company at the Fayetteville Works Facility have caused, and continue to cause, a generalized condition of water and air pollution which is causing imminent danger to the health and safety of the public.
- b. In order to protect public health and safety, Chemours Company FC, LLC must immediately discontinue all air emissions as well as all surface water, groundwater, and/or stormwater discharges of perfluoroalkyl and polyfluoroalkyl substances from the Fayetteville Works Facility.⁷

² N.C. Gen. Stat. § 143-215.3(a)(12).

³ E.I. du Pont de Nemours and Company owned and operated the Fayetteville Works facility from the 1970s until the company formed Chemours, and transferred ownership to Chemours in 2015. Amended Complaint, N.C. Dept. of Environmental Quality v. Chemours, 17 CVS 580, 14 (N.C. Super. 2018) (hereinafter “NC DEQ Amended Complaint”).

⁴ GenX is the trade name for a chemical known as C3 Dimer Acid (also known as HFPO Dimer Acid), which has a “Chemical Abstracts Registry” or “CAS” number of 13252-13-6.

⁵ See NC DEQ Amended Complaint.

⁶ Petitioner’s Request for Declaratory Ruling attached 88 documents—many of which are several hundred pages in length. Those documents are part of the Administrative Record before DEQ and will be filed with briefing. This Petition cites to that supporting material. However, for the sake of brevity, Petitioner has not attached those documents to this Petition.

⁷ See Petitioner’s Request for Declaratory Ruling, May 7, 2018, included as Exhibit 2.

4. DEQ denied Petitioner's request on June 15, 2018. In its final decision, DEQ affirmed that there exists a generalized condition of water or air pollution, that there is an imminent danger to the health or safety of the public, and that there is an emergency requiring immediate action.⁸ DEQ denied the request primarily due to ongoing litigation in Bladen County Superior Court, where the agency is seeking relief similar to that requested in the Request for Declaratory Ruling.

PARTIES

5. Petitioner Cape Fear River Watch was a party to the request that led to DEQ's decision and is an appropriate party to this Petition for Judicial Review pursuant to N.C. Gen. Stat. § 150B-4.

6. The Cape Fear River Watch is a § 501(c)(3) nonprofit public interest organization headquartered in Wilmington, North Carolina that engages residents of the Cape Fear watershed through programs to preserve and safeguard the river. The organization has 1,100 members, including members who live near, fish, swim, and boat on, and who drink water from, the Cape Fear River downstream of Chemours' facility. As demonstrated in the affidavits included in Exhibit 5, members of Cape Fear River Watch who live near and downstream of the Fayetteville Works Facility have been devastated by Chemours' PFAS contamination. For decades, they and their families have been exposed to air and water that has been contaminated by Chemours. They now live in fear of how much the pollution has affected the health of their families and communities, and frustration that the company continues to release it into their environments. Cape Fear River Watch's mission is "to protect and improve the water quality of the Lower Cape Fear River Basin through education, advocacy and action." In order to fulfill that mission, the

⁸ See NC DEQ Final Decision at 3-6, 10, 15.

organization works to protect the entire Cape Fear River from pollution, including the toxic PFAS compounds that have been released from the Fayetteville Works Facility for decades, and continue to be pumped into the environment at alarming rates. Cape Fear River Watch's members are substantially and adversely impacted by DEQ's denial of its request for declaratory ruling. Cape Fear River Watch represents its members' interests in this action and is a "person aggrieved" under the North Carolina Administrative Procedure Act.

7. Among other tasks, the North Carolina Department of Environmental Quality is responsible for "declar[ing] an emergency when it finds that a generalized condition of water or air pollution which is causing imminent danger to the health or safety of the public," and for "order[ing] persons causing or contributing to the water or air pollution in question to reduce or discontinue immediately the emission of air contaminants or the discharge of wastes."⁹

FACTUAL BACKGROUND

I. Chemours and DuPont Have Caused, and Chemours Continues to Cause, a Generalized Condition of PFAS Air and Water Pollution.

8. DEQ has recognized that Chemours has "caused significant and widespread groundwater contamination," and that Chemours "continues to contaminate North Carolina's air, surface water and groundwater through the release of GenX."¹⁰

9. DEQ's investigation into the facility began in June of 2017.¹¹ At the time, GenX levels at Chemours' outfall into the Cape Fear River reached levels of up to 39,000 parts per trillion ("ppt"), and GenX levels in the finished drinking water from the Cape Fear Public Utility Authority's Sweeney Water Treatment Plant reached levels of up to 1,100 ppt.¹² Chemours'

⁹ N.C. Gen. Stat. § 143-215.3(a)(12).

¹⁰ NC DEQ Amended Complaint at 1 (quotations omitted).

¹¹ NC DEQ Press Release, "DEQ, DHHS investigating reports of unregulated chemical in Cape Fear River," Jun. 14, 2017.

¹² June 19 to July 25, 2017 GenX Surface Water Sampling Results.

early sampling of GenX in groundwater monitoring wells at the site showed GenX at concentrations of up to 61,300 ppt.¹³

10. Within two weeks of the company's agreement with the agency to stop discharging its PFAS-laden wastewater, DEQ had to order the company to provide bottled water to 11 homeowners near the facility.¹⁴

11. Since then, DEQ has been trying to determine how far the contamination has spread from the facility, consuming significant staff resources.¹⁵

12. From September to December of 2017, DEQ found at least 33 different PFAS compounds, including GenX, Nafion By-products 1 and 2, PFOA, and PFOS, in private drinking water wells around the facility.¹⁶ Within those four months, DEQ issued seven press releases stating that 100 homeowners would need to rely on bottled water instead of the contaminated well water they and their families had been drinking for decades.¹⁷ Robeson County started its own testing of wells, and as of April 26, 2018, had found GenX in 33 of the wells it tested.¹⁸

13. By the time Petitioner submitted its request to DEQ on May 7, 2018, GenX had been found in at least 690 private wells up to 5.5 miles away from the facility's border, in levels as high as 4,000 ppt—28 times the state's health goal of 140 ppt, and 400 times GenX's

¹³ "Chemours Preliminary Data, August 2017."

¹⁴ NC DEQ Press Release, "State directs Chemours to provide residents with bottled water after GenX found in preliminary well tests," Sept. 21, 2017.

¹⁵ NC DEQ Presentation to House Select Committee on North Carolina River Quality, Sep. 28, 2017; NC DEQ Presentation to House Select Committee on North Carolina River Quality, Oct. 26, 2017; NC DEQ Presentation to House Select Committee on North Carolina River Quality, Nov. 30, 2017; NC DEQ Presentation to Science Advisory Board, Dec. 4, 2017; NC DEQ Presentation to House Select Committee on North Carolina River Quality, Feb. 21, 2018; NC DEQ Presentation to House Select Committee on North Carolina River Quality, Mar. 22, 2018 (hereinafter "NC DEQ Mar. 22 Presentation").

¹⁶ NC DEQ, "Expanded PFAS Analysis on DEQ Collected Private Wells Associated with Chemours-Fayetteville."

¹⁷ NC DEQ, GenX News Releases, *available at* <https://deq.nc.gov/news/hot-topics/genx-investigation/genx-news-releases> (last visited on Apr. 5, 2018).

¹⁸ NC DEQ Presentation to House Select Committee on North Carolina River Quality, Apr. 26, 2018 (hereinafter "NC DEQ Apr. 26 Presentation"), at slide 9.

applicable groundwater standard, or 10 ppt.¹⁹ Robeson County's health director has stated that the presence of GenX in Robeson County likely indicates that Chemours' contamination has spread into the Lumber River basin and even the Pee Dee River in South Carolina.²⁰

14. Groundwater sampled at the site of the facility has contained concentrations of GenX up to 640,000 ppt—over 4,500 times the state's health goal, and over 64,000 times GenX's applicable groundwater standard.²¹

15. The problem continues. DEQ has determined that “the flow of onsite groundwater directly to the Cape Fear River” is “the most significant source of contaminant loading in the River.”²² Polluted groundwater is discharging north of Chemours' facility into Willis Creek, where GenX has been detected at levels of up to 450 ppt, and south of the facility into Georgia Branch, where GenX has been detected at levels of 690 ppt.²³ Both Willis Creek and Georgia Branch connect with the Cape Fear River, so the company's pervasive pollution of the groundwater has resulted in continuing levels of GenX in the Cape Fear River.²⁴

16. Scientists at the University of North Carolina in Wilmington have also found GenX, along with a number of other PFAS compounds, in the sediment of the Cape Fear River over 40 miles away from the plant, and have determined that sediments in the river are likely

¹⁹ NC DEQ Apr. 26 Presentation at slides 9-10; NC DEQ Amended Complaint at 10-22; *see also* Exhibit 23 of NC DEQ Amended Complaint, “Sample Results of Residential Well Groundwater Testing.” DEQ states in its complaint that “GenX is not permitted in groundwater at concentrations at or above the [practical quantitation limit]” as defined in N.C. Admin. Code 2L .0102(15).

²⁰ Steve DeVane, “Robeson County testing for GenX near St. Pauls,” *the Fayetteville Observer*, Feb. 2, 2018.

²¹ NC DEQ Amended Complaint at 10-22, 24-25.

²² NC DEQ Amended Complaint at 26; *see also* Exhibit 22 of NC DEQ Amended Complaint, “Focused Feasibility Study Report – PFAS Remediation.”

²³ NC DEQ Amended Complaint at 26.

²⁴ *Id.* at 26 (“Concentrations of GenX in effluent being released from Outfall 002 continue, with higher levels occurring during or after rain events.”).

“acting as a repository of GenX that may be released into the overlying water column, potentially impacting sensitive estuarine ecosystems as well as drinking water utilities...”²⁵

17. GenX is not only in the ground and surface water and the underlying sediments. DEQ has found that “a primary source of surface water and groundwater contamination [...] is Chemours’ ongoing emission of GenX and related compounds into the atmosphere and the deposition of those compounds onto the land and waters ...”²⁶ Despite Chemours’ agreement to stop discharging GenX-laden wastewater directly into the Cape Fear River, DEQ has found GenX in several other unexpected locations, including in rainwater, spring-fed lakes, and honey.

18. For the past several months, DEQ has been sampling rainwater for GenX. The agency stated that “[e]ach time” it sampled, it “found that GenX was present in rainwater above [10 ppt] *and at increasingly greater distances from the Chemours facility.*”²⁷ DEQ has found the chemical in rainwater at levels as high as 810 ppt five miles from the facility, and *as far as 7 miles* from the facility.²⁸ DEQ has also found GenX in spring-fed recreational lakes far from the facility—at levels of up to 620 ppt in Camp Dixie, a lake about two miles away from the plant that is drained about once a year,²⁹ and at levels of 915 ppt in Marshwood Lake, about a mile away, and upstream, from the plant.³⁰ Last December, GenX was found in local honey at 2,070 ppt—nearly 15 times higher than the state’s health goal.³¹

²⁵ “Report to the Environmental Review Commission from the University of North Carolina at Wilmington Regarding the Implementation of Section 20(a)(2) of House Bill 56 (S.L. 2017-209);” University of North Carolina in Wilmington Presentation to House Select Committee on North Carolina River Quality, “Sediments and GenX in the CFR,” Feb. 21, 2018, slide 3.

²⁶ NC DEQ Amended Complaint at 3.

²⁷ NC DEQ, NC Division of Air Quality, Letter to Chemours, “60-Day Notice of Intent to Modify Air Quality Permit No. 03735T43, Apr. 6, 2018, 3 (hereinafter “NC DAQ 60-Day NOI”).

²⁸ NC DAQ 60-Day NOI at 3; NC DEQ Amended Complaint at 2.

²⁹ Lisa Sorg, “It’s even been found in honey: Mysteries deepen about extent, risks of GenX contamination,” *NC Policy Watch*, Dec. 5, 2017.

³⁰ NC DEQ Press Release, “Latest test results show concentrations of GenX in Camp Dixie’s lake, Marshwood Lake and Hall Park baseball field’s well,” Nov. 7, 2017.

³¹ Adam Wagner, “How did GenX end up in a jar of honey? DEQ is investigating,” *StarNews Online*, Dec. 4, 2017.

19. GenX's ability to travel far in our atmosphere has been recently confirmed by scientists at the University of North Carolina in Wilmington, who have found GenX in concentrations over 500 ppt in the rainwater as far as Wilmington—about 80 miles from the facility.³²

20. At the time Petitioner submitted its request to DEQ on May 7, 2018, DEQ was in the process of testing for GenX in sediment and fish tissue,³³ and analyzing studies of Chemours plants in the Netherlands which have revealed high concentrations of GenX and other PFAS compounds in vegetable gardens nearby.³⁴

21. Scientists at the University of North Carolina in Wilmington have also expressed concern that Chemours' PFAS compounds have collected in water towers, water heaters, and even the bacteria that coat the inside of pipes which pump treated drinking water.³⁵

22. Chemours' toxic pollution of the environment does not only involve GenX. For decades, Chemours and DuPont have released numerous other PFAS compounds into the environment.³⁶

23. In 2015, a study conducted by Mark Strynar at the U.S. Environmental Protection Agency and a team of researchers found "a large increase in number and magnitude [...] of

³² UNCW Presentation to House Select Committee on North Carolina River Quality, "Report from The University of North Carolina at Wilmington Regarding the Implementation of Section 20.(a)(2) of House Bill 56 (S.L. 2017-209)," Apr. 26, 2018, slide 15.

³³ NC DEQ March 22 Presentation at slide 15.

³⁴ Lisa Sorg, "State officials struggle to keep up as GenX pollution issues spread, grow more complex," *NC Policy Watch*, Mar. 20, 2018.

³⁵ Cheryl Hogue, "What's GenX still doing in the water downstream of a Chemours Plant," *c&en*, Feb. 12, 2018.

³⁶ Mei Sun et al., "Legacy and Emerging Perfluoroalkyl Substances Are Important Drinking Water Contaminants in the Cape Fear River Watershed of North Carolina," 3 *Environ. Sci. Technol. Let.* 415 (2016) (hereinafter "Sun 2016 Study"); EPA, "Laboratory PFAS Results for NC DEQ Cape Fear Watershed Sampling," Aug. 21, 2017; Mark Strynar et al., "Identification of Novel Perfluoroalkyl Ether Carboxylic Acids (PFECAs) and Sulfonic Acids (PFESAs) in Natural Waters Using Accurate Mass Time-of-Flight Mass Spectrometry (TOFMS)," 49 *Environ. Sci. Technol. Let.* 11622 (2015) (hereinafter "Strynar 2015 Study").

unknown compounds” downstream from the facility.³⁷ At the time, the team identified at least twelve PFAS compounds.³⁸

24. In 2016, Dr. Detlef Knappe of North Carolina State University found that seven PFAS compounds were downstream, but not upstream, of Chemours’ facility.³⁹ Knappe’s study cautions that this is not an exhaustive list of PFAS compounds being discharged by Chemours: “Other [PFAS compounds] were present in water samples [downstream of the facility] but could not be quantified and were therefore not included...”⁴⁰

25. After DEQ began its investigation into GenX, the agency has found extensive evidence that Chemours’ contamination of the air, water, and soil includes numerous other PFAS compounds—some of which are being discharged and emitted at far higher rates than GenX.

26. Numerous other PFAS compounds have been found in onsite groundwater wells—one of which has appeared in concentrations above 8 million ppt.⁴¹

27. From September to December of 2017, DEQ found at least 33 different PFAS compounds in private drinking water wells outside of the facility.⁴²

28. Other PFAS compounds also persist in public drinking water supplies. The Cape Fear Public Utility Authority, which services over 200,000 customers in North Carolina, reported sampling results from its finished drinking water on March 23, 2018:

GenX is not the only emerging contaminant in the Cape Fear River. [The Cape Fear Public Utility Authority] has tested water samples from the Sweeney Plant for a wide array of unregulated compounds [...] *GenX only accounts for only a small percentage* of these compounds. Results from a screening of the twenty different [PFAS] compounds with testing standards shows combined levels

³⁷ Strynar 2015 Study at E.

³⁸ See generally Strynar 2015 Study.

³⁹ Mei Sun et al., “Legacy and Emerging Perfluoroalkyl Substances Are Important Drinking Water Contaminants in the Cape Fear River Watershed of North Carolina—Supporting Information” (2016).

⁴⁰ *Id.* at 6.

⁴¹ NC DEQ Amended Complaint at 25-26.

⁴² NC DEQ, Expanded PFAS Analysis on DEQ Collected Private Wells Associated with Chemours-Fayetteville.

*consistently above health goals for legacy compounds and for GenX. [...] To date, there are at least five new [PFAS compounds], not reported in the literature, that have been detected in both raw and finished drinking waters.*⁴³

29. During its presentation to the House Select Committee on North Carolina River Quality on April 26, 2018, the Cape Fear Public Utility Authority emphasized that even an upgraded treatment system will not eliminate PFAS compounds in finished drinking water, and that the only way to effectively address the contamination is by controlling the source of the compounds.

II. Chemours' Toxic PFAS Pollution Threatens Public Health and Safety.

30. Of the commonly studied PFAS compounds, perfluorooctanoic acid (“PFOA”) and perfluorooctyl sulfonate (“PFOS”) have been found to cause developmental effects to fetuses and infants, kidney and testicular cancer, liver malfunction, hypothyroidism, high cholesterol, ulcerative colitis, lower birth weight and size, obesity, decreased immune response to vaccines, and reduced hormone levels and delayed puberty.⁴⁴

31. PFOA and PFOS have been found in the air and dust, surface water and groundwater, and soil and sediment.⁴⁵ They are extremely resistant to breaking down in the environment, can travel long distances, and have even been found in the Arctic and in the open ocean.⁴⁶ They take years to leave the human body, and instead slowly accumulate over time.⁴⁷

⁴³ Cape Fear Public Utility Authority, “HB56 GenX Reponse Measures- Cape Fear Public Utility Authority (CPFUA) Final Report,” Mar. 23, 2018, 2 (emphasis added).

⁴⁴ The Madrid Statement on Poly- and Perfluoroalkyl Substances (PFASs), A 107 (May 2015) (hereinafter “The Madrid Statement”); U.S. Environmental Protection Agency (“EPA”), Fact Sheet on PFOA & PFOS Drinking Water Health Advisories, 2; *see also* EPA, Health Effects Support Document for Perfluorooctane Sulfonate (PFOS) (2016); EPA, Health Effects Support Document for Perfluorooctanoic Acid (PFOA) (2016); EPA, Drinking Water Health Advisory for Perfluorooctane Sulfonate (PFOS) (2016); EPA, Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA) (2016).

⁴⁵ U.S. Dep’t of Health and Human Services, Agency for Toxic Substances and Disease Registry, Draft Toxicological Profile for Perfluoroalkyls, 2 (Aug. 2015) (hereinafter “2015 ATSDR Report”).

⁴⁶ 2015 ATSDR Report at 2; *see also* EPA, Technical Fact Sheet - Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA) (Nov. 2017); The Madrid Statement at A 107.

⁴⁷ 2015 ATSDR Report at 3.

32. Before GenX, DuPont manufactured PFOA.⁴⁸ DuPont had known about the dangers of PFOA since the early 1960s, secretly conducting studies that showed the chemical caused liver damage, was resistant to degradation, and could cause birth defects.⁴⁹ Nearly four decades later, information about PFOA's toxicity began to rise to the surface, and in 1999, the first of over 3,500 personal injury lawsuits were filed against DuPont for knowingly poisoning thousands of people.⁵⁰ Concerned about the extensive health effects of PFOA and PFOS, in 2016, the U.S. Environmental Protection Agency ("EPA") established a lifetime health advisory of 70 parts per trillion ("ppt"), or nanograms per liter ("ng/L"), for the *combined* concentrations of PFOA and PFOS in drinking water.⁵¹

33. DuPont manufactured PFOA at the Fayetteville Works Facility until 2013.⁵² In 2009, DuPont also began manufacturing GenX,⁵³ a structurally similar compound, to eventually replace its production of PFOA.⁵⁴ Long before it began manufacturing GenX for commercial purposes, since 1980, DuPont knowingly discharged GenX as a byproduct into the Cape Fear River—a public drinking water supply.⁵⁵ At some point in time, the companies also began releasing numerous other PFAS compounds, including Nafion Byproduct 1 and 2, into the river.⁵⁶

⁴⁸ See Nathaniel Rich, "The Lawyer Who Became DuPont's Worst Nightmare," *N.Y. Times*, Jan. 6, 2016.

⁴⁹ *Id.*

⁵⁰ *Id.*; Kris Maher et al., "DuPont Settlement of Chemical Exposure Case Seen as 'Shot in Arm for Other Suits,'" *Wall Street Journal*, Feb. 13, 2017.

⁵¹ EPA, Fact Sheet on PFOA & PFOS Drinking Water Health Advisories at 2.

⁵² Final Phase III RCRA Facility Investigation Report for DuPont Fayetteville Works, 36-37 (2014) (hereinafter "2014 RCRA Investigation").

⁵³ NC DEQ Amended Complaint at 15.

⁵⁴ Brooks Pierce Letter to NC DEQ, "GenX in the Cape Fear River," June 23, 2017; *see also* DuPont, DWM, and DWQ Meeting Summary, Aug. 26, 2010.

⁵⁵ "Notes from Chemours meeting with local, state officials," *StarNews*, Jun. 15, 2017; *see also* NC DEQ Amended Complaint at 16.

⁵⁶ Sun 2016 Study; EPA, "Laboratory PFAS Results for NC DEQ Cape Fear Watershed Sampling," Aug. 21, 2017; Strynar 2015 Study.

34. Instead of being a long unbroken chain of several carbon atoms, GenX, also known as HFPO Dimer Acid, and many other new PFAS alternatives have shorter chains of carbon atoms and ether (oxygen) linkages.⁵⁷ Therefore, they are often referred to as “short-chain” PFAS compounds.⁵⁸ Two other PFAS compounds that have been emitted by Chemours, HFPO Dimer Acid Fluoride and HFPO Dimer Acid Ammonium Salt, convert to GenX in the presence of water.⁵⁹

35. DEQ has stated that “GenX and related compounds” from Chemours’ facility meet the state’s definition of toxic substances.⁶⁰ North Carolina defines toxic substances as:

any substance or combination of substances (including disease-causing agents), which after discharge and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, has the potential to cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions or suppression in reproduction or growth) or physical deformities in such organisms or their offspring.⁶¹

36. DuPont’s own studies of GenX, which it began as early as 1963, showed that GenX had health effects in laboratory animals consistent with the effects of other PFAS compounds, such as cancers in multiple organs, including the liver, pancreas, and testicles.⁶² As DEQ has stated, “DuPont was aware that [GenX and related compounds] had potential toxic

⁵⁷ See Melisa Gomis et al., “Comparing the toxic potency in vivo of long-chain perfluoroalkyl acids and fluorinated alternatives,” 113 *Environ. International* 1 (2018) (hereinafter “Gomis 2018 study”).

⁵⁸ *Id.*

⁵⁹ NC DEQ Amended Complaint at 15.

⁶⁰ *Id.* at 32-33.

⁶¹ 15A N.C. Admin. Code 2B .0202(64).

⁶² See Data reported in Lisa Craig, “H-28548: Combined Chronic Toxicity/Oncogenicity Study 2-Year Oral Gavage Study in Rats”—Laboratory Project ID: DuPont-18405-1238” (MPI Research, Inc., Mattawan, Michigan 2013) (sponsored By E.I. du Pont de Nemours and Company); see also North Carolina Department of Health and Human Services (“NC DHHS”) Presentation to Secretaries’ Science Advisory Board, “GenX Health Studies and Health Advisories,” Jan. 29, 2018.

effects prior to submitting its 2012 Permit Application to DWR,” and “when it was spun off as an independent business from DuPont.”⁶³

37. In DuPont’s 2009 Toxic Substances Control Act Consent Order for GenX, which the company entered into with the Environmental Protection Agency, the EPA warned DuPont that the agency had human health concerns about GenX because the chemical is “structurally similar” to other heavily studied PFAS compounds, such as PFOA, that are known to persist in the environment and bioaccumulate in humans.⁶⁴ The EPA further voiced concerns that GenX “could bioaccumulate and be toxic ... to people, wild mammals, and birds,” that they “are expected to be absorbed by all routes of exposure,” that they are expected “to be highly persistent in the environment,” and that “there is high concern for possible environmental effects over the long-term.”⁶⁵

38. In its Consent Order with DuPont, the EPA ultimately concluded that “[t]he Company should make every effort to minimize or prevent any release to the environment of these substances,” and “that uncontrolled manufacture [...] and disposal of [GenX] may present an unreasonable risk of injury to human health and the environment.”⁶⁶ Due to these concerns, the EPA ordered DuPont to “recover and capture (destroy) or recycle [GenX] at an overall efficiency of 99% from all the effluent process streams and the air emissions (point source and fugitive).”⁶⁷

⁶³ NC DEQ Amended Complaint at 32-33.

⁶⁴ EPA, Consent Order and Determinations Supporting Consent Order for PMN Substances P-08-508 and P-08-509, vii (2009).

⁶⁵ *Id.* at vii, xi, xii.

⁶⁶ *Id.* at xiv-xv.

⁶⁷ *Id.* at 36.

39. After the EPA found that more research needed to be conducted on the chronic and carcinogenic effects of GenX, in particular, a 2-year Chronic Toxicity/Carcinogenicity study,⁶⁸ DuPont conducted such a study and found the following effects in rats:

- Livers exhibited severe liver damage via degeneration and necrosis (cell death),
- Kidneys exhibited papillary necrosis (acute cell death) and chronic progressive nephropathy (chronic progressive degradation of kidney functions),
- Uteri exhibited stromal polyps (cell tumors),
- Stomachs exhibited non-glandular mucosal hyperplasia (increased cellular growth),
- Pancreases exhibited acinar cell tumors and equivocal acinar cell hyperplasia (increased cellular growth),
- Testes exhibited interstitial cell tumors and hyperplasia (increased cellular growth),
- Lungs exhibited histiocytosis (chronic scarring of lung tissue),
- Tongues exhibited mucosal hyperplasia/inflammation (increased cellular growth).⁶⁹

40. The hyperplasia, or increased cellular growth, that Chemours found in many of the organs is a known precursor to cancer.⁷⁰ Necrosis, which was found in both livers and kidneys, is the irreversible death of cells that happens when there is severe damage to cell membranes so that the contents of the cells leak out and the cell itself is ultimately dissolved.⁷¹

41. In May of 2015, two hundred researchers and scientists warned government officials, manufacturers, and the public not to underestimate the danger of short-chain PFAS alternatives, including GenX. They wrote that these alternatives

are still as environmentally persistent as long-chain substances or have persistent degradation products. Thus, a switch to short-chain and other fluorinated

⁶⁸ *Id.* at ix.

⁶⁹ DuPont and Chemours' TSCA filing to EPA, "48HQ-06- 1643 6/8HQ-06- 16478," Jan. 8, 2013.

⁷⁰ "[I]n many cases pathologic hyperplasia constitutes a fertile soil in which cancers may eventually arise. For example, patients with hyperplasia of the endometrium are at increased risk of developing endometrial cancer." Excerpt explaining "hyperplasia" from Vinay Kumar et al., Robbins basic pathology 4 (9th ed. 2013).

⁷¹ "Necrosis is the type of cell death that is associated with loss of membrane integrity and leakage of cellular contents culminating in dissolution of cells, largely resulting from the degradative action of enzymes on lethally injured cells." Excerpt explaining "necrosis" from Vinay Kumar et al., Robbins basic pathology 9 (9th ed. 2013).

alternatives may not reduce the amounts of PFASs in the environment. In addition, because some of the shorter-chain PFASs are less effective, larger quantities may be needed to provide the same performance.⁷²

42. Numerous studies have been conducted since then—all of which indicate that short-chain PFAS alternatives, such as GenX, possess the same dangerous qualities as PFOA and PFOS.⁷³

43. The California Department of Toxic Substances Control reviewed recent scientific literature on PFAS compounds, including short-chain PFAS alternatives and, in February 2018, released a draft report that discussed the human health risks of short-chain PFAS compounds, such as GenX.⁷⁴ The report concluded that short-chain PFAS compounds take just as long to break down in the environment, and can even travel more readily than long-chain PFAS compounds such as PFOA, which have been found as far as the Arctic:

[f]luorinated ethers were thought to degrade easily, but recent studies found they also persist indefinitely in the environment. Shorter-chain PFASs are marketed as less toxic compared to the longer chains, [but instead] are equally persistent and more mobile in the environment than the chemicals they are replacing...⁷⁵

44. The California Department of Toxic Substances Control also found that short-chain PFAS compounds “showed the highest potential to translocate to and bioaccumulate in edible plants, thus entering the terrestrial food chain.”⁷⁶

⁷² The Madrid Statement at A 107; *see also* Scheringer et al., Helsinger Statement on poly- and perfluorinated alkyl substances (PFASs) (2014).

⁷³ *See* Gomis 2018 study; Gloria Post et al., “Key scientific issues in developing drinking water guidelines for perfluoroalkyl acids: Contaminants of emerging concern,” 15 *PLoS Biol* e2002855 (2017); Melissa Gomis, “From emission sources to human tissues: modelling the exposure to per- and polyfluoroalkyl substances,” (2017); Nan Sheng et al., “Cytotoxicity of novel fluorinated alternatives to long chain,” 92 *Archives of Toxicol.* 359 (2017); J.M. Rae et al., “Evaluation of chronic toxicity and carcinogenicity of ammonium 2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)-propanoate in SpragueDawley rats,” 2 *Toxicol. Rep.* 939 (2015); *see also* Melisa Gomis et al., “A modeling assessment of the physicochemical properties and environmental fate of emerging and novel per- and polyfluoroalkyl substances,” 505 *Sci. of the Total Environ.* 981 (2014).

⁷⁴ California Department of Toxic Substances Control, “Product – Chemical Profile for Perfluoroalkyl and Polyfluoroalkyl Substances (PFASs) in Carpets and Rugs” (2018) (hereinafter “CDTSC 2018 Report”).

⁷⁵ *Id.* at 6.

⁷⁶ CDTSC 2018 Report at 42.

45. Citing a 2018 study which compared short and long-chain PFAS compounds, the report ultimately found that the short-chain alternatives, in particular GenX, could be more toxic than the compounds they are replacing:

PFECAs and shorter-chain PFAAs may have *similar or higher toxic potency* than the longer-chain PFAAs they are replacing. Using a toxicokinetic model and existing toxicity data sets, a recent study found that PFBA, PFHxA, and PFOA have the same potency to induce increased liver weight, *whereas GenX is more potent*. The authors concluded that previous findings of lower toxicity of fluorinated alternatives in rats were primarily due to the faster elimination rates and lower distribution to the liver compared to PFOA and other longer-chain PFAAs.⁷⁷

46. Therefore, GenX only *appeared* to be less toxic than long-chain PFAS compounds, such as PFOA, because it was leaving the bodies of animal test subjects more readily than long-chain compounds. For humans, however, GenX and other short-chain PFAS compounds “could likely be intrinsically as potent as their predecessors.”⁷⁸ As explained by the 2018 study cited by the California Department of Toxic Substances Control, “short-chain PFASs that are rapidly excreted in a species such as the rat may not reach internal concentrations sufficient to result in toxic effects that it could in other species with a longer half-life, such as humans.”⁷⁹ Therefore, short-chain PFAS compounds are likely to stay in the human bodies long enough to cause severe toxic effects. GenX and other PFAS compounds created to replace PFOA and PFOS could be as harmful, if not more harmful, than the compounds they were created to replace.

47. Aware of the human health risks of GenX, the North Carolina Department of Health and Human Services has issued a health goal of 140 parts per trillion for the chemical.⁸⁰

⁷⁷ *Id.* at 29 (citation omitted and emphasis added).

⁷⁸ Gomis 2018 study at 7-8.

⁷⁹ *Id.*

⁸⁰ NC DHHS, “Questions and Answers Regarding North Carolina Department of Health and Human Services Updated Risk Assessment for GenX (Perfluoro-2-propoxypropanoic acid),” July 14, 2017.

Although the agency's establishment of a health goal validates the threat that GenX poses to public health and safety, compliance with the health goal does not ensure protection of the public, as the agency determined the health goal before many key studies on the human health risks of short-chain compounds had been published.⁸¹

III. Immediate Action Is Necessary to Protect Public Health and Safety.

48. As DEQ states in its final decision, Petitioner's "[r]equest agrees with the Department's well-documented position that this extensive contamination violates North Carolina law and requires *swift action* to (1) prevent ongoing contamination and (2) abate existing contamination."⁸²

49. The agency's actions so far have not stopped Chemours' PFAS releases. While DEQ has been gathering data and studying groundwater contamination and air deposition, the company has continued to release GenX and other toxic PFAS compounds into the air at a rate of nearly 100,000 pounds each year.⁸³

50. In 2012, Chemours emitted over 85,000 pounds of PFAS compounds into the air.⁸⁴ In 2013, Chemours emitted over 96,000 pounds of PFAS compounds into the air.⁸⁵ In 2014, Chemours emitted over 102,000 pounds of PFAS compounds into the air.⁸⁶ In 2015, Chemours emitted over 125,000 pounds of PFAS compounds into the air.⁸⁷ In 2016, Chemours emitted over 89,000 pounds of PFAS compounds into the air.⁸⁸ One of the many PFAS compounds has been released at a rate of over 72,000 pounds in one year, or 221 pounds per

⁸¹ NC DHHS published its GenX health goal of 140 ppt on July 14, 2017. *Id.* Numerous studies on short-chain PFAS alternatives were published after that date. *See supra* notes 73-74.

⁸² NC DEQ's Final Decision at 10 (emphasis added).

⁸³ *See* Chemours' GenX Air Emission Summary; Chemours' other Emerging Compounds Air Emissions Summary.

⁸⁴ *See* Chemours' other Emerging Compounds Air Emissions Summary.

⁸⁵ *Id.*

⁸⁶ *Id.*

⁸⁷ *Id.*

⁸⁸ *Id.*

day.⁸⁹ Although Chemours has begun installing some pollution control technologies, it continues to emit PFAS compounds in significant quantities.

51. Chemours is also polluting drinking water supplies by leaking large amounts of GenX emissions, some of which travel directly into the Cape Fear River. On October 6, 2017, Chemours covered up an air emissions leak that lasted 13 hours, containing 125 pounds of GenX compounds.⁹⁰ The release from the facility's stack was then "deposited onto the ground" and rain carried the chemicals into the Cape Fear River,⁹¹ causing GenX to spike in the river at levels of up to 3,700 ppt—over 26 times the state's health goal,⁹² and to far exceed the health goal at the Bladen Buffs water treatment facility.⁹³ Similar spikes of up to 2,400 ppt have occurred in the Cape Fear River since then.⁹⁴

52. Chemours has also admitted that leaks from pumps, valves, and connectors located on the facility cause GenX compounds to be emitted into the air each year.⁹⁵

53. During DEQ's investigation of GenX, the company has kept multiple unlined wastewater conveyance ditches and basins that continuously leach GenX compounds into ground and surface waters.⁹⁶

54. These include an unlined "ditch" carrying up to 5 to 8 million gallons a day of PFAS contaminated wastewater to groundwater sitting beneath the facility, two unlined

⁸⁹ 72,585 pounds of C₃F₆O, a PFAS compound, were emitted in the year 2015. *Id.*

⁹⁰ DEQ Press Release, "DEQ investigating air emissions leak at Chemours," Nov. 17, 2017.

⁹¹ DEQ Letter to Chemours, "Notice of Violation & Intent to Assess Civil Penalty," Nov. 13, 2017.

⁹² DEQ Press Release, "DEQ will take additional enforcement action against Chemours for unreported spill," Nov. 9, 2017.

⁹³ DEQ Press Release, "Surface water results from October show GenX was above state health goal at one water treatment facility after Oct. 6 spill," Nov. 27, 2017; DEQ Surface Water Sampling Results, Nov. 27, 2017.

⁹⁴ DEQ Press Release, "October, early November data shows high GenX concentrations at Chemours wastewater discharge outfall," Nov. 22, 2017.

⁹⁵ Chemours Letter to NC DEQ, "Chemours – Fayetteville Works – Emissions Test Report," 2, Mar. 12, 2018.

⁹⁶ *See generally* Exhibit 22 of NC DEQ Amended Complaint, "Focused Feasibility Study Report – PFAS Remediation."

sedimentation basins that are also leaching into the groundwater,⁹⁷ and an old outfall which has eroded enough to reach deep groundwater aquifers and channel contaminated water from the aquifers directly into the Cape Fear River.⁹⁸

IV. DEQ Has Provided Additional Facts Demonstrating a Generalized Condition of PFAS Pollution and That Immediate Action Is Required.

55. In its final decision, DEQ updated the number of offsite wells tested to “approximately 1,000 offsite.”⁹⁹ The decision continued, “[a]pproximately 225 wells have concentrations of GenX above the [North Carolina] DHHS health goal of 140 ng/L and approximately 538 wells have detectable concentrations of GenX at a level lower than 140 ng/L.”¹⁰⁰

56. DEQ’s final decision added that “[o]n April 9, 2018, Chemours [...] stat[ed] that its analysis of its site assessment data suggests that a terracotta pipe that formerly carried process wastewater to its wastewater treatment plant was a source of contamination...”¹⁰¹

57. DEQ’s final decision fully agreed with Petitioner’s request that “*swift* action is *necessary* [...] *to address the known health risks* associated with GenX Compounds and other PFAS...”¹⁰²

58. On June 11, 2018, DEQ issued a draft proposed order in an ongoing enforcement action against Chemours in Bladen County Superior Court.¹⁰³ In its proposed order, DEQ

⁹⁷ Chemours’ Letter to NC DEQ, “Notice of Violation - Immediate Action Required,” Feb. 26, 2018, at 10-12.

⁹⁸ Exhibit 22 of NC DEQ Amended Complaint, “Focused Feasibility Study Report – PFAS Remediation” at 9, Table 2.

⁹⁹ NC DEQ Final Decision at 6.

¹⁰⁰ *Id.* The unit “ng/L,” or nanograms per liter, is equivalent to the unit “ppt,” or parts per trillion, which has been used throughout this Petition.

¹⁰¹ *Id.* at 13.

¹⁰² *Id.* at 15 (emphasis added).

¹⁰³ Draft Proposed Order for Preliminary Injunctive Relief, *N.C. Dept. of Environmental Quality v. Chemours*, 17 CVS 580 (N.C. Super. 2018) (hereinafter “NC DEQ Proposed Order”), included as Exhibit 3.

includes the following additional facts demonstrating that DEQ must act now in order to require Chemours to immediately reduce its emissions of GenX compounds.

59. “DEQ’s analysis of Chemours’ submissions and all available evidence indicates that significant reductions of Chemours’ emissions will be necessary in order to prevent Chemours from causing or contributing to violations of North Carolina’s groundwater rules.”¹⁰⁴

60. “DEQ’s analysis further indicates that the Chemours’ commitment in its April 27, 2018 response to reduce GenX emissions by 72% by October 2018 and to reduce emissions further by April 30, 2020 is inadequate to address Chemours’ ongoing contamination of groundwater.”¹⁰⁵

61. “DEQ has concluded that, at a minimum, a reduction in facility-wide emissions of GenX Compounds by at least 99% from 2017 Total Reported Emissions is necessary to prevent and abate Chemours’ ongoing contamination of groundwater with GenX Compounds.”¹⁰⁶

62. “Chemours’ submissions to DEQ demonstrate that the technology necessary to achieve these emissions reduction will also control process emissions of other PFAS at a control efficiency of 99.99%.”¹⁰⁷

63. “While the technology necessary to achieve these goals is being implemented, DEQ has concluded that accelerated measures to reduce facility-wide emissions of GenX Compounds is necessary, and that, by August 31, 2018, Chemours must reduce emissions of these compounds facility-wide by at least 97% from 2017 Total Reported Emissions.”¹⁰⁸

¹⁰⁴ NC DEQ Proposed Order at 12.

¹⁰⁵ *Id.*

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*

¹⁰⁸ *Id.* at 13.

LEGAL BACKGROUND

I. The North Carolina Administrative Procedure Act

64. The North Carolina Administrative Procedure Act states that “an agency shall issue a declaratory ruling [...] as to the applicability to a given state of facts of a statute administered by the agency or of a rule or order of the agency” when requested by a person aggrieved.¹⁰⁹ “If the agency denies the request, the decision is immediately subject to judicial review.”¹¹⁰

65. “Person aggrieved” includes groups with a common interest, like Petitioner, whose interests are impacted by the requested decision.¹¹¹ Cape Fear River Watch is a “person aggrieved” by DEQ’s final decision and is entitled to judicial review under Article 4 of the North Carolina Administrative Procedure Act.¹¹²

II. The North Carolina Department of Environmental Quality’s Emergency Power to Protect Public Health and Safety.

66. DEQ is *required* by law to take immediate protective action if it determines that there is (1) a “generalized condition of water or air pollution which is causing imminent danger to the health or safety of the public,” and that (2) “it creates an emergency requiring immediate action to protect the public health and safety or to protect fish and wildlife.”¹¹³ In particular, “the Secretary of the Department with the concurrence of the Governor, *shall* order persons causing or contributing to the water or air pollution in question to reduce or discontinue immediately the emission of air contaminants or the discharge of wastes.”¹¹⁴

¹⁰⁹ N.C. Gen. Stat. § 150B-4(a).

¹¹⁰ N.C. Gen. Stat. § 150B-4(a1)(2).

¹¹¹ N.C. Gen. Stat. § 150B-2(6), (7).

¹¹² N.C. Gen. Stat. §§ 150B-2(6), 150B-2(7), 150B-43.

¹¹³ N.C. Gen. Stat. § 143-215.3(a)(12).

¹¹⁴ *Id.* (emphasis added).

PETITIONER'S EXCEPTIONS TO DEQ'S FINAL DECISION

Pursuant to N.C. Gen. Stat. §§ 150B-43, 150B-45, and 150B-46, Petitioner submits the following exceptions to DEQ's Final Decision:

I. DEQ Erred in Determining That There Is Not a Given Set of Facts to Support a Declaratory Ruling.

67. Petitioner repeats and incorporates the allegations in the preceding paragraphs as set forth in full.

68. As DEQ stated in its final decision, this case involves “an ongoing fact-intensive and highly technical investigation.”¹¹⁵ DEQ “conclude[d] that this matter is not appropriately resolved through issuance of a declaratory ruling” because “some of the facts upon which [Petitioner's] Request is based are outdated, in dispute, or subject to ongoing review.”¹¹⁶

69. Although DEQ might have received more information from Chemours since Petitioner made its request, there are no *material facts* that are in dispute. As demonstrated by Petitioner's Factual Background, the undisputed facts within Petitioner's Request for Declaratory Ruling are sufficient to establish that (1) Chemours' toxic PFAS pollution threatens public health and safety, (2) that Chemours and DuPont have caused, and Chemours continues to cause, a generalized condition of PFAS air and water pollution, and (3) that immediate action is necessary to protect public health and safety.

70. The facts that have developed since Petitioner's request have only *strengthened* the argument that DEQ must act immediately. For instance, when Petitioner first made its request on May 7, 2018, GenX had been found in 690 wells.¹¹⁷ DEQ's final decision denying Petitioner's request states that GenX has now been found in 763 private wells outside of the

¹¹⁵ NC DEQ Final Decision at 11.

¹¹⁶ *Id.* at 1, 3.

¹¹⁷ NC DEQ Apr. 26 Presentation at slides 9-10; NC DEQ Amended Complaint at 10-22.

facility.¹¹⁸ DEQ has also since determined that “Chemours’ commitment in its April 27, 2018 response to reduce GenX emissions by 72% by October 2018 and to reduce emissions further by April 30, 2020 is inadequate to address Chemours’ ongoing contamination of groundwater.”¹¹⁹

71. DEQ’s citation to *In Re Ford* is inapplicable to this case. *In Re Ford* involved a dispute over the record before the Superior Court in which petitioner argued that “the record should have contained a narration or summary of his oral presentation before the Board of Trustees of the Retirement System.” 52 N.C. App. 569, 572, 279 S.E.2d 122, 124 (1981). The court concluded that petitioner’s oral statements “did not constitute evidence” and “could not properly be included in the record.” *Id.* This case does not involve a material dispute over the contents of the record, and DEQ erred in denying Petitioner’s request based on the lack of a given set of facts.

II. DEQ Erred in Denying Cape Fear River Watch’s Request Based on the Agency’s Own Factual Determinations.

72. Petitioner repeats and incorporates the allegations in the preceding paragraphs as set forth in full.

73. In the request, Cape Fear River Watch sought a declaratory ruling that pollution from the Chemours facility has “caused, and [will] continue to cause, a generalized condition of water and air pollution which is causing imminent danger to the health and safety of the public.”¹²⁰

74. DEQ’s final decision states, “[t]he [Petitioner’s] Request agrees with the Department’s well-documented position that this extensive contamination violates North Carolina law and *requires swift action* to (1) prevent ongoing contamination and (2) abate

¹¹⁸ NC DEQ Final Decision at 6.

¹¹⁹ NC DEQ Proposed Order at 12.

¹²⁰ Petitioner’s Request for Declaratory Ruling, May 7, 2018, at 1, included as Exhibit 2.

existing contamination,” and that “swift action is *necessary* [...] *to address the known health risks* associated with GenX Compounds and other PFAS...”¹²¹

75. DEQ’s proposed order states: “DEQ has concluded that, at a minimum, a reduction in facility-wide emissions of GenX Compounds by at least 99% . . . is *necessary* to prevent and abate Chemours’ ongoing contamination of groundwater with GenX compounds.”¹²² DEQ has further determined that a 97 percent reduction “is necessary” by August 31.¹²³

76. Having determined that “this extensive contamination violates North Carolina law and requires swift action,”¹²⁴ DEQ is obligated to take that action.

77. Under N.C. Gen. Stat. § 143-215.3(a)(12), in such circumstances, “the Secretary of the Department . . . *shall* order persons causing or contributing to the water or air pollution in question to reduce or discontinue immediately the emission of air contaminants or the discharge of wastes.”

78. Given this statutory mandate and DEQ’s own factual findings as presented in the agency’s final decision and June 11, 2018 proposed order, DEQ erred in denying Cape Fear River Watch’s request.

III. DEQ Erred in Denying Cape Fear River Watch’s Request Due to Pending Litigation.

79. Petitioner repeats and incorporates the allegations in the preceding paragraphs as set forth in full.

80. In its final decision, DEQ further “conclude[d] that this matter is not appropriately resolved through issuance of a declaratory ruling” because it “is currently engaged in actions

¹²¹ NC DEQ Final Decision at 10, 15 (emphasis added).

¹²² NC DEQ Proposed Order at 12 (emphasis added).

¹²³ *Id.* at 13.

¹²⁴ NC DEQ Final Decision at 10.

[...] directed toward the very issues raised in [Petitioner's] Request.”¹²⁵ However, DEQ's “actions,” in particular its release of a draft proposed order for preliminary injunctive relief, will not provide Petitioner with the emergency relief that it and its members need.

81. Since DEQ issued its June 11, 2019 draft proposed order, Chemours responded with a court filing on June 20, 2019 indicating the company cannot and will not reduce emissions by 97 percent by August 31, 2018.¹²⁶ The company also challenged the legitimacy of DEQ's filing and the legal basis for Chemours' alleged groundwater violations.¹²⁷ Chemours' June 20, 2018 filing stating that it will not reduce emissions at the rate that DEQ has found is “necessary”¹²⁸ shows that entry of DEQ's proposed order will be heavily litigated.

82. DEQ has also allowed for a 30-day period for public comment on its June 11, 2018 draft proposed order, signifying that the agency will not begin to revise and incorporate comments on the proposed order until mid-July.¹²⁹ Although DEQ announced that it will request a court date for a hearing on the order, upon information and belief, the Bladen County Superior Court has not scheduled a hearing on DEQ's proposed order.

83. Due to Chemours' June 20, 2018 filing and DEQ's public comment schedule, it is clear that the immediate reduction or elimination of PFAS pollution required to protect public health is extremely unlikely from DEQ's current enforcement actions.

84. This case is easily distinguishable from *Equity Solutions of the Carolinas, Inc. v. North Carolina Department of State Treasurer*, cited by DEQ's final decision. In that case, while a company was under investigation by the North Carolina Attorney General for

¹²⁵ NC DEQ Final Decision at 1, 3.

¹²⁶ Chemours' Status Report, N.C. Dept. of Environmental Quality v. Chemours, 17 CVS 580, 8 (N.C. Super. 2018), included as Exhibit 4.

¹²⁷ See Chemours' Status Report, N.C. Dept. of Environmental Quality v. Chemours, 17 CVS 580 (N.C. Super. 2018).

¹²⁸ NC DEQ Proposed Order at 13.

¹²⁹ NC DEQ Press Release, “DEQ files new proposed court order against Chemours,” June 11, 2018, *available at* <https://deq.nc.gov/news/press-releases/2018/06/11/deq-files-new-proposed-court-order-against-chemours>.

racketeering, unjust and deceptive practices, and unjust enrichment, it requested a declaratory ruling from the State Treasurer stating that a relevant statutory provision “does not apply to its business model.” 232 N.C. App. 384, 391, 754 S.E.2d 243, 249 (2014). The company also “did not mention” essential facts and “presented the State Treasurer with an inadequate record.” 232 N.C. App. at 394. Accordingly, the Court of Appeals found that “[i]t would be a waste of administrative resources for the State Treasurer to issue a ruling on a matter” since the Attorney General had brought an ongoing enforcement action against the company. *Id.*

85. First, *Equity Solutions* involved a company’s apparent attempt to interfere with an investigation by requesting a declaratory ruling in its favor. In this case, we are facing a public health crisis that has impacted tens of thousands of angry, frustrated, and worried families in southeastern North Carolina, including many Cape Fear River Watch members. N.C. Gen. Stat. § 143-215.3(a)(12) specifically requires DEQ to act in situations of “emergency” where there is “imminent danger to the health and safety of the public.” DEQ’s pending litigation will not result in the emission reductions by the end of August that the agency has found are “necessary”¹³⁰ and therefore, it will not provide for the “immediate action [required] to protect the public health and safety.”¹³¹ Unlike in *Equity Solutions*, this is not a situation where there is “good cause” not to issue a declaratory ruling.

86. Second, Petitioner has not presented DEQ with an inadequate record as the company did in *Equity Solutions*. While there have been some factual developments since Petitioner’s request, the situation remains the same: Chemours and DuPont have caused, and Chemours continues to cause, a generalized condition of air and water pollution which is causing

¹³⁰ NC DEQ Proposed Order at 13.

¹³¹ N.C. Gen. Stat. § 143-215.3(a)(12).

imminent danger to the health and safety of the public, and there is an emergency requiring immediate action from DEQ to protect public health and safety.

87. DEQ's final decision to rely instead on its enforcement action in Bladen County violates the agency's mandatory obligation to protect public health and safety in emergency situations pursuant to N.C. Gen. Stat. § 143-215.3(a)(12).

REQUEST FOR RELIEF

WHEREFORE, Petitioner prays this Court enter the following relief:

1. That the Court reverse the North Carolina Department of Environmental Quality's Declaratory Ruling;
2. That the Court remand the decision to the North Carolina Department of Environmental Quality to enter a declaratory ruling that:
 - a. Previous and ongoing activities of Chemours Company FC, LLC and E.I. du Pont de Nemours and Company at the Fayetteville Works Facility have caused, and continue to cause, a generalized condition of water and air pollution which is causing imminent danger to the health and safety of the public.
 - b. In order to protect public health and safety, Chemours Company FC, LLC must immediately discontinue all air emissions as well as all surface water, groundwater, and/or stormwater discharges of perfluoroalkyl and polyfluoroalkyl substances from the Fayetteville Works Facility; and
3. Further relief as the Court deems proper.

This the 13th day of July, 2018.

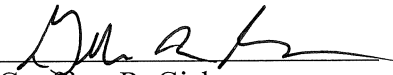

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EXHIBIT 5

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NORTH CAROLINA
SOUTHERN DIVISION**

CAPE FEAR RIVER WATCH,	)	
	)	
Plaintiff,	)	Case No. _____
	)	
v.	)	
	)	
CHEMOURS COMPANY FC, LLC,	)	
	)	
Defendant.	)	
_____	)	

**COMPLAINT FOR DECLARATORY
AND INJUNCTIVE RELIEF**

1. For nearly four decades, E.I. du Pont de Nemours and Company (“DuPont”) knowingly contaminated the air, water, and groundwater at its Fayetteville Works Facility (“Facility”), and the Cape Fear River—the drinking water supply for more than 250,000 North Carolinians. After DuPont created the Chemours Company FC, LLC,¹ and passed responsibility for its pollution to its then-subsiary, the Facility continued to quietly release hundreds of thousands of pounds of toxic perfluoroalkyl and polyfluoroalkyl substances (“PFAS”), including GenX.² Even now that the companies’ widespread pollution has been exposed to the public and regulatory agencies, Chemours persists in releasing the same chemicals into the air and water.

2. This is not the first time DuPont has contaminated a community and its drinking water. Before DuPont polluted the air and water in southeastern North Carolina, the company

¹ E.I. du Pont de Nemours and Company owned and operated the Fayetteville Works facility from the 1970s until the company formed Chemours Company FC, LLC, and transferred ownership to Chemours in 2015. DuPont and Chemours are referred to collectively as “companies” in this Complaint.

² For the purposes of this Complaint, GenX is the chemical with a Chemical Abstracts Service Registry number of 13252-13-6. It is also known as C3 Dimer Acid and HFPO Dimer Acid.

devastated communities in West Virginia with its pollution containing perfluorooctanoic acid (“PFOA”),³ an earlier, toxic variant of GenX.

3. DuPont knew about the dangers of PFOA beginning in the early 1960s, after DuPont conducted studies that showed the chemical caused liver damage, was resistant to degradation, and could cause birth defects. By 1981, DuPont found PFOA in the umbilical cord of a pregnant employee, demonstrating that the chemical’s toxic effects could reach fetuses.

4. By 1982, DuPont knew that PFOA emissions from its facility’s stacks in West Virginia traveled beyond the boundaries of its West Virginia facility and was warned by its own medical director that surrounding communities were likely being exposed to the company’s poisonous dust. By 1991, DuPont found the chemical in drinking water around its West Virginia facility, yet told no one outside the company.

5. Nevertheless, when DuPont lost its supply of PFOA from the 3M Company in 2000, it decided to begin making PFOA in North Carolina, starting a new legacy of pervasive environmental pollution in a new place.

6. DuPont began studying the harmful health effects of GenX, the latest version of PFOA, as early as 1963. Over time, DuPont’s studies on the chemical showed that GenX produced toxic effects in laboratory animals similar to that of PFOA, including cancers in the liver, pancreas, and testicles. Still, the company began quietly releasing the chemical into a North Carolina drinking water supply, the Cape Fear River, in 1980.

7. DuPont also began emitting hundreds of millions of pounds of GenX and similar compounds into the air each year, and allowing the chemicals to leak from its open pits, ditches, and pipes into the aquifers that supply the drinking water wells for hundreds of families.

³ PFOA is the anion of Ammonium Perfluorooctanoate. The terms—PFOA and Ammonium Perfluorooctanoate—are often used interchangeably. For the sake of simplicity, Ammonium Perfluorooctanoate is referred to as PFOA throughout this Complaint.

8. Eventually, plagued by thousands of civil lawsuits from its PFOA pollution in West Virginia, scientific evidence showing that PFOA causes birth defects, cancer, and other severe health effects, and pressure from the public and the EPA, DuPont was compelled to stop making PFOA.

9. Even before DuPont stopped its manufacture of PFOA, the company began making GenX as a replacement at the Fayetteville Works Facility in North Carolina. DuPont did so without disclosing to the North Carolina Department of Environmental Quality (“DEQ”) or the public that GenX has harmful health effects similar to those of PFOA, or the fact that DuPont had already been dumping the chemical into the Cape Fear River for nearly three decades.

10. Not much later, DuPont created a new company, Chemours, to bear the weight of its hundreds of million dollars’ worth of legal liabilities from its PFOA contamination. When Chemours took ownership of the Fayetteville Works Facility in 2015, it simply continued DuPont’s tradition of toxic pollution in violation of the companies’ Toxic Substances Control Act Consent Order and Clean Water Act permit.

11. Chemours and DuPont have contaminated soil, groundwater, and surface water at the Fayetteville Works Facility with a variety of PFAS. The companies’ pollution extends beyond the boundaries of the Facility, tainting the Cape Fear River and public drinking water supplies as far away as Wilmington and Brunswick County.

12. On July 14, 2017, after studying the potential adverse health effects caused by GenX, the North Carolina Department of Health and Human Services issued a health goal of 140 parts per trillion (“ppt”) for the chemical.

13. Members of Cape Fear River Watch who live near and downstream of the Fayetteville Works Facility have been harmed by the companies’ pollution. They and their

families have been exposed to air and water that has been contaminated by Chemours and DuPont for decades. They now live in fear of how much the pollution has affected the health of their families and communities, and in frustration that Chemours continues to release that pollution into their environments. This Complaint seeks to prevent ongoing air and water contamination from the Facility on behalf of Cape Fear River Watch's members.

JURISDICTION AND VENUE

14. Cape Fear River Watch brings this enforcement action under the citizens' suit provisions of the Clean Water Act, 33 U.S.C. § 1365, and the Toxic Substances Control Act, 15 U.S.C. § 2619. This court has jurisdiction over this action pursuant to 28 U.S.C. §§ 1331, 1332 and has jurisdiction over the parties.

15. Venue is proper in this court pursuant to 28 U.S.C. § 1391(b), 33 U.S.C. § 1365(c)(1), and 15 U.S.C. § 2619(a). The challenged discharges and permit violations are located and are occurring in multiple counties throughout southeastern North Carolina, including Cumberland County, Bladen County, Robeson County, New Hanover County, and Brunswick County.

16. In compliance with 33 U.S.C. § 1365(b)(1)(A), 40 C.F.R. § 135.2, 15 U.S.C. § 2619(b)(1)(A), and 40 C.F.R. § 702.61, on May 7, 2018, Cape Fear River Watch gave the Chemours Company FC, LLC, E.I. du Pont de Nemours and Company, EPA, and DEQ notices of the violations specified in this Complaint and of Cape Fear River Watch's intent to file suit should those violations continue. Copies of the notice letters with documentation of their receipt are attached as Exhibits 1, 2 and 3.

17. More than sixty days have passed since notice was given pursuant to law and regulation, and the violations identified in the notice letters are continuing at this time and are reasonably likely to continue in the future.

PLAINTIFF

18. Plaintiff Cape Fear River Watch is a § 501(c)(3) nonprofit public interest organization headquartered in Wilmington, North Carolina that engages residents of the Cape Fear watershed through programs to preserve and safeguard the river. The organization has 1,100 members, including members who live near, drink water from, and fish, swim, and boat on the Cape Fear River downstream of Chemours' Fayetteville Works Facility. Cape Fear River Watch's mission is "to protect and improve the water quality of the Lower Cape Fear River Basin through education, advocacy and action." In order to fulfill that mission, the organization works to protect the entire river from pollution, including toxic chemicals, such as the PFAS that have been released from the Fayetteville Works Facility for decades, and continue to be pumped into the environment at alarming rates.

19. Members of Cape Fear River Watch who live near and downstream of the Fayetteville Works Facility have been devastated by Chemours' poisoning of the Cape Fear River and its tributaries. Chemours has subjected members and their families to contaminated air and water for four decades. They are worried that the years of drinking, fishing from, and swimming in Chemours' polluted waters have permanently harmed the health of themselves and their families. They are angry and frustrated that the company continues to release its toxic pollution into their air, water, and soil. Since they learned about Chemours' pollution, members of Cape Fear River Watch have avoided drinking their tap water, which comes from the Cape Fear River. They have also limited how often they fish, swim, or paddle in the river.

20. Chemours' discharges of PFAS contamination are reducing the use and enjoyment by Cape Fear River Watch and its members of the Cape Fear River Basin and its tributaries.

DEFENDANT

21. Defendant, the Chemours Company FC, LLC, is a Delaware limited liability corporation with its principal place of business in Wilmington, Delaware, and is registered to do business in North Carolina. The Chemours Company FC, LLC currently owns and operates the Fayetteville Works Facility, located at 22828 NC Highway 87 W, Fayetteville, North Carolina.

FACTUAL ALLEGATIONS

A. The Fayetteville Works Facility.

22. The Fayetteville Works Facility is fifteen miles southeast of Fayetteville, North Carolina and is partially bordered by the Cape Fear River and its tributaries. The Facility was constructed by DuPont in the early 1970s. DuPont owned and operated the Facility until 2015, when it transferred ownership of the Facility to its then-subsiary, Chemours. DuPont continues to operate one out of five manufacturing areas at the Facility.

23. The Fayetteville Works Facility has five active manufacturing areas: (1) Fluoromonomers/Nafion Membrane Manufacturing Area ("Nafion Manufacturing area") (operated by Chemours), (2) Polymer Processing Aid ("PPA") Manufacturing area (operated by Chemours), (3) Butacite Manufacturing area (operated by Kuraray America Inc. and rented from Chemours), (4) SentryGlas Manufacturing area (operated by Kuraray America Inc. and rented from Chemours), and (5) Polyvinyl Fluoride Manufacturing area (operated by DuPont and rented from Chemours).

24. Chemours' Nafion Manufacturing area produces Nafion fluorochemical products, including Nafion Membrane and Nafion Polymer Dispersions, as well as numerous fluorochemicals, including HFPO monomer and Vinyl Ether monomer which are used to manufacture fluorochemical products. GenX and other PFAS compounds are produced as a result of the manufacturing processes at the Nafion Manufacturing area.

25. Chemours' PPA Manufacturing area originally produced nylon strapping and Elastomeric Tape. DuPont began producing PFOA at the Facility in October or November of 2002 after it lost its supply of PFOA from the 3M Company and then decided to manufacture the chemical on its own. The PPA Manufacturing area produced PFOA until April 2013. In 2009, DuPont also began producing GenX at this manufacturing area, and GenX is still manufactured there today.

26. The Polyvinyl Fluoride Manufacturing area is operated by DuPont. It produces a polyvinyl fluoride resin that used as a backing for photovoltaic cells. The Polyvinyl Fluoride Manufacturing process began in September or October 2007. This area is suspected to be a source of PFAS contamination.

27. The Fayetteville Works Facility also includes a former, now inactive manufacturing area: the Polymer Manufacturing Development Facility. DuPont manufactured Teflon-branded fluorinated ethylene propylene for electrical wiring insulation and other uses at the Polymer Manufacturing Development Facility from December 2000 until June 2009. This area is suspected to be a source of PFAS contamination.

28. The Fayetteville Works Facility is bordered by Willis Creek approximately 3,000 feet north of the manufacturing areas, Georgia Branch Creek to the south, and the Cape Fear

River—a public drinking water supply—approximately 1,850 feet to the east. Both Willis Creek and the Georgia Branch Creek flow into the Cape Fear River.

29. The Fayetteville Works Facility discharges wastewater into the Cape Fear River through an underground pipe, Outfall 002. The segment of the Cape Fear River into which the Facility’s wastewater is discharged is classified as a Class C and Water Supply IV water. Class C waters are “freshwaters protected for secondary recreation, fishing, aquatic life including propagation and survival, and wildlife.” 15A N.C. Admin. Code 02B .0101(c)(1). A few miles downstream of the discharge point, the Cape Fear River is also classified as a critical area. Critical areas are defined as the “area adjacent to a water supply intake or reservoir where risk associated with pollution is greater than from the remaining portions of the watershed.” 15A N.C. Admin. Code 2B.0202(20).

30. The Fayetteville Works Facility is located upstream of several drinking water intakes that serve water utilities, including the Lower Cape Fear Water and Sewer Authority, the Cape Fear Public Utility Authority, and Brunswick County.

31. Beneath the Fayetteville Works Facility are layers of groundwater partially confined by clay, including the perched zone, and the Surficial and Black Creek Aquifers—the principal potable water aquifers in the region. The Surficial Aquifer is approximately 50 feet below ground surface, and the Black Creek Aquifer is between 80 and 100 feet below ground surface. The perched zone, which underlies most of the Facility, is a shallow layer of groundwater 6 to 20 feet below ground surface that has been created by seepage of water through the companies’ leaking pipes, ditches, and basins.

32. Groundwater beneath the Facility generally flows west-southwest to east-northeast. All three layers of groundwater flow toward surface waters surrounding the

Fayetteville Works Facility. Water from the perched zone flows into the Cape Fear River and also infiltrates the Surficial and Black Creek aquifers before entering the Cape Fear River.

Groundwater from the Surficial Aquifer flows toward the Cape Fear River, and also discharges directly into Willis Creek, which is a tributary that connects to the Cape Fear River.

Groundwater from the Black Creek Aquifer discharges into the Cape Fear River and Willis Creek.

B. Groundwater and Surface Waters In and Around the Fayetteville Works Facility Contain Toxic PFAS.

33. When the public learned of Chemours' pollution in June of 2017, Chemours was dumping wastewater into the Cape Fear River that had GenX levels of up to 39,000 parts per trillion ("ppt") and GenX levels in the finished drinking water from the downstream Cape Fear Public Utility Authority's Sweeney Water Treatment Plant reached levels of up to 1,100 ppt—nearly 8 times the state's health goal for GenX of 140 ppt.

34. In September 2017, Chemours agreed to stop pumping its PFAS-contaminated process wastewater directly into the Cape Fear River. GenX levels in the Cape Fear River and its tributaries, however, persisted as contaminated groundwater both on and offsite continued to seep into surface waters. Months after Chemours' agreement, GenX was found in Willis Creek at levels of up to 450 ppt and in Georgia Branch at levels of 690 ppt.

35. Chemours continues to pollute at least the Cape Fear River and Willis Creek due to its extensive contamination of on-site groundwater, which are hydrologically connected to surrounding surface waters. All three layers of groundwater beneath the Fayetteville Works Facility have been contaminated with GenX and other PFAS.

36. The perched zone has had concentrations of GenX of up to 640,000 ppt. The Surficial Aquifer has had concentrations of GenX of up to 45,000 ppt right along the Cape Fear

River. Only four wells were tested for GenX in the Black Creek Aquifer, yet those samples had concentrations of GenX of up to 9,900 ppt. Other PFAS have been found in onsite groundwater wells in much higher levels than GenX. For instance, Perfluoro- 2-methoxyacetic acid (PFMOAA) was measured at levels of over 8 million and 6 million ppt. Perfluoro(3,5-diols)hexanoic acid (PFO2HxA) was measured at levels of nearly 2 million ppt.

37. From September to December of 2017, at least 33 different PFAS were identified in private drinking water wells around the Facility. GenX has now been found in at least 763 private wells up to 5.5 miles away from the Facility's border, in levels as high as 4,000 ppt. Over 220 of these private wells have concentrations of GenX above the state's health goal of 140 ppt. The contamination in those wells has been attributed to the companies' air emissions.

38. Those air emissions have also resulted in rainwater with GenX levels as high as 810 ppt, five miles from the Facility, and in spring-fed recreational lakes surrounding the Facility. In Camp Dixie, a lake about two miles away from the Facility that is drained about once a year, GenX was found at levels of 620 ppt. In Marshwood Lake, which is about .7 miles northeast of the Facility, 16 PFAS were detected in recent testing, and GenX was found at levels of 1,160 ppt.

C. Chemours' Leaking Pipes, Ditches, Basins, and Air Emissions Continue to Pollute the Surface Waters, Groundwater, Soil, and Air.

39. Chemours and DuPont have released PFAS from the Fayetteville Works Facility for decades, and Chemours continues to release GenX and other PFAS into surface and groundwaters through myriad pathways.

40. Chemours discharges PFAS into the Cape Fear River through its current Outfall 002, as demonstrated by samples taken well after Chemours purportedly ceased its discharge.

A sample collected from Outfall 002 on January 25, 2018 contained concentrations of 1,500 ppt and a sample collected in April 26, 2018 contained concentrations of 1,300 ppt.

41. Chemours also discharges PFAS directly into the Cape Fear River through its unlined old Outfall 002. The abandoned ditch, which was built by DuPont as part of its previous waste treatment system, has eroded so much that it collects polluted groundwater from the Surficial and Black Creek Aquifers and channels contaminated water from those aquifers straight into the Cape Fear River.

42. There are numerous other sources of ground and surface water contamination within Chemours' Facility, including but not limited to:

- a. A leaking terracotta pipe which was previously used to transport process wastewater from the Facility's Nafion Manufacturing area to its wastewater treatment plant;
- b. Other parts of the Facility's process sewer system, which include a system of pipes, manholes, and sumps—in particular the "common sump" in the Nafion Manufacturing area, which historically received process wastewater, cooling water, and steam condensate from the Nafion manufacturing process;
- c. An unlined "Nafion Ditch" in the Nafion Manufacturing area which collects five to eight million gallons a day of wastewater and stormwater that leaches into the groundwater beneath the Facility. The ditch also flows directly into the current Outfall 002 and the Cape Fear River;
- d. Two large unlined sedimentation basins in the Nafion Manufacturing area which remove sediment from the Cape Fear River and leach into the groundwater beneath the Facility;

- e. A “Borrow Pit” which has been used for the disposal of sediment from the two sedimentation basins in the Nafion Manufacturing area. PFOA has been found in at least one groundwater sample in the vicinity of the pit;
 - f. Many unlined lagoons that were used for settling and disposing sludge from the site’s wastewater treatment plant;
 - g. A rainwater retention basin north of the PPA Manufacturing area that has previously leached contaminants from the deposition of PPA Manufacturing area’s air emissions into groundwater;
 - h. The Facility’s storm sewer system, which collects stormwater through sumps, drains, and ditches throughout the Facility, and transports them to the Cape Fear River;
 - i. Numerous erosional channels that receive contaminated groundwater east of the Facility;
 - j. A wood-lined ditch carrying stormwater and wastewater from the Facility’s wastewater treatment plant towards Outfall 002;
 - k. The Facility’s Polyvinyl Fluoride Manufacturing area; and
 - l. The former Polymer Manufacturing Development Facility in which DuPont manufactured Teflon-branded fluorinated ethylene propylene until 2009.
43. PFAS pollution from each of these discrete point sources likely directly or indirectly pollutes Willis Creek, the Georgia Branch, and/or the Cape Fear River—all of which are waters of the United States and protected by the Clean Water Act.
44. Chemours’ manufacturing areas also release numerous PFAS into the environment through air emissions, as well as equipment leaks. Of the PFAS, Chemours’ aerial

releases of GenX, HFPO Dimer Acid Ammonium Salt, and HFPO Dimer Acid Fluoride have been tested for most thoroughly. HFPO Dimer Acid Fluoride and HFPO Dimer Acid Ammonium Salt both convert to GenX in the presence of water. Collectively, GenX, HFPO Dimer Acid Fluoride, and HFPO Dimer Acid Ammonium Salt are referred to as “GenX compounds.”

45. The Nafion Manufacturing area’s four stacks, which range in height from about 25 to 75 feet, release air emissions containing GenX compounds. The stacks are part of four different processing units within the manufacturing area, including: (1) the Vinyl Ethers – North Process Unit, (2) Vinyl Ethers – South Process Unit, (3) the Polymer Processing Unit, and (4) the Semi-works Polymerization Unit. These units also release GenX compounds through leaks from Chemours’ indoor and outdoor equipment from a height of about 15 to 45 feet.

46. According to Chemours, the Vinyl Ethers – North Process Unit emitted approximately 1,510 pounds of GenX compounds in 2017, the Vinyl Ethers – South Process Unit emitted approximately 116 pounds of GenX compounds in 2017, the Polymer Processing Unit emitted approximately 5 pounds of GenX compounds in 2017, and the Semi-works Polymerization Unit emitted approximately 0.5 pounds of GenX compounds in 2017. In total, Chemours estimates that the Nafion Manufacturing area emitted approximately 1,631 pounds of GenX compounds in 2017.

47. Chemours’ PPA Manufacturing area also emits GenX compounds through stacks and leaks. In 2017, Chemours estimated that its 75-foot high PPA stack emitted approximately 639 pounds of GenX compounds, and that its indoor and outdoor PPA equipment leaked about 32 pounds of fugitive GenX emissions at a height of about 9 feet. The company estimated that it released a total of 671 pounds GenX compounds from its PPA Manufacturing area in 2017.

48. In total, Chemours reported that its air emissions of GenX compounds for 2017 were approximately 2,302 pounds.

49. The Facility emits numerous other PFAS in addition to GenX compounds. In 2012, DuPont emitted over 85,000 pounds of total PFAS into the air. In 2013, DuPont emitted over 96,000 pounds of PFAS into the air. In 2014, DuPont emitted over 102,000 pounds of PFAS into the air. In 2015, the companies emitted over 125,000 pounds of PFAS into the air. In 2016, Chemours emitted over 89,000 pounds of PFAS into the air.

50. Chemours' air emissions from its stacks are a direct and indirect source of surface water pollution. First, GenX compounds emitted from the stack land directly into the Cape Fear River, Willis Creek, and the Georgia Branch. Second, the emissions contribute to significant surface and groundwater pollution by depositing onto surrounding lands and leaching through the surface to underlying groundwater, which then flows, at a minimum, into the Cape Fear River and Willis Creek.

D. DuPont and Chemours Knew They Were Polluting Surface Waters and Groundwaters.

51. Based on DuPont's experience at its Washington Works Facility in West Virginia, DuPont knew about its PFAS air emissions and their potential to pollute land and water on-site at its facilities and in neighboring communities. By 1982, DuPont had found that the PFOA dust from its stacks at the Washington Works Facility in West Virginia traveled beyond the property line and settled on the surrounding lands. By at least 2003, DuPont knew that PFOA air emissions from its West Virginia facility were polluting groundwater aquifers that were a source of drinking water for residents in the area.

52. Despite its knowledge of the harm that its toxic air emissions could cause, DuPont began manufacturing PFOA in its facility in North Carolina in 2002 and contaminating the air and surrounding land and waters as it had done in West Virginia.

53. That same year, DuPont conducted modeling of its PFOA air emissions at the Fayetteville Works Facility that showed air particles from its emissions would likely deposit into the surrounding watershed and be carried into the Cape Fear River as stormwater runoff.

54. DuPont found elevated levels of PFOA in the groundwater around its Nafion and PPA Manufacturing areas soon after it began manufacturing PFOA in North Carolina. As early as 2003, the company found PFOA in an on-site groundwater monitoring well in the Nafion Manufacturing area.

55. Beginning in 2004, DuPont measured its annual PFOA air emissions at the Fayetteville Works Facility and knew that PFOA contaminated ground and surface waters.

56. Groundwater samples taken by DuPont in 2005 near the PPA Manufacturing area contained levels of PFOA at 147,000 ppt in October 2005 and 765,000 ppt in December 2005. Concentrations of PFOA from groundwater samples around the Nafion Manufacturing area reached up to 872 ppt in October 2005.

57. By 2006, DuPont was aware of many sources of PFOA contamination within its facility, and the chemical's movement through the air, unlined ditches and basins, and groundwaters and surface waters. In particular, the company knew:

- a. that PFOA air emissions at the Facility were depositing onto the ground and directly contributing to groundwater contamination,
- b. that PFOA contaminated at least one of its sedimentation basins and an unlined ditch located in the Nafion Manufacturing area,

- c. that there was a perched zone of groundwater below the Facility, and that the groundwater was being recharged by the DuPont's contaminated basins and ditch,
- d. that PFOA contaminated on-site groundwater in high concentrations,
- e. that groundwater beneath the Facility flowed into Willis Creek and the Cape Fear River, and
- f. that PFOA was contaminating nearby surface waters.

E. PFAS Harm Human Health.

58. The PFAS that have been manufactured and released by DuPont and Chemours into ground and surface waters, air, and soil are known to cause harmful effects to human health.

59. Of the commonly studied PFAS, PFOA and perfluorooctyl sulfonate ("PFOS") have been found to cause developmental effects to fetuses and infants, kidney and testicular cancer, liver malfunction, hypothyroidism, high cholesterol, ulcerative colitis, lower birth weight and size, obesity, decreased immune response to vaccines, reduced hormone levels, and delayed puberty.

60. PFOA and PFOS have been found in the air, surface water and groundwater, and soil and sediment. They are extremely resistant to breaking down in the environment, take years to leave the human body, and slowly accumulate over time.

61. Until 2013, DuPont manufactured PFOA at the Fayetteville Works Facility. DuPont had known about the dangers of PFOA since the early 1960s, secretly conducting studies that showed the chemical caused liver damage, was resistant to degradation, and could cause birth defects. By 1981, DuPont had found PFOA in the umbilical cord of a pregnant employee at its facility in West Virginia, showing that the chemical's toxic effects could reach fetuses. Decades later, information about PFOA's toxicity began to rise to the surface, and in 1999, the

first of over 3,500 personal injury lawsuits were filed against DuPont for knowingly poisoning thousands of people.

62. Concerned about the extensive health effects of PFOA and PFOS, in 2016, the EPA established a lifetime health advisory of 70 ppt for the *combined* concentrations of PFOA and PFOS in drinking water.

63. In 2009, DuPont also began manufacturing GenX, a structurally similar compound, at the Fayetteville Works Facility to eventually replace its production of PFOA. Instead of being a long unbroken chain of several carbon atoms, GenX and many other new PFAS alternatives have shorter chains of carbon atoms and ether (oxygen) linkages. Therefore, they are often referred to as “short-chain” PFAS.

64. DuPont’s own studies of GenX, which it began as early as 1963, showed that GenX had health effects in laboratory animals consistent with the effects of other PFAS, such as cancers in multiple organs, including the liver, pancreas, and testicles.

65. In DuPont’s 2009 Toxic Substances Control Act Consent Order for GenX, which DuPont entered into with the Environmental Protection Agency, the EPA warned the company that the agency had human health concerns about GenX because the chemical is “structurally similar” to other heavily studied PFAS, such as PFOA, that are known to persist in the environment and bioaccumulate in humans.⁴ The EPA further voiced concerns that GenX “could bioaccumulate and be toxic ... to people, wild mammals, and birds,” that they “are expected to be absorbed by all routes of exposure,” that they are expected “to be highly persistent in the environment,” and that “there is high concern for possible environmental effects over the long-

⁴ EPA, Consent Order and Determinations Supporting Consent Order for PMN Substances P-08-508 and P-08-509, vii (2009), included as Exhibit 4.

term.”⁵ In its Consent Order with DuPont, the EPA ultimately concluded that “[t]he Company should make every effort to minimize or prevent any release to the environment of these substances,” and “that uncontrolled manufacture [...] and disposal of [GenX] may present an unreasonable risk of injury to human health and the environment.”⁶

66. In May of 2015, two hundred researchers and scientists warned government officials, manufacturers, and the public not to underestimate the danger of short-chain PFAS alternatives, including GenX.

67. On July 14, 2017, after studying the potential adverse health effects caused by GenX, the North Carolina Department of Health and Human Services issued a health goal of 140 ppt for the chemical.

68. The California Department of Toxic Substances Control reviewed recent scientific literature on PFAS, including short-chain PFAS alternatives. In February 2018, it released a draft report that stated short-chain PFAS take just as long to break down in the environment and can even travel more readily than long-chain PFAS such as PFOA. The report also found that the short-chain alternatives, in particular GenX, could be more toxic than the compounds they are replacing.

69. In June 2018, the Agency for Toxic Substances and Disease Registry, part of the United States Department of Health and Human Services, released an updated Draft Toxicological Profile for certain PFAS. This report suggested that many of the chemicals are much more harmful than previously thought. For instance, the minimum risk levels, or the amount of a chemical a person can eat, drink, or breathe each day without a detectable risk to health, should be 11 ppt for PFOA, and 7 ppt for PFOS.

⁵ *Id.* at vii, xi, xii.

⁶ *Id.* at xiv-xv.

F. Fayetteville Works Facility's National Pollution Discharge Elimination System Permit Does Not Authorize Chemours' PFAS Discharges.

70. Chemours and DuPont released these pollutants into ground and surface waters for decades without authorization under the Clean Water Act.

71. Chemours has a Clean Water Act permit, though it does not address the discharges described above. The company is authorized to discharge wastewater into the Cape Fear River from the Fayetteville Works Facility under National Pollution Discharge Elimination System ("NPDES") Permit No. NC0003573, issued by DEQ in 2012,⁷ and administratively extended past its expiration date of October 31, 2016 as the agency considers the company's pending renewal application. Chemours' permit is attached to this Complaint as Exhibit 5.

72. Chemours' current NPDES permit authorizes the discharge of wastewater from the Facility through two outfalls: Outfall 001 and Outfall 002. Outfall 001 is an internal outfall from the Facility's wastewater treatment plant. Process wastewater and stormwater flows through Chemours' on-site wastewater treatment plant through Outfall 001, is diluted with cooling water and stormwater, and then is discharged into the Cape Fear River through an underground pipe at Outfall 002.

73. The Removed Substances provision within Chemours' current NPDES permit requires that: "Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be utilized/disposed of in accordance with NCGS 143-215.1 and in a manner such as to prevent any pollutant from such materials from entering waters of the State or navigable waters of the United States except as permitted by the Commission."⁸

⁷ That Fayetteville Work Facility's NPDES permit was modified in 2015 to reflect the Facility's change in ownership from DuPont to Chemours.

⁸ NPDES Permit Standard Conditions at 8, included as Exhibit 6.

74. The Duty to Mitigate provision within Chemours' current NPDES permit requires that: "The Permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit with a reasonable likelihood of adversely affecting human health or the environment."⁹

75. The Operation and Maintenance provision within Chemours' current NPDES permit requires that: "The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit."¹⁰

76. From DuPont's application for its first NPDES permit, issued in 1987, until Chemours' latest application in 2016, neither company sought approval of their discharges of GenX or any other PFAS. In fact, the companies repeatedly represented to DEQ that its discharges containing PFAS were harmless or that the wastewater from PFAS manufacturing processes were being collected and disposed of elsewhere.

77. In its 2006 NPDES permit application, DuPont stated that all of the wastewater from its manufacture of PFOA would be collected and shipped off-site for disposal, although the company was already well aware that its PFAS air emissions were polluting shallow and deep layers of groundwater and that contaminated groundwater likely leached into surface waters around the Facility.

78. In 2010, DuPont met with DEQ to discuss its replacement of PFOA with GenX, stating that GenX would be less harmful to health and the environment, although DuPont had already conducted nearly 50 years' worth of studies on GenX showing that the chemical had health effects in laboratory animals consistent with the effects of other toxic PFAS. DuPont also

⁹ NPDES Permit Standard Conditions at 4, *see also* 40 C.F.R. §122.41(d).

¹⁰ NPDES Permit Standard Conditions at 7; *see also* 40 C.F.R. §122.41(e).

stated that the wastewater from the company's manufacture of GenX would be collected and shipped off-site for disposal. The company failed to mention that it had already been releasing GenX directly into the Cape Fear River for four decades.

79. None of the NPDES permits issued by DEQ to DuPont or Chemours authorize the discharge of GenX or any other PFAS.

80. After discovering that DuPont and Chemours had discharged GenX and other PFAS into drinking water supplies for decades without notifying the agency, in September 2017, DEQ filed a complaint against Chemours for its violation of its NPDES permit, the Clean Water Act, and state water quality laws. Chemours agreed through a consent order to stop its discharge of wastewater containing GenX and two other PFAS from Outfall 002 directly into the Cape Fear River.

81. DEQ later discovered that Chemours had concealed a GenX spill into the Cape Fear River that occurred on October 9, 2017, which caused GenX concentrations to spike at 3,700 ppt at Outfall 002. Because the company hid the spill from the agency, on November 30, 2017, DEQ suspended Chemours' NPDES permit provisions that authorize Chemours to discharge process wastewater from Chemours' Nafion Manufacturing area. DEQ continued to allow wastewater from Kuraray America Inc.'s and DuPont's facilities to be discharged through Outfall 002 under the permit.

STATUTORY BACKGROUND

A. The Clean Water Act.

82. The Clean Water Act seeks to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). To accomplish that objective, Congress set the national goal that "the discharge of pollutants into the navigable waters be

eliminated.” *Id.* Accordingly, the Act prohibits the discharge of pollutants from a point source to waters of the United States except in compliance with, among other conditions, a NPDES permit issued pursuant to 33 U.S.C. § 1342. 33 U.S.C. § 1311(a). Each violation of a NPDES permit, and each discharge of a pollutant that is not authorized by the permit, is a violation of the Clean Water Act. 33 U.S.C. §§ 1311(a), 1342(a), 1365(f).

83. The Clean Water Act defines a “point source” as “*any* discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, [or] container [...] from which pollutants are or may be discharged.” 33 U.S.C. § 1362(14) (emphasis added).

84. In addition, a “point source need not be the original source of the pollutant; it need only convey the pollutant to ‘navigable waters.’” *S. Fla. Water Mgmt. Dist. v. Miccosukee Tribe of Indians*, 541 U.S. 95, 105 (2004). Thus, ditches and channels that convey pollutants but are themselves not the original source constitute point sources. This includes unintentional conveyance of pollutants, for example, through natural-formed ditches, gullies, or fissures.

85. The Clean Water Act prohibits “any addition of any pollutant to navigable waters from any point source.” 33 U.S.C. § 1362(12)(A). When unpermitted pollution travels from a point source to a river or lake via hydrologically connected groundwater, there is an illegal “addition of any pollutant to navigable waters.” 33 U.S.C. § 1362(12).

B. The Toxic Substances Control Act.

86. The Toxic Substances Control Act states, “The Congress finds that [...] among the many chemical substances and mixtures which are constantly being developed and produced, there are some whose manufacture, processing, distribution in commerce, use, or disposal may present an unreasonable risk of injury to health or the environment.” 15 U.S.C. § 2601.

87. Under Section 5 of the Toxic Substances Control Act, no person may manufacture or import a “new chemical substance” or manufacture or process any chemical substance for “a significant new use” unless (1) pre-manufacture notice is filed with the EPA, (2) the EPA reviews the notice, and (3) the EPA makes a determination of the human health and environmental risks of the chemical. 15 U.S.C. § 2604. Pre-manufacture notices submitted to the EPA must include data on the health and ecological effects of the chemical substance, including “all test data in the submitter’s possession or control,” as well as data “that are known to or reasonably ascertainable by the submitter.” 40 C.F.R. § 720.50.

88. If EPA determines that there is insufficient information about the chemical substance, the EPA “shall issue an order [...] to prohibit or limit the manufacture, processing, distribution in commerce, use, or disposal of such substance or to prohibit or limit any combination of such activities to the extent necessary to protect against an unreasonable risk of injury to health or the environment, without consideration of costs or other nonrisk factors...” 15 U.S.C. § 2604(e)(1)(A). Following an EPA order, “the submitter of the notice may commence manufacture of the chemical substance, or manufacture or processing of the chemical substance for a significant new use, including while any required information is being developed, *only in compliance with the order.*” *Id.* (emphasis added). It is “unlawful for any person to fail or refuse to comply with any [...] order issued” under Section 5 of Toxic Substances Control Act. 15 U.S.C. § 2614(1).

FIRST CAUSE OF ACTION
Unauthorized Discharges to Waters of the United States
in Violation of the Clean Water Act

89. The allegations of the preceding paragraphs are incorporated here by reference.

90. Chemours continues to release GenX and other PFAS into surface waters directly and through its contamination of the groundwater, soil, and air in and around the Fayetteville Works Facility, in violation of the Clean Water Act's prohibition on unauthorized discharges.

91. Chemours continues to discharge PFAS into the Cape Fear River through its current Outfall 002 without authorization from its current NPDES permit.

92. Chemours also discharges PFAS directly into the Cape Fear River through its unlined old Outfall 002 in violation of its NPDES permit. The abandoned ditch has eroded so much that it reaches polluted groundwater from the Surficial and Black Creek Aquifers. It then channels contaminated water from those aquifers straight into the Cape Fear River.

93. Chemours has numerous other potential sources of PFAS groundwater contamination at the site, including: leaking pipes, sumps, drains, and ditches in its process and storm sewer systems, unlined ditches and rainwater and sedimentation basins within its Nafion and PPA Manufacturing areas, unlined former sludge lagoons, erosional channels east of the Facility, and the site's Polyvinyl Manufacturing area and former Polymer Manufacturing Development Facility. These sources likely leach pollutants into the groundwater beneath the Fayetteville Works Facility, which then travel to surrounding surface waters.

94. Groundwaters beneath and around the Facility have been heavily polluted by Chemours' air emissions and leaking ditches, basins, and pipes. All three layers of groundwater beneath the Facility are contaminated with GenX and other PFAS, including the deepest layer which is between 80 and 100 feet below ground surface.

95. All three layers of groundwater beneath the Facility connect with surrounding surface waters, including but not limited to the Cape Fear River and Willis Creek. GenX levels in the Cape Fear River, as well as in Willis Creek and Georgia Branch Creek, have continued to persist due to the companies' discharges.

96. Chemours has reported that it releases nearly 100,000 pounds of PFAS in its air emissions each year, including GenX compounds at a rate of 2,302 pounds per year. These emissions are a source of on-site groundwater contamination that then flows into surface waters, including Willis Creek and the Cape Fear River.

97. Chemours' air emissions also contribute directly to PFAS contamination of surface waters by depositing the chemicals immediately into rivers, streams, and lakes, including the Cape Fear River and its tributaries.

98. In May 2018, Chemours installed carbon adsorption bed technology at the Fayetteville Works Facility, which it stated would remove only 40 percent of the company's PFAS emissions.

99. Chemours' leaking ditches, basins, pipes, stacks, and other sources of PFAS contamination are all unpermitted point sources under the Clean Water Act.

100. Chemours' unpermitted discharges into the Cape Fear River and its tributaries have adversely affected members of Cape Fear River Watch. Because of the pollution, members have avoided drinking water from the river and limited their fishing, swimming, and paddling in the Cape Fear River downstream of the Chemours Fayetteville Works Facility.

SECOND CAUSE OF ACTION

Violations of the National Pollutant Elimination Discharge System Permit

101. The allegations of the preceding paragraphs are incorporated here by reference.

102. Chemours is violating numerous provisions of its NPDES permit, including but not limited to the Removed Substances Provision, the Duty to Mitigate Provision, and the Operate and Maintenance Provision.

103. Chemours is violating the Removed Substances Provision of its NPDES permit, which requires that: “Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be utilized/disposed of [...] in a manner such as to prevent any pollutant from such materials from entering waters of the State or navigable waters of the United States...”

104. Removed substances provisions ensure that “measures shall be taken to assure that pollutants [and] materials removed from the process water and waste streams will be retained in storage areas and not discharged or released...” *In re: 539 Alaska Placer Miners*, Nos. 1085-06-14-402C and 1087-08-03-402C, 1990 WL 324284, at *8 (EPA Mar. 26, 1990); *see also* 40 C.F.R. § 440.148(c). This provision aims to “ensure the integrity” of such systems so that pollution does not escape into the environment. *Yadkin Riverkeeper, Inc. v. Duke Energy Carolinas, LLC*, 141 F. Supp. 3d 428, 446-47 (M.D.N.C. 2015).

105. As discussed above, Chemours has kept “two large unlined basins on the [s]ite that are used for disposal of solids removed from river water that is used for non-contact cooling.”¹¹ The basins are pumped with water from the Cape Fear River, and then solids are removed in the course of treatment when they settle to the bottom of the basin. Water from the two basins then leaches into the underlying sandy soil to the contaminated perched groundwater zone beneath the Facility, which then flows laterally and deeper beneath to the Surficial and Black Creek Aquifers. All three layers of groundwater discharge to the Cape Fear

¹¹ Chemours Fayetteville Works, “Focused Feasibility Study Report – PFAS Remediation,” February 28, 2018, 10, included as Exhibit 7.

River. Accordingly, Chemours' sedimentation basins are contributing to "the primary source of site-wide groundwater contamination,"¹² which then enters surface waters surrounding the Facility. Sampling of groundwater in the immediate vicinity of the sedimentation basins showed elevated concentrations of GenX. Sampling in the perched groundwater zone at the boundary of the southern sedimentation basin contained GenX in concentrations of 14,000 ppt. Sampling in the Surficial Aquifer (approximately 50 feet below ground surface) just west of the sedimentation basins contained GenX in concentrations of 3,600 ppt.

106. Chemours is violating the Duty to Mitigate provision of its NPDES permit, which requires that: "The Permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit with a reasonable likelihood of adversely affecting human health or the environment."

107. For decades, Chemours has discharged its toxic PFAS through its current Outfall 002, air emissions, leaking basins, ditches, and pipes. It has polluted both public drinking water supplies by discharging into the Cape Fear River upstream of several intake locations for public water utilities, and at least 763 private drinking water wells. Private wells up to 5.5 miles away from the Facility's border have been found contaminated, in levels as high as 4,000 ppt. GenX levels in the Cape Fear River and its tributaries have continued at levels of up to 690 ppt. The Cape Fear Public Utility Authority, which services 200,000 customers in North Carolina, has reported that PFAS, including GenX, persist in its treated public drinking water, at combined levels above 230 ppt from testing done as recently as July 17, 2018. During its presentation to the House Select Committee on North Carolina River Quality on April 26, 2018, the Cape Fear Utility Authority emphasized that an upgraded multi-million dollar treatment system will not eliminate PFAS in its treated drinking water.

¹² *Id.* at 9.

108. Chemours has not taken “all reasonable steps to minimize or prevent any discharge [...] or disposal in violation of [its] permit with a reasonable likelihood of adversely affecting human health or the environment,” and is in violation of the Duty to Mitigate provision of its permit. Instead, Chemours is discharging dozens of toxic PFAS through multiple unpermitted sources with full knowledge that its discharges have adversely affected human health for decades, and continue to harm the health of surrounding communities.

109. Chemours is violating the Operation and Maintenance provision of its NPDES permit, which requires that: “The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit.”

110. Chemours has allowed leaking ditches, basins, and pipes to leach PFAS into surface and groundwaters for years. In fact, the company has created an entire layer of highly polluted groundwater beneath its Facility by allowing PFAS-contaminated waters to leak continuously from its poorly maintained site. Chemours knew that it was creating this heavily contaminated zone of groundwater at least as early as 2006. Chemours’ failure to maintain “properly operate and maintain” the integrity of its stormwater and wastewater systems so that the company “achieve[s] compliance with the conditions of [its] permit” violates the Operation and Maintenance provision.

111. Failure to comply with any of these, and other, NPDES permit provisions “constitutes a violation of the Clean Water Act and is grounds for enforcement action.” 40 C.F.R. §122.41(a).

112. Chemours’ violations of its NPDES permit provisions have adversely affected members of Cape Fear River Watch. Because of the pollution, members have avoided drinking

water from the river and limited their fishing, swimming, and paddling in the Cape Fear River downstream of the Chemours Fayetteville Works Facility.

THIRD CAUSE OF ACTION

Violation of the Toxic Substances Control Act

113. The allegations of the preceding paragraphs are incorporated here by reference.

114. Due to the toxic nature of GenX, in 2008, DuPont filed Toxic Substances Control Act pre-manufacture notices for two PFAS: (1) P-08-508- Perfluorinated aliphatic carboxylic acid, which has a Chemical Abstracts Registry Number of 13252-13-6, and is also known as “GenX” or HFPO Dimer Acid; and (2) P-08-509- Perfluorinated aliphatic carboxylic acid, ammonium salt, which has a Chemical Abstracts Registry Number of 62037-80-3, and is also known as HFPO Dimer Acid Ammonium Salt. HFPO Dimer Acid Ammonium Salt readily turns to GenX in the presence of water.

115. Ultimately, in 2009, pursuant to Section 5(e)(1)(A)(i) of Toxic Substances Control Act, the EPA determined “that the information available to the Agency is insufficient to permit a reasoned evaluation of the human health and environmental effects of the [pre-manufacture notice] substances.”¹³ Thus, EPA entered into a consent order with DuPont, which states, “[i]n light of the potential risk of human health and environmental effects [...], EPA has concluded: that uncontrolled manufacture, import, processing, distribution in commerce, use and disposal of the [pre-manufacture notice] substances may present an unreasonable risk of injury to human health and the environment,”¹⁴ and “that the [pre-manufacture notice] substances will be produced in substantial quantities [...], may be reasonably anticipated to enter the environment

¹³ EPA, Consent Order and Determinations Supporting Consent Order for PMN Substances P-08-508 and P-08-509, xv (2009), included as Exhibit 4.

¹⁴ *Id.* at xv.

in substantial quantities [...], and there may be significant (or substantial) human exposure to the substances.”¹⁵

116. EPA’s Consent Order therefore requires DuPont to “recover and capture (destroy) or recycle the [pre-manufacture notice] substances at an overall efficiency of 99% from all the effluent process streams and the air emissions (point source and fugitive).”¹⁶

117. Since its Consent Order with the EPA, DuPont has submitted multiple studies to the agency on the two chemicals. The EPA has not modified its 2009 Consent Order with the company based on the studies DuPont submitted.

118. When DuPont transferred ownership of the Fayetteville Works Facility to Chemours in 2015, Chemours became responsible for complying with DuPont’s Consent Order with the EPA.

119. Chemours is releasing air emissions of GenX compounds, which include GenX, HFPO Dimer Acid Ammonium Salt, and HFPO Dimer Acid Fluoride, from at least five point sources: (1) the Vinyl Ethers – North Process Unit, (2) Vinyl Ethers – South Process Unit, (3) the Polymer Processing Unit, (4) the Semi-works Polymerization Unit, and (5) the PPA Unit from the PPA Manufacturing area.

120. Based on testing conducted by Chemours, the company has determined that it released approximately 2,302 pounds of GenX compounds in 2017. This includes both process emissions and indoor and outdoor equipment leaks.

121. These emissions are contaminating surface water, groundwater, and drinking water sources.

¹⁵ *Id.*

¹⁶ *Id.* at 36.

122. Chemours' violation of its Toxic Substances Control Act Consent Order has harmed members of Cape Fear River Watch. Because of the pollution, members have avoided drinking water from the river and limited their fishing, swimming, and paddling in the Cape Fear River downstream of the Chemours Fayetteville Works Facility.

123. From 2009 to 2018, neither Chemours nor DuPont installed any air pollution controls that would recover or capture GenX compounds.

124. In May 2018, Chemours installed carbon adsorption bed technology at the Facility, which it stated would remove only 40 percent of the company's PFAS emissions.

125. Chemours has failed, and continues to fail, to "recover and capture (destroy) or recycle" GenX and HFPO Dimer Acid Ammonium Salt air emissions "at an overall efficiency of 99%" in violation of its Toxic Substances Control Act Consent Order.

REQUEST FOR RELIEF

Plaintiffs respectfully request that the Court:

126. Declare that Chemours Company FC, LLC violated the U.S. Environmental Protection Agency's Consent Order for the chemicals with Toxic Substances Control Act Pre-manufacture Notice Numbers P-08-508 and P-08-509;

127. Enter appropriate preliminary and permanent injunctive relief to ensure that the Chemours Company FC, LLC immediately recover and capture 99% of its emissions containing the chemicals with Toxic Substances Control Act Pre-manufacture Notice Numbers P-08-508 and P-08-509;

128. Declare that Chemours Company FC, LLC violated the Clean Water Act with its ongoing discharges to surface waters on and adjacent to the Facility;

129. Declare that Chemours Company FC, LLC violated its NPDES permit by allowing and causing removed substances to contaminate waters of the state, by failing to take all reasonable steps to minimize or prevent discharges in violation of its Permit with a reasonable likelihood of adversely affecting human health or the environment, by failing to properly operate and maintain the Fayetteville Works Facility, and otherwise violating prohibitions and requirements of its Permit;

130. Enter appropriate preliminary and permanent injunctive relief to ensure that the Chemours Company FC, LLC prevents discharges to waters of the United States including, but not limited to, discharges to the Cape Fear River, Willis Creek, or Georgia Branch;

131. Assess civil penalties against the Chemours Company FC, LLC of up to \$37,500 per violation per day for each violation of the Clean Water Act occurring on or before November 2, 2015, and \$52,414 per violation per day for each violation of the Clean Water Act occurring after November 2, 2015, pursuant to 33 U.S.C. §§ 1319(d), 1365(a); 74 Fed. Reg. 626, 627 (Jan. 7, 2009); and 82 Fed. Reg. 3633 (January 12, 2017);

132. Assess civil penalties against the Chemours Company FC, LLC of up to \$37,500 per violation per day for each violation of the Toxic Substances Control Act occurring on or before November 2, 2015, and \$38,114 per violation per day for each violation of the Toxic Substances Control Act occurring after November 2, 2015, pursuant to 15 U.S.C. §§ 2615, 2619(a); 74 Fed. Reg. 626, 627 (Jan. 7, 2009); and 82 Fed. Reg. 3633 (January 12, 2017);

133. Award Cape Fear River Watch its reasonable fees, costs, and expenses, including attorneys' fees, associated with this litigation; and

134. Grant Cape Fear River Watch such further and additional relief as the Court may deem just and proper.

Respectfully submitted this 29th day of August, 2018.

s/ Geoffrey R. Gisler
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Cape Fear River Watch

EXHIBIT 6

FILED

2019 FEB 25 P 4:24

STATE OF NORTH CAROLINA, ~~BLADEN COUNTY, C.S.~~ IN THE GENERAL COURT OF JUSTICE
COUNTY OF BLADEN  SUPERIOR COURT DIVISION
17 CVS 580

STATE OF NORTH CAROLINA, *ex rel.*,)
MICHAEL S. REGAN, SECRETARY,)
NORTH CAROLINA DEPARTMENT OF)
ENVIRONMENTAL QUALITY,)

Plaintiff,)

CONSENT ORDER

CAPE FEAR RIVER WATCH,)

Plaintiff-Intervenor,)

v.)

THE CHEMOURS COMPANY FC, LLC,)

Defendant.)

WHEREAS, since July 1, 2015, Defendant The Chemours Company FC, LLC (“Chemours”) has owned and operated a chemical manufacturing facility called the Fayetteville Works (“Facility”) in Bladen County, North Carolina, which, prior to July 1, 2015, was owned and operated by E. I. DuPont de Nemours & Company, Inc. (“DuPont”).

WHEREAS, on September 7, 2017, Plaintiff, the State of North Carolina, by and through Michael S. Regan, Secretary of the North Carolina Department of Environmental Quality (“DEQ”), filed a Complaint and motion for a temporary restraining order in this Court against Chemours, seeking various forms of relief relating to alleged violations by Chemours and DuPont

of North Carolina water quality laws and regulations arising out of the discharge of certain per- and polyfluoroalkyl substances (“PFAS”), including a compound often referred to by the trade name “GenX,” into surface water and groundwater;

WHEREAS, on September 8, 2017, the Court entered a partial consent order resolving DEQ’s motion for a temporary restraining order;

WHEREAS, on April 10, 2018, Plaintiff filed an Amended Complaint against Chemours that, among other things, sought further relief, including relating to alleged violations by Chemours and DuPont of North Carolina water quality laws and regulations arising out of the discharge or release of per- and polyfluoroalkyl substances into surface water, groundwater and the air;

WHEREAS, on July 11, 2018, Chemours filed an Answer to the Amended Complaint denying the allegations that Chemours had violated State laws or regulations and setting forth multiple affirmative defenses to Plaintiff’s claims;

WHEREAS, DEQ has issued Notices of Violation to Chemours dated September 6, 2017, November 13, 2017, February 12, 2018, and June 1, 2018 (collectively, “the NOV’s”), relating to the alleged violations set forth in the Complaint and/or Amended Complaint, and Chemours responded to the NOV’s;

WHEREAS, since the filing of the Complaint, the Parties have conducted good-faith discussions to develop comprehensive and effective solutions to the environmental concerns that have been raised concerning the Facility’s operations, including those underlying the allegations of the Amended Complaint and the NOV’s;

WHEREAS, the Parties have negotiated this Consent Order that the Parties believe will

provide such solutions;

WHEREAS, pursuant to this Consent Order, and in consideration of the release of claims and the other relief set forth herein, Chemours will, among other things:

(i) install abatement technology at the Facility (including a thermal oxidizer) that, once fully operational, will permanently reduce annual air emissions of GenX Compounds and other PFAS (as those terms are defined below) by at least 99% from baseline levels and control all PFAS emissions from process streams routed to the thermal oxidizer at an efficiency of 99.99%;

(ii) on an interim basis, reduce annual air emissions of GenX Compounds (as defined below) by at least 82% beginning as of October 6, 2018 and by at least 92% beginning as of December 31, 2018;

(iii) continue to capture for off-site disposal all process wastewater from its operations at the Facility unless or until an NPDES Permit is issued authorizing the discharge of process wastewater;

(iv) undertake the measures specified below with respect to abatement and remediation of groundwater contamination and provision of alternative drinking water supplies; and

(v) agree to the measures specified below to verify and ensure compliance with the foregoing commitments and the requirements of this Consent Order;

WHEREAS, Chemours denies any violation of any law, regulation or permit, including the claims of any such violation made in the Amended Complaint or the NOV's, and has agreed to this Consent Order solely to avoid the expense, burden and uncertainty of litigation and to address

community concerns about the Facility;

WHEREAS, Chemours and DEQ have consented to the intervention of Cape Fear River Watch in this matter for the purpose of entering into this Consent Order and resolving Cape Fear River Watch's pending actions in Cape Fear River Watch v. North Carolina Department of Environmental Quality, 18 CVS 2462 (New Hanover Cty. Sup. Ct.) and Cape Fear River Watch v. Chemours Company FC, LLC, No. 7:18-cv-00159 (E.D.N.C.);

NOW THEREFORE, the parties agree, and the Court orders, as follows:

A. DEFINITIONS

"Amended Complaint" means the amended complaint filed by the Plaintiff in this matter on April 10, 2018.

"Complaint" means the complaint filed by the Plaintiff in this matter on September 7, 2018.

"Defendant" or **"Chemours"** means The Chemours Company FC, LLC, a Delaware limited liability company registered and doing business in North Carolina.

"DEQ" means the North Carolina Department of Environmental Quality, including all its divisions.

"DAQ" means the North Carolina Division of Air Quality, a division of DEQ.

"DWM" means the North Carolina Division of Waste Management, a division of DEQ.

"DWR" means the North Carolina Division of Water Resources, a division of DEQ.

"Facility" means Chemours' Fayetteville Works Facility located at 22828 NC Highway 87 W, Fayetteville, Bladen County, North Carolina, which Facility is owned by, and operated in

part by, Chemours.

“**GenX**” means the chemical C3 Dimer Acid (also known as HFPO Dimer Acid), which has a CAS number of 13252-13-6.

“**GenX Compounds**” means C3 Dimer Acid (also known as HFPO Dimer Acid), CAS No. 13252-13-6, C3 Dimer Acid Fluoride (also known as HFPO Dimer Acid Fluoride), CAS No. 2062-98-8, and C3 Dimer Acid Ammonium Salt (also known as HFPO Dimer Acid Ammonium Salt), CAS No. 62037-80-3.

“**NOVs**” means the Notices of Violation issued by DEQ to Chemours dated September 6, 2017, November 13, 2017, February 12, 2018, and June 1, 2018. “NOVs” also includes the anticipated notice of violation for the truck spill that occurred during Hurricane Florence on September 18, 2018.

“**PFAS**” means perfluoroalkyl and polyfluoroalkyl substances.

“**Plaintiff**” means the sovereign State of North Carolina on behalf of DEQ.

“**2017 Total Reported Emissions**” means total facility-wide estimated emissions of GenX Compounds in the amount of 2302.7 lbs as reported by Chemours to DAQ in Chemours’ Letter of April 27, 2018 and the document, “HFPO-DA Baseline Emission Estimates,” attached thereto as Exhibit 2.

B. JURISDICTION AND VENUE

1. Plaintiff is the sovereign State of North Carolina. This action was brought on the relation of Michael S. Regan, Secretary of DEQ, the State agency established pursuant to N.C. Gen. Stat. § 143B-279.1 *et seq.*, and vested with the statutory authority to enforce the State’s

environmental protection laws, including laws enacted to protect the water and air quality of the State.

2. Plaintiff-Intervenor Cape Fear River Watch is a § 501(c)(3) nonprofit public interest organization headquartered in Wilmington, North Carolina that engages residents of the Cape Fear watershed through programs to preserve and safeguard the river. The organization has 1,100 members, including members who live near, drink water from, and fish, swim, and boat on the Cape Fear River downstream of Chemours' Fayetteville Works Facility. Cape Fear River Watch's mission is "to protect and improve the water quality of the Lower Cape Fear River Basin through education, advocacy and action."

3. Defendant Chemours is a Delaware limited liability company registered and doing business in North Carolina. Chemours owns the Fayetteville Works facility located at 22828 NC Highway 87 W, Fayetteville, Bladen County, North Carolina and operates a portion of that facility.

4. This Court has jurisdiction pursuant to N.C. Gen. Stat. § 143-215.6C, N.C. Gen. Stat. § 143-114C, N.C. Gen. Stat. § 7A-245(a)(2) and N.C. Gen. Stat. § 1-493.

5. Bladen County, North Carolina is a proper venue because portions of the Fayetteville Works facility are located in Bladen County and the Amended Complaint alleges violations occurring in Bladen County. N.C. Gen. Stat. § 143-215.6C; N.C. Gen. Stat. § 143-114C.

6. The Honorable Douglas B. Sasser, Senior Resident Superior Court Judge, presides over this matter by designation pursuant to Rule 2.1 of the General Rules of Practice.

C. COMPLIANCE MEASURES – AIR EMISSIONS

7. Control Technology Improvements:

- a. *Second Phase Scrubber.* Chemours completed installation of a packed bed scrubber (“Second Phase Scrubber”) to control emissions from the Division Waste Gas Scrubber on November 7, 2018.
- b. *Vinyl Ethers North Carbon Adsorber Project:* Chemours has made improvements to allow for the control of emissions from the Second Phase Scrubber by the Vinyl Ethers North Carbon Adsorber Unit (“Vinyl Ethers North Carbon Adsorber Project”) in accordance with the following schedule and conditions:
 - i. On October 19, 2018, Chemours submitted to DAQ a process hazard assessment pertaining to the Vinyl Ethers North Carbon Adsorber Project.
 - ii. On December 26, 2018, Chemours completed construction of the Vinyl Ethers North Carbon Adsorber Project. All emissions from the Second Phase Scrubber are controlled by the Vinyl Ethers North Carbon Adsorber Unit subject to such unit downtime as may be required by the process hazard assessment or as necessary for maintenance of the unit. Chemours will use its best efforts consistent with safe operations to minimize unit downtime.
 - iii. Within ninety (90) days of installation, Chemours shall submit a report to DAQ demonstrating that the Vinyl Ethers North Carbon Adsorber

Unit operates with a minimum control efficiency of 93% for GenX Compounds.

- c. *Thermal Oxidizer.* By December 31, 2019, Chemours shall install a thermal oxidizer to control all PFAS in process streams from the HFPO Process, the Vinyl Ethers North Process, the Vinyl Ethers South Process, the RSU Process, the TFE Process, the MMF Process, and the Polymers Process. Within ninety (90) days of installation, Chemours shall demonstrate that the thermal oxidizer controls all PFAS at an efficiency of 99.99%.

8. GenX Emissions Reduction Milestones: Chemours shall achieve the overall emissions reductions of GenX Compounds in accordance with the following schedule.

- a. By October 6, 2018 and for the twelve-month period beginning on that date, Chemours shall reduce Facility-wide air emissions of GenX Compounds on an annualized basis by at least 82% from 2017 Total Reported Emissions. To demonstrate compliance with this paragraph, Chemours shall follow the procedure in paragraph (b) below, except the demonstration year shall run from October 6, 2018 through October 5, 2019 (rather than Calendar Year 2019) and the final report demonstrating compliance shall be due on or before December 5, 2019 (rather than February 28, 2020).
- b. By December 31, 2018 and for the twelve-month period beginning on that date, Chemours shall reduce Facility-wide air emissions of GenX Compounds on an annualized basis by at least 92% from 2017 Total Reported Emissions. To

demonstrate compliance with this paragraph, Chemours shall:

- i. Conduct emissions testing for GenX Compounds emissions sources to determine GenX Compounds emission rates for each product campaign. Emissions testing shall be conducted during the first campaign of that product of the Calendar Year 2019. Control device operating parameters must be recorded during the testing. Emissions test reports shall be submitted to DAQ within forty-five days of completion of the emissions test; and
 - ii. Submit a report demonstrating compliance to DAQ by February 28, 2020. This report shall include GenX Compounds emissions in pounds per year based on test data or established emission factors where test data are not available, hours of operation for each campaign, and production data. The report shall quantify any other emissions including but not limited to fugitive, maintenance, malfunction and accidental emissions. The report shall also include a summary of control device operating parameters throughout the year.
- c. By December 31, 2019 and for each consecutive twelve-month period following that date, Chemours shall reduce Facility-wide annual air emissions of GenX Compounds by at least 99% from 2017 Total Reported Emissions. To demonstrate compliance with this paragraph, Chemours shall:
- i. Conduct emissions testing for the thermal oxidizer to determine the

- emissions rate of GenX Compounds. Emissions testing shall be completed by March 31, 2020. Emissions test reports shall be submitted to DAQ within forty-five days of completion of the emissions test; and
- ii. Submit a report demonstrating compliance to DAQ by February 28, 2021. This report shall include GenX Compounds emissions in pounds per year based on test data, or established emission factors where test data are not available, hours of operation, and production data. The report shall quantify any other emissions including but not limited to fugitive, maintenance, malfunction and accidental emissions. The report shall also include a summary of control device operating parameters throughout the year.
 - iii. Chemours shall repeat this compliance demonstration for each subsequent calendar year unless and until DAQ issues a modified Air Quality Permit to Chemours, incorporating a 99% or greater reduction requirement.
- d. To provide ongoing assurance of compliance with the interim emissions reductions required under subparagraphs (a) and (b), Chemours shall submit an inventory of emissions of GenX Compounds from all sources on a monthly basis within 21 days of the end of each month. This inventory shall include (1) a detailed summary of emissions during the previous calendar month; (2) cumulative emissions to date during the relevant annual compliance period; and

(3) projected emissions during the relevant annual compliance period.

9. Disclosure of PFAS emissions: Chemours shall have an ongoing duty to disclose to DAQ (i) any identified previously undisclosed PFAS and emissions rates for those PFAS, and (ii) any new process or production that may lead to the addition of any previously undisclosed PFAS in the Facility's air emissions. For any such PFAS, Chemours shall provide DAQ with any available analytical test methods and lab standards. Chemours shall provide DAQ with all known test methods and lab standards for PFAS in air emissions at the facility by December 31, 2018.

D. COMPLIANCE MEASURES – SURFACE WATER

10. No Discharge of Process Wastewater from Chemours' Manufacturing Areas: Chemours shall not discharge process wastewater from Chemours' manufacturing areas until issuance of an NPDES Permit issued under N.C. Gen. Stat. § 143-215.1 and 15A NCAC 2B ("NPDES Permit") expressly authorizing the discharge of such process wastewater and with such limits as DEQ reasonably deems necessary and appropriate to control the discharge of GenX Compounds and other PFAS. In accordance with applicable law, in setting such limits, DEQ shall take into account available health information including any information produced pursuant to this Consent Order.

11. Characterization of PFAS in Process and Non-process Wastewater and Stormwater at the Facility:

- a. *Test methods and lab standards:* By January 31, 2019, Chemours shall (a) provide DWR with all known analytical test methods and lab standards for all PFAS in all process and non-process wastewater and stormwater at the Facility,

including but not limited to all process and non-process wastewater and stormwater discharged through Outfall 002, and (b) submit a plan and schedule for conducting non-targeted analysis of all process and non-process wastewater and stormwater streams to identify any additional PFAS and developing test methods and lab standards for such compounds. Chemours shall commence implementation of such plan within thirty (30) days of approval by DEQ. Chemours shall follow the EPA's Protocol for Review and Validation of New Methods for Regulated Organic and Inorganic Analytes in Wastewater under EPA's Alternate Test Procedure Program, *see* https://www.epa.gov/sites/production/files/2016-03/documents/chemical-new-method-protocol_feb-2016.pdf, and shall write each test procedure in the standard EPA format.

- b. *Sampling plan:* By December 31, 2018, Chemours shall submit a sampling plan to DWR for approval. This sampling plan shall include proposed locations for the sampling to carry out the initial characterization of all PFAS described in subparagraph (c).
- c. *Initial characterization:* Within thirty (30) days of approval of the sampling plan, Chemours shall commence submission of quarterly reports to DEQ identifying PFAS constituents and initial concentrations at any level above the practical quantitation limit in all process and non-process wastewater and stormwater at the Facility, including, but not limited to, all process and non-

process wastewater and stormwater discharged through Outfall 002. As part of these reports, process and non-process wastewater and stormwater shall be characterized from each of Chemours' manufacturing areas as well as from the manufacturing areas of Chemours' tenants, Kuraray and DuPont. Similar testing for PFAS constituents in the raw water intake shall be performed in conjunction with other sampling in order to assess background concentrations. The final quarterly report shall be submitted, and initial characterization of all PFAS completed, no later than eighteen (18) months after approval of the sampling plan.

- d. *Ongoing sampling*: For all PFAS for which test methods and lab standards have been developed Chemours, at least every two months, shall sample for each such PFAS at approved locations and report the results to DWR. Approved locations shall, at a minimum, include the locations described in subparagraph 11(c), unless Chemours has demonstrated through its initial characterization that a manufacturing area does not contribute to PFAS loading. After two years of such sampling, Chemours may request that DWR agree to a reduced sampling frequency.
- e. *Ongoing duty to disclose*: Chemours shall have an ongoing duty to disclose (i) any previously undisclosed PFAS and concentrations of any previously undisclosed PFAS in all process and non-process wastewater and stormwater at the Facility, and (ii) any new process or production that may lead to the addition

of any previously undisclosed PFAS in process and non-process wastewater and stormwater at the Facility. For any such PFAS, Chemours shall provide DWR with available test methods and lab standards as specified in subparagraph (a) above.

11.1 Characterization of PFAS Contamination in Downstream Raw Water Intakes:

Within six months of entry of this Order, Chemours shall submit an analysis to DEQ reporting contributions of PFAS (including identification and mass loading of each PFAS) from the Facility to the raw water intakes of downstream public water utilities.

11.2 Characterization of PFAS Contamination in River Sediment: Within six months of entry of this Order, Chemours shall develop a plan for assessing the nature and extent of PFAS sediment contamination in the Cape Fear River originating from the Facility, and submit the plan and a schedule for implementation to DWR for approval. Within thirty (30) days of DEQ's approval of the plan and schedule by DWR, Chemours shall commence implementation of the plan. Upon completion, Chemours shall summarize its findings in a report to be submitted to DEQ, Cape Fear River Watch, and to downstream water utilities.

12. Accelerated Reduction of PFAS Contamination in the Cape Fear River and Downstream Water Intakes:

- a. In order to reduce PFAS contamination in the Cape Fear River and in the raw water intakes of downstream public water utilities on an accelerated basis, within six months of entry of this Order, Chemours shall submit to DEQ and Cape Fear River Watch a plan demonstrating the maximum reductions in PFAS

loading from the Facility (including loading from contaminated stormwater, non-process wastewater, and groundwater) to surface waters, including Old Outfall 002, that are economically and technologically feasible, and can be achieved within a two-year period (“PFAS reduction targets”). The plan shall be supported by interim benchmarks to ensure continuous progress in reduction of PFAS loading. If significantly greater reductions can be achieved in a longer implementation period, Chemours may propose, in addition, an implementation period of up to five years supported by interim benchmarks to ensure continuous progress in reduction of PFAS loading. In demonstrating maximum reductions in PFAS loading to the Cape Fear River, Chemours may take into account the PFAS loading reductions to be achieved pursuant to subparagraph 12(e). Subject to approval by DEQ, the plan may include actions to be undertaken by other entities that have contributed to the need for such remediation. Chemours shall simultaneously transmit the plan to downstream public water utilities. DEQ will make DEQ staff available to meet with downstream public water utilities to receive input on the plan.

- b. The plan shall include a model accounting for all sources of PFAS (including identification and mass loading of all PFAS) from the Facility contributing to the loading of PFAS into the Cape Fear River, Willis Creek, Georgia Branch, and Old Outfall 002.

- c. The model shall be prepared by a third party approved by DEQ after consultation with Cape Fear River Watch. Prior to conducting the modeling analysis, the third party shall submit to DEQ for approval a scope of work describing the modeling analysis. DEQ shall consider all timely comments received from Cape Fear River Watch prior to agency approval of any such document.
- d. DEQ and Cape Fear River Watch shall review the plan developed by Chemours, and the Parties shall work together in good faith to determine if the PFAS reduction targets identified by Chemours represent the maximum reductions that are economically and technologically feasible, and can be implemented over a two-year period (or longer as proposed in an alternate plan), or whether the Parties can identify and agree upon further reductions. The burden is on Chemours to demonstrate that the concentrations of GenX and perfluoro-1-methoxyacetic acid (PFMOAA) detected in Outfall 002 cannot be reduced by at least 80% from baseline levels, including after measurable storm events, as defined in 40 C.F.R. 122.21(g)(7)(ii), within 2 years.
- e. By September 30, 2019, Chemours shall complete, at a minimum, monthly surface water sampling in Old Outfall 002 (beginning no later than March 2019) at the locations marked A (mouth of stream), A (seep), B, C, D, E, Option B (proposed dam), and Creek A2 in **Attachment A** for any PFAS for which test methods and laboratory standards have been developed as of the date of entry

of the Consent Order. Also by September 30, 2019, Chemours shall complete pilot scale testing of treatment equipment to determine its control efficiency for all PFAS identified in Old Outfall 002. The results of this pilot testing shall be supported by at least three (3) months of sampling data, and submitted to DWR for review and approval. In addition, within ninety (90) days of entry of this Consent Order, Chemours shall submit a plan analyzing the options below and implement one of them upon approval by DEQ and Cape Fear River Watch:

- i. Provided that DEQ issues any necessary permits authorizing such discharge and subject to any conditions imposed by such permits, and provided that any other permitting authority with jurisdiction over the project issues any other necessary permits, by September 30, 2020, at or near the Option B location (proposed dam) depicted in **Attachment A**, Chemours shall implement a system to capture the dry weather flow at that location and treat such water prior to discharge pursuant to such permits or authorizations as DEQ may issue. Chemours shall submit timely and complete applications and take all other actions necessary to obtain any necessary permits or authorizations to carry out the requirements of this paragraph. The treatment system shall meet such discharge standards as shall be set by DEQ, and shall, in addition and at a minimum, be at least 99% effective in controlling indicator parameters, GenX and PFMOAA;

- ii. By September 30, 2020, Chemours shall implement such measures to reduce PFAS loading from Old Outfall 002 to the Cape Fear River that will achieve results that are demonstrated to be equivalent to or greater than the reductions that would be obtained under subparagraph (i) above.

Following the completion of the groundwater remediation set forth in Paragraph 16, Chemours shall remove any dam(s) placed within Old Outfall 002 and restore the channel to its condition prior to the installation of the dam.

- f. Provided that the Parties come to an agreement regarding additional PFAS reductions, within eight months after entry of this Order, DEQ, Cape Fear River Watch and Chemours shall jointly move to amend this Consent Order to incorporate any agreed upon reductions as enforceable requirements of this Consent Order as well as stipulated penalties for non-compliance. If DEQ, Cape Fear River Watch, and Chemours are unable to mutually agree upon additional PFAS reductions within eight months after entry of this Order: (i) the Parties may jointly stipulate to additional time in which to submit a joint motion to amend, or (ii) Cape Fear River Watch, DEQ, and Chemours may bring any dispute regarding the additional reductions before the Court for resolution. In resolving any such dispute, the Court shall, in addition to considering testimony by qualified experts presented by the parties, give due regard to the demonstrated knowledge and expertise of DEQ with respect to the evaluation

of the economic and technological feasibility of environmental remediation and the application of that knowledge and expertise to other remediation projects. After the Court amends this Consent Order or otherwise resolves this issue, Chemours shall commence implementation within thirty days of such an amendment or other resolution of the issue, and comply with the reduction targets mandated.

- g. Nothing in this paragraph shall be construed to limit Chemours' obligations to submit and implement a complete Corrective Action Plan pursuant to paragraph 16, but Chemours may propose such a Corrective Action Plan that integrates the requirements of this paragraph.

13. Facility Site Visit: By February 28, 2019, Chemours shall provide DEQ and Cape Fear River Watch with a tour of the exterior grounds of the Facility, including Old Outfall 002, Outfall 002, the terracotta pipe (which formerly carried industrial process wastewater), discharge locations to surface waters, and the proposed sampling locations contemplated by paragraph 11(b).

14. Toxicity Studies: Within thirty (30) days of entry of this Consent Order, Chemours shall submit a plan and proposed schedule for review and approval by DEQ for funding and facilitating the conducting of an initial set of toxicity studies by a qualified third party approved by DEQ relating to both toxicity assays informative to human health and aquatic life sufficient to aid in development of surface water and groundwater regulatory standards for up to five PFAS as determined by DEQ. The plan shall provide for the studies and parameters identified in **Attachment B** as well as technologically feasible dosing parameters to be agreed upon by

Chemours and DEQ. Chemours shall implement the measures set forth in the approved plan. DEQ reserves the right to seek additional toxicity studies or additional health, chemical persistence and environmental fate information beyond the scope of the initial set of studies required by this paragraph. DEQ shall consider public comments in determining what additional toxicity studies or additional health, chemical persistence and environmental fate information are needed. Chemours reserves the right to contest any efforts by DEQ to seek additional toxicity studies or additional health, chemical persistence and environmental fate information from Chemours beyond the scope of the initial set of studies required by this paragraph. Additionally, modification of toxicity study(ies) specified in Attachment B shall be permitted, upon agreement between DEQ and Chemours, only if DEQ determines that such modification will provide substantially better information. Any dispute with respect to this paragraph that the parties are unable to resolve after good faith negotiations shall be resolved by the Court, which shall determine whether the disputed activity is reasonably necessary to achieve the objectives of this paragraph.

15. Notice to and Coordination With Water Utilities: In the event of an upset or other operating condition at the Facility that has the potential to cause (i) a discharge of GenX Compounds or any PFAS for which analytical test methods and lab standards have been developed into the Cape Fear River through Outfall 002 at concentrations exceeding 140 ng/L, or any applicable health advisory, whichever is lower, or (ii) a material increase in the concentration of any PFAS in effluent being discharged into the Cape Fear River through Outfall 002 or any future permitted discharge, Chemours shall provide notice to downstream public water utilities, DEQ, and Cape Fear River Watch within one (1) hour of knowledge of the condition. Chemours shall

maintain a list of appropriate contacts of downstream public water utilities, which Chemours shall routinely update by requesting contact information from DEQ. Chemours shall also post a description of the condition including any estimated quantity of the release on a publicly available website within twenty-four (24) hours of knowledge of the condition.

E. COMPLIANCE MEASURES – GROUNDWATER

16. Groundwater Remediation:

- a. By December 31, 2019, Chemours shall submit for approval by DEQ a complete Corrective Action Plan that complies with the requirements of the 2L Rules and guidance provided by DEQ. DEQ shall put the draft Corrective Action Plan to public notice and provide at least 30 days thereafter in which to provide written comments. DEQ shall consider any written comments received prior to approving the Corrective Action Plan.
- b. Chemours shall implement the Corrective Action Plan in accordance with a schedule approved by DEQ. Except as otherwise allowed in or provided under the 2L Rules, the Corrective Action Plan must provide, upon full implementation, for the remediation of groundwater to the standards set forth in 15A NCAC 2L.0202. Subject to approval by DEQ, the Corrective Action Plan may include actions to be undertaken by other entities that have contributed to the need for such remediation.
- c. The Corrective Action Plan shall include the installation of groundwater monitoring wells along Old Outfall 002, Willis Creek, Georgia Branch, and the

Cape Fear River in sufficient number and in locations adequate for monitoring the quality of groundwater entering surface waters, and include the collection and reporting of accurate baseline concentrations for all PFAS for which test methods and lab standards have been developed within each groundwater monitoring well installed pursuant to this paragraph, in addition to existing long-term wells (LTWs) along the Cape Fear River. As test methods and lab standards are developed for additional PFAS, the Corrective Action Plan shall be amended to address those PFAS.

- d. At a minimum, in addition to any measures that might be otherwise required to comply with the 2L Rules, and notwithstanding any provisions of the 2L rules or other exceptions that might apply to corrective action plans, the Corrective Action Plan must require Chemours to reduce the PFAS loading to surface water (Old Outfall 002, Willis Creek, Georgia Branch, and the Cape Fear River), for the PFAS for which test methods and lab standards have been developed, by at least 75% from baseline. The baseline will be established using the average of the concentrations of the PFAS in the groundwater monitoring wells for each surface water and LTWs along the Cape Fear River over the first four (4) quarters of sampling. To demonstrate compliance, mass loading to surface water (Old Outfall 002, Willis Creek, Georgia Branch, and the Cape Fear River), must be reduced by at least 75% from baseline for at least

eight (8) consecutive quarters and determined using measured concentrations in groundwater monitoring wells and LTW wells.

17. Lining of Nafion Ditch and Sedimentation Ponds: Chemours completed permanent lining of the Nafion Ditch by November 7, 2018 and permanent lining of the south sedimentation pond by November 8, 2018. Chemours completed permanent lining of the north sedimentation pond by December 31, 2018.

18. On and Offsite Assessment: Chemours shall fund a third party contractor(s), approved by DEQ after consultation with Cape Fear River Watch, to conduct a comprehensive assessment of on and offsite groundwater contamination that complies with the requirements of the 2L Rules. This assessment shall include an analysis of: (i) the source and cause of contamination; (ii) any imminent hazards to public health and safety and any actions taken to mitigate them; (iii) all receptors (to include as potential receptors drinking water wells and surface waters) and significant exposure pathways; (iv) the horizontal and vertical extent of soil and groundwater contamination and all significant factors affecting contaminant transport; and (v) geological and hydrogeological features influencing the movement, chemical, and physical character of the contaminants. This assessment shall also identify any groundwater seeps contributing to surface water contamination at the site and areas with significantly contaminated sediment. The assessment shall be submitted to DWM and Cape Fear River Watch by September 30, 2019.

**F. COMPLIANCE MEASURES –
REPLACEMENT DRINKING WATER SUPPLIES**

19. Provision of Public Water Supplies or Whole Building Filtration Systems:

Chemours shall establish and properly maintain permanent replacement drinking water supplies in the form of public water or a whole building filtration system for any party (i.e., household, business, school, or public building) with a private drinking water well that has been found through testing validated by DEQ to be contaminated by concentrations of GenX compounds in exceedance of 140 ng/L, or any applicable health advisory, whichever is lower. Under this provision, permanent replacement water supplies shall be established by connection to a public water supply, except that:

- a. in lieu of a connection to public water supply, an affected party may elect to receive either a whole building filtration system approved by DEQ or under sink reverse osmosis systems (installed at every kitchen and bathroom sink at the election of the affected party) approved by DEQ, in which case Chemours shall install and properly maintain such filtration systems;
- b. an affected party may elect to decline any permanent replacement drinking water supply;
- c. if DEQ determines that connection to a public water supply to a an affected party would be cost-prohibitive (i.e., greater than \$75,000) or unsafe, DEQ may authorize provision of a permanent replacement water supply to that affected party through installation and ongoing maintenance of either a whole building filtration system approved by DEQ or reverse osmosis systems approved by

DEQ installed at every kitchen and bathroom sink (at the election of the affected party).

Permanent replacement drinking water supplies established pursuant to this paragraph shall be installed no later than: (i) nine (9) months from the date Chemours becomes aware that the affected party qualifies for replacement drinking water; or (ii) if Chemours is aware that an affected party qualifies for replacement drinking water at the time this Consent Order is entered, nine (9) months from the date of entry of this Consent Order. For affected parties, Chemours shall be liable to pay for any water bills from public utilities for a period of twenty (20) years up to \$75/month/affected party, provided that the monthly cap on public utility bills may be reevaluated by DEQ every two (2) years and adjusted by the average percentage increase or decrease in utility rates a given county.

20. Provision of Reverse Osmosis Drinking Water Systems: Chemours shall provide for and properly maintain permanent replacement water supplies through the installation of three under sink reverse osmosis drinking water systems approved by DEQ for any party (i.e., household, business, school, or public building) that does not qualify for permanent replacement of a private drinking water supply pursuant to paragraph 19 with a drinking water supply well contaminated by:

- a. combined quantifiable concentrations of PFAS listed in **Attachment C** in exceedance of 70 ng/L; or
- b. quantifiable concentrations of any individual PFAS listed in **Attachment C** in exceedance of 10 ng/L.

In the event that the water from more than one sink may be filtered using a single reverse osmosis system with the same or better results for finished water, Chemours may request approval from DEQ to implement such a system in lieu of a reverse osmosis system under each sink. For any public building (e.g., schools or government buildings) that qualifies for permanent replacement drinking water pursuant to this paragraph, Chemours shall either (i) provide and properly maintain under sink reverse osmosis drinking water systems approved by DEQ at each drinking fountain and at each sink that is used for drinking water, or (ii) provide, after consultation between DEQ, Chemours, and the management of the school or building, and subject to DEQ's approval, another effective system or equipment (such as, without limitation, construction of a deeper well, installation of a whole building filtration system, provision and supply of drinking water coolers). Permanent replacement drinking water supplies established pursuant to this paragraph shall be installed by Chemours by no later than: (i) six (6) months from the date Chemours becomes aware that an affected party qualifies for replacement drinking water; or (ii) if Chemours is aware that an affected party qualifies for replacement of drinking water at the time this Consent Order is entered, six (6) months from the date of entry of this Consent Order.

21. Private Well Testing: Chemours shall fund sampling by a third party laboratory approved by DEQ of drinking water wells for a distance of at least one-quarter (1/4) mile beyond the nearest well with test results showing a quantifiable level of any PFAS listed in **Attachment C** above 10 ng/L. Such testing shall be completed within eighteen (18) months of entry of this Order. Additionally, by December 31, 2018, Chemours shall fund re-analysis by a third party laboratory approved by DEQ for all PFAS listed in **Attachment C** of any previously collected

groundwater samples that were analyzed only for GenX, GenX Compounds, or a subset of the PFAS listed in **Attachment C**. Chemours shall retest annually to determine the extent of PFAS contamination. Chemours shall request incorporation of a plan to carry out this requirement in its Corrective Action Plan.

22. Provision of Sampling Results: On an ongoing basis and within seven (7) days of receiving any groundwater or finished water sampling results, Chemours shall provide these results to DEQ, with samples identified by both address and sample ID. Within seven (7) days of receiving test results, Chemours shall also provide sampling results to parties who have had their wells or finished water tested. For parties whose wells were tested prior to the lodging of this Consent Order, Chemours shall ensure that they have received sampling results within seven (7) days of the lodging of this Consent Order.

23. Interim Replacement of Private Drinking Water Supplies: Within three (3) days of Chemours becoming aware that a party qualifies for permanent replacement of private drinking water pursuant to paragraph 19 or 20 (or, for parties whose wells were previously tested and found to qualify for permanent replacement water pursuant to paragraph 19 or 20, as soon as practicable and no later than thirty (30) days after entry of this Consent Order), Chemours shall offer temporary replacement water supplies (i.e., bottled water) until such time as permanent replacement water supplies have been provided. For any party that is eligible for permanent replacement water supplies pursuant to paragraph 19 or 20 but declines to receive such permanent replacement water supplies, Chemours shall provide bottled water for at least three (3) months

after receiving written confirmation that an affected party declines to receive permanent replacement water supplies.

24. Drinking Water Compliance Plan:

- a. By no later than sixty (60) days after entry of this Order, Chemours shall submit a plan for compliance with paragraphs 19-23 to DEQ for approval. This plan shall include a detailed schedule with milestones for Chemours to fund a third party to (1) sample private drinking water wells, (2) flush the drinking water supply plumbing (including flushing hot water heaters to remove solids) and replace, when deemed necessary by DEQ, previously installed water treatment systems (such as water softeners or filters) for any building receiving permanent replacement drinking water supplies under paragraph 19, (3) implement a testing program of finished water, as acceptable to DEQ, to demonstrate the effectiveness of filter systems, and (4) maintain filtration systems installed pursuant to paragraph 19 or 20 for a minimum of 20 years or until such a time as testing of groundwater demonstrates that each PFAS listed in **Attachment C** is below any applicable health advisory, whichever is longer.
- b. DEQ shall establish a process for addressing citizen complaints related to implementation of the plan.
- c. In the event that a filtration system does not function properly or effectively as determined by DEQ, Chemours shall, within 30 days, submit a plan and

schedule to DEQ for providing an alternative source of drinking water.

Chemours shall implement the plan upon approval by DEQ.

25. Extension of Deadlines: For good cause shown, Chemours may submit to DEQ one or more requests for extensions of up three months each for any deadline specified in paragraphs 19-24.

G. OTHER COMPLIANCE MEASURES

25.1 Split Samples: Whenever Chemours collects any water sample pursuant to this Consent Order, it shall, if DEQ so requests for that sample, send a split sample to DEQ at a location to be specified by DEQ in its request, for additional analysis. DEQ retains its authority to take independent samples and to observe any sampling taken by Chemours or Chemours' contractor(s).

26. Total Organic Fluorine: Chemours shall fund development by a third party contractor(s) of a sampling and analytical methodology for the measurement of Total Organic Fluorine in its process air emissions and process wastewater. Chemours' contractor(s) shall (i) be approved by DEQ, (ii) submit quarterly reports to DEQ, and (iii) submit the completed methodology to DEQ for review by December 31, 2020.

27. Fate and Transport: Chemours shall fund development by a third party contractor(s) of a study, based on the best available data and information, analyzing the fate and transport of identified PFAS originating from the Facility in air, surface water and groundwater. Chemours' contractor(s) shall (i) be approved by DEQ, and (ii) submit the completed study to

DEQ for review by June 30, 2019. This study may be done as part of another study required by this Order.

28. Reporting: Chemours shall submit quarterly progress reports to DEQ detailing the work and activities undertaken and completed pursuant to the requirements set forth in this Order. The quarterly reports are due no later than the thirtieth (30th) day of January, April, July, and October for the duration of this Order.

H. COMPLIANCE MEASURES-PUBLIC INFORMATION

29. Whenever Chemours proposes to make a change to its facility operations that would result in (i) the use, production, or release into the environment of a previously undisclosed PFAS or (ii) the material increase in the release to the environment of a previously disclosed PFAS, Chemours shall conduct at least one public meeting in Bladen County or, at the request of DEQ, two public meetings—one in Bladen County and one in another county down river from the Facility—and, at least four weeks prior to the meetings, notify DEQ and Cape Fear River Watch when and where the meetings will occur. Chemours shall notify the public at least two weeks before the public hearing by issuing a press release and posting the release on a publicly available website. Any meeting shall be held prior to permit applications for the change, if any, being submitted to DEQ.

30. Chemours shall post all submissions made by Chemours to DEQ pursuant to this Order, other than any submissions containing (i) confidential business information of Chemours, (ii) information concerning specific residents or other individuals, or (iii) other information that

DEQ determines would be exempt from disclosure under the North Carolina Public Records Act and should not be posted, to a publicly accessible website within 30 days of submission.

I. PENALTIES AND INVESTIGATIVE COSTS

31. Stipulated Penalties: Unless excused under paragraph 32, Chemours shall pay, by certified check payable to the North Carolina Department of Environmental Quality, stipulated penalties according to the following schedule for failure to perform activities described in paragraphs 7-30.

Failure to meet 82% emissions reduction milestone in paragraph 8	\$200,000
Failure to meet 92% emissions reduction milestone in paragraph 8	\$350,000
Failure to meet 99% emissions reduction milestone in paragraph 8	\$1,000,000
Failure to meet technology milestone in paragraph 7 (not including control efficiency requirements).	\$5,000/day for first 14 days; \$30,000/day thereafter
Failure to meet any control efficiency requirements in paragraph 7.	\$50,000 for the first failed test. \$25,000/week thereafter until the date of testing showing compliance.
Failure to meet PFAS loading reductions incorporated pursuant to paragraph 12.	To be incorporated in amended Order pursuant to paragraph 12
Failure to meet any other deadline in this Consent Order to which no other stipulated penalties are applicable.	\$1,000/day for first 7 days; \$2,000/day thereafter

32. Force Majeure: The stipulated penalties specified in paragraph 31 are not due if Chemours satisfies DEQ that noncompliance was caused solely by:

- a. An act of God;
- b. An act of war;
- c. An intentional act or omission of a third party, but this defense shall not be available if the act or omission is that of an employee or agent of Chemours or if the act or omission occurs in connection with a contractual relationship with Chemours;
- d. An extraordinary event beyond the Chemours' control, specifically including any court order staying the effectiveness of any necessary permit or approval. Contractor delays or failure to obtain funding will not be considered as events beyond Chemours' control; or
- e. Any combination of the above causes.

33. Civil Penalty and Investigative Costs: By no later than thirty (30) days following entry of this Order, Chemours shall pay, by certified check payable to the North Carolina Department of Environmental Quality, a civil penalty in the amount of \$12,000,000 and investigative costs in the amount of \$1,000,000.

J. RELEASE AND RESERVATION OF RIGHTS

34. Subject to paragraph 35, this Consent Order releases and resolves civil and administrative claims for injunctive relief and civil penalties by Plaintiff against Chemours relating to the release of PFAS from the Facility that have been or could have been brought based on information known to DEQ prior to the lodging of the original Proposed Consent Order on November 28, 2018 for past and continuing violations of the following statutes and regulations:

the Clean Water Act and regulations promulgated thereunder; the Clean Air Act and regulations promulgated thereunder; and the North Carolina statutes and regulations referenced in the Complaint, the Amended Complaint and the NOV's (collectively, the "Subject Statutes and Regulations"). Furthermore, DEQ agrees that, based on information known to DEQ prior to the lodging of the original Proposed Consent Order on November 28, 2018, this Consent Order addresses and resolves any violation or condition at the Facility insofar as it could serve as the basis for a claim, proceeding, or action pursuant to Section 13.1(a) or (c) of North Carolina Session Law 2018-5.

35. Plaintiff reserves all legal and equitable remedies available to enforce the provisions of this Consent Order, including requesting the Court to exercise its contempt powers, provided that the stipulated penalties set forth in paragraph 31 shall be the exclusive monetary remedy for any violation of this Consent Order to which they apply. Plaintiff retains all legal and equitable remedies to address any imminent and substantial endangerment to the public health or welfare or the environment arising as a result of activities at the Facility whether related to the violations addressed in this Consent Order or otherwise. Nothing in this Order shall prevent Plaintiff, acting pursuant to applicable law, from requiring Chemours to take further interim measures to reduce air emissions of PFAS other than GenX Compounds prior to installation of the thermal oxidizer. Nothing in this Consent Order shall restrict the right of DEQ to inspect or take enforcement action against Chemours for any new or subsequent violations (violations not addressed in paragraph 34) of the Subject Statutes and Regulations, or the right of Chemours to

contest any subsequent enforcement action based on allegations of new, subsequent or repeated violations, to the extent provided by law.

35.1 Nothing in this Consent Order releases any other entity, including DuPont, from any liability they may have resulting from their actions.

36. Nothing in this Consent Order releases Chemours from any liability it may have to any third parties arising from Chemours' actions or releases any claims by any third party, including the claims in: (a) Nix v. The Chemours Co. FC, LLC, No. 7:17-CV-0189-D (E.D.N.C.); (b) Cape Fear Public Utility Authority v. The Chemours Co. FC, LLC, No. 7:17-CV-00195-D (E.D.N.C.); (c) Morton v. The Chemours Co., No. 7:17-CV-00197-D (E.D.N.C.); (d) Carey v. E.I. du Pont de Nemours & Co., No. 7:17-CV-00201-D (E.D.N.C.); (d) Brunswick Co. v. DowDuPont, Inc., No. 7:17-CV-00209-D (E.D.N.C.) (including the claims asserted by Town of Wrightsville Beach and Lower Cape Fear Water and Sewer Authority in the Master Complaint of Public Water Suppliers filed January 31, 2018); and (e) Dew v. E.I. du Pont de Nemours & Co., No. 7:18-cv-00073-D (E.D.N.C.).

K. INTERVENTION OF CAPE FEAR RIVER WATCH

37. For the purpose of entering into this Consent Order and resolving Cape Fear River Watch's pending actions in Cape Fear River Watch v. North Carolina Department of Environmental Quality, 18 CVS 2462 (New Hanover Cty. Sup. Ct.) and Cape Fear River Watch v. Chemours Company FC, LLC, No. 7:18-cv-00159 (E.D.N.C.), Plaintiff and Chemours consent to the intervention of Cape Fear River Watch as a Plaintiff in this matter.

38. Plaintiff shall have sole authority to enforce of the requirements of this Consent Order in this Court against Chemours, except that Cape Fear River Watch shall also have authority to enforce paragraphs 7, 8, 10, 11, 11.1, 11.2, 12, 15, 16(d), 29, 40, and 46, provided that Cape Fear River Watch's authority to enforce a requirement under paragraph 7 or 8 shall cease upon incorporation of that requirement into the Facility's air permit, and further provided that Cape Fear River Watch shall provide Chemours and DEQ with at least 14 days advance notice of any compliance concern that could result in an enforcement action, and the parties shall confer in an effort to resolve any dispute prior to its presentation to the Court. Furthermore, Cape Fear River Watch shall have the right to be heard in any proceeding before this Court in which Plaintiff is seeking to have the terms of this Consent Order enforced.

39. Within fifteen (15) days of entry of this Consent Order, Cape Fear River Watch agrees to voluntarily dismiss with prejudice its Petition for Judicial Review in Cape Fear River Watch v. North Carolina Department of Environmental Quality, 18 CVS 2462 (New Hanover Cty. Sup. Ct.). Within sixty (60) days of entry of this Consent Order, Cape Fear River Watch agrees to voluntarily dismiss with prejudice its action in Cape Fear River Watch v. Chemours Company FC, LLC, No. 7:18-cv-00159 (E.D.N.C.) for Chemours' alleged violations of the Clean Water Act and the Toxic Substances Control Act alleged by the Cape Fear River Watch prior to the date of entry of this Order.

40. Chemours shall provide quarterly progress reports submitted to DEQ concurrently to Cape Fear River Watch. Within thirty (30) days of receiving those reports, DEQ shall make relevant staff available for an in person meeting with Cape Fear River Watch to discuss the status

of Chemours' performance of its obligations under the Consent Order and DEQ's review of any relevant submissions.

L. MISCELLANEOUS

41. Effect of this Order: This Consent Order (a) shall be binding on the parties as an order of the Court, (b) is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation, and (c) is not, and shall not be construed to be, a determination on the merits of any of the factual allegations or legal claims advanced by any party in this action, including in DEQ's Complaint or Amended Complaint, Chemours' Answer, any Notices of Violation, or the proposed findings of fact or conclusions of law filed by DEQ in connection with prior motions or status reports. Nothing in this Consent Order limits Chemours' obligations to comply with the requirements of all applicable state and federal laws and regulations, provided that nothing in this sentence limits the scope of the release under paragraph 34.

42. No Admission: By agreeing to entry of this Consent Order, Chemours makes no admission of law or fact with respect to the allegations in the Complaint or Amended Complaint, any Notices of Violation, or the proposed findings of fact or conclusions of law filed by DEQ in connection with prior motions or status reports, and does not admit to any other factual or legal determination, and denies any non-compliance or violation of any law, regulation or permit referenced therein or in this Consent Order. In particular, and without limiting the foregoing, Chemours does not admit that any concentration-based standard referenced herein for GenX compounds or other PFAS is scientifically supported or legally or factually appropriate.

43. Findings of Fact and Conclusions of Law: The Parties waive any requirement for formal findings of fact and conclusions of law and agree that this Consent Order shall be binding upon them the same as if entered by a Superior Court Judge after a hearing on the merits of all matters now pending.

44. Carbon Filtration Systems: DEQ and Chemours have cooperated to develop and implement a program for testing the efficacy of granular activated carbon filtration systems in removing GenX and PFAS compounds from drinking water. Under test conditions, PFAS tested in post-treatment water were either not detected at all or detected at concentrations below 10 ng/L and near the reporting limit.

45. Cooperation: The Parties acknowledge that this Consent Order is the product of good faith efforts and discussions since the filing of the draft Proposed Order, and that Chemours has cooperated with DEQ in responding to issues and requests raised by DEQ and in voluntarily undertaking significant corrective and remedial measures while these discussions were ongoing.

46. Notices and Submissions:

- a. Whenever notice is required to be given or a document is required to be sent by one Party to another under the terms of this Consent Order, it shall be provided to all parties, directed to the individuals at the addresses specified below, unless those individuals or their successors give notice of a change to the other Parties in writing. Notice or submission by electronic mail is acceptable.

As to DEQ:

Sheila Holman

Assistant Secretary for the Environment
1601 Mail Service Center
Raleigh, NC 27699-1601
sheila.holman@ncdenr.gov

Cc: William F. Lane
General Counsel
1601 Mail Service Center
Raleigh, NC 27699-1601
Bill.Lane@ncdenr.gov

Francisco Benzoni
Special Deputy Attorney General
PO Box 629
Raleigh, NC 27602
fbenzoni@ncdoj.gov

As to DAQ:

Michael Abraczinskas
Director, Division of Air Quality
1641 Mail Service Center
Raleigh, NC 27699-1641
michael.abraczinskas@ncdenr.gov

As to DWM:

Michael Scott
Director, Division of Waste Management
1646 Mail Service Center
Raleigh, NC 27699-1646
michael.scott@ncdenr.gov

As to DWR:

Linda Culpepper
Interim Director, Division of Water Resources
1611 Mail Service Center
Raleigh, NC 27699-1611

As to Chemours:

David C. Shelton, Esq.
Senior Vice President, General Counsel & Corporate Secretary
The Chemours Company
1007 Market Street
Wilmington, DE 19898
(302) 773-2588
David.c.shelton@chemours.com

Cc: John F. Savarese, Esq.
Wachtell, Lipton, Rosen & Katz
51 West 52nd Street
New York, NY 10019
(212) 403-1000
jfsavarese@wlrk.com

As to Cape Fear River Watch:

Kemp Burdette
Cape Fear River Watch
617 Surry Street
Wilmington, NC 28401
(910) 762-5606
kemp@cfrw.us

cc: Geoff Gisler
Southern Environmental Law Center
601 West Rosemary Street, Suite 220
Chapel Hill, NC 27516-2356
(919) 967-1450
ggisler@selcnc.org

- b. Chemours shall provide all submissions and notices made by Chemours to DEQ, DAQ, DWM, DWR pursuant to this Order concurrently to Cape Fear River Watch, redacting confidential business information of Chemours, and information concerning specific residents or other individuals. DEQ shall

consider all timely comments received from Cape Fear River Watch prior to agency approval of any such document.

47. Permits: In accordance with applicable law, DEQ agrees to review and act timely on all applications by Chemours for permits necessary for Chemours to undertake the actions required under this Consent Order, including without limitation all permits necessary for Chemours to construct, install and operate the thermal oxidizer system. In accordance with applicable law, DEQ agrees (i) to review and act timely on an application by Chemours for a new NPDES permit; (ii) to meet monthly with Chemours and work in good faith with Chemours to identify, review and discuss information necessary for Chemours to complete its application; and (iii) to review and act on Chemours' application in a manner consistent with the Clean Water Act and associated regulations as well as N.C. Gen. Stat. § 143-215.1 and associated regulations, practices, and procedures for permitting the discharge of industrial process wastewater with conditions and limitations necessary to protect public health and the environment.

48. Public Participation: The original Proposed Consent Order was previously released for public notice and comment by DEQ for a period of forty seven (47) days. DEQ reserved the right to withdraw or withhold its consent if the comments regarding the Consent Order disclosed facts or considerations indicating that the Consent Order is inappropriate, improper, inadequate, or required modification. Following the close of that comment period and DEQ's consideration of comments received, (i) DEQ fully addressed the comments it received, (ii) the Parties agreed to the modifications that are reflected in this Consent Order in response to public comment, and (iii) the Parties support and will seek the entry of this Consent Order by the Court. The Parties consent

to entry of this Consent Order and agree not to withdraw from or oppose entry of this Consent Order by the Court or to challenge any provision of the Consent Order.

49. Successors and Assigns: This Consent Order shall be binding upon, and inure to the benefit of, the Parties and their respective successors and assigns (who shall not be considered third parties). No third party shall be deemed the beneficiary of, or as having the right to enforce, this Consent Order.

50. Effective Date: This Consent Order shall become effective on the date that it is entered by the Court. In the event that deadlines for any obligations under this Consent Order arise prior to its entry by the Court, such obligations shall take effect upon such entry by the Court.

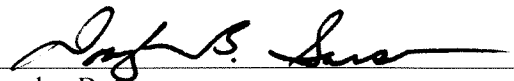
51. Duration: This Court retains jurisdiction over both the subject matter of this Consent Order and the Parties for the duration of the performance of the terms and provisions of this Consent Order to effectuate or enforce compliance with the terms of this Consent Order, provided that after January 1, 2023, any provision of this Consent Order may be terminated under the following circumstances:

- a. (i) Chemours has discharged the obligations set forth in the provision and six months have elapsed since the date on which Chemours discharged its obligations; or (ii) If the requirements of the provision have not been fully discharged, requirements at least as stringent have been incorporated into a permit, Corrective Action Plan, or other regulatory instrument enforceable by DEQ; and

- b. (i) The Parties stipulate that the above conditions have been met and file a notice of full or partial termination with the Court; or (ii) After all parties have been heard, Chemours demonstrates to the Court that the conditions specified in subparagraph (a) above have been met.

52. This Consent Order may be signed out-of-court, out-of-term, and out-of-county.

This the 25th day of February, 2019.



Douglas B. Sasser
Superior Court Judge

CONSENTED TO BY:

NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY

By: Michael S. Regan
Michael Regan
Secretary

Date: 2-20-19

By: Francisco Benzoni
Francisco Benzoni, as to form only
Special Deputy Attorney General

Date: 02/20/2019

THE CHEMOURS COMPANY FC, LLC

By: David Shelton
David Shelton
Senior Vice President, General Counsel, and Corporate Secretary

Date: 19 February 2019

By: John Savarese
John Savarese
Counsel for Chemours

Date: 2/19/2019

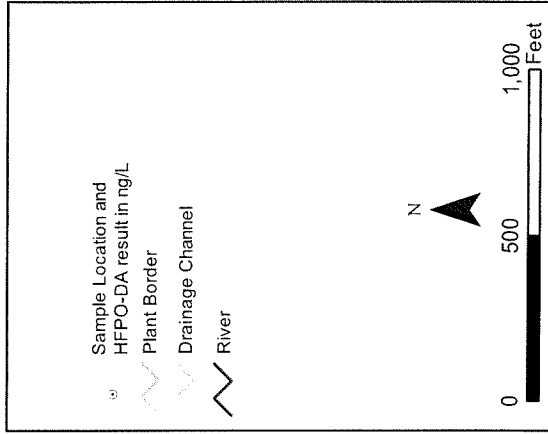
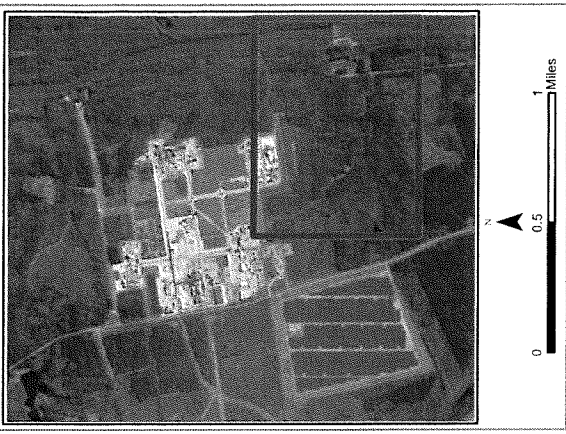
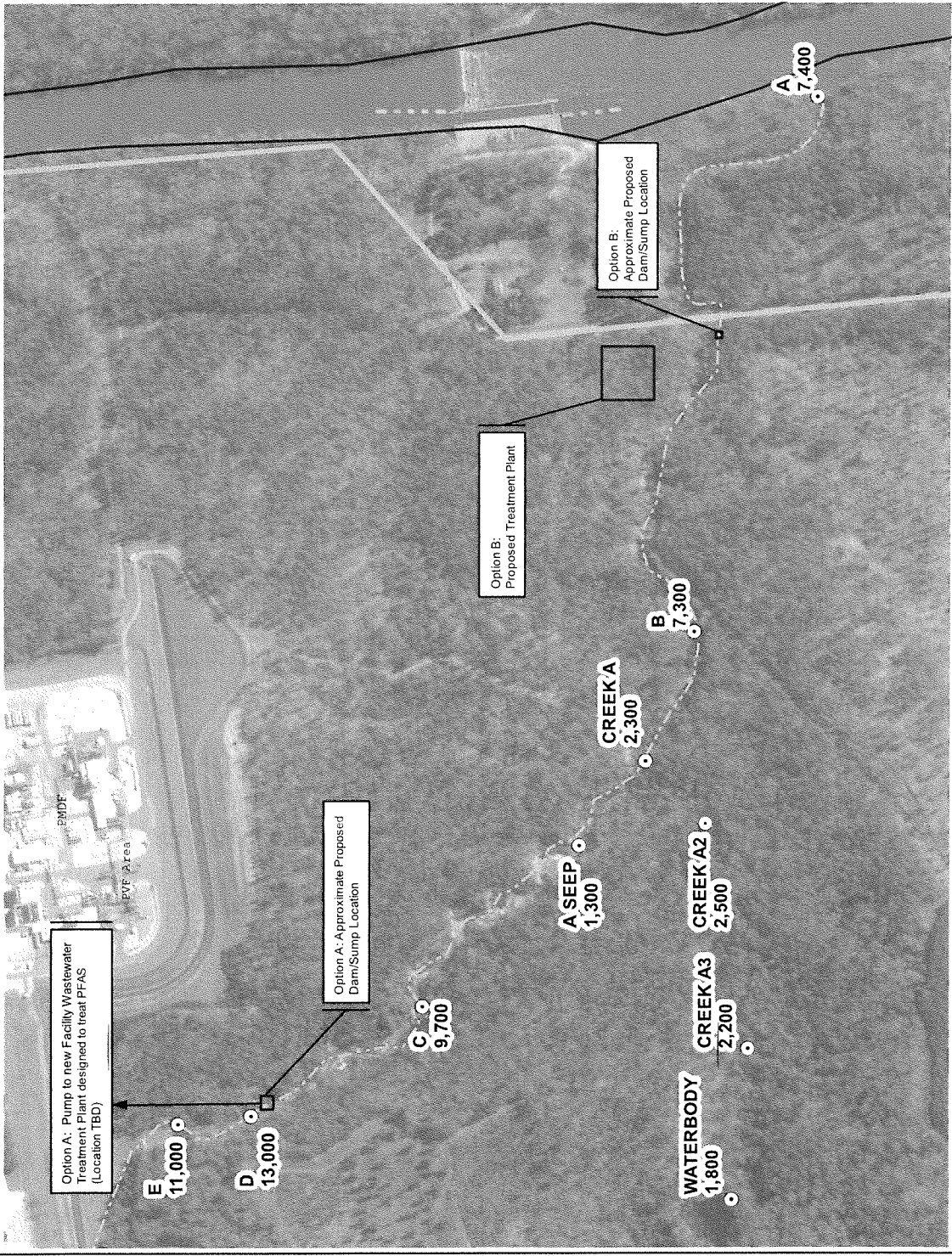
CAPE FEAR RIVER WATCH

By: Kemp Burdette
Kemp Burdette
Cape Fear Riverkeeper

Date: 2/19/2019

By: Geoff Gisler
Geoff Gisler
Counsel for Cape Fear River Watch

Date: 2/20/2019



Drawn:	C. Chesal	Date:	3/26/2018	File Project Number:	445338.01050
Revision:	1			Figure Number:	5
Name: Option_F4					

ATTACHMENT B

Chemours' proposed plan to conduct toxicity studies pursuant to paragraph 14 shall include:

(i) Testing of the following PFAS compounds:*

Common Name		Chemical Name		CASN		Chemical Formula
PFMOAA		Perfluoro- 2-methoxyacetic acid		674-13-5		C3HF5O3
PMPA	PFMOPrA	Perfluoro-2-methoxypropanoic acid	Perfluoro-3-methoxypropanoic acid	13140-29-9	377-73-1	C4HF7O3
PFO2HXA		Perfluoro(3,5-dioxahexanoic) acid		39492-88-1		C4HF7O4
PEPA	PFMOBA	2,3,3,3-Tetrafluoro-2-(pentafluoroethoxy) propanoic acid	Perfluoro-4-methoxybutanoic acid	267239-61-2	8630 90-89-5	C5HF9O3
PFESA-BP2 / Nafion BP #2		Nafion Byproduct 2		749836-20-2		C7H2F14O5S

* For clarification, compounds identified with two common names in Attachment B or C shall be tested using a single CASN, to be proposed by Chemours and approved by DEQ.

(ii) The following studies, which shall be conducted following applicable USEPA, OECD protocols as defined in the USEPA TSCA, OPPT or other appropriate programs as determined by DEQ:

a. Toxicity Studies:

- 28-day oral immunotoxicity study in rats
- 28-day oral immunotoxicity study in mice
- 90-day repeated dose oral toxicity study in rats
- 90-day repeated dose oral toxicity study in mice

b. Ecological Toxicity Studies:

- Algal acute (72-hour growth) toxicity study
- Daphnid acute toxicity study
- Daphnid chronic (reproduction) toxicity study
- Fish acute toxicity study
- Sediment 10-day freshwater invertebrates toxicity test

(iii) A detailed proposed schedule of work.

ATTACHMENT C

For purposes of paragraphs 19-21 and 24 “PFAS” shall mean the following compounds, unless Chemours demonstrates to the reasonable satisfaction of DEQ that the PFAS in a given well did not originate from the Facility:

Common Name		Chemical Name		CASN		Chemical Formula
PFMOAA		Perfluoro- 2-methoxyacetic acid		674-13-5		C3HF5O3
PMPA	PFMOPrA	Perfluoro-2-methoxypropanoic acid	Perfluoro-3-methoxypropanoic acid	13140-29-9	377-73-1	C4HF7O3
PFO2HXA		Perfluoro(3,5-dioxahexanoic) acid		39492-88-1		C4HF7O4
PEPA	PFMOBA	2,3,3,3-Tetrafluoro-2-(pentafluoroethoxy) propanoic acid	Perfluoro-4-methoxybutanoic acid	267239-61-2	8630 90-89-5	C5HF9O3
PFO3OA		Perfluoro(3,5,7-trioxaoctanoic) acid		39492-89-2		C5HF9O5
PFO4DA		Perfluoro(3,5,7,9-tetraoxadecanoic) acid		39492-90-5		C6HF11O6
PFESA-BP1 / Nafion BP #1		Nafion Byproduct 1		66796-30-3; 29311-67-9		C7HF13O5S
PFESA-BP2 / Nafion BP #2		Nafion Byproduct 2		749836-20-2		C7H2F14O5S
PFECA-G		Hexanoic acid, 2,2,3,3,4,4,5,5,6,6-decafluoro-6-(trifluoromethoxy)-; Butanoic acid, 2,2,3,3,4,4-hexafluoro-4-[1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethoxy]-		174767-10-3; 801212-59-9		C7HF13O3
TAFN4 / PF05DA		Perfluoro(3,5,7,9,11-pentadodecanoic) acid		39492-91-6		C7HF13O7
PFHpA		Perfluoroheptanoic acid		375-85-9		C7HF13O2
HFPO-DA / PFPrOPrA / “GenX”		2,3,3,3-Tetrafluoro-2 (1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid)		13252-13-6		C6HF11O3

EXHIBIT 7

STATE OF NORTH CAROLINA
COUNTY OF BLADEN

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION

2020 OCT 12 P 3:23 17 CVS 580

STATE OF NORTH CAROLINA, *ex rel.*,)
MICHAEL S. REGAN, SECRETARY,)
NORTH CAROLINA DEPARTMENT OF)
ENVIRONMENTAL QUALITY,)

Plaintiff,)

CAPE FEAR RIVER WATCH,)

Plaintiff-Intervenor,)

v.)

THE CHEMOURS COMPANY FC, LLC,

Defendant.

**ADDENDUM TO CONSENT ORDER
PARAGRAPH 12**

WHEREAS, on February 25, 2019, the Court entered a Consent Order in the above captioned matter;

WHEREAS, Paragraph 12 of the Consent Order provides that Chemours shall submit to DEQ and Cape Fear River Watch a plan demonstrating the maximum reductions in PFAS loading from the Fayetteville Works Facility (including loading from contaminated stormwater, non-process wastewater, and groundwater) to surface waters that are economically and technologically feasible, and can be achieved within a two-year period;

WHEREAS, Paragraph 12 of the Consent Order requires that the plan be supported by interim benchmarks to ensure continuous progress in reduction of PFAS loading and that, if significantly greater reductions can be achieved in a longer implementation period, Chemours may

propose, in addition, an implementation period of up to five years supported by interim benchmarks to ensure continuous progress in reduction of PFAS loading;

WHEREAS, Paragraph 12 of the Consent Order provides that DEQ and Cape Fear River Watch shall review the plan developed by Chemours, and the Parties shall work together in good faith to determine if the PFAS reduction targets identified by Chemours represent the maximum reductions that are economically and technologically feasible, and can be implemented over a two-year period (or longer as proposed in an alternate plan), or whether the Parties can identify and agree upon further reductions;

WHEREAS, Paragraph 12 of the Consent Order provides that if the Parties come to an agreement regarding additional PFAS reductions, within eight months after entry of the Consent Order, DEQ, Cape Fear River Watch and Chemours shall jointly move to amend this Consent Order to incorporate any agreed upon reductions as enforceable requirements of this Consent Order as well as stipulated penalties for non-compliance and that if DEQ, Cape Fear River Watch, and Chemours are unable to mutually agree upon additional PFAS reductions within eight months after entry of this Order: (i) the Parties may jointly stipulate to additional time in which to submit a joint motion to amend, or (ii) Cape Fear River Watch, DEQ, and Chemours may bring any dispute regarding the additional reductions before the Court for resolution.

WHEREAS, on August 26, 2019, Chemours submitted a "Cape Fear River PFAS Loading Reduction Plan" for the purpose of satisfying its commitments under Paragraph 12 of the Consent Order;

WHEREAS, DEQ and Cape Fear River Watch reviewed the PFAS Loading Reduction Plan and, on September 26, 2019 and October 23, 2019, sent letters to Chemours taking the

position that the Plan must be supplemented and revised in order to satisfy the requirements of Paragraph 12 of the Consent Order;

WHEREAS, on November 4, 2019, Chemours, without agreeing with the positions set forth in DEQ and Cape Fear River Watch's letters, submitted to DEQ and Cape Fear River Watch a "Cape Fear River PFAS Loading Reduction Plan – Supplemental Information Report" ("Supplemental Information Report") to address the matters identified by DEQ and Cape Fear River Watch in their September 26, 2019 letter;

WHEREAS, on December 19, 2019, DEQ and Cape Fear River Watch sent letters to Chemours requesting additional information regarding the Supplemental Information Report;

WHEREAS, on January 31, 2020, Chemours sent letters responding to DEQ's and Cape Fear River Watch's letters regarding the Supplemental Information Report;

WHEREAS, the Parties have jointly stipulated to additional time for amending the Consent Order;

WHEREAS, the Parties have reached agreement on a set of measures to reduce PFAS loading to surface waters and downstream water intakes that satisfy the requirements of Paragraph 12 of the Consent Order;

WHEREAS, the terms of this addendum are hereby incorporated into the terms of the Consent Order entered on February 25, 2019;

NOW THEREFORE, the parties agree and the Court orders as follows:

PFAS REDUCTION MEASURES

1. Measuring PFAS Loading to the Cape Fear River:

- a. *PFAS Mass Loading Measurements*: By August 31, 2020, Chemours shall submit a protocol for DEQ review and approval for measuring mass loading of PFAS to

the Cape Fear River from the Facility. The protocol shall adhere to the following minimum requirements:

- i. In-river sampling shall be conducted near the Tar Heel Ferry Road Bridge as shown on Attachment 1;
 1. Sampling shall consist of 24 hour composite samples collected twice per week;
 2. Additional sampling shall be conducted within 24 hours of rain events predicted two days before with at least a 70% likelihood to be of 1 ½ inches or greater in a 24 hour period. Such additional sampling shall be conducted twice per month for any month in which there are two or more such rain events; and
 3. Flow measurements as reported by the United States Geological Survey (USGS) river gauging station at the W.O. Huske Dam shall be referenced with contemporaneous sample collection.¹
- ii. The protocol shall provide for a calculation to estimate the mass loading to the Cape Fear River for each of the PFAS listed in Attachment C to the Consent Order.
- iii. On a monthly basis, Chemours shall also take grab samples and record flow measurements to measure the mass loading for each of the PFAS listed in Attachment C to the Consent Order at Bladen Bluffs (from W.O. Huske Dam) and Kings Bluff (from Cape Fear River Lock & Dam #1).

¹ Appropriate adjustments shall be made in consultation with DEQ for the distance between the sampling location and river gauging station.

The protocol shall provide for a sampling period of at least five years, and after each year Chemours may apply to DEQ for modification of the protocol, including with respect to sampling frequency.

- b. *Updating PFAS Loading Model:* Chemours shall provide DEQ and Cape Fear River Watch by August 31, 2020 with the documents and files used to develop and run the current PFAS loading model. Within seven (7) days of approval of the protocol submitted under Paragraph 1(a) above, Chemours shall commence sampling (including sampling per the protocol) sufficient to update all inputs into the PFAS loading model. Such sampling shall be conducted on a monthly basis for the period of the first year and thereafter on a quarterly basis for at least the next four years. In each of these years, at least one such sampling event shall be attempted during a rain event predicted two days before with at least a 70% likelihood to be of 0.5 inches or greater in a 24 hour period. On a quarterly basis starting September 30, 2020, Chemours shall provide updated PFAS loading model outputs to DEQ and Cape Fear River Watch analyzing the contribution of PFAS to the Cape Fear River from each pathway, where outputs for the previous quarter are provided within ninety (90) days of the end of the previous quarter.

- c. *Outfall 002 Trendline:*

- i. Starting no later than August 31, 2020, Chemours shall, each week for at least twelve consecutive weeks, take a 24-hour composite sample from Outfall 002 and analyze for the PFAS listed in Attachment C to the Consent Order. Chemours shall also conduct 24-hour composite sampling within 24 hours of any rain event predicted two days before with at least a 70%

likelihood to be of 1 inch or greater over a 24-hour period. Chemours shall record the flow through Outfall 002 for each sampling event.

- ii. By August 31, 2020, Chemours shall submit to DEQ for review and approval a protocol for establishing the mass loading from Outfall 002 to the Cape Fear River for the PFAS listed in Attachment C to the Consent Order (“Outfall 002 Trendline”).

2. Measures to Reduce PFAS Loading from Seeps: Chemours shall reduce PFAS mass loading to the Cape Fear River by completing the remediation actions at the four groundwater seeps referred to as Seep A, Seep B, Seep C, and Seep D (collectively, “Seeps A through D”) and depicted in Attachment 2² as set forth in the subparagraphs below:

- a. *Interim Seep Remediation Systems:* By August 31, 2020, Chemours shall submit an interim seep remediation systems plan (“Interim Plan”) for DEQ review which shall include the following three plans as set forth in more detail below: (1) the design basis for flow-through cells (“Design and Placement Plan”), (2) the proposed operation and maintenance plan for the flow-through cells (“Operation and Maintenance Plan”), and (3) a plan for DEQ approval to sample and measure the effectiveness of the system, including the intended sampling locations (“Sampling and Effectiveness Plan”). Chemours shall complete construction of flow-through cell systems on the schedule as set forth below. The systems shall be operated in accordance with the Interim Plan.

Construction Completion Date for Flow-Through Cell System	Seep
November 16, 2020	C
February 22, 2021	A

² Although labeled as “seeps,” DEQ has identified that at least some of these surface water features are intermittent or perennial streams.

March 15, 2021	B
April 5, 2021	D

- i. *Design and Placement Plan:* At a minimum, the Design and Placement Plan in the Interim Plan shall detail how the design of the flow-through cells: (i) will prevent water from bypassing the flow-through cells during design flows and minimize bypassing during higher flows; (ii) has been optimized to maintain a hydraulic head sufficient for water to flow through the cells; and (iii) minimizes the possibility that the flow-through cells will get clogged with sediment, debris, or other material.³ The plan shall also describe the locations (up- and down-gradient of flow-through cells) and instruments for measuring flow rates and for conducting PFAS sampling.
- ii. *Operation and Maintenance Plan:* At a minimum, the Operation and Maintenance Plan included in the Interim Plan shall: (1) provide for visual inspections of the flow-through cells on a weekly basis with photographs, and regular inspections after 0.5 inch or greater rain events with photographs taken as necessary; photographs shall document any flows that do not go through the treatment system as observed during the inspections; (2) provide detailed operation plans to prevent bypassing the flow-through cells for design flows and minimize bypassing under higher flows; and ensure, to the extent feasible, that the flow of water through the cells is

³ The flow-through cells shall be designed (and optimized once in service) toward meeting the objective of intercepting total base (i.e., during dry weather) flow from Seeps A through D, when combined with the Barrier Wall and Groundwater Extraction System, (“design flows”), and removing PFAS compounds (as measured by indicator parameters GenX, PMPA, and PFMOAA) at a minimum removal efficiency of 99%.

unimpeded, and, in particular, that sediment, debris, or other material is promptly removed, especially following rain events; (3) detail the method for regular monitoring of flow rate and flow volume to quantify the effectiveness of the flow-through cell design; (4) require measurements of any rainfall events; (5) detail the process for how operation of the flow-through cells will be optimized to achieve the remediation objective; (6) detail when and how flow-through cell components shall be replaced, including monitoring requirements and performance thresholds; and (7) provide a plan for repairing and replacing, if necessary, flow-through cell components following storm/flood events.

- iii. *Sampling and Effectiveness Plan*: The Sampling and Effectiveness Plan included in the Interim Plan shall propose a protocol for demonstrating the effectiveness of the seep remediation systems and, at a minimum, require influent and effluent sampling for the Table 3+ PFAS compounds as listed on Attachment 3, turbidity, TSS, DO, pH, conductivity, temperature, and any other appropriate parameters as determined by DEQ occur (a) at least twice per month if 14-day composite sampling (with sample aliquots taken every six hours) is used or (b) at least four times per month if 24-hour composite sampling is used, unless modified under Paragraph 2(a)(iv) below. Flow measurements shall be taken contemporaneously with sample collection. The Sampling and Effectiveness Plan shall also provide for additional sampling following 0.5 inch or greater rain events in a 24-hour period for a frequency and period sufficient to assess the performance of the

flow-through cells during and following storm events; such sampling shall not be used to determine compliance under Paragraphs 2(a)(vi) or 2(b)(i) below. Sample analysis must be conducted at a laboratory approved by DEQ. Chemours shall split samples with DEQ or Cape Fear River Watch upon request.

- iv. *Modification of Plans:* After six months of operation of the interim seep remediation systems at Seeps A through D, Chemours may apply to DEQ for modification of the Operation and Maintenance Plan and the Sampling and Effectiveness Plan as long as visual inspections, measuring of flow rate and flow volume, and influent and effluent sampling of Table 3+ PFAS compounds as listed on Attachment 3 occur at least twice a month. In its application, Chemours must demonstrate consistent performance of the interim seep remediation systems.
- v. *Reporting:* Following the commencement of operation of each flow-through cell system, every two (2) months, Chemours shall report to DEQ and Cape Fear River Watch results of all required monitoring and sampling, as well as information on flow, information on carbon usage, and an evaluation on the performance and removal effectiveness of each flow-through cell system. In case of an upset or other condition impeding the operation of the flow-through cells, Chemours shall notify DEQ, Cape Fear

River Watch, and downstream drinking water utilities in writing⁴ within 24 hours of knowledge of such condition.

- vi. *Interim Effectiveness:* For each of Seeps A, B, C, and D, within four months after the construction of the flow-through cell system for such seep has been completed, Chemours shall submit a report to DEQ and Cape Fear River Watch demonstrating that the flow-through cell system intercepted total base flow (during dry weather flow) at each seep; and removed PFAS (as measured by influent and effluent concentrations of indicator parameters GenX, PMPA, and PFMOAA) at a minimum removal efficiency of 80% at each seep on a monthly average basis (the “Interim Effectiveness Demonstration”) for each of the second and third full calendar months of operation. DEQ shall determine whether Chemours has made the necessary demonstration for each seep within 30 days of receiving Chemours’ submittal for that particular seep. If DEQ determines that Chemours has made the Interim Effectiveness Demonstration, Chemours shall continue to adhere to the performance criteria set forth in this paragraph on an ongoing basis for the interim systems.

b. *Alternate Interim Seep Remediation System:*

- i. If (1) DEQ determines that Chemours has not made the Interim Effectiveness Demonstration for any one of Seeps A through D or (2) DEQ determines prior to March 31, 2022 that the flow-through cells at any one

⁴ Any written notice required by this Addendum may in accordance with Paragraph 46(a) of the Consent Order be made by electronic mail (e-mail) message.

of Seeps A through D fail to intercept total base flow (during dry weather flow), and remove PFAS (as measured by concentrations of indicator parameters GenX, PMPA, and PFMOAA) at a minimum removal efficiency of 80% on a monthly average basis over either (a) both of any two (2) consecutive months or (b) any three months in a twelve month period, at that seep, Chemours shall (unless Chemours demonstrates and DEQ and Cape Fear River Watch agree that the failure to meet the 80% minimum removal efficiency was caused by an event under paragraph 32 of the Consent Order) complete installation of an alternate system for that seep that includes an ex situ capture and treatment system within eight months of this determination ("Alternate System"). Within three months of installation of the Alternate System, Chemours shall demonstrate to DEQ that the system captures total base flow (during dry weather flow) and removes PFAS compounds (as measured by concentrations of indicator parameters GenX, PMPA, and PFMOAA) at a minimum removal efficiency of 99% at that seep. The Alternate System shall continue to meet these requirements on an ongoing basis. Chemours shall continue to operate the flow-through cells according to the Interim Plan until the Alternate System is fully operational. The installation of the Alternate System shall be the exclusive remedy for failure to make the Interim Effectiveness Demonstration and no stipulated penalty will apply.

- ii. *Sampling:* After implementation, Chemours shall conduct influent and effluent sampling of the Alternate System pursuant to the NPDES permit

requirements for the Alternate System. Flow data shall be recorded at each seep as necessary in order to demonstrate that the Alternate System consistently captures total base flow (during dry weather flow). Sample analysis must be conducted at a laboratory approved by DEQ. Chemours shall split samples with DEQ or Cape Fear River Watch upon request.

- iii. *Reporting:* On a quarterly basis, Chemours shall report to DEQ and Cape Fear River Watch results of all sampling data, information on flow, as well as an evaluation of the performance of the Alternate System. In case of an upset or other condition impeding the operation of the Alternate System, Chemours shall notify DEQ, Cape Fear River Watch, and downstream drinking water utilities in writing within 24 hours of knowledge of such condition.

c. *Long-Term Seep Remediation:*

- i. *Long-Term Seep Remediation Objective:* By March 15, 2025, Chemours shall demonstrate to DEQ that the Barrier Wall and Groundwater Extraction System installed pursuant to Paragraph 3, and the seep remediation system(s) installed pursuant to Subparagraphs 2(a) or 2(b) as necessary, reduce the total annual mass loading of PFAS (as measured by indicator parameters GenX, PMPA, and PFMOAA) to the Cape Fear River from Seeps A through D as follows: (a) during dry weather, reduce total mass loading by at least 99%, (b) during dry weather and following rain events of 0.5 inches or less, reduce total mass loading by at least 95%, and (c) for any seep that daylights upgradient of the Barrier Wall, capture total dry

weather flow plus rain events up to 0.5 inches in a 24-hour period upgradient of the Barrier Wall and treat PFAS (as measured by concentrations of indicator parameters GenX, PMPA, and PFMOAA) with a removal efficiency of at least 99% (collectively, “Long-Term Seep Remediation Objective”).⁵ After submitting the initial demonstration, Chemours shall repeat the demonstration on an annual basis at least for the first five years of operation of the Barrier Wall and Groundwater Extraction System.

- ii. *Long-Term Seep Remediation Plan:* By October 30, 2020, Chemours shall submit a plan for DEQ approval for calculating PFAS mass loading (as measured by indicator parameters GenX, PMPA, and PFMOAA) from each Seep A through D to the Cape Fear River using the data, including flow data and concentration data collected pursuant to this Addendum to the Consent Order (“Long-Term Loading Calculation Plan”). The Long-Term Loading Calculation Plan shall propose a methodology for demonstrating compliance with the Long-Term Seep Remediation Objective, including calculation of PFAS mass loading from each seep during dry weather and following rain events of 0.5 inches or less (a) for the time period prior to installation of the Barrier Wall (“Baselines”)⁶ and (b) after installation of the Barrier Wall. Chemours shall continue to implement the Sampling and

⁵ The demonstrations made pursuant to subsections (a) and (b) of this paragraph shall be calculated using Baselines developed pursuant to paragraph 2(c)(ii).

⁶ For clarity, these Baselines will be calculated using data obtained from flow that has not been treated by any interim seep remediation system.

Effectiveness Plan at each seep unless, and until, DEQ approves removal of the applicable seep remediation system pursuant to this paragraph. The Long-Term Loading Calculation Plan shall provide for exclusion of mass loading caused by river inundation.⁷

- iii. *Continued Operation of Seep Remediation Systems:* Until Chemours makes the initial demonstration that the Long-Term Seep Remediation Objective has been achieved, Chemours shall continue to operate and maintain at optimal efficiency all seep remediation systems installed pursuant Subparagraph 2(a) or 2(b). No seep remediation systems installed pursuant Subparagraph 2(a) or 2(b) shall be removed unless Chemours demonstrates to DEQ that the Long-Term Seep Remediation Objective will be maintained after removal, and DEQ approves removal of the system.
- iv. *Additional Measures:* If DEQ determines that Chemours has failed to make the initial, or any subsequent, demonstration of achieving the Long Term Seep Remediation Objective, Chemours shall, within two (2) months of DEQ's determination, submit for DEQ review and approval proposed additional remedial measures to be incorporated in the Corrective Action Plan and/or an NPDES permit and implemented upon a schedule approved by DEQ. These measures shall be sufficient to achieve the Long-Term Seep Remediation Objective, and may include the installation of an ex situ

⁷ The Long-Term Loading Calculation Plan shall include a method for demonstrating when river inundation occurs. River inundation to a particular seep shall mean that the hydraulic back pressure from the Cape Fear River exceeds the hydraulic head at the location of the interim seep remediation system.

capture and treatment system at certain seep(s). In addition to these additional remedial measures, if Chemours fails to demonstrate that total mass loading from Seeps A through D to the Cape Fear River has been reduced by at least 95% (including in rain events up to 0.5 inches in a 24-hour period) in any demonstration, Chemours shall pay the stipulated penalty specified in Paragraph 10 of this Addendum.

- v. *Reporting:* On a quarterly basis, Chemours shall report to DEQ and Cape Fear River Watch results of all sampling data, information on extraction, treatment, and flow, as well as an evaluation of the performance of the Barrier Wall, Groundwater Extraction System, and seep remediation system(s) installed pursuant to Subparagraphs 2(a) or 2(b) or compliance with the Long-Term Seep Remediation Objective following removal of a seep remediation system pursuant to Subparagraph 2(c). In case of an upset or other condition impeding the operation of the Barrier Wall, Groundwater Extraction System, and seep remediation system(s) installed pursuant to Subparagraphs 2(a) or 2(b) that may increase PFAS loading to the Cape Fear River, Chemours shall notify DEQ, Cape Fear River Watch, and downstream drinking water utilities in writing within 24 hours of knowledge of such condition.

- 3. Measures to Reduce PFAS Loading from Onsite Groundwater: Chemours shall complete the following measures to reduce PFAS loading from onsite groundwater.

- a. *Groundwater Extraction from Existing Monitoring Wells:* Following the implementation of the Old Outfall 002 treatment system pursuant to Consent Order

Paragraph 12(e) and by no later than November 30, 2020, Chemours shall commence pumping of groundwater from the seven existing Black Creek Aquifer monitoring wells depicted in Attachment 4 and conveyance of such groundwater by piping to the Old Outfall 002 treatment system for treatment and discharge.

b. *Installation of a Barrier Wall and Groundwater Extraction and Treatment System:*

Chemours shall proceed with the design and the installation of a barrier wall and groundwater extraction and treatment system to reduce PFAS loading from groundwater flow from under the Facility to the Cape Fear River and Willis Creek (the “Barrier Wall and Groundwater Extraction System”), in accordance with the following schedule:

<u>Date</u>	<u>Milestone</u>
August 15, 2021	Submit a 60% design of the Barrier Wall and Groundwater Extraction System to DEQ for review and approval and submit complete applications for any necessary permits for the installation of a groundwater extraction system designed to intercept, capture and treat groundwater from the Facility to the Cape Fear River and to Willis Creek.
March 31, 2022	Submit a 90% design of the Barrier Wall and Groundwater Extraction System to DEQ for review and approval.
March 15, 2023	Complete installation of, and commence operation of, the Barrier Wall and Groundwater Extraction System.

The Barrier Wall and Groundwater Extraction System shall include a barrier wall and extraction system as described in the following paragraphs.

- i. Chemours shall construct a barrier wall located between the facility and the Cape Fear River and Willis Creek that is designed and constructed to intercept the groundwater flow under the Facility in the area depicted on

Attachment 5 and generally consistent with the wall location and extent depicted on Attachment 5, that contributes to the Cape Fear River or Willis Creek. It is understood that the precise contours, locations, and structure of the barrier wall will be determined as part of the design, and will be subject to DEQ approval; and

- ii. Chemours shall construct an extraction system consisting of an adequate number of wells and/or interceptor trenches to pump groundwater at a rate and depth sufficient to prevent groundwater migration around, above, or under the barrier wall. The system shall be designed so that extracted groundwater shall be treated through a treatment system that removes PFAS compounds (as measured by concentrations of indicator parameters GenX, PMPA, and PFMOAA) at a minimum removal efficiency of 99%.
- iii. DEQ shall review the 60% design and the 90% design to determine whether such designs are consistent with the objectives of this Order, and shall use its best efforts to complete its review and notify Chemours whether each design is approved within 30 days after its respective submittal. If the design is not approved within 30 days, subsequent deadlines shall be extended by the time required for DEQ approval in excess of 30 days.
- iv. If Chemours determines that the Barrier Wall and Groundwater Extraction System is technically impracticable in light of geological and other site conditions that are unknown as of the date of this Agreement, Chemours shall propose by June 30, 2021 an alternate barrier or other containment system that reduces PFAS loading from groundwater flow from under the

Facility to the Cape Fear River and Willis Creek to the maximum extent possible, and that can be installed by March 15, 2023 (“alternative groundwater measures”). As part of the alternate barrier or other containment system, Chemours must meet the Long-Term Seep Remediation Objective as described in Paragraph 2(c) no later than June 30, 2022, including an ex situ capture and treatment system if necessary to meet this objective.

- v. To the extent the parties disagree about the technical practicability of the Barrier Wall and Groundwater Extraction System or the selection of any alternative groundwater measures, Chemours shall bear the burden of demonstrating to the Court that the Barrier Wall and Groundwater Extraction System is not technically practicable, and that its proposed alternative groundwater measures will reduce PFAS loading from groundwater flow from under the Facility to the Cape Fear River and Willis Creek to the maximum extent possible by March 15, 2023. Cape Fear River Watch and DEQ shall have the right to be heard in any such proceeding before the Court. Chemours shall not be relieved from any obligations in this paragraph except by agreement of the parties or court order.

- 4. Stormwater and Non-process Wastewater: Chemours shall complete the following measures to reduce PFAS loading from stormwater and non-process wastewater that discharges to the Cape Fear River through Outfall 002.

- a. *Monomers/IXM Capture and Treatment System to Reduce PFAS Loading from Stormwater:* By June 30, 2021, Chemours shall complete installation of, and

commence operation of, a system that captures and treats stormwater from the Monomers/IXM area at the Facility as such area is depicted on the map shown as Attachment 6.

- b. *Monomers/IXM Stormwater Sampling Plan:* By September 30, 2020, Chemours shall submit a stormwater sampling plan to DEQ for approval to quantify the effectiveness of the Monomers/IXM stormwater capture and treatment system in subparagraph 4(a).
- c. *Monomers/IXM Stormwater Reduction Target:* By September 30, 2021, Chemours shall submit a report to DEQ and Cape Fear River Watch demonstrating that the Monomers/IXM stormwater capture and treatment system consistently captures stormwater from the Monomers/IXM area in rain events up to one (1) inch within a 24-hour period and removes PFAS compounds (as measured by concentrations of indicator parameters GenX, PMPA, and PFMOAA) at a minimum removal efficiency of 99%. If Chemours does not make this demonstration, within thirty (30) days of receiving notice from DEQ, Chemours shall propose additional measures to be implemented upon a schedule approved by DEQ.
- d. *Additional measures to reduce PFAS loading:* Chemours shall complete the following additional measures to reduce PFAS loading to the Cape Fear River from stormwater and non-process wastewater in accordance with the following schedule:

<u>Date</u>	<u>Milestone</u>
July 1, 2020	Submit to DEQ an industrial Stormwater Pollution Prevention Plan (SWPPP); Chemours shall implement the SWPPP upon submittal to DEQ.
November 30, 2020	Complete investigation to determine whether DuPont non-contact cooling water is causing

	groundwater containing PFAS to infiltrate into the outfall channel
December 31, 2020, or such other date as is proposed by Chemours and approved by DEQ	If DuPont non-contact cooling water is causing significant groundwater infiltration, either (i) complete re-routing of DuPont non-contact cooling water (NCCW) to prevent infiltration of NCCW into the perimeter of unlined ditches in order to reduce perched zone groundwater head, or (ii) take other appropriate action as approved by DEQ to address the infiltration.
January 31, 2021	On an annual basis (i.e., once during each annual period) starting on January 31, 2021, Chemours shall inspect and remove accumulated sediment throughout the Non-Contact Cooling Water Channel of the Monomers area of the facility, and the Open Channel to Outfall 002.
April 30, 2021	Complete decommissioning and grouting of the full length of the terracotta pipe depicted in Attachment 7.
May 31, 2021	Complete investigation into significant remaining sources of PFAS loading into sampling locations 23A (manhole at the Terracotta Pipe) and 8 (wastewater treatment plant effluent), as identified in Chemours' Characterization of PFAS in Process and Non-Process Wastewater and Stormwater quarterly reports, and submit proposed remedial action to DEQ for approval. Chemours shall conduct such remedial action pursuant to a timeline approved by DEQ.

5. Effect on Consent Order Paragraph 12: Upon entry of this Addendum, the obligations set forth herein shall supplant and replace the requirements of Paragraph 12 (a), (b), (c), (d) and (f) in the original Consent Order.

6. Extension of Deadlines: Chemours may request and DEQ, after consultation with Cape Fear River Watch, may grant one or more requests for extensions of up to three months each for any deadline specified in this Addendum based on COVID-19 related delays. With any request for extension, Chemours shall provide documentation of the specific cause of the interruption, the role

of COVID-19 in causing the delay, and the expected duration of the delay. Chemours shall undertake and document all reasonable measures to minimize the duration of the delay.

7. Permits: Chemours shall submit timely and complete applications and take all other actions necessary to obtain any necessary permits or authorizations to carry out the requirements of this Addendum in a timely manner. In the event that Chemours is unable to obtain a permit in adequate time to allow compliance with the deadlines stated in this Addendum, such noncompliance shall not be considered a violation of this Addendum subject to enforcement provided Chemours demonstrates to the reasonable satisfaction of DEQ and Cape Fear River Watch that it exercised best efforts to timely fulfill its permitting obligations. In addition, DEQ must undertake best efforts to expeditiously process any and all necessary permit applications.

8. No Limitation on Obligations in Corrective Action Plan: Nothing in this Addendum shall be construed to limit Chemours' obligations with respect to the Corrective Action Plan required pursuant to Paragraph 16 of the Consent Order. Notwithstanding the foregoing, the actions taken under this Addendum and the associated loading reductions shall be directed to, and included in, the reductions to surface water as required in Paragraph 16(d) of the Consent Order, and when the Corrective Action Plan is approved by DEQ, the parties shall confer as to whether any further modifications to Paragraph 12 of the Consent Order as amended herein are appropriate to conform to or in light of the requirements set forth in the approved Corrective Action Plan. If the parties agree that such modifications are appropriate, they shall be jointly presented to the Court for approval. If there is not agreement on any proposed modifications, any party may present the matter to the Court for resolution.

9. Quarterly Reporting: In the quarterly progress reports submitted pursuant to Paragraph 28 of the Consent Order, Chemours shall summarize the work and activities undertaken and completed pursuant to the requirements set forth in this Addendum.

STIPULATED PENALTIES

10. Unless excused under Paragraph 32 of the Consent Order or as provided in this Addendum, Chemours shall pay, by certified check payable to the North Carolina Department of Environmental Quality, stipulated penalties according to the following schedule for failure to perform activities described in paragraphs 1-4:

Failure to complete construction of any interim seep remediation system at any seep in accordance with the schedule in Paragraph 2(a) and 2(b), or to complete construction of the stormwater treatment system in accordance with the schedule in Paragraph 4(a).	\$5,000/day for the first fourteen days; \$10,000/day thereafter until installation is complete
After installation of the Barrier Wall, failure to demonstrate the 95% PFAS mass loading reduction requirement in Paragraph 2(c).	\$500,000 for failure to meet the initial demonstration; \$100,000 for failure to meet any of the four subsequent demonstrations.
Failure to meet the deadline for installing the Barrier Wall and Groundwater Extraction System in accordance with Paragraph 3(b).	\$150,000 for failure to meet deadline; \$20,000/week until installation is complete
Failure to meet the 99% removal efficiency required in Paragraph 2(c), 3(b)(ii), or 4(c).	\$5,000 for the first four failures during any calendar year; \$10,000 for each failure thereafter
Failure to meet any other deadline or requirement, including failure to timely submit documents with all required components.	\$1,000/day for the first seven days; \$2,000/day thereafter

11. Unless otherwise provided herein, the provisions of the Consent Order shall apply to this Addendum.

This the 12th day of October, 2020.



Douglas B. Sasser
Superior Court Judge

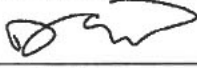
CONSENTED TO BY:

NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY

By: _____
Michael S. Regan
Secretary

By: _____
Francisco Benzoni
Special Deputy Attorney General

THE CHEMOURS COMPANY FC, LLC

By:  _____
David Shelton
Senior Vice President, General Counsel, and Corporate Secretary

By: _____
John Savarese
Counsel for Chemours

CAPE FEAR RIVER WATCH

By: _____
Kemp Burdette
Cape Fear Riverkeeper

By: _____
Geoff Gisler
Counsel for Cape Fear River Watch

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John Savarese
Counsel for Chemours

CAPE FEAR RIVER WATCH

By: Kemp M Burdette
Kemp Burdette
Cape Fear Riverkeeper

By: Geoff R Gisler
Geoff Gisler
Counsel for Cape Fear River Watch

CONSENTED TO BY:

NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY

By: Michael S. Regan 10-5-2020
Michael S. Regan
Secretary

By: Francisco Benzoni Date: 10-05-2020
Francisco Benzoni
Special Deputy Attorney General

THE CHEMOURS COMPANY FC, LLC

By: _____
David Shelton
Senior Vice President, General Counsel, and Corporate Secretary

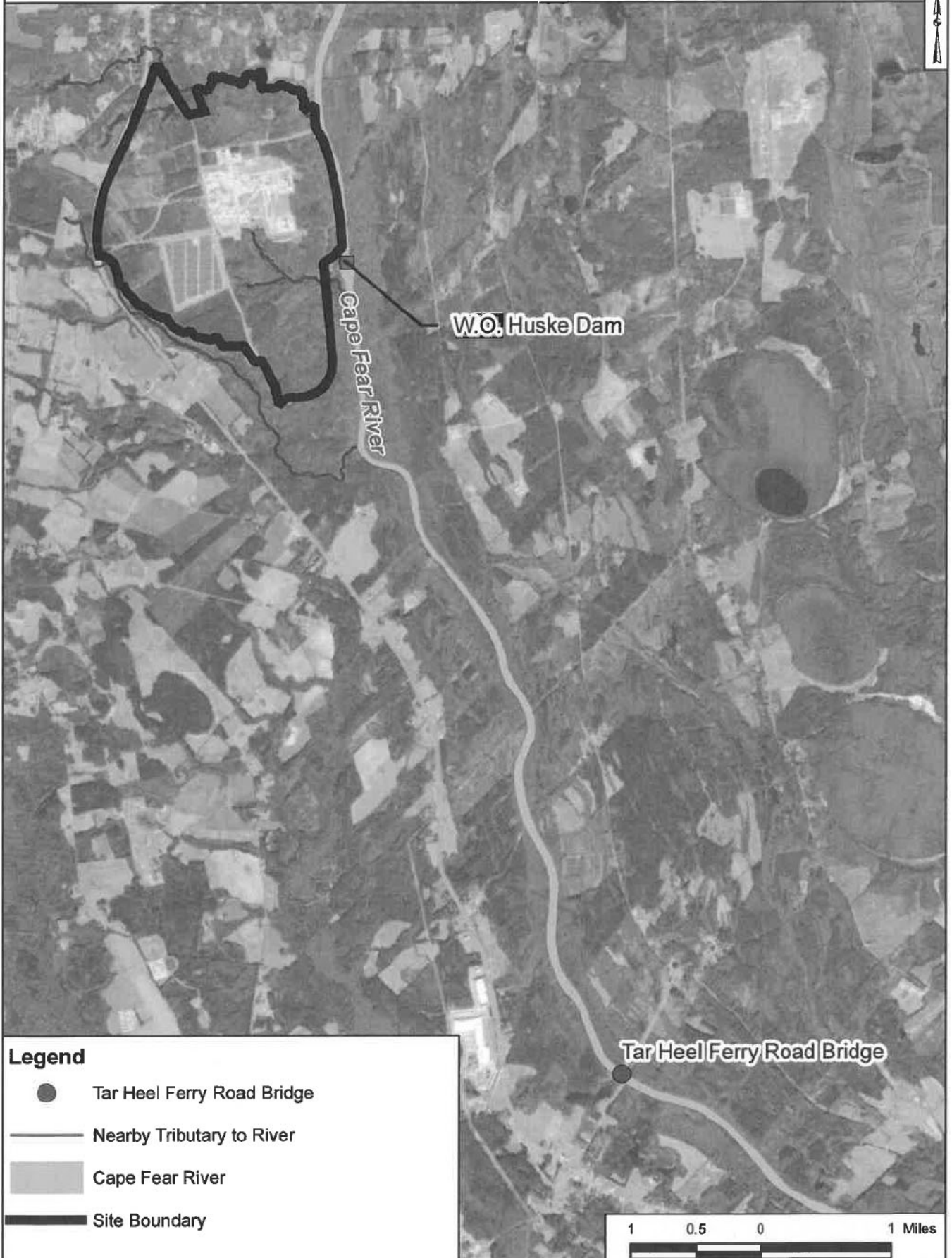
By: _____
John Savarese
Counsel for Chemours

CAPE FEAR RIVER WATCH

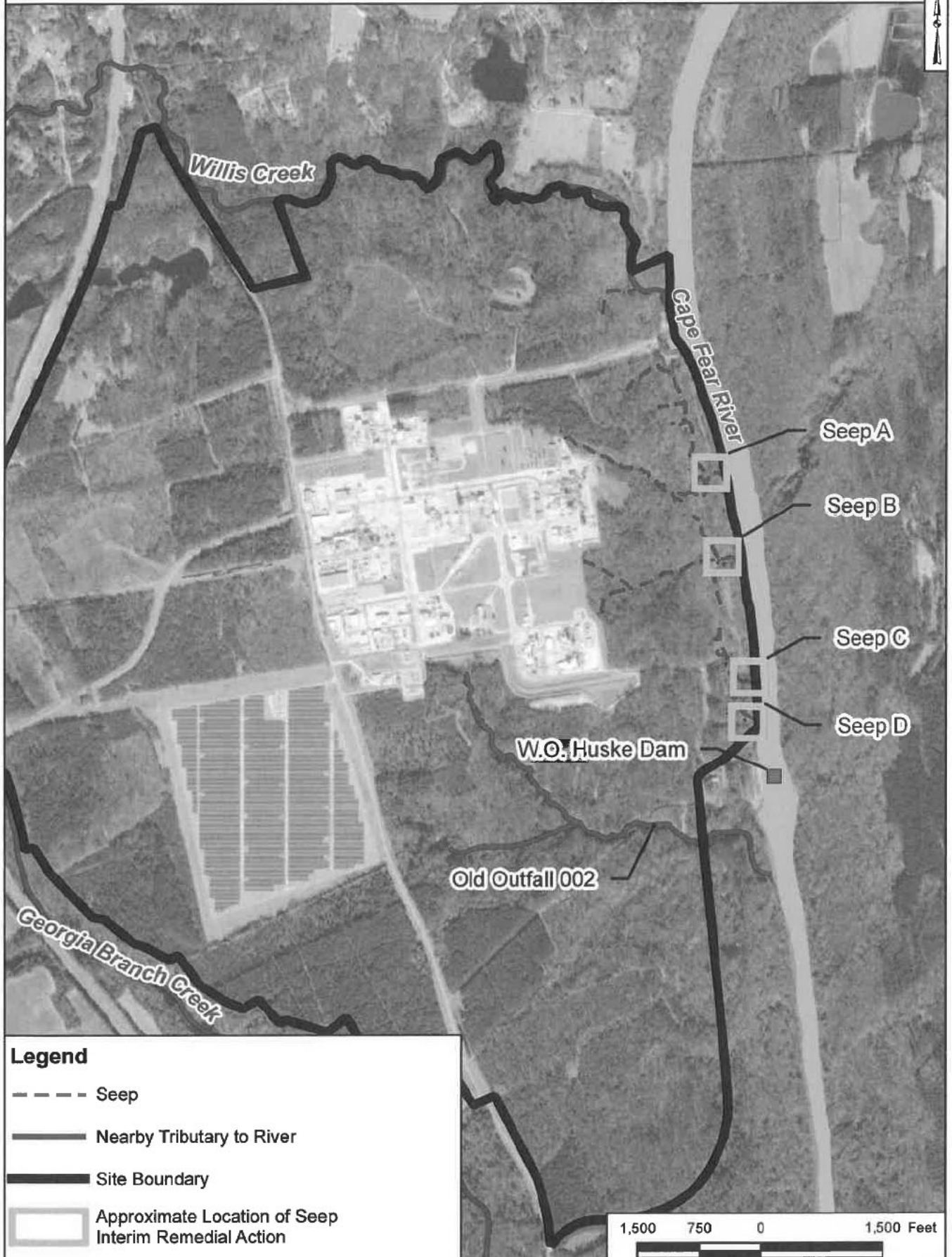
By: _____
Kemp Burdette
Cape Fear Riverkeeper

By: _____
Geoff Gisler
Counsel for Cape Fear River Watch

Attachment 1: Cape Fear River Sampling Location at Tar Heel Ferry Road Bridge



Attachment 2: Approximate Location of Seep Interim Remedial Actions



Attachment 3: Table 3+ SOP Compounds

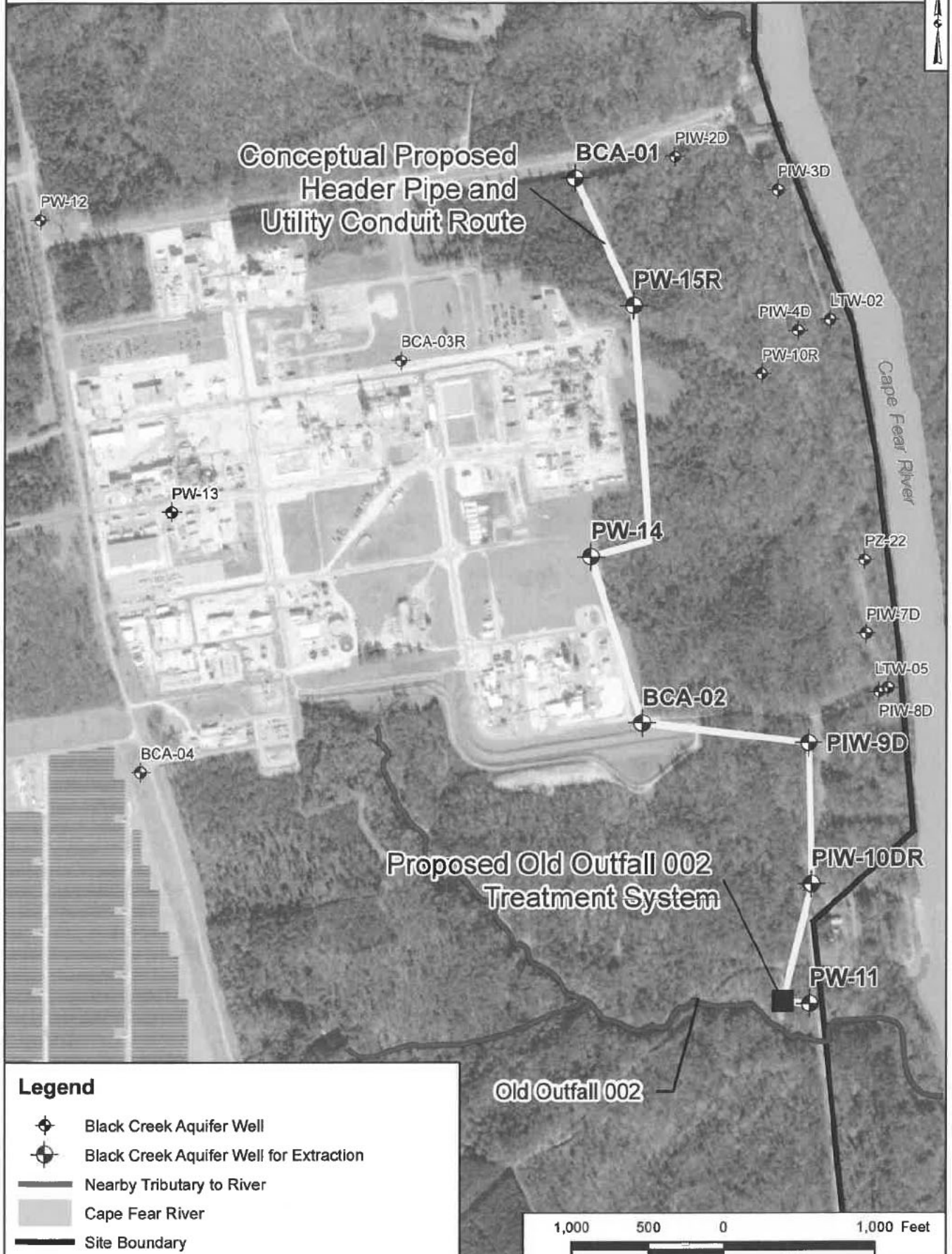
Common Name	Chemical Name	CASN	Chemical Formula
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6	C ₆ HF ₁₁ O ₃
PFMOAA	Perfluoro-2-methoxyacetic acid	674-13-5	C ₃ HF ₅ O ₃
PFODHxA	Perfluoro-3,5-dioxahexanoic acid	39492-88-1	C ₄ HF ₇ O ₄
PFO3OA	Perfluoro-3,5,7-trioxaoctanoic acid	39492-89-2	C ₅ HF ₉ O ₅
PFO4DA	Perfluoro-3,5,7,9-tetraoxadecanoic acid	39492-90-5	C ₆ HF ₁₁ O ₆
PFO5DA	Perfluoro-3,5,7,9,11-pentaaxadecanoic acid	39492-91-6	C ₇ HF ₁₃ O ₇
PMFA	Perfluoro-2-methoxypropionic acid	13140-29-9	C ₄ HF ₇ O ₃
PEPA	Perfluoro-2-ethoxypropionic acid	267239-61-2	C ₅ HF ₉ O ₃
PS Acid	Ethanesulfonic acid, 2-[1-[difluoro[(1,2,2-trifluoroethenyl)oxy]methyl]-1,2,2,2-tetrafluoroethoxy]-1,1,2,2-tetrafluoro-	29311-67-9	C ₇ HF ₁₃ O ₅ S
Hydro-PS Acid	Ethanesulfonic acid, 2-[1-[difluoro(1,2,2,2-tetrafluoroethoxy)methyl]-1,2,2,2-tetrafluoroethoxy]-1,1,2,2-tetrafluoro-	749836-20-2	C ₇ H ₂ F ₁₄ O ₅ S
R-PSDA	Pentanoic acid, 2,2,3,3,4,5,5,5-octafluoro-4-(1,1,2,2-tetrafluoro-2-sulfoethoxy)-	2416366-18-0	C ₇ H ₂ F ₁₂ O ₆ S
R-PSDCA	Ethanesulfonic acid, 1,1,2,2-tetrafluoro-2-[1,2,2,3,3-pentafluoro-1-(trifluoromethyl)propoxy]-	2416366-21-5	C ₆ H ₂ F ₁₂ O ₄ S
Hydrolyzed PSDA	Acetic acid, 2-fluoro-2-[1,1,2,2,3,3,3-hexafluoro-2-(1,1,2,2-tetrafluoro-2-sulfoethoxy)propoxy]-	2416366-19-1	C ₇ H ₃ F ₁₁ O ₇ S
NVHOS	1,1,2,2,4,5,5,5-heptafluoro-3-oxapentanesulfonic acid, or 2-(1,2,2,2-ethoxy)tetrafluoroethanesulfonic acid, or 1-(1,2,2,2-tetrafluoro-2-sulfoethoxy)-1,2,2,2-tetrafluoroethane	1132933-86-8	C ₄ H ₂ F ₈ O ₄ S
EVE Acid	2,2,3,3-tetrafluoro-3-[(1,1,1,1,2,3,3-hexafluoro-3-[(1,2,2-trifluoroethenyl)oxy]propan-2-yl)oxy]propionic acid	69087-46-3	C ₈ HF ₁₃ O ₄
Hydro-EVE Acid	2,2,3,3-tetrafluoro-3-[(1,1,1,2,3,3-hexafluoro-3-[(1,2,2,2-tetrafluoroethoxy)oxy]propan-2-yl)oxy]propionic acid	773804-62-9	C ₈ H ₂ F ₁₄ O ₄
R-EVE	Pentanoic acid, 4-(2-carboxy-1,1,2,2-tetrafluoroethoxy)-2,2,3,3,4,5,5,5-octafluoro-	2416366-22-6	C ₈ H ₂ F ₁₂ O ₅
PES	Perfluoro-2-ethoxyethanesulfonic acid	113507-82-7	C ₄ HF ₉ O ₄ S
PFECA B	Perfluoro-3,6-dioxahexanoic acid	151772-58-6	C ₅ HF ₉ O ₄
PFECA-G	Perfluoro-4-isopropoxybutanoic acid	801212-59-9	C ₁₂ H ₉ F ₉ O ₃ S

Abbreviations:

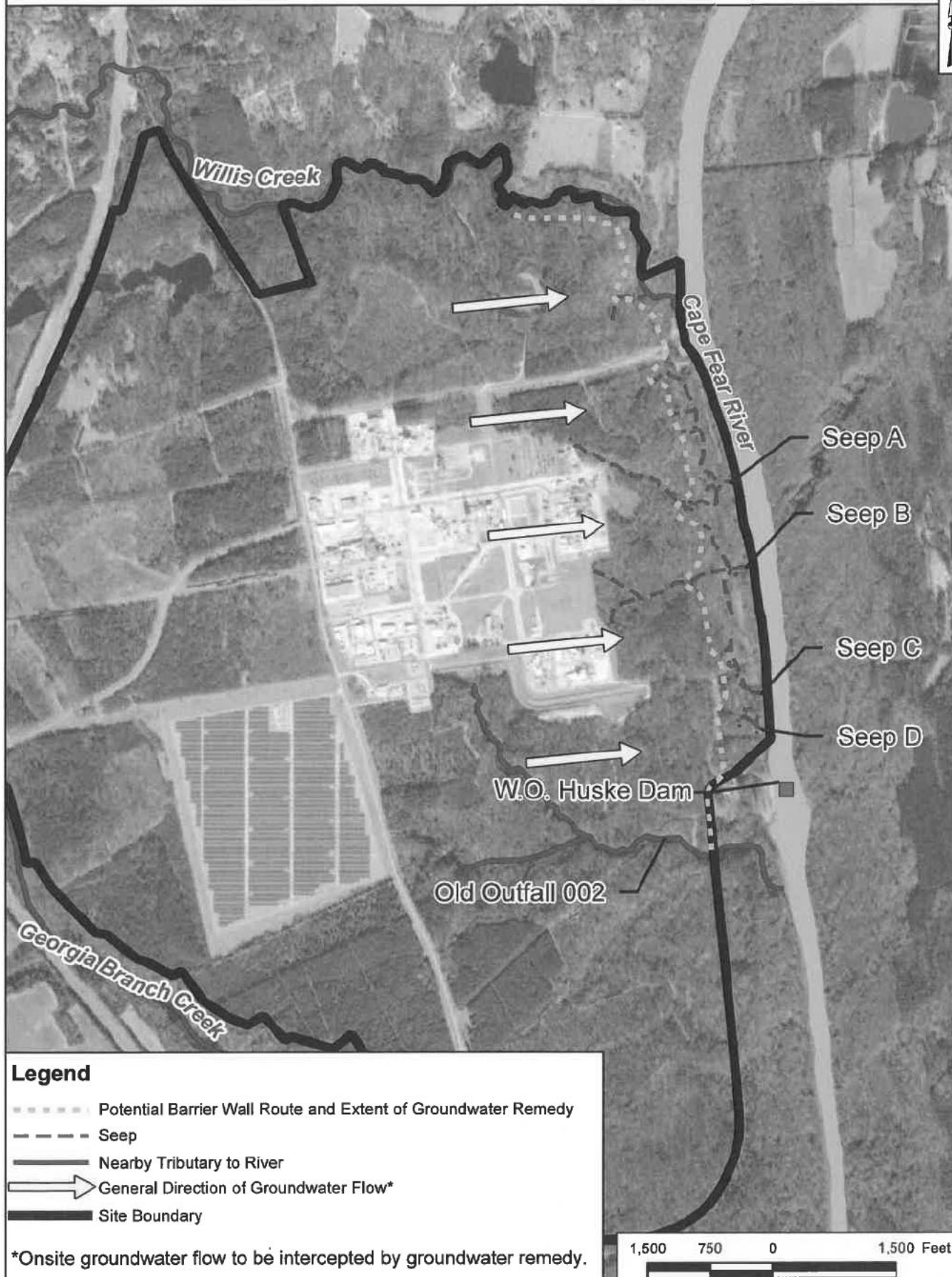
SOP - Standard Operating Procedure

CASN - Chemical Abstracts Service Number

Attachment 4: Extraction Wells and Conceptual Piping Route



Attachment 5: Potential Route and Extent of Groundwater Remedy



Attachment 6: Stormwater Treatment System Capture in Monomers/IXM



Legend



Drainage area in Monomers/IXM to
stormwater treatment system*

*Drainage area shown is approximate and may vary slightly based
on site drainage.

250 125 0 250 Feet

Attachment 7: Location of Terracotta Pipe to be Decommissioned

