SUMMARY OF REVISED PROPOSED CONSENT ORDER AND RESPONSE TO PUBLIC COMMENT

FEBRUARY 20, 2019

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

BACKGROUND 2

I. The Fayetteville Works Facility.....2

II. GenX and PFAS.....2

III. DEQ's Lawsuit in Bladen County 4

IV. DEQ's Investigation and Administrative Actions 4

V. Public Meetings 8

VI. Development of the Revised PCO 8

TERMS OF THE REVISED PROPOSED CONSENT ORDER 10

I. Summary of Terms 10

II. Description of Revisions.....16

RESPONSES TO COMMENTS 20

I. Summary of Responses to Comments 20

II. Detailed Responses to Comments.....27

EXECUTIVE SUMMARY

The lawsuit filed in Bladen County Superior Court by the North Carolina Department of Environmental Quality ("DEQ") against The Chemours Company FC LLC ("Chemours") seeks to address per- and polyfluoroalkyl substances ("PFAS") contamination in the Cape Fear River basin from Chemours' Fayetteville Works facility ("Facility").[1] On November 21, 2018, DEQ released a Proposed Consent Order ("PCO") for public notice and comment that required Chemours to take several significant measures to address contamination from the Facility. The PCO required Chemours to dramatically reduce its air emissions of GenX and other PFAS, ultimately controlling all PFAS emissions routed to control device called a thermal oxidizer by 99.99%. It also prohibited the discharge of any process wastewater from the Facility and required accelerated remediation of water flowing from the Facility to the Cape Fear River. The accelerated remediation includes remediation of contaminated groundwater, which is believed to be the most significant current source of PFAS contamination in the Cape Fear River. Additionally, the PCO required permanent replacement water supplies to parties with drinking water wells contaminated by PFAS from the Facility.

In response to public comments, the PCO has been revised and strengthened. While the Revised Proposed Consent Order ("Revised PCO") retains the provisions outlined above, it also addresses concerns raised by downstream communities by adding several provisions, including provisions requiring Chemours to characterize the Facility's contribution to PFAS at the raw water intakes of downstream public utilities, assess PFAS in the downstream sediment, and take additional measures to prevent PFAS in contaminated groundwater and soils at the Facility from entering the Cape Fear River. The Revised PCO also provides further protection for parties receiving permanent replacement water supplies by, for instance, requiring Chemours to flush the plumbing for parties who receive public water or whole house filtration systems, as well as to replace previously installed water treatment systems as required by DEQ.

This Summary of Revised Proposed Consent Order and Response to Public Comment includes the following sections:

- Background: This section includes a description of the Facility and the PFAS (including GenX) that come from the Facility, a summary of DEQ's investigation, lawsuit, administrative actions (as well as the impacts of these actions on PFAS emissions and discharges), and public meetings, as well as a synopsis of the development of the revised PCO.
- Terms of the Revised Proposed Consent Order: The section provides a summary of the terms of the Revised PCO and a description of revisions reflected in the terms of the Revised PCO.
- Responses to Comments: This section includes both a summary of responses to comments as well as more detailed responses to comments.

[1] State of North Carolina ex rel., Michael S Regan v. The Chemours Company FC, LLC, 17 CVS 580 (Bladen County).

BACKGROUND

I. The Fayetteville Works Facility

Since June of 2017, DEQ has been leading a State investigation into the presence of GenX and other PFAS in surface waters, soil, groundwater, air, and public and private drinking water in the Cape Fear region. A substantial portion of this contamination has been linked to the Facility. The Facility is a chemical manufacturing plant with manufacturing areas operated by three separate companies, including Chemours. Until July 2015, the Facility was owned by Chemours' predecessor, the E. I. DuPont de Nemours & Company, Inc. ("DuPont").

The Facility has historically discharged wastewater, non-contact cooling water, and stormwater into the Cape Fear River pursuant to National Pollutant Discharge Elimination System ("NPDES") Permit No. NC003573. The Facility has also operated various sources of air emissions and air pollution control technology pursuant subject to Air Quality Permit No. 03735T43.

The portion of the Facility operated by Chemours produces multiple chemical products. The Chemours' Fluoromonomers/Nafion® Membrane Manufacturing Area produces, among other products, Chemours Nafion® Membrane and Polymer Dispersions, HFPO monomers and vinyl ether monomers. The Chemours Polymer Processing Aid ("PPA") Manufacturing Area produces a polymer processing aid known as "GenX."

II. GenX and PFAS

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. "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, convert to GenX in the presence of water. These chemicals are collectively referred to herein as "GenX Compounds." In addition to being manufactured as a product, GenX Compounds are generated at the Facility as byproducts or intermediaries in connection with other manufacturing processes in the Fluoromonomers/Nafion® Membrane Manufacturing Area.

GenX Compounds fall within a family of chemicals known as per- and polyfluoroalkyl substances or "PFAS," which are commonly used in the manufacture of nonstick coatings and for numerous other purposes. Several other PFAS identified in surface water and groundwater near the Facility have also been traced to the Facility's current manufacturing processes. These include certain perfluoroalkyl ether carboxylic acids ("PFECAs") and perfluoroalkyl ether sulfonic acids ("PFESAs"). PFESAs and PFECAs may also be referred to in this document as "ether PFAS."

Other PFAS present in the environment have been traced to the Facility as well and may be related to manufacturing processes which are no longer carried out at the Facility. These PFAS are also believed to originate from other sources. These so-called "long-chain"[2] PFAS can be divided into two groups: (1) long-chain perfluoroalkyl carboxylic acids ("PFCAs") with eight or more carbon atoms such as perfluorooctanoic acid ("PFOA" or "C8") and (2) perfluoroalkane sulfonates ("PFSAs") with six or more carbon atoms such as perfluorohexane sulfonic acid ("PFHxS") and perfluorooctane sulfonic acid ("PFOS"). These long-chain PFAS may also be

[2] "Long-chain" and "short-chain" refers to the number of carbon atoms, or the carbon chain length, in PFAS molecules.

referred to in this document as "non-ether PFAS."

GenX is a product that was developed by DuPont to replace PFOA. In January 2006, the United States Environmental Protection Agency ("EPA") launched a "PFOA Stewardship Program" because of concerns about the impact of PFOA and other long-chain PFAS on human health and the environment, including concerns about their persistence, presence in the environment and in the blood of the general U.S. population, long half-life in humans, and developmental and other adverse effects in laboratory animals.

On January 28, 2009, EPA and DuPont entered into a Consent Order governing the manufacture of GenX under the Toxic Substances Control Act ("2009 Consent Order").[3] The 2009 Consent Order states that "EPA has concerns that [GenX] will persist in the environment, could bioaccumulate, and be toxic . . . to people, wild animals, and birds."[4] The 2009 Consent Order therefore required 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)."[5]

While no health-based numerical standards have been promulgated under federal or state law for GenX Compounds, the North Carolina Department of Health and Human Services ("DHHS") has established a drinking water provisional health goal for GenX at 140 ng/L. The provisional health goal represents the concentrations of GenX at which no adverse non-cancer health effects would be anticipated over an entire lifetime of exposure to the most sensitive populations.[6] The North Carolina Secretaries' Science Advisory Board ("SAB") has reviewed the DHHS health assessment and agreed with its findings.[7] On November 21, 2018, EPA released its own draft toxicity assessment for GenX and Perfluorobutanesulfonic acid ("PFBS") chemicals for public comment.[8] This draft toxicity assessment has not yet been finalized, though public comment closed on January 22, 2019.

EPA, under the Safe Drinking Water Act, has also established drinking water health

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[3] In the matter of DuPont Company, Premanufacture Notice Nos. P-08-508 and P-08-509, Consent Order and Determinations Supporting Consent Order (Jan. 28, 2009) available at http://ftpcontent4.worldnow.com/wect/Sanitized%20Consent%20Order%20P08-0508%20and%20P08-0509.pdf.

[4] Id. at vii.

[5] Id. at 36. The EPA has recently issued a Notice of Violation to Chemours in relation to the Toxic Substances Control Act. DEQ did not bring its claims under this statute, which is administered by EPA, and the Notice of Violation does not require alteration of the terms of the Revised PCO.

[6] Questions and Answers Regarding North Carolina Department of Health and Human Services Updated Risk Assessment for GenX available at https://files.nc.gov/ncdeq/GenX/NC%20DHHS%20Risk%20Assessment%20FAQ%20Final%20Clean%20071417%20PM.pdf.

[7] Secretaries' Science Advisory Board, Review of the North Carolina Drinking Water Provisional Health Goal for GenX (Aug. 29, 2018) available at https://files.nc.gov/ncdeq/GenX/SAB/SAB-GenX-Report-draft-08-29-2018.pdf.

[8] EPA, GenX and PFBS Draft Toxicity Assessments https://www.epa.gov/pfas/genx-and-pfbs-draft-toxicity-assessments.

advisories for two long-chain PFAS—PFOA and PFOS—at a combined concentration of 70 ng/L.[9] An EPA health advisory is non-enforceable and non-regulatory. It provides technical information to state agencies and other public health officials on health effects, analytical methodologies, and treatment technologies associated with drinking water contamination. EPA's health advisory level for PFOA and PFOS is calculated to provide a margin of protection for all Americans throughout their lives from adverse health effects resulting from exposure to PFOA and PFOS in drinking water.

III. DEQ's Lawsuit in Bladen County Superior Court

On September 7, 2017, DEQ filed a Verified Complaint, Motion for Temporary Restraining Order, and Motion for Preliminary Injunctive Relief against Chemours, alleging various violations of North Carolina's surface water and groundwater laws relating to the release of GenX and other PFAS into the environment. On September 8, 2017, the court entered a Partial Consent Order, which required Chemours to continue certain measures to prevent the discharge of GenX into surface waters and to commence additional measures to prevent the discharge of wastewater containing other PFAS. Despite these measures, GenX and other PFAS continued to be present in elevated levels in Chemours' wastewater. In addition, DEQ expanded its investigation to focus not only on Chemours' process wastewater but also on Chemours' air emissions, which DEQ suspected were linked to the presence of PFAS in groundwater offsite.

On April 10, 2018, DEQ served Chemours with a Verified Amended Complaint and Motion for Preliminary Injunctive Relief supplementing the original Complaint with new information and additional alleged violations. The Amended Complaint sought an order requiring Chemours to cease and abate its violations of North Carolina's surface waters and groundwater laws, including violations of North Carolina's groundwater rules caused by Chemours' emissions of PFAS into the atmosphere.

IV. Administrative Actions Relating to the Facility

In addition to filing the Complaint and Amended Complaint, DEQ has taken numerous administrative actions relating to the Facility. These actions include the issuance of several notices of violation ("NOVs"), permitting actions relating to Chemours' air quality permit and NPDES permit, as well as other administrative actions to address groundwater contamination. DEQ has required extensive testing of emissions sources to quantify air emissions. DEQ has also taken multiple actions to ensure that households with wells contaminated by PFAS have been given access to clean water.

a. Division of Water Resources

On September 5, 2017, based on its investigation into the release of PFAS from the Facility into the Cape Fear River, the Division of Water Resources ("DWR") sent Chemours a letter providing 60 days' notice of DWR's intent to suspend Chemours' NPDES Permit. Despite Chemours' diversion of additional process wastewater for offsite disposal, DEQ continued to detect elevated levels of GenX at Chemours' primary outfall (i.e., Outfall 002) and in the Cape Fear River.

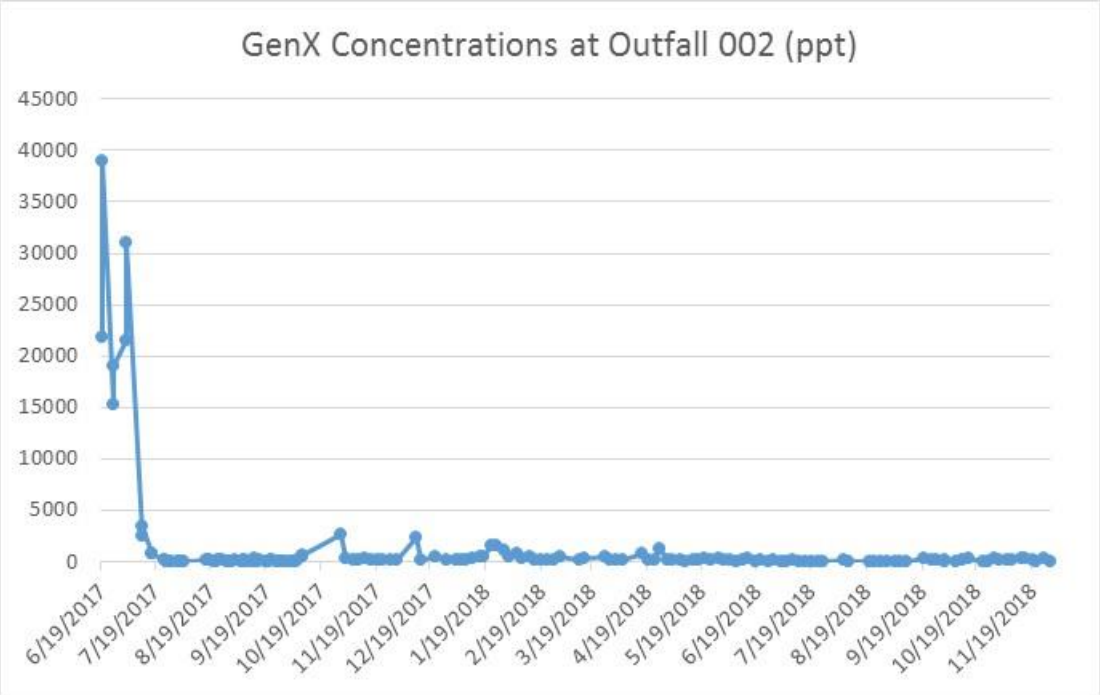
[9] EPA, Drinking Water Health Advisories for PFOA and PFOS, https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos.

On November 3, 2017, DWR staff conducted an inspection of the Facility. Based on this inspection, DWR documented that on October 6, 2017, an unreported spill at the Facility resulted in elevated concentrations of GenX at Outfall 002 and in the Cape Fear River. On November 13, 2017, DEQ issued a Notice of Violation and Intent to Assess Civil Penalties to Chemours for failing to report this spill in violation of its NPDES permit.

Effective November 30, 2017, DWR partially suspended Chemours' NPDES permit, prohibiting Chemours from discharging any process wastewater from Chemours' manufacturing processes into the Cape Fear River.

As a result of DWR requiring Chemours to cease its discharge of process wastewater, there have been dramatic reductions in the concentrations of GenX in Chemours' discharge.

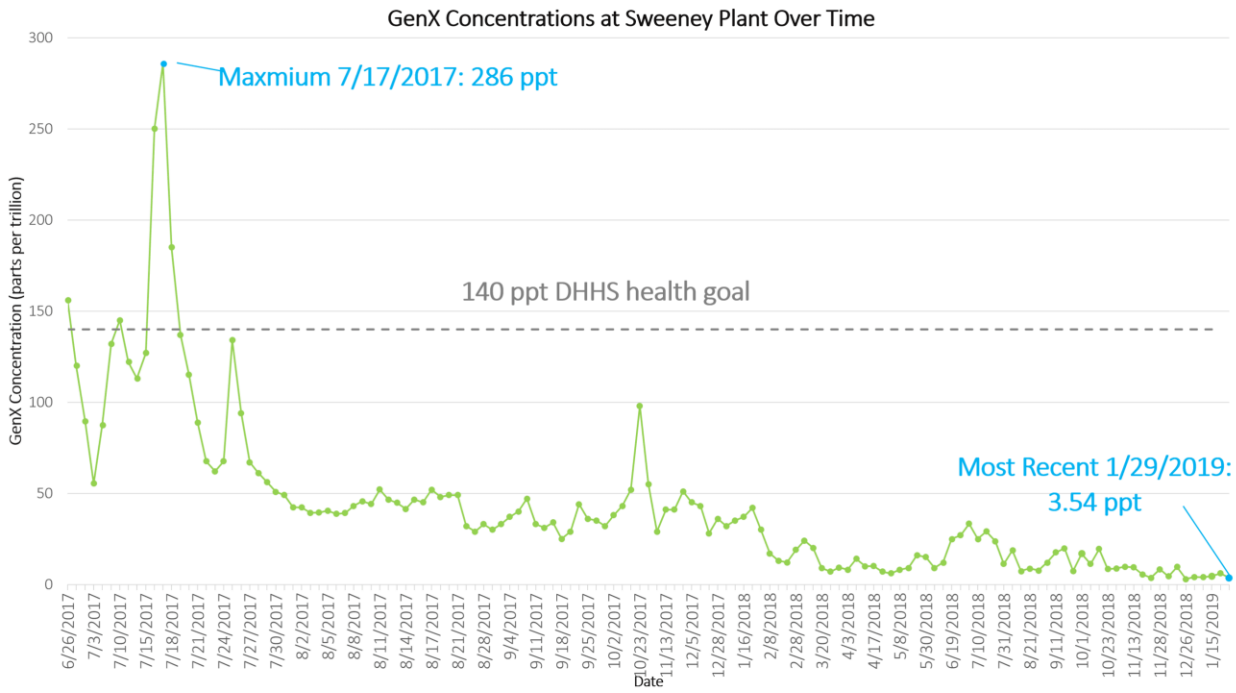
Figure 1.[10]



Similarly, there have been dramatic reductions in the concentrations of GenX in the finished water of downstream public utilities such as the Cape Fear Public Utility Authority.

[10] NCDEQ, GenX Sampling Sites, Download Sampling Results Spreadsheet, https://deq.nc.gov/news/hot-topics/genx-investigation/genx-sampling-sites (last visited Feb. 18, 2019).

Figure 2.[11]



In fact, the reductions are even more dramatic than those depicted in Figure 2 because on June 22, 2017, GenX was measured in finished water from CFPUA in concentrations as high as 1100 ng/L.[12] Thus, from June 2017 to the most recent data shown on Figure 2, concentrations of GenX finished water from CFPUA have been reduced by well over 98%.[13]

DWR staff have collected hundreds of samples at the Facility, in order to independently assess reductions of PFAS throughout the plant and ultimately at its discharge to the Cape Fear River. DWR continues to investigate the source of residual contamination at the site that may be contributing to the presence of PFAS in the Cape Fear River.

b. Division of Waste Management

The Division of Waste Management ("DWM") has also undertaken an investigation of groundwater contamination caused by the Facility. This investigation has included analysis of onsite groundwater sampling which led DEQ to require Chemours to take interim measures to control sources of groundwater contamination at the Facility. DWM has also led the investigation into contamination of offsite drinking water wells as well as the effort to ensure that residents with

[11] CFPUA, Emerging Contaminants, GenX History, https://www.cfpua.org/761/Emerging-Compounds (last visited Feb. 18, 2019).

[12] NCDEQ, GenX Sampling Sites, Download Sampling Results Spreadsheet, https://deq.nc.gov/news/hot-topics/genx-investigation/genx-sampling-sites (last visited Feb. 18, 2019).

[13] DEQ, GenX Sampling Sites, https://deq.nc.gov/news/hot-topics/genx-investigation/genx-sampling-sites (last visited Feb. 18, 2019).

contaminated wells are supplied with replacement drinking water supplies.

In August 2017, DWM directed Chemours to conduct groundwater sampling at the Facility, including sampling for GenX. Since this time, Chemours has collected multiple sets of samples from monitoring wells at the site, which show extensive PFAS contamination of groundwater beneath the site. On September 6, 2017, DWR and DWM jointly issued Chemours a Notice of Violation and Notice of Intent to Enforce for Chemours' violation of groundwater rules at the Facility.

On February 13, 2018, DWM issued a Notice of Violation requiring the company to immediately take measures to control sources of PFAS groundwater contamination. The notice directed the company to implement immediate measures, including but not limited to:

- Excavate, treat or control all stormwater and wastewater conveyance ditches;
- Remove, treat or control other known sources that could be causing further contamination;
- Clean potentially contaminated equipment and capture any resulting wastewater for offsite disposal; and
- Reduce or eliminate air emissions that are contributing to groundwater contamination.

In addition to evaluating onsite groundwater contamination, from September 2017 through the present, DWM has overseen extensive sampling of offsite groundwater, including sampling of an expanded set of PFAS for homes adjacent to Chemours and for the homes that are part of the granular activated carbon ("GAC") pilot program. To date, wells at 837 offsite locations have been tested for GenX contamination and over 80 wells have been tested for the expanded set of PFAS.

DWM has also overseen a pilot study of GAC whole-household treatment units to remove PFAS from well-water. This evaluation of treatment units is ongoing and, as noted, includes sampling an expanded set of PFAS, which will help to determine maintenance needs of these systems and to confirm water system quality at point of use. In response to community input, DWM has also sampled additional media for PFAS, including surface water in recreational lakes around the Facility, fish tissue, sediment and soil.

c. Division of Air Quality

Because Chemours' air emissions are a likely source of offsite groundwater contamination, the Division of Air Quality ("DAQ") has required Chemours to conduct testing of its process operations to quantify the level of GenX Compounds in its air emissions since October 18, 2017. Prior to that point, Chemours had not tested its air emissions for GenX. DAQ required the Facility to develop verifiable test methodology on an accelerated basis. Extensive testing has been required by DAQ, and staff have been on site on approximately 50 separate days over 17 weeks from 2018 into early 2019. In conjunction with its efforts to quantify emission rates through stack testing, DAQ has undertaken measures to determine the fate of GenX Compounds emitted from the Chemours facility in the environment through sampling of rainwater.

DAQ's analysis of rainwater data, meteorological data, process operational data, and groundwater data led DEQ to conclude that Chemours' air emissions were causing violations of groundwater standards. Therefore, on April 6, 2018, DAQ sent a letter notifying Chemours of DAQ's intent to modify Chemours' air quality permit to prohibit emissions of GenX Compounds

or, upon an adequate demonstration from Chemours, incorporate into the permit the necessary conditions to ensure that Chemours' emissions do not result in unlawful concentrations of GenX Compounds in groundwater.

In response to DAQ's actions, Chemours undertook several interim measures to reduce air emissions from the Facility, including installation of carbon adsorber units to control certain process emissions and indoor fugitive emissions from the Facility. DAQ also required Chemours to implement an enhanced leak detection and repair program to minimize fugitive leaks. DAQ has consistently sampled rainwater around the Facility to track the potential contribution of air emissions to groundwater contamination. Since the installation of the carbon adsorber units in May of 2018, DAQ has seen a decline in GenX deposition rates. This trend is expected to continue as emissions are further reduced by control measures required by DEQ at the Facility, including installation of additional control technology in December 2018.

V. Public Meetings

DEQ has hosted seven public meetings regarding the Facility in Bladen, Cumberland and Robeson Counties. DWM, DWR, and DAQ have participated in these meetings along with DHHS in order to share information with the public and to answer questions. Meetings were held on the following dates:

- September 14, 2017 in St. Pauls, NC to discuss DEQ's initial plans to test private well water for PFAS;
- October 5, 2017 in Hope Mills, NC to help residents understand private well test results and to answer questions;
- December 14, 2017 in Hope Mills, NC to provide departmental updates on the Chemours investigation and to discuss private well data;
- February 1, 2018 in Dublin, NC to provide updates from all DEQ divisions and DHHS on the Chemours response;
- May 29, 2018 in St. Pauls, NC to provide updates on drinking water well results and to provide surface water and rainwater results;
- August 30, 2018 in Elizabethtown, NC to provide DEQ and DHHS updates on the Chemours investigation; and
- December 11, 2018 in Dublin, NC where updates on surface water testing and whole house filtration system testing were provided.

DEQ also participated in the EPA community meeting on PFAS that was held in Fayetteville on August 14, 2018.

VI. Development of the Revised Proposed Consent Order

On June 11, 2018, DEQ put a draft proposed order out to public notice and sought public comments. Over the course of the next several months, DEQ's investigation continued. DEQ also engaged in discussions with Chemours regarding measures that would be necessary to address the claims raised in DEQ's Amended Complaint which go beyond the relief initially sought by DEQ in its draft proposed order.

During this time, Cape Fear River Watch also entered into the discussions between DEQ and Chemours. 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 Cape Fear 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."

On November 21, 2018, DEQ, Chemours and Cape Fear River Watch reached the agreement that is embodied in the Proposed Consent Order ("PCO"). DEQ put the PCO out to public notice on November 21, 2018. On December 21, 2018, DEQ extended the public comment period by seventeen days until January 7, 2019.

DEQ received approximately 380 comments regarding the PCO. Of these comments, more than 200 were supportive of the PCO. DEQ also received numerous comments that raised concerns regarding various provisions in the PCO. In response to these comments, DEQ has made several changes to the PCO which have been agreed to by Chemours and Cape Fear River Watch. These changes have been incorporated into the Revised Proposed Consent Order ("Revised PCO") that DEQ now seeks to have entered by the Superior Court.

TERMS OF THE REVISED PROPOSED CONSENT ORDER

The Revised PCO contains provisions designed to address all sources of PFAS contamination from the Facility based on currently available information, including air emissions, surface water contamination, soil, and groundwater contamination.[14] The Revised PCO only releases claims for civil penalties and injunctive relief that have been or could have been brought based on information known to DEQ at the time of the lodging of the original consent order. The Revised PCO thus preserves claims that fall outside the scope of injunctive relief and civil penalties as well as claims based on new information. DEQ views the Revised PCO as one step in DEQ's overall strategy to address PFAS contamination in the Cape Fear River Basin. This section contains a comprehensive description of the substantive terms of the Revised PCO as well as a description of the revisions that occurred between the PCO and the Revised PCO.

I. Summary of Terms

Section C ("Compliance Measures – Air Emissions") requires Chemours to take measures to reduce emissions of all PFAS including GenX Compounds as well as to install certain control technology improvements to achieve these goals. These measures are necessary to ensure that Chemours' air emissions no longer contribute to violations of North Carolina's groundwater standards. The provisions in this section provide that:

- Chemours has installed a new piece of control equipment called a "packed bed scrubber," referred to as the "Second Phase Scrubber" in the Revised PCO, to control air emissions from the Vinyl Ethers North area of the Facility on an interim basis. DEQ expects that the new scrubber will not only control emissions of GenX Compounds, but will also control, at a similar level, the emissions of other PFAS currently found in contaminated surface water and groundwater. Due to the technological infeasibility of conducting inlet testing of the Second Phase Scrubber, the efficiency of the Second Phase Scrubber cannot be determined in isolation from the other control technologies that Chemours is required to implement to reduce air emissions at Vinyl Ethers North, such as the original scrubber and a carbon adsorber unit. Therefore, to ensure on an ongoing basis that the Second Phase Scrubber is achieving emissions reductions required by the Revised PCO, emissions reductions will be tracked using outlet emissions testing, and emissions will be inventoried and reported to DEQ on a monthly basis. This requirement will allow DEQ to take action if DEQ determines that Chemours is not on track to achieve the emissions reductions required under the Revised PCO. (As described in paragraph 8 below, the emission reduction targets of 82% for October 2018-October 2019 and 92% for January 2019-December 2019 remain unchanged from the original PCO). [¶ 7]

- Chemours has routed emissions from the new Second Phase Scrubber into another piece of control equipment called a "carbon adsorber unit" as another interim step to control air emissions while Chemours works to install a thermal oxidizer unit. The carbon adsorber unit is required to control emissions of GenX Compounds from the new scrubber at an

[14] This summary is intended to provide a non-technical summary of the terms of the Revised PCO and is not a substitute for the actual terms of the Revised PCO or any order entered by the court.

efficiency of 93%. As with the new scrubber, DEQ expects that the carbon adsorber unit will not only control emissions of GenX Compounds, but will also control emissions of other PFAS currently found in contaminated surface water and groundwater near the Facility. Chemours has provided preliminary data to DEQ that of initial testing of the carbon adsorber unit that indicates that it operates with a control efficiency of approximately 93.9%. [¶ 7]

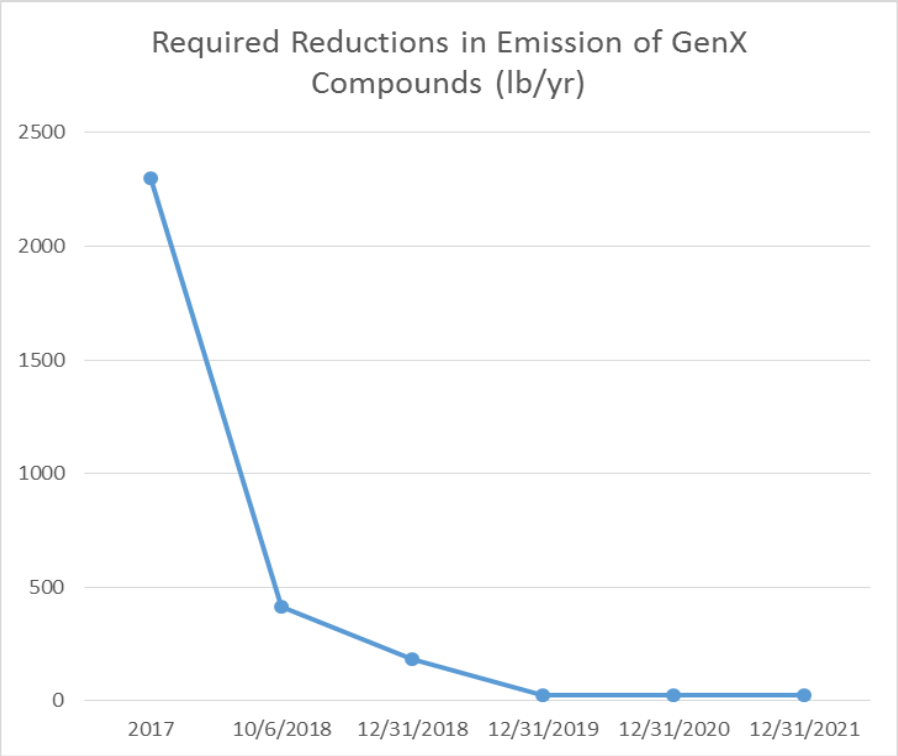
- Chemours must install a thermal oxidizer by the end of 2019 that will control all PFAS air emissions routed to the thermal oxidizer at an efficiency of 99.99%. "Efficiency" in this context is a measure of the amount of PFAS removed from emissions that enter the thermal oxidizer. [¶ 7]

- Chemours must reduce Facility-wide annual emissions of GenX Compounds from a 2017 baseline level in three stages: (1) beginning on October 6, 2018, annual emissions must be reduced by 82%; (2) beginning on December 31, 2018, annual emissions must be reduced by 92%; and (3) beginning on December 31, 2019, annual emissions must be reduced by 99%. To ensure ongoing compliance with the 82% and 92% emissions reduction targets, Chemours will be required to submit monthly emissions inventory reports that summarize monthly emissions, cumulative emissions, and projected emissions for the remainder of the annual compliance period. This requirement will allow DEQ to take action if DEQ determines that Chemours is not on track to achieve the emissions reductions required under this paragraph. [¶ 8]

- Chemours must adhere to various disclosure requirements relating to PFAS emissions from the Facility. Chemours has an ongoing duty to disclose to DAQ any identified previously undisclosed PFAS and emissions rates for those PFAS as well as any new process or production that may lead to the addition of previously undisclosed PFAS. Chemours must also provide test methods and lab standards for such PFAS. [¶ 9]

As a result of these measures, air emissions of GenX compounds and other PFAS will be virtually eliminated as compared to prior emissions (see Figure 3).

Figure 3.



Section D ("Compliance Measures – Surface Water") contains multiple provisions to address PFAS contamination in the Cape Fear River and reduce PFAS contamination in downstream drinking water intakes. Specifically, the provisions in this section provide that:

- Chemours is prohibited from discharging any process wastewater from its manufacturing areas into the Cape Fear River. This prohibition lasts until such time as DEQ issues a permit authorizing such discharge with appropriate limits. This provision does not commit DEQ to issuing such a permit or specify what the terms of such a permit might include. [¶ 10]

- Chemours must fully characterize PFAS that are present in process wastewater, non-process wastewater and stormwater at its Facility. Chemours must conduct non-targeted analysis to identify PFAS that have not yet been identified, and develop test methods and lab standards for such compounds. This provision will put DEQ in a better position to evaluate the sources of contamination at the site and determine how best to address them moving forward. [¶ 11]

- Chemours must submit an analysis of the Facility's contributions of PFAS to the raw water intakes of downstream public utilities. This study will put DEQ and downstream public utilities in a better position to identify the relief necessary to address PFAS contamination reaching downstream communities. [¶ 11.1]

- Chemours must develop and implement a study to characterize the nature and extent of PFAS contamination in sediment in the Cape Fear River originating from the Facility. [¶ 11.2]

- In order to reduce PFAS contamination in the Cape Fear River and in downstream water intakes on an accelerated basis, Chemours must implement a two-year plan demonstrating "maximum reductions in PFAS loading from the Facility" to surface waters. The term "PFAS loading" refers to the mass of PFAS originating from the Facility and reaching surface waters. The plan may also be implemented over a five-year period if significantly greater reductions can be achieved over a longer implementation period. The plan must be supported by interim benchmarks to ensure continual progress. Chemours' plan must be agreed to by DEQ and the Cape Fear River Watch. If Cape Fear River Watch or DEQ believe the plan is inadequate, they can seek relief in the court to require additional actions. The plan must also be shared with downstream public utilities who will have the opportunity to meet with DEQ staff to discuss the plan. [¶ 12]

- In addition to the plan to reduce PFAS loading, Chemours must take specific measures to reduce PFAS contamination flowing from Old Outfall 002, a significant source of ongoing contamination at the site due to contaminated groundwater that infiltrates Old Outfall 002 and flows into the Cape Fear River. Data collected at the site indicates that Old Outfall 002 could be responsible for up to 9 ppt of GenX in the Cape Fear River under certain conditions. Under the Revised PCO, Chemours must either capture and treat water flowing from near the mouth of Old Outfall 002 at an efficiency of 99%, or complete a project approved by DEQ and Cape Fear River Watch that achieves equivalent or better reductions of PFAS loading from Old Outfall 002 to the Cape Fear River. [¶ 12]

- Chemours must fund and facilitate an initial set of toxicity studies on several short-chain ether PFAS, where there are currently a dearth of health data. These studies are important for understanding the health impacts of these newer generation PFAS. Chemours must submit a plan containing the details of the proposed health studies for DEQ's approval. DEQ's toxicologists will evaluate the adequacy of the plan prior to approval and DEQ expressly reserves its right "to seek additional health studies or information." [¶ 14]

- Chemours must provide notice to downstream public utilities in the event of an upset at the Facility or other operating condition that may cause a discharge of GenX above the DHHS drinking water heath goal of 140 ng/L or any material increase in the concentration of any PFAS in the Facility's discharge. Chemours must also post a description of the event on a publicly available website within 24 hours of the event. [¶ 15]

Section E ("Compliance Measures – Groundwater") requires Chemours to conduct a comprehensive assessment of soil and groundwater contamination and to engage in certain remedial activities. Specifically:

- Chemours must submit a corrective action plan for DEQ approval in compliance with North Carolina's groundwater rules. The corrective action plan will be put out to public notice by DEQ. Chemours must implement the corrective action plan in accordance with a schedule approved by DEQ. At a minimum, the corrective action plan must reduce the amount of PFAS entering the Cape Fear River from groundwater by at least 75%. This 75% reduction is only a backstop provision and compliance with the groundwater rules

may ultimately result in greater reductions. As test methods and lab standards are developed for additional PFAS, the corrective action plan shall be amended to address groundwater contamination from those PFAS. [¶ 16]

- Chemours has completed lining of ditches and sedimentation ponds at its Facility to prevent additional water from entering into the contaminated groundwater beneath the Facility. [¶ 17]

- Chemours must submit a comprehensive assessment of on- and offsite groundwater contamination that evaluates; (i) sources of contamination; (ii) hazards to health and safety; (iii) receptors and exposure pathways; (iv) the vertical and horizontal extent of soil and groundwater contamination; and (v) geological and hydrogeological features influencing such contamination. [¶ 28]

Section F ("Compliance Measures – Replacement Drinking Water Supplies") requires Chemours to provide replacement water supplies for parties with wells contaminated by PFAS on a schedule set forth in the Revised PCO. Under these provisions:

- Chemours must provide public water or a whole-building filtration system to any party with a drinking water well contaminated by GenX above 140 ng/L or any applicable health advisory, whichever is lower (households may also opt for reverse osmosis systems or decline replacement water). [¶ 19]

- Chemours must provide reverse osmosis drinking water systems for any party with a contaminated well with concentrations of certain PFAS above 10 ng/L or combined concentrations of certain PFAS above 70 ng/L. For public buildings such as schools or government buildings, reverse osmosis systems must be provided at each drinking fountain and sink or through another equally effective system approved by DEQ. [¶ 20]

- Chemours must fund sampling of private wells out to ¼ mile beyond any well with test results showing certain PFAS concentrations above 10 ng/L and conduct retesting of contaminated wells on an ongoing basis. [¶ 21]

- Chemours must provide the results of private well testing to affected parties within seven days of receiving such testing. [¶ 22]

- Chemours must provide bottled water to affected parties until replacement drinking water is provided. [¶ 23]

- Chemours must submit a compliance plan to DEQ that outlines how Chemours will meet its obligations under this section. The plan must address testing of wells, flushing of water supply plumbing and, as necessary, replacement of previously installed water treatment systems (such as water softeners), testing of finished water, and filter maintenance. DEQ will establish a process for addressing citizen complaints. The plan must provide that in the event a replacement drinking water system does not function properly, or effectively as determined by DEQ, Chemours must implement a plan approved by DEQ to provide an alternative source of drinking water. Chemours will be required to maintain filtration

systems for at least 20 years or until the levels of certain PFAS in groundwater drops below applicable health standards, whichever is longer. [¶ 24]

Section G ("Other Compliance Measures") describes other compliance measures that Chemours must complete, including development of a method for measuring Total Organic Fluorine in air emissions and process wastewater and a study of the fate and transport of PFAS in air, surface water and groundwater. This section also provides that DEQ may request split samples and that DEQ retains its authority to take independent samples and observe sampling events. [¶¶ 25.1-28]

Section H ("Compliance Measures - Public Information") requires Chemours to hold public meetings when changes at its Facility occur that result in new PFAS being used or released into the environment or there is a material increase in the release of existing PFAS. This section also requires Chemours to post all submissions under the Revised PCO to a publicly accessible website. [¶¶ 29-30]

Section I ("Penalties and Investigation Costs") requires Chemours to pay a civil penalty of $12 million plus $1 million in investigation costs as well as stipulated penalties for any noncompliance with the terms of the Revised PCO. The $12 million penalty set forth in this section will be the largest single penalty collected in the history of DEQ. [¶¶ 31-33]

Section J ("Release and Reservation of Rights"), in general terms, provides that the Revised PCO will release and resolve claims for injunctive relief and civil penalties under water quality and air quality laws that could have been brought by DEQ based on information known by DEQ at the time of the lodging of the original PCO. It does not release claims based on other environmental laws, claims that fall outside the scope of claims for injunctive relief and civil penalties, or claims based on information not known to DEQ at the time of the lodging of the original PCO. Nor does it release claims necessary to address imminent threats to public health and the environment. Nor does it release Chemours from any liability it may have to any third party arising from Chemours' actions. The Revised PCO specifically provides that it does not release 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.); (v) 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.). The Revised PCO also does not release claims against DuPont. [¶¶ 34-36]

Section K ("Intervention of Cape Fear River Watch") states that the parties consent to the intervention of Cape Fear River Watch, which will have authority to enforce certain terms in the Revised PCO. It also states that Cape Fear River Watch will dismiss certain lawsuits against DEQ and Chemours as part of this settlement. [¶¶ 37-40]

Section L ("Miscellaneous") contains various other provisions relevant to the legal effect of the Revised PCO and how it is to be implemented. It identifies the individuals that will receive

submissions under the Revised PCO and describes the procedures for facilitating public comment on the Revised PCO. It also provides that the Revised PCO will remain in force until all requirements of the Revised PCO have been performed, provided that after January 1, 2023, individual provisions may be terminated under certain limited circumstances. [¶¶ 41-52]

II. Description of Revisions

The Revised PCO contains multiple changes that were made following DEQ's review of public comments.

Revisions to Section C ("Compliance measures – Air Emissions")

- DEQ revised paragraph 7(a) and 7(b) of the Consent Order to reflect that Chemours has completed the installation of the Second Phase Scrubber and the Vinyl Ethers North Carbon Adsorber Project. DEQ has also removed the demonstration of control efficiency testing on the Second Phase Scrubber because it has been determined that testing at the inlet to the Second Phase Scrubber is not technologically feasible. Instead, DEQ will ensure that emissions reductions from the Second Phase Scrubber (i.e., 82% reduction in emissions of GenX Compounds facility-wide) are achieved using a different method, which is specified in revised paragraph 8(a) (described below).

- DEQ revised paragraph 8(a) of the Consent Order to require Chemours to demonstrate compliance with the 82% annual emissions reduction using the procedure specified in paragraph 8(b). This procedure requires a robust emissions testing regime to measure the emissions rate for each product that Chemours produces. These emission rates will be used in combination with hours for operation and emissions factors to establish GenX emissions rates for each product campaign.

- In order to ensure that Chemours remains on track to meet its emission reduction targets throughout the year, DEQ added a new paragraph 8(d). This paragraph requires that, to provide ongoing assurance of compliance with the interim emissions reductions required under paragraphs 8(a) and 8(b), Chemours must submit an inventory of emissions of GenX Compounds from all sources on a monthly basis. The inventory must include (1) a detailed summary of emissions during previous calendar month; (2) cumulative emissions to date during applicable annual compliance period; and (3) projected emissions for the applicable annual compliance period. This monthly tracking will allow DEQ or Cape Fear River Watch to take action in the event of a threatened violation of the annual emissions limits set forth in paragraphs 8(a) and 8(b) to prevent an emissions exceedance from occurring.

Revisions to Section D ("Compliance Measures - Surface Water")

- DEQ added new paragraph 11.1, "Characterization of PFAS Contamination in Downstream Raw Water Intakes," which requires Chemours to analyze the Facility's contribution of PFAS to raw water intakes of downstream public utilities.

- DEQ added new paragraph 11.2, "Characterization of PFAS in River Sediment," which requires Chemours to develop and implement a plan for analyzing the nature and extent of PFAS contamination in river sediment originating from the Facility.

- The title of paragraph 12 was changed from "Prevention of PFAS Loading to Surface Waters" to "Accelerated Reduction of PFAS Contamination in the Cape Fear River and

Downstream Water Intakes" in order to more clearly communicate the requirements of this paragraph.

- Paragraph 12(a) was modified to clarify that the purpose of this paragraph is to reduce concentrations of PFAS in the Cape Fear River and in the downstream raw water intakes of public utilities. This paragraph was also modified to require that the plan developed under this paragraph be supported by benchmarks to ensure continuous progress in the reduction of PFAS contamination to the Cape Fear River. The paragraph was also modified to require transmittal of the proposed plan to downstream utilities and to allow downstream utilities to meet with DEQ staff to share their feedback on the plan. Any reductions in PFAS loading from paragraph 12(e) can be taken into account in the plan required in paragraph 12(a).

- Paragraph 12(c) was modified to provide that DEQ will consult with Cape Fear River Watch prior to approving Chemours' contractor.

- Paragraph 12(e) was modified to increase the reductions that would be achieved from measures taken with respect to Old Outfall 002. The PCO required Chemours to capture water at Old Outfall 002 at a location identified as Option A on Attachment A of the PCO, which is near the headwaters and has a flow of approximately 70 gallons/minute. DEQ has revised this paragraph because greater reductions in PFAS loading from Old Outfall 002 can be achieved by capturing water for treatment in Old Outfall 002 at a location (identified as Option B in Attachment A) that is closer to the Cape Fear River where the flow is approximately 400-500 gallons/minute. The reduction in the mass of PFAS entering the Cape Fear River is potentially three to four times greater at the Option B location compared with the Option A location. Under the terms of the current paragraph 12(e), and subject to necessary permit approvals and conditions, Chemours must either capture water flowing in Old Outfall 002 at or near the Option B location and treat it at an efficiency of 99%, or implement a plan that is at least as effective in reducing PFAS loading from Old Outfall 002. To allow for permitting and installation of a treatment system that can accommodate this greater volume, DEQ has moved the date of compliance for paragraph 12(e) to September 30, 2020, though Chemours must complete monthly surface water sampling at Old Outfall 002 and submit these sampling results to DEQ by September 30, 2019. Chemours must also complete pilot scale testing of treatment equipment by September 30, 2019.

- Paragraph 12(f) was modified to require implementation within 30 days of any amendment of the consent order or other resolution related to paragraph 12.

- Paragraph 14 was modified to address misconceptions regarding the types of health studies required under paragraph 14. These changes are for clarification only.

- Based upon the addition of new paragraphs 11.1 and 11.2, the deadlines for completion of all elements of Section D have been adjusted so that the due dates are six months from entry of the Revised PCO.

Revisions to Section E ("Compliance Measures - Groundwater")

- Paragraph 16 was modified to require that the draft corrective action plan be put out for public notice and that DEQ provide at least 30 days for public comment. The provision also provides that DEQ shall consider any written comments received prior to approving the corrective action plan. In addition, language was added to this paragraph stating, "As test methods and lab standards are developed for additional PFAS, the corrective action plan shall be amended to address those PFAS."

- Paragraph 18 was modified to provide that DEQ's approval of Chemours contractor shall occur after consultation with Cape Fear River Watch. This paragraph was also modified to require identification of groundwater seeps contributing to surface water contamination.

Revisions to Section F ("Compliance Measures - Replacement Drinking Water")

- Paragraph 20 was modified to require public buildings, in addition to residential buildings, to receive either reverse osmosis systems at all drinking water fountains and sinks or another equally effective system for provision of drinking water as approved by DEQ. This paragraph was also modified to allow DEQ to approve the use of a single reverse osmosis system to filter water from more than one sink where the results are the same or better than use of multiple reverse osmosis systems.

- Paragraph 23 was modified to require that parties whose wells have were previously tested and found to qualify for permanent replacement water shall receive bottled water as soon as practicable and no later than thirty days after entry of the Revised PCO.

- Paragraph 24(a) was modified to require Chemours to flush drinking water supply plumbing (including hot water heaters) and, as necessary, to replace previously installed water treatment systems (such as water softeners) for households receiving replacement water supplies under paragraph 19 and to test finished water for parties receiving filtration systems under the Revised PCO. This paragraph was also modified to require Chemours to maintain filtration systems for a minimum of 20 years or until such time as Chemours demonstrates that each PFAS in Attachment C is below an applicable health advisory, whichever is later.

- Paragraph 24(c) was added to provide that, if a system does not function properly or effectively, Chemours must submit a plan to address the problem for DEQ's approval, and implement the approved plan.

Revisions to Section G ("Other Compliance Measures")

- New paragraph 25.1 provides that DEQ may request split sampling and states that DEQ retains its authority to both observe sampling and take independent sampling.

Revisions to Section J ("Release and Reservation of Rights")

- New paragraph 35.1 clarifies that other entities such as DuPont are not released for any liability for their actions.

- Paragraph 36 was modified to clarify that the Consent Order does not release 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.); (v) 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.).

Other Revisions:

- Paragraph numbers have been modified throughout the document to reflect new paragraph numbers where appropriate.
- Some deadlines in the Revised PCO have been modified primarily to account for the passage of time between when the PCO was put out to public notice and the Revised PCO finalized.
- For clarity, references to the "lodging of the proposed consent order" have been changed, where appropriate, to the "lodging of the original proposed consent order on November 26, 2018."
- Paragraph 48 was revised to reflect that the PCO has gone out to public notice and has been revised in response to public comment.
- Corrections of typographical errors and other minor non-substantive corrections were made throughout the document.

RESPONSES TO COMMENTS

I. Summary of Responses to Comments

DEQ received approximately 380 comments regarding the PCO, of which more than 200 were supportive. In addition to these supportive comments, DEQ received detailed comments that raised concerns regarding various provisions in the PCO. Within these comments there were three recurring central concerns: (1) that the PCO does not adequately address the concerns of downstream communities who rely on the Cape Fear River as a source of drinking water or the concerns of downstream public utilities charged with providing clean water to those communities; (2) that the Replacement Drinking Water Provisions in the PCO do not provide an adequate remedy for parties whose wells have been contaminated by PFAS from the Facility; (3) that the Civil Penalty set forth in the PCO is inadequate. DEQ provides responses to these three concerns in this section and provides written responses to individual comments in the next section of this document.

How the Revised PCO addresses the concerns of downstream users:

A central goal of the Revised PCO is to reduce exposure of downstream communities to PFAS contamination originating from the Facility. DEQ has seen that stopping PFAS contamination at the source is an extremely effective way of removing PFAS from downstream drinking water intakes. As a result of DEQ's actions to date, the concentration of GenX in drinking water provided by CFPUA has decreased from over 1000 ng/L in 2017 to less than 10 ng/L in recent sampling. See Figure 2 above.

The Revised PCO seeks to prevent PFAS from reaching the Cape Fear River in multiple ways:

- Paragraph 12(a) of the Revised PCO, "Accelerated Reduction of PFAS Contamination in the Cape Fear River and Downstream Water Intakes," requires Chemours to achieve maximum reductions in PFAS loading (i.e., the mass of PFAS) to the Cape Fear River on an accelerated basis. Within six months of entry of the Revised PCO, Chemours must submit a plan detailing how it will achieve such maximum reductions in a two-year implementation period (or up to five year period if significantly greater reductions can be achieved in a longer implementation period). This plan must address PFAS reductions from all sources, including groundwater—though it is addition to the groundwater corrective action plan required in current paragraph 16. There will be measures required throughout the implementation period to ensure continual progress toward maximum reduction of PFAS loading to the Cape Fear River. DEQ's experts in groundwater, surface water, and hydrogeology are well-equipped to evaluate any plan submitted by Chemours and ensure that it encompasses the maximum reductions that can be achieved on an accelerated basis. This process will be implemented under the supervision of DEQ and Cape Fear River Watch and will be subject to review by the Superior Court if DEQ or Cape Fear River Watch do not agree with Chemours proposal.

- In addition to the plan that must be carried out pursuant to paragraph 12(a), paragraph 12(e) of the Revised PCO requires Chemours to treat PFAS in water flowing from Old Outfall 002 at an efficiency of 99% or to implement an alternative that is just as effective at reducing PFAS loading from Old Outfall 002 to the river. Old Outfall 002 is currently believed to be a significant contributor of PFAS loading to the Cape Fear River. Current data indicates that Old Outfall 002 could be responsible for as much as 9 ng/L of GenX in the Cape Fear River, which would be almost completely eliminated by the measures required under paragraph 12(e).

- Paragraph 11 prohibits Chemours from discharging any process wastewater from Chemours' manufacturing areas into the Cape Fear River. This carries forward the substantial progress made by DEQ in reducing PFAS loading to the Cape Fear River through the partial suspension of Chemours' NPDES permit. See Figure 2 above. Because this requirement is now part of a judicially enforceable consent order, it can be enforced through the contempt powers of the court as well as stipulated penalties.

- Paragraphs 7-9 require dramatic interim reductions in PFAS air emissions and ultimately require Chemours to control all PFAS air emissions routed through a thermal oxidizer at an efficiency of 99.99%. The substantial elimination of PFAS from air emissions will prevent Chemours' air emissions from contributing to PFAS contamination in the Cape Fear River either directly through wet or dry deposition or indirectly through contamination of soils and groundwater.

While DEQ believes the PCO required significant measures to address downstream impacts, DEQ has made modifications to the PCO to address comments regarding the impacts on downstream communities. These changes include the following:

- DEQ added new paragraph 11.1, "Characterization of PFAS Contamination in Downstream Raw Water Intakes," which requires Chemours to analyze the Facility's contribution of PFAS to raw water intakes of downstream public utilities. This study will put DEQ and downstream public utilities in a better position to identify the relief necessary to address PFAS contamination reaching downstream communities.

- DEQ added new paragraph 11.2, "Characterization of PFAS in River Sediment," which requires Chemours to develop and implement a plan for analyzing the nature and extent of PFAS contamination in sediment originating from the Facility. This new paragraph will put DEQ in a better position to determine the extent to which PFAS at downstream raw water intakes is originating from river sediment that has accrued over time.

- DEQ changed the title of paragraph 12 to clarify that the purpose of the paragraph is to reduce PFAS impacts on downstream communities. Many commenters appeared to misunderstand some of the terminology used in the PCO. To attempt to clarify these issues, paragraph 12 is now titled "Accelerated Reduction of PFAS Contamination in the Cape Fear River and Downstream Water Intakes." Paragraph 12(a) also now states that its purpose is "to reduce PFAS contamination in the Cape Fear River and in the raw water intakes of downstream public water utilities on an accelerated basis." Paragraph 12(a) was

also modified to address commenters' request that any plan required under this paragraph be supported by interim bench marks to ensure that continual progress is made. The paragraph was also modified to ensure that downstream public utilities have an opportunity to provide feedback on the plan. The paragraph now requires Chemours to transmit its proposed plan to downstream utilities and requires DEQ to provide an opportunity for downstream utilities to meet with DEQ staff to discuss the plan. Paragraph 12(e) was modified to enhance the reductions that would be achieved from measures taken with respect to Old Outfall 002. Subject to necessary permit approvals and conditions, Chemours must either capture water flowing from Old Outfall 002 and treat it at an efficiency of 99%, or implement a plan that is as effective, or more effective at reducing PFAS loading from Old Outfall 002. This modification will reduce PFAS loading from Old Outfall 002 by potentially three to four times that which would have been required under the original PCO.

Several of the comments that DEQ received regarding the impact of the PCO on downstream communities reflected a misunderstanding regarding the effect of the PCO on any potential NDPES permit for the Facility. Some commenters believed that the PCO required DEQ to issue an NPDES Permit authorizing the discharge of process wastewater or otherwise limited DEQ's authority to impose appropriate conditions in issuing such a permit. This is not the case. The Revised PCO, like the PCO, prohibits Chemours from discharging process wastewater until DEQ issues an NPDES Permit authorizing such discharge and does not restrict DEQ's permitting authority.

Multiple commenters stated that downstream users were unfairly excluded from the replacement water supply provisions of the PCO. In this context, it is important to recognize the significant differences between groundwater contamination and surface water contamination. They are different problems that often involve different regulatory approaches. DEQ has seen that the most effective and expedient way of reducing concentrations of PFAS in the Cape Fear River is through source control. Figure 2 above underscores the dramatic effect of source control on GenX levels. This approach—controlling PFAS at its source—is precisely the approach adopted in the Revised PCO to address surface water contamination. However, this approach is often ineffective on its own for achieving timely reductions in pollution concentrations in groundwater, which moves much more slowly and interacts in complex ways with the subsurface. The PCO addresses the groundwater remediation requirements which will continue to reduce the loading of PFAS into the Cape Fear River, as the various remedial actions are undertaken.

The Revised PCO's comprehensive approach to providing replacement water supplies to parties with contaminated drinking water wells:

DEQ's goal through Section F of the Revised PCO, "Compliance Measures - Replacement Drinking Water Supplies," is to ensure that parties with wells contaminated by PFAS from the Facility receive permanent replacement water supplies either through the provision of public water or through filtration systems that effectively remove PFAS from drinking water. As result of this Revised PCO, any party with well water containing PFAS above 10 ng/L originating from the Facility will receive permanent replacement water supplies.

The Revised PCO takes a two-tiered approach for providing relief to parties with drinking water wells contaminated by PFAS originating from the Facility. The approach taken by DEQ in the Revised PCO substantially expands the relief that DEQ had initially crafted in a proposed order that was released for public comment on June 11, 2018. In that proposed order, DEQ would have sought to require Chemours to establish permanent replacement water supplies for every household with a water supply well contaminated by PFAS in exceedance of a DHHS health goal or an EPA health advisory level. Thus, under the proposed order, households with wells contaminated by GenX at concentrations above 140 ng/L would have received public water or filtration systems, but households with wells contaminated by many other PFAS would not have received relief. DEQ received several comments stating that this relief was too narrow and that DEQ should seek a remedy that addresses PFAS for which no health data is available. In addition, since June of 2018, DEQ has continued to review data relating to the prevalence of other PFAS in private drinking water wells and now has a broader understanding of this contamination.

Based on these comments and new information available to DEQ, DEQ expanded the eligibility for replacement drinking water supplies in the PCO. Those have been carried forward in the Revised PCO, which requires the provision of public water supplies, or under certain circumstances, whole-building filtration systems to parties with wells contaminated by GenX Compounds above 140 ng/L. These parties may alternatively opt to receive reverse osmosis systems for every drinking water sink in their building. The next tier requires Chemours to provide three under-sink reverse osmosis systems (or treatment at three sinks by fewer than three systems, provided that the finished water results are at least as good as with a single reverse osmosis system under each sink) to any party with a drinking water well contaminated by any PFAS on Attachment C in exceedance of 10 ng/L or aggregate concentrations of PFAS on Attachment C in exceedance of 70 ng/L. These thresholds do not represent health-based regulatory standards. Rather, this significant expansion of eligibility for permanent alternate water supplies represents a conservative approach ’laid out in the Revised PCO.

DEQ received comments raising questions and concerns regarding 10 ng/L as a threshold for provision of reverse osmosis systems. DEQ had multiple reasons for selecting 10 ng/L as a threshold for provision of reverse osmosis systems to affected parties. First, 10 ng/L has been recognized as the practical quantitation limit (“PQL”) for GenX and other PFAS using EPA Method 537. As reflected in North Carolina’s groundwater rules, the Amended Complaint, and multiple notices of violation issued by DEQ against Chemours, non-naturally occurring substances are not permitted in groundwater at concentrations above the PQL. See 15A NCAC 2L.0202(c). Second, 10 ng/L is the level at which DEQ has a high level of confidence that results can be consistently replicated across multiple laboratories. DEQ’s experience has shown that results below 10 ng/L show a higher probability of background interference, which can lead to inaccurate results. While DEQ believes that 10 ng/L is an appropriate threshold for purposes of the Revised PCO, 10 ng/L has not been adopted by DEQ or any agency in North Carolina as a health-based standard for PFAS. However, rather than wait for the development of a health-based regulatory standard, DEQ believes it is more prudent to take the conservative approach of requiring Chemours to provide clean drinking water to any party with reliably quantifiable concentrations of PFAS from the Facility in their drinking water.

DEQ also received comments raising questions and concerns regarding 70 ng/L as a threshold for provision of reverse osmosis systems. While DEQ believes that 10 ng/L provides an very conservative approach to ensuring that affected parties have access to replacement water supplies, DEQ also believes it was appropriate to require an aggregate limit to account for the combined concentrations of PFAS that may be detected below 10 ng/L individually. While DEQ believes that 70 ng/L is an appropriate threshold for purposes of the Revised PCO, 70 ng/L has not been adopted by DEQ or any other agency in North Carolina as a health-based regulatory standard for the PFAS listed on Attachment C.

DEQ received comments questioning the use of carbon filtration systems as one mechanism for providing replacement water supplies under the Revised PCO. According to EPA, activated carbon treatment is the most studied treatment for PFAS removal.[15] Studies and analyses by DEQ and other agencies and organizations indicate that carbon filtration can be effective at removing PFAS from drinking water when operated and monitored under appropriate parameters. DEQ initiated a granular activated carbon ("GAC") pilot study at six homes that are in close proximity to the Facility. The current DEQ data set includes 33 different long-chain and short-chain PFAS that are being analyzed in these filtration systems, and shows that GAC is effective over time in removing PFAS compounds from groundwater. The data for these systems are available on the DEQ website.[16] Under the test conditions of DEQ's pilot study of carbon filtration systems, 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. The Revised PCO gives DEQ authority to ensure that such systems are operated and monitored under appropriate parameters. Furthermore, under the Revised PCO, Chemours will be required to demonstrate the effectiveness of filtration systems. In the event that issues arise regarding the effectiveness or functioning of a filtration system for a particular household, such as loss of pressure, the Revised PCO gives DEQ authority to require Chemours to provide a remedy to address these issues.

DEQ received comments questioning DEQ's selection of under sink reverse osmosis systems as one mechanism for providing replacement water supplies under the Revised PCO. Studies by other agencies and organizations indicate that under sink reverse osmosis systems can be effective at removing PFAS from drinking water when operated and monitored under appropriate parameters, and provide practical treatment alternatives for drinking water systems. According to EPA, "high-pressure membranes, such as nanofiltration or reverse osmosis, have been extremely effective at removing PFAS. Research shows that these types of membranes are typically more than 90 percent effective at removing a wide range of PFAS, including shorter chain PFAS."[17] EPA has noted the appropriateness of this technology for PFAS treatment for homeowners. Pursuant to the Revised PCO, DEQ can ensure that such systems are operated and

[15] See EPA, Reducing PFAS in Drinking Water with Treatment Technologies, (Aug. 23, 2018) https://www.epa.gov/sciencematters/reducing-pfas-drinking-water-treatment-technologies.

[16] DEQ, GenX Investigation: Groundwater, https://deq.nc.gov/news/hot-topics/genx-investigation/groundwater.

[17] See EPA, Reducing PFAS in Drinking Water with Treatment Technologies, (Aug. 23, 2018) https://www.epa.gov/sciencematters/reducing-pfas-drinking-water-treatment-technologies.

monitored under appropriate parameters. In the event that issues arise regarding the effectiveness or functioning of a treatment unit with respect to a particular household, the Revised PCO requires Chemours to remedy such issues.

DEQ received several comments questioning the basis for DEQ's selection of the compounds listed on Attachment C. Attachment C is a list of ether PFAS known to have originated from the Facility's current manufacturing processes. The PFAS on Attachment C are also likely to be present in the highest concentrations as compared to non-ether PFAS. Additionally, the PFAS listed on Attachment C are those for which laboratory methods have been developed to allow for meaningful quantification. While there may be some non-ether PFAS in offsite wells, such PFAS are believed to predominantly consist of residuals from prior manufacturing processes and are present in far lower concentrations than those listed on Attachment C. In some cases, such PFAS may be present as a result of contamination from other sources. Based on currently available information, DEQ believes that the presence of the PFAS listed in Attachment C will serve as a surrogate for contamination of any PFAS from the Facility. As DEQ collects additional information regarding the presence of legacy PFAS not included on Attachment C in offsite wells, DEQ will consider whether further action is needed to address such contamination. The Revised PCO does not release claims that may ripen based on such new information, nor does it release claims that DEQ may have against entities other than Chemours responsible for such contamination.

Some commenters questioned why DEQ did not act directly under the legislation adopted by the General Assembly in the summer of 2018. Session Law 2018-5, N.C. Gen. Stat. § 143-215.2A, gave the Governor authority to direct DEQ to order the provision of replacement water supplies under certain circumstances. Unfortunately, the legal scope of this legislation is untested. Rather than delay replacement drinking water supplies with potentially protracted litigation with its attendant uncertainties, through the Revised PCO, DEQ has ensured that any person with a contaminated drinking water well in exceedance of 10 ng/L for any PFAS known to have originated from the Facility's current manufacturing processes (i.e., those PFAS listed in Attachment C) will receive replacement drinking water. In addition, the Revised PCO includes benefits that are not provided by the legislation, such as payment of twenty years of public water bills, payment of at least 20 years of maintenance for filtration systems, and a threshold for combined PFAS concentrations.

The Civil Penalty:

The $12 million dollar penalty in the Revised PCO will be the largest penalty collected in the history of DEQ, and is almost double the previous highs of $6.6 million and $7 million.

Additionally, this penalty does not address any violations that may be identified based on new information; it does not address any new or subsequent violations; it does not address penalties that may be assessed against other entities responsible for contamination; and it is in addition to any penalties that may be collected in the event that Chemours does not comply with the terms of the Revised PCO. Further, it is important to distinguish between a claim for civil penalties and a claim for damages to natural resources. This settlement does not encompass claims for damages

to natural resources and the release in the Revised PCO only applies to claims for civil penalties and injunctive relief.

DEQ received several comments comparing the civil penalty issued in this case to settlements of lawsuits relating to PFAS in other states. These comparisons are not appropriate for multiple reasons. Some commenters referenced a $670 million settlement involving a Chemours facility in West Virginia. That case, In re E.I. Du Pont De Nemours and Company C-8 Personal Injury Litigation, 2:13-md-2433 (S.D. Ohio), resolved thousands of claims in multi-district litigation brought by private plaintiffs for personal injury relating to PFOA. That settlement is not comparable to the negotiated civil penalty in this matter. DEQ does not have the authority to collect damages on behalf of private plaintiffs, and the resolution of this matter does not prevent any private plaintiffs from litigating against Chemours to recover such damages.

Nor is the penalty in this matter comparable to the $850 million settlement with 3M in Minnesota reached after over 8 years of litigation in State of Minnesota v. 3M Company, 27-CV-10-28862 (4th Jud. Dist.). That settlement was for damages to natural resources under Minnesota law. The Revised PCO does not address nor does it release any claims that DEQ or the State may have for natural resource damages under state or federal law. Because the 3M case was for damages to natural resources under Minnesota law, settlement funds in that case could be used to fund environmental projects in that state. As discussed below, any civil penalty funds collected by DEQ are required under North Carolina law to be used for public schools.

Some commenters stated that funds from the civil penalty should be used to compensate individuals for harms allegedly caused by Chemours' actions, should be allocated for environmental remediation, or should be used to support further research or other tasks to address contamination. The actions requested by these commenters are not permitted under North Carolina law. The North Carolina Constitution provides that "the clear proceeds of all penalties and forfeitures and of all fines collected in the several counties for any breach of the penal laws of the State, shall belong to and remain in the several counties, and shall be faithfully appropriated and used exclusively for maintaining free public schools." Article IX, Sec. 7. In N.C. Sch. Bds. Ass'n v. Moore, 359 N.C. 474, 508, 614 S.E.2d 504, 525 (2005), the North Carolina Supreme Court held that payments by an environmental offender to fund a supplemental environmental project in lieu of paying a portion of a civil penalty assessed by DEQ's predecessor, DENR, are subject to Article IX, Section 7. Therefore, DEQ cannot require that any portion of the $12 million civil penalty be allocated for environmental remediation projects or to compensate third parties.

This $12 million dollar penalty was negotiated in good faith, after consideration of the time, expense and litigation risk associated with the potential assessment of penalties against Chemours for the violations set forth in this action. DEQ believes $12 million is an appropriate resolution of DEQ's claims for civil penalties in connection with this matter.

II. Detailed Responses to Comments

A. Comments in Support of the Proposed Consent Order

Comment: Multiple commenters stated that they were supportive of the PCO. One commenter stated that he believes that the PCO has the potential to significantly decrease Chemours' contribution to the PFAS problem in the Cape Fear River. One commenter stated that the PCO identifies steps and time frames for specific action to stop the undesired release of PFAS chemicals into our environment. The comments in support of the PCO included approximately 200 form emails stating the following:

> *As someone who values clean drinking water and holding polluters accountable, I would like to voice my support for the proposed consent order that would force Chemours to stop all sources of PFAS contamination and provide clean drinking water to those North Carolinians whose drinking water has been compromised.*
>
> *I appreciate that the consent order identifies specific pollution sources such as contaminated runoff, groundwater leakage, rainwater and air emissions, requiring that each of these sources is addressed.*
>
> *It's true that there is more to be done to control the introduction of these emerging contaminants into our environment and to ensure safe drinking water for all North Carolinians. However, this consent order is an important first step, and should be finalized.*

Other commenters stated that they were generally supportive of the PCO but believed more needed to be done to address PFAS contamination in the Cape Fear River Basin in the future.

Response: DEQ appreciates the support of these commenters for DEQ's actions. DEQ agrees that the Revised PCO is just one step in DEQ's overall strategy to address PFAS contamination in the Cape Fear River Basin.

B. Compliance Measures - Air Emissions [Former and Current ¶¶ 7-9]

i. **Comment:** Two commenters stated that the PCO provides insufficient detail on the types and effectiveness of the pollution control equipment Chemours intends to install and that the PCO fails to adequately identify the process streams at the Facility that result in PFAS emissions and the quantities of historic, current, and expected PFAS emissions from each of the process streams at the Facility.

Response: The Revised PCO places the burden on Chemours to demonstrate that the control technology installed pursuant to the Revised PCO will control emissions to the levels required under the Revised PCO. DAQ is staffed with experts well-versed in air pollution control technology, who will be overseeing implementation of these provisions and Chemours' demonstration of compliance. The Revised PCO identifies a baseline level of GenX Compound emissions that must be reduced by specific percentages (specifically, the Revised PCO requires 82%, 92%, and 99% reductions from the baseline). Source testing is required to demonstrate compliance

on a specific timeline. In order to provide additional public confidence in the emissions reductions required under the Revised PCO, and allow DAQ to better ensure ongoing compliance with emissions reductions requirements in the Revised PCO, the PCO was modified to require Chemours to submit monthly inventories of GenX emissions during the applicable compliance period as well as projected emissions for the remainder of the compliance period. Changes to Chemours' air quality permit relating to the Revised PCO will be required to adhere to all permitting procedures required under North Carolina law. The draft air permit was put to public notice on January 18, 2019. As part of those procedures, permit application materials and other documents with additional information on control technology included in the permitting file are available for public review and comment. A description of historic quantities of PFAS emissions is beyond the scope of the Revised PCO.

ii. **Comment:** One commenter stated that the PCO provides terms and conditions for a major modification of Chemours air quality permit without undergoing the requisite procedures—including opportunities for public participation.

Response: The PCO does not constitute a major modification to an air quality permit. As stated in paragraph 41, the Revised PCO "is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation." Any modification to Chemours' air quality permit arising out of entry of the Revised PCO will adhere to all permitting procedures required under North Carolina law, including public notice and opportunities for public comment. Nothing in the Revised PCO will limit DEQ's ability to consider and, where appropriate, impose additional requirements in response to public comment in accordance with applicable law. Nothing in the Revised PCO limits the rights of third parties to participate in the permitting process in accordance with applicable law.

iii. **Comment**: One commenter stated that the PCO should require mandatory disclosure of all known, historic and future PFAS emissions and emissions rates as well as test methods and lab standards.

Response: Paragraph 9 of the Revised PCO requires Chemours to disclose any identified, previously undisclosed PFAS and emissions rates for those PFAS and any new process or production that may lead to the addition of previously undisclosed PFAS. It also requires Chemours to provide DEQ with any available analytical test methods or lab standards. By the end of 2019, all PFAS in process streams routed through a thermal oxidizer will be controlled at a level of at least 99.99%. Protocols for determining compliance with that control efficiency shall be subject to review and approval by DEQ. DEQ believes that the reporting and disclosure requirements are adequate to accomplish the goals of the Revised PCO. The Revised PCO does not limit any reporting, disclosure requirements, or stack testing requirements that may be required under Chemours' air quality permit.

iv. **Comment:** One commenter stated that there is no apparent rationale for applying efficiency standards to GenX Compounds only and omitting similar requirements for other process streams at the Facility that result in PFAS emissions. This commenter also stated that there is no apparent rationale for applying the reduction milestones or the emissions reporting requirements to GenX Compounds only. This commenter further stated that all PFAS emissions should be subject to reduction milestones, testing, and reporting. Other commenters similarly stated that reductions should be required for other PFAS and not just GenX.

Response: DEQ does not agree with the statement that efficiency standards are applied to GenX Compounds only. Paragraph 7 of the Revised PCO requires the control of 99.99% of all PFAS emissions routed through a new thermal oxidizer. This is a crucial provision of the Revised PCO which has the effect of nearly eliminating all air emissions of PFAS into the atmosphere. While it is true that the control technology required in paragraphs 7(a) and 7(b) apply to GenX Compounds, DEQ believes this is an appropriate and effective approach for multiple reasons. First, the control technologies required under these paragraphs – the packed bed scrubber and carbon adsorber project – will reduce other PFAS associated with surface water and groundwater contamination with a similar degree of efficiency as GenX Compounds. Second, the methodologies for testing most other PFAS in air emissions have not yet been developed. Rather than delay implementation of interim pollution abatement technologies until such test methods have been developed for such compounds, DEQ believes it is more prudent to require such measures be implemented as soon as possible while ultimately requiring that Chemours demonstrate control of all PFAS emissions through installation of the thermal oxidizer required under paragraph 7(c).

With respect to the commenter's question regarding DEQ's rationale for applying reduction milestones to GenX Compounds only, DEQ had multiple reasons for this approach. In addition to the reasons stated above, in order to measure overall pollution reductions from a baseline, DEQ needed existing emissions data to determine a baseline from which those emissions reductions will be measured. Because stack test methodologies for other PFAS had not have been developed prior to installation of the abatement technologies required under paragraphs 7(a) and 7(b), reliable baseline emissions levels are only available for GenX Compounds at this time. DEQ determined that it would be more prudent to require interim emissions reductions as quickly as possible rather than waiting for the development of stack test methodologies to establish baseline emission levels for other PFAS that will be controlled to a similar level of effectiveness by the technology that DEQ is requiring Chemours to install.

v. **Comment:** One commenter stated that Chemours had already committed to performing the improvements identified in the air emissions section of the PCO in

a response to prior DAQ correspondence. Therefore the commenter believes the PCO is not achieving additional air emissions reductions.

Response: DEQ does not agree with the commenter's characterization of the requirements of paragraphs 7-9. The measures described in the PCO are a direct result of the lawsuit brought by DEQ that is being resolved through the Revised PCO. Furthermore, the measures required under Revised PCO go beyond measures to which Chemours previously committed and the Revised PCO establishes an accelerated schedule for completing those measures. The Revised PCO also creates binding obligations that can be enforced through monetary penalties and the contempt powers of the court.

vi. **Comment:** One commenter stated that the thermal oxidizer required under paragraph 7 should be installed in three months as opposed to twelve months.

Response: Based on DAQ staff expertise and experience with air pollution control technology projects, and in light of the size, scope, and complexity of the project required under the Revised PCO, DEQ believes that December 31, 2019 is an aggressive and appropriate deadline for installation of the thermal oxidizer. DEQ is not aware of any basis for concluding that the thermal oxidizer referenced is capable of being installed in a three-month period.

C. Compliance Measures - Surface Waters [¶¶ 10-15]

i. **Comment:** One commenter stated that DEQ should not issue an NPDES permit authorizing discharge of process wastewater until all PFAS constituents are identified and adequate health studies conducted in order to determine safe levels of PFAS that ensure that discharges from the Facility will not cause violation of any state water quality standard in the Cape Fear River. Other commenters similarly stated that Chemours should not receive a permit authorizing the discharge of PFAS.

Response: The Revised PCO does <u>not</u> authorize the discharge of process wastewater – rather, it <u>prohibits</u> the discharge of process wastewater. As set forth in paragraph 10 of the Revised PCO, Chemours is prohibited from discharging process wastewater from Chemours' manufacturing areas until issuance of an NPDES permit under N.C. Gen. Stat. § 143-215.1 and 15A NCAC 2B. The Revised PCO does not require DEQ to issue an NPDES Permit to Chemours authorizing the discharge of such process wastewater, and, by agreeing to the Revised PCO, DEQ is not prejudging the issuance of any future NPDES permit. In the event that any such permit is issued in the future, DEQ will issue such permit in accordance with applicable law including the requirement that any NPDES permit ensure compliance with state water quality standards.

ii. **Comment:** One commenter stated that the concepts of technological and economic feasibility in the provision regarding prevention of PFAS loading (i.e.,

contamination to the Cape Fear River from groundwater) should be discarded or left to the reasonable discretion of DEQ and that the two-year period for implementation of reducing PFAS loading to the Cape Fear River is excessive. Other commenters also stated the economic feasibility should not be a component of paragraph 12 of the PCO. This commenter also believes the plan being developed by Chemours should be published for public comment.

Response: Due to the aggressive actions of DEQ to date, residual contamination of groundwater is the main source of PFAS contamination from the Facility in the Cape Fear River. Therefore, it is anticipated that a significant portion of any plan submitted by Chemours pursuant to this paragraph will involve the remediation of groundwater beneath the Facility that is currently entering into the Cape Fear River. While the commenter takes issue with the concepts of economic and technological feasibility referenced in this paragraph, these concepts are well-established components of North Carolina's regulations on groundwater remediation and are appropriate in this context. DEQ must frequently evaluate similar plans in terms of their feasibility (including both technological and economic), which helps ensure that resources are properly and efficiently allocated to achieve results that are meaningful and environmentally beneficial.

The Revised PCO does not leave the determination of economic and technological feasibility to Chemours, as one comment suggests. Rather, the plan submitted by Chemours must satisfy DEQ and Cape Fear River Watch that its implementation will ensure that maximum feasible reduction of PFAS loading to surface waters is achieved. DEQ and Cape Fear River Watch will review this plan, and in the event that DEQ and/or Cape Fear River Watch believe that additional reductions should be included in the plan, DEQ or Cape Fear River Watch can request that the court require such measures.

With regard to the commenter's suggestion that two years is not an appropriate period of time within which to implement the plan, DEQ does not agree. Given the nature and complexity of treatment of surface water and groundwater remediation, and based on DEQ's extensive expertise in, and experience overseeing, such activities, DEQ has a firm basis to believe that two years is a very aggressive timeframe for implementation of this provision. DEQ further notes that two years is the period required for completion of the plan, not for commencement of the plan. Moreover, to ensure that continual progress is made, DEQ has added a requirement in current paragraph 12 that the plan be supported by interim bench marks, as some commenters requested. It is also important to note that the plan required under this paragraph is in addition to the groundwater corrective action plan required under current paragraph 16.

DEQ notes that this provision is separate from and does not in any way commit DEQ to issuing an NPDES permit authorizing the discharge of process wastewater from the Facility, as some commenters suggested.

With respect to the request that DEQ put out the plan to for public notice and comment, DEQ notes that all submissions under the Revised PCO, including the plan, are required to be posted on a publicly available website, and the Revised PCO does not prohibit DEQ from soliciting or considering public comment. However, DEQ agrees with the comments of downstream public utilities that their feedback on the measures required under this paragraph should be taken into account. Therefore DEQ has modified paragraph 12 to require transmittal of Chemours' plan to downstream public utilities and to require DEQ to make staff available to meet with downstream public utilities to discuss the plan.

iii. **Comment:** One commenter stated that the eighteen month period allowed for the characterization of PFAS specified in paragraph 11 is too long.

Response: Eighteen months is the period for submission of the final quarterly report under this provision. Within thirty days of approval of a sampling plan, Chemours is required to begin submitting 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. DEQ believes that this is an aggressive schedule that will not only allow DEQ and downstream users to better understand the composition of Chemours' discharge, but also advance the science on testing for PFAS more generally.

iv. **Comment:** Multiple commenters stated that DEQ should require Chemours to compensate CFPUA and other downstream utilities for the construction of treatment systems.

Response: DEQ understands and appreciates the desire of downstream public water customers for a remedy that addresses impacts to drinking water. As described above, the PCO has been modified in multiple ways to enhance and clarify the protection provided to downstream communities. See Summary of Responses to Comments, "How the Revised PCO addresses the concerns of downstream users" (pp. 21-23). As stated above, DEQ believes that the Revised PCO is critical to address the contamination of downstream drinking water through the source control measures it requires.

It is important to note that Revised PCO represents the resolution of a state enforcement action for injunctive relief in Superior Court. DEQ does not have authority to recover damages on behalf of third parties. Under North Carolina law, any civil penalties collected by DEQ must be placed in a public school fund. See Response to Comment C.i (p. 31) & Summary of Responses to Comments, "The Civil Penalty" (pp. 26-27).

Furthermore, the Revised PCO is only a first step in DEQ's broader strategy to address PFAS contamination in the Cape Fear River Basin. The Revised PCO does not release Chemours or any other entity from claims that DEQ or the State may have for claims that fall outside the scope of claims for injunctive relief and civil

penalties. The Revised PCO also does not release Chemours from claims that DEQ may have based on new information, i.e., information not known at the time of the lodging of the original PCO. The Revised PCO also does not release Chemours from any liability it may have to any third parties arising from Chemours' actions.

v. **Comment:** Multiple commenters stated that the PCO does not address downstream remediation and Chemours should be required to take measures such as cleaning contaminated sediment in the Cape Fear River.

Response: PFAS contamination in sediment is the subject of ongoing study, some of which is required under the Revised PCO, and some of which is being completed by other entities. In response to comments regarding river sediment contamination, DEQ added new paragraph 11.2 to the Revised PCO which requires Chemours to develop and implement a plan for determining the nature and extent of PFAS sediment contamination in the Cape Fear River originating from the Facility. In addition, paragraph 16 of the Revised Consent Order requires submittal and implementation of a corrective action plan to address on- and offsite groundwater contamination and paragraph 18 requires Chemours to complete an on- and offsite assessment that includes the horizontal and vertical extent of soil contamination and all significant factors affecting contaminant transport. The Revised PCO only releases claims that could have been brought based on information known to DEQ at the time of the lodging of the original consent order. It therefore, does not release claims that are based on new information, i.e., information not known at the time of the lodging of the original PCO. Nor does it release claims against other entities that may be responsible for offsite remediation.

vi. **Comment:** Multiple commenters stated that Chemours should not be permitted to release any PFAS into the Cape Fear River.

Response: The Revised PCO prohibits the discharge of process wastewater into the Cape Fear River and does not commit DEQ to issuing a permit that would allow for such discharge. See Response to Comment C.i (p. 31). Contaminated groundwater is likely the current primary source of PFAS loading to the Cape Fear River at the Facility. Under the circumstances, it is impossible to stop this contamination immediately. Paragraph 12 addresses measures to prevent residual contamination from entering the Cape Fear River by requiring maximum reductions on an accelerated basis. See Summary of Responses to Comments, "How the Revised PCO addresses the concerns of downstream users," (pp. 21-23).

vii. **Comment:** Multiple commenters stated that the proposed health studies are insufficient to provide adequate data from which DEQ can make an informed, reasoned decision regarding safe levels of PFAS discharges, emissions, and other releases into the environment. Another commenter stated that Chemours should be required to conduct liver and reproductive rodent toxicity studies on all PFAS found in the blood and urine of Wilmington residents. Another commenter stated that

Chemours should be required to conduct health studies on all PFAS found in drinking water wells as opposed to "five random PFAS." One commenter stated that epidemiological studies as well as additional rodent toxicity testing should be performed. This commenter also stated that additional PFAS compounds should be studied, and more information should be provided regarding the required toxicity tests. One commenter stated that certain endpoints known to be affected by PFAS should be included in the studies required under the PCO.

Response: The Revised PCO requires Chemours to conduct toxicity studies on several short-chain, ether PFAS, where there is a dearth of health data. These studies are important for understanding the health impacts of these newer generation PFAS. The Revised PCO requires that Chemours submit a plan containing the details of the proposed health studies for DEQ's approval. DEQ's toxicologists will evaluate the adequacy of the plan prior to approval. Further, DEQ's right "to seek additional health studies or information" is expressly reserved. The set of studies specified in the Revised PCO is only the "initial set" of such studies and will be part of the decision process regarding whether to request further studies on the same PFAS, or to prioritize studies on other PFAS that originate from the Facility. In requiring the toxicity studies specified in paragraph 16 of the Revised PCO, DEQ is not representing that such toxicity studies are sufficient to establish safe levels of discharges of PFAS. The PFAS identified for initial study were not selected "randomly," rather these compounds represented different categories of short-chain PFAS that are most prevalent in the environment around the Facility. The identified PFAS have different carbon chain lengths, are known to have originated from the Facility, and have been found in quantifiable concentrations in the environment around the Facility.

viii. **Comment**: One commenter stated that nearly all the Chemours-related PFAS found downstream of the Facility enter the river via contaminated groundwater flowing from the Facility. This same commenter suggested implementation of various remedial and information gathering measures, such as pumping from wells on Chemours' property near the Cape Fear River, implementing the most effective measures to stop the flow of contaminated groundwater to the river, starting a sampling plan to quantify loading rates, and quantifying differences in PFAS loading between two downstream sampling locations.

Response: DEQ generally agrees that the primary source of Chemours-related PFAS currently entering the Cape Fear River come from contaminated groundwater. For this reason, paragraph 12 of the Revised PCO requires Chemours to achieve maximal reductions in all remaining PFAS contributions to the River on an accelerated basis. DEQ finds the commenters suggestions insightful and will consider the technical suggestions contained in these comments in evaluating the plan required under paragraph 12 of the Revised PCO as well as in evaluating the

need for further offsite assessment. DEQ does not believe that it is necessary or appropriate to incorporate these suggestions into the Revised PCO.

ix. **Comment**: One commenter offered an analysis concluding that Bladen Bluffs is an appropriate place to conduct sampling in the Cape Fear River.

Response: DEQ will consider this suggestion in its evaluation of further offsite assessment that may be required.

x. **Comment:** One commenter stated that the site visit referenced in the PCO should include representatives from water utilities as well as municipal officials. Another commenter stated that the public should be allowed to go on site visits.

Response: DEQ is without authority to require Chemours to offer a site visit to water utilities, municipal officials, or other members of the public.

xi. **Comment:** One commenter stated that the notice to and coordination with water utilities paragraph should be subject to a substantial stipulated penalty.

Response: Violation of this provision would subject Chemours to a stipulated penalty pursuant to paragraph 31, for "failure to meet any other deadline in this Revised PCO to which no other stipulated penalties are applicable." In addition, all provisions of the Revised PCO are enforceable through the contempt powers of the court.

xii. **Comment:** One commenter suggested several legislative initiatives, and that the PCO be amended to contain language challenging the General Assembly to adopt these measures.

Response: DEQ believes the Revised PCO is not the appropriate vehicle to recommend legislative action.

xiii. **Comment:** One commenter suggested several changes in the NPDES permitting process.

Response: DEQ believes the Revised PCO is not the appropriate vehicle for seeking changes in the statutes, regulations, and policies governing the NPDES permitting process.

xiv. **Comment:** One commenter stated that the PCO agreed to a standard of 140 ng/L for any PFAS discharged by Chemours into the Cape Fear River, and argues that this level is not stringent enough.

Response: The Revised PCO does not establish regulatory standards. The process of setting regulatory standards takes place in accord with applicable law and not within a state enforcement action.

D. Compliance Measures - Groundwater [¶¶ 16-18]

i. **Comment:** One commenter stated that the deadline of December 31, 2019 to submit a corrective action plan with no specified deadline for implementation of the plan is excessive.

Response: DEQ does not agree with this comment for multiple reasons. A deadline for implementing a corrective action plan cannot be established prior to the submission and review of the corrective action because it is not possible to determine the period for implementation of remedial measures prior to identification of appropriate remedial measures. For a site of this size and complexity, DEQ believes that December 31, 2019 is an aggressive time frame in which to require submittal of the corrective action plan. Furthermore, when coupled with paragraph 12 of the Revised PCO, which requires maximum feasible reductions in PFAS loading to the Cape Fear River, aggressive measures to reduce PFAS concentrations in groundwater (in addition to those that have already occurred or are ongoing) will occur in the very near term. Interim measures to reduce PFAS concentrations in groundwater will occur alongside development of the corrective action plan. Current efforts to reduce PFAS concentration in groundwater include the pumping of the underlying aquifer and offsite disposal of groundwater containing PFAS, lining of the settling basins for raw river water, and excavation and lining of the Facility's cooling water channel which had previously been used for transport of wastewater containing PFAS.

ii. **Comment:** One commenter stated that the corrective action plan should be released for public comment.

Response: DEQ agrees. Therefore DEQ modified paragraph 16, to provide for public comment on the corrective action plan.

iii. **Comment:** One commenter stated that it is not clear whether 75% reduction from baseline is adequate to protect public health and the environment. Another commenter stated that the PCO should require Chemours to reduce PFAS concentrations in groundwater by 95%.

Response: The Revised PCO does not state that 75% is adequate to protect public health and the environment. Rather, the Revised PCO states that the required 75% reduction is "at a minimum, in addition to any measures that might otherwise be required to comply with the 15A NCAC 02L Groundwater Rules, and notwithstanding any provision of the 2L Rules or other exceptions that might apply to corrective action plans." Thus the 75% threshold referenced in the Revised PCO merely establishes a minimum or "backstop" level that ensures substantial progress towards eliminating PFAS loading from the site into the Cape Fear River. The provision ultimately requires cleanup to the groundwater standards set forth in North Carolina's groundwater rules.

iv. **Comment:** One commenter stated that the PCO should be revised to ensure that any newly identified PFAS are also accounted for in the groundwater remediation requirements.

Response: Because corrective action plans are, by definition, iterative and require updates on an ongoing basis, DEQ believes that existing language in the PCO would allow DEQ to require updates to the corrective action plan as new test methods and lab standards become available. However, DEQ believes that revising the PCO to reflect that this will be a requirement provides additional clarity and strengthens the Revised PCO. Therefore, DEQ has added language in the Revised PCO providing that as test methods and lab standards are developed for additional PFAS, the corrective action plan will be amended to address those PFAS.

v. **Comment:** One commenter stated that the Revised PCO should require on- and offsite assessment of both upstream and downstream groundwater contamination.

Response: Paragraph 18 requires a comprehensive offsite assessment regardless of whether the contamination is upstream or downstream of the Facility.

E. Compliance Measures - Replacement Drinking Water Supplies [¶¶ 19-25]

i. **Comment:** DEQ received multiple comments regarding DEQ's approach to the replacement water supply provisions. Some commenters questioned the thresholds for providing replacement water supplies. Some commenters stated that parties that qualify for reverse osmosis systems under the consent order should also qualify for public drinking water. Other commenters questioned why 10 ng/L was used as a threshold for determining whether a party qualifies for a replacement drinking water supply, advocating instead for the use of the "practical quantitation limit" or various other numerical thresholds. Some commenters stated that the replacement water supply requirements were inconsistent with Session law 2018-5, N.C. Gen. Stat. § 143-215.2A.

Response: DEQ believes that these comments are addressed comprehensively above. See Summary of Responses to Comments, "The Revised PCO's comprehensive approach to providing replacement water supplies to parties with contaminated drinking water wells" (pp. 23-26).

ii. **Comment:** Multiple commenters questioned DEQ's rationale for identifying the PFAS listed on Attachment C.

Response: See Summary of Responses to Comments, "The Revised PCO's comprehensive approach to providing replacement water supplies to parties with contaminated drinking water wells" (pp. 23-26).

iii. **Comment:** Multiple commenters stated that the replacement water supply provision unfairly excludes individuals who receive their drinking water from public utilities that draw water from the Cape Fear River such as CFPUA. One

commenter, for example, stated that the replacement water provision "excludes from its protections all downstream users of the Cape Fear River."

Response: DEQ does not agree that the Revised PCO fails to protect or unfairly excludes downstream users. The most effective way to keep PFAS from contaminating the Cape Fear River and entering the drinking water of downstream users is to control the source of the contamination – a central goal of the Revised PCO. See Summary of Responses to Comments, "How the Revised PCO addresses the concerns of downstream users," pp. 21-23.

Additionally, it is important to recognize the significant differences between groundwater contamination and surface water contamination. They are different problems that often involve different regulatory approaches. DEQ has seen that the most effective and expedient way of reducing concentrations of PFAS in the Cape Fear River is through source control. Figure 2 above underscores the dramatic effect of source control on GenX levels. This approach—controlling PFAS at its source—is precisely the approach adopted in the Revised PCO to address surface water contamination. See Summary of Responses to Comments, "How the Revised PCO addresses the concerns of downstream users," pp. 21-23.

However, this approach is often ineffective for achieving timely reductions in pollution concentrations in groundwater, which moves much more slowly and interacts in complex ways with the subsurface. These differences in groundwater and surface reflects are reflected in DEQ's regulatory authority for addressing these two media. Compare 15A NCAC 2L .0101 et seq. with 15A NCAC 2B .0101 et seq.

These differences in groundwater and surface water contamination make it entirely appropriate that the Revised PCO (and Session Law 2018-5) require permanent alternate water supplies for those with contaminated drinking water supplies drawn from groundwater. However, DEQ takes seriously the comments that the PCO did not sufficiently address the concerns of the downstream users. As noted above, the PCO was modified to enhance and clarify the ways in which those concerns are addressed:

- DEQ added new paragraph 11.1, "Characterization of PFAS Contamination in Downstream Raw Water Intakes," which requires Chemours to analyze the Facility's contribution of PFAS to raw water intakes of downstream public utilities. This study will put DEQ and downstream public utilities in a better position to identify the relief necessary to address PFAS contamination reaching downstream communities.

- DEQ added new paragraph 11.2, "Characterization of PFAS in River Sediment," which requires Chemours to develop and implement a plan for analyzing the nature and extent of PFAS contamination in sediment originating from the Facility. This new paragraph will put DEQ in a better position to determine the extent to which PFAS at downstream raw water

intakes is originating from the site or from PFAS in river sediment that has accrued over time.

- DEQ changed the title of paragraph 12 to clarify that the purpose of the paragraph is to reduce exposure of downstream communities to PFAS. Many commenters appeared to misunderstand some of the terminology used in the paragraph and how the actions taken under that paragraph will function to reduce PFAS concentrations in downstream utilities. Others believed that the paragraph had some bearing on the Facility's NPDES permit. To attempt to clarify these issues, paragraph 12 is now titled "Accelerated Reduction of PFAS Contamination in the Cape Fear River and Downstream Water Intakes." The paragraph also now states that its purpose is "to reduce PFAS contamination in the Cape Fear River and in the raw water intakes of downstream public water utilities on an accelerated basis." This paragraph was also modified to address commenters' request that any plan required under this paragraph be supported by interim bench marks to ensure that continual progress is made. The paragraph was also modified to ensure that downstream public utilities have an opportunity to provide feedback on the plan. The paragraph now requires Chemours to transmit its proposed plan to downstream utilities and requires DEQ to provide an opportunity for downstream utilities to meet with DEQ staff about the plan.

- In addition to the plan that must be carried out pursuant to paragraph 12(a), paragraph 12(e) now requires Chemours to treat PFAS in water flowing from Old Outfall 002 at an efficiency of 99% or to implement an alternative that is just as effective at reducing PFAS loading from Old Outfall 002 to the river, which DEQ determined would result in greater PFAS reductions than capturing water at the location originally required under the PCO. Old Outfall 002 is currently believed to be a significant contributor of PFAS loading to the Cape Fear River. Current data indicates that Old Outfall 002 could be responsible for as much as 9 ng/L of GenX in the Cape Fear River, which would be almost completely eliminated by the measures required under paragraph 12(e).

iv. **Comment:** Some commenters questioned how the $75,000 threshold of cost-prohibitiveness was determined and how it would be applied in communities without existing public water distribution systems.

Response: DEQ used a similar threshold in 2018 during its review of plans for replacement water supplies near coal ash sites. DEQ based this threshold on (i) its review of the cost per household to supply public water at other sites with groundwater contamination and (ii) its review of the cost per household to supply public water through public water infrastructure projects. In both cases, the high end of the range was less than $70,000. In determining whether the threshold is exceeded in communities without existing public water distribution systems, the

projected cost of installing a new water system would be allocated among all eligible community members served by the new system.

v. **Comment:** One commenter asked how DEQ would handle a situation where the nine-month period for providing public drinking water cannot be met, i.e., obtaining an agreement for the provision of public water from a public water supplier and designing and constructing a public water distribution system cannot be accomplished in that amount of time.

Response: Paragraph 25 Revised PCO allows for one or more extensions of up to three months for any the deadline set forth in paragraphs 19-24 for good cause shown. DEQ believes this paragraph can be used to address this situation.

vi. **Comment:** One commenter stated that three reverse osmosis systems is not sufficient to address all sources of drinking water within a school or other public building.

Response: To address this concern, DEQ modified paragraph 20 to provide that public buildings (e.g., schools or government buildings) either receive under sink reverse osmosis drinking water systems at each drinking fountain and at each sink that is used for drinking water, or another equally effective system (such as, construction of a deeper well, installation of a whole building filtration system, provision and supply of drinking water coolers) as approved by DEQ.

vii. **Comment:** Multiple commenters raised concerns regarding whole house carbon filtration systems. Some commenters stated that carbon filtration systems have caused problems with water pressure. Others stated that Chemours should be required provide for maintenance of filtration systems. One commenter suggested that Chemours should be required to test filtration systems until it is demonstrated that the combined concentration of PFAS in the effluent water is below 10 ng/L. The same commenter stated that maintenance should be provided as necessary to ensure that PFAS levels remain below 10 ng/L. The same commenter stated that Chemours should be required to test for the presence of harmful bacteria in the filtrations system's effluent and perform any necessary maintenance or repairs to ensure the water meets all standards for bacteria in drinking water.

Response: To address these concerns, DEQ has added a subsection to paragraph 24 to ensure that DEQ has tools under the Revised PCO to address these situations. The new subsection provides that if a system does not function properly, Chemours must submit to DEQ for approval, and implement the approved plan to address the issue, which may include provision of an alternative source of drinking water.

viii. **Comment**: Multiple commenters stated that plumbing and hot water heaters may be contaminated with PFAS, which should be replaced or otherwise flushed prior to provision of public water or whole house filtration systems.

Response: To address this concern, the PCO has been modified in paragraph 24 to require Chemours to flush the drinking water supply plumbing, replace previously installed water treatment systems if required by DEQ, and to test finished water.

ix. **Comment:** Multiple commenters questioned the effectiveness of carbon filtration systems and stated that they did not believe carbon filtrations systems were an appropriate replacement water supply. Others stated that residents should not be required to bear the costs of maintaining carbon filtrations systems, including costs of power associated with operating such systems. Another commenter stated that whole-building RO systems may provide a better option.

Response: See Summary of Responses to Comments, "The Revised PCO's comprehensive approach to providing replacement water supplies to parties with contaminated drinking water wells" (pp. 23-26). Under the Revised PCO Chemours is required to cover costs associated with whole house filtration systems. Chemours will provide a plan to DEQ describing how these costs will be covered and this plan will be evaluated by DEQ to ensure that appropriate costs are covered.[18]

x. **Comment:** One commenter stated that Chemours should be required to pay for water lines or the water being fed through those lines.

Response: Under paragraph 19, the provision of replacement water supplies through public water is funded by Chemours. In addition, Chemours is required to pay any water bills from public utilities for up to twenty (20) years up to $75 per month.

xi. **Comment:** Multiple commenters requested that the PCO authorize the installation of deeper wells as an alternative method of providing replacement water supplies.

Response: The Revised PCO does not preclude a party from entering into such an arrangement with Chemours. In the event that such an arrangement meets a party's needs, a party is entitled under the Revised PCO to decline any of the remedies available under paragraph 19 of the Revised PCO. However, DEQ is without sufficient data or information to determine the appropriateness of installation of deeper wells as a remedy.

xii. **Comment:** One commenter stated that testing be conducted ¼ mile beyond the furthest well from the Facility with the specified contamination in all directions (as opposed to the "nearest").

[18] The current DEQ data set for activated carbon shows the effectiveness of these systems based on ongoing testing. The data is available at the following link: https://deq.nc.gov/news/hot-topics/genx-investigation/groundwater.

Response: The term "nearest" in paragraph 21 does not refer to proximity to the Facility but rather proximity to the closest contaminated well. DEQ believes that this provision is consistent with the commenters' preferred approach to testing.

xiii. **Comment:** One commenter stated that testing should be conducted out to a "10-mile circumference" from the Facility.

Response: DEQ interprets this comment to mean a 10 mile radius from the Facility. DEQ believes it more appropriate to define the scope of based on reasonable distance from wells known to be contaminated with PFAS (in this case ¼ mile from the outer perimeter of contaminated wells) as opposed to choosing a geographic area not based on the size of the contaminated area.

xiv. **Comment:** One commenter stated that Chemours should fund the installation of under counter reverse osmosis systems, or, bottled water distribution to homes affected by PFAS contaminants, until the permanent replacement water supply has been installed.

Response: The Revised PCO requires Chemours to provide bottled water to homes that qualify for replacement water supplies until replacement water supplies have been installed.

xv. **Comment**: One commenter stated that the testing for alternative water should not be completed until after air emissions have completely stopped.

Response: DEQ believes it is appropriate to provide alternate water as soon as possible while private well testing is ongoing. At the time of entry of the Revised PCO, air emissions will have been reduced by 92% from 2017 total reported emissions. By the end of 2019, they will have been reduced by 99%.

xvi. **Comment:** One commenter stated that there should not be a limit on the number of years that Chemours should be required to pay public utility bills or a limit on the amount of that Chemours should be required to pay per month.

Response: The Revised PCO requires Chemours to pay water utility bills for 20 years at a cost of up to $75 dollars per month. DEQ believes this approach is reasonable in light of groundwater remediation required under the Revised PCO and DEQ's review of data on public utility bills in affected counties.

xvii. **Comment**: One commenter stated reverse osmosis systems should be provided for the entire house because otherwise its occupants may be exposed to PFAS compounds from bathing.

Response: In the Revised PCO, reverse osmosis systems are required when the level of GenX contamination is lower than 140 ng/L, but the combined levels of PFAS are in exceedance of 70 ng/L or any individual PFAS is in exceedance of 10 ng/L. Based information available to DEQ, current public health references do not

indicate that the uptake of PFAS from water through the skin presents a public health risk.[19]

xviii. **Comment**: One commenter stated that Chemours' obligations to pay utility bills and maintain replacement water supplies should survive any transfers of property.

Response: It is DEQ's view that as a general matter the obligations to pay utility bills and maintain replacement water supplies should survive any transfers of property.

xix. **Comment:** One commenter questioned the selection of a deadline of eighteen (18) months for the completion of private well testing, given that the extent of contamination is not yet known.

Response: The time limit in paragraph 21 ensures that parties entitled to replacement water supplies receive replacement water in a timely manner. In the event that Chemours can show good cause for an extension of the time period, such extension may be granted pursuant to paragraph 25.

F. Other Compliance Measures [Former ¶¶ 26-28, Current ¶¶ 25.1-28]

i. **Comment:** One commenter stated that DEQ should identify the purpose of measuring the total organic fluorine including whether DEQ intends to use the measurement as a substitute for identifying and measuring PFAS in air emissions and wastewater of Chemours.

Response: DEQ has not made any decision regarding the use of the total organic fluorine method which will be developed pursuant to paragraph 26, and the Revised PCO does not commit DEQ to using the method for any particular purpose. However, DEQ notes that the development of such a method will, at a minimum, expand the toolset available to regulatory agencies, the regulated community and the scientific community for studying the presence of PFAS in the environment.

ii. **Comment:** One commenter stated that the fate and transport study should be open to public participation and the characterization should be updated to account for any newly identified PFAS.

Response: The fate and transport study required under the Revised PCO will be posted on a publicly available website pursuant to paragraph 30. The Revised PCO

[19] See U.S. Dept. of Health and Human Services, Agency for Toxic Substances and Disease Registry, Toxicological Profile for Perfluoroalkyls Draft for Public Comment (June 2018), available at https://www.atsdr.cdc.gov/toxprofiles/tp200.pdf; U.S. Dept. of Health and Human Services, Agency for Toxic Substances and Disease Registry, An Overview of Perfluoroalkyl and Polyfluoroalkyl Substances and Interim Guidance for Clinicians Responding to Patient Exposure Concerns (Revised on 5/07/2018), available at https://www.atsdr.cdc.gov/pfc/docs/pfas_clinician_fact_sheet_508.pdf.

does not prohibit DEQ from soliciting or considering public comments regarding any submissions made pursuant to the Revised PCO. In considering the fate and transport study DEQ staff will apply professional judgment in consulting appropriate resources and information.

G. Compliance Measures – Public Information [¶¶ 29-30]

i. **Comment:** One commenter stated that disclosure of the identity, concentrations, and quantities of all PFAS that are or could be released to the environment by Chemours is essential and that paragraph 29 of the PCO does not expressly require disclosure of the identity, concentrations, or quantity of PFAS being released.

Response: Though DEQ agrees that disclosure of PFAS released into the environment is important, the purpose of paragraph 29 is to require Chemours to hold a public meeting prior to making any change in facility operations occur. This public meeting requirement is in addition to any other regulatory requirements or approvals that Chemours would have to obtain before undergoing such a change in facility operations. With regard to disclosure and reporting, there are several other provisions in the Revised PCO that address the reporting and disclosure of the identity, concentrations, and quantities of PFAS in the Facility's waste streams.

ii. **Comment:** One commenter stated that the references to the "production" of PFAS at Chemours in paragraph 29 of the PCO should expressly include production of PFAS as a byproduct of any process at the Facility.

Response: DEQ does not believe this change is necessary because paragraph 29 already requires a public meeting to be held prior to making any change in facility operations that would result in release into the environment of a previously undisclosed PFAS or the material increase in the release into the environment of a previously disclosed PFAS. DEQ understands this provision to encompass generation of PFAS as a byproduct.

iii. **Comment:** One commenter stated that the PCO appears to allow a blanket claim of confidential business information by Chemours, with little or no opportunity for public participation or knowledge.

Response: DEQ disagrees that the Revised PCO allows any sort of blanket claim of confidential business information by Chemours. The Revised PCO does not grant any rights to Chemours to prevent disclosure of confidential business information not already guaranteed under North Carolina's public records laws. Any entity may claim that information submitted to the DEQ constitutes confidential business information and therefore is not a public record. DEQ will appropriately evaluate any such claims that are made by Chemours, as it does with all entities making such a claim, and to the extent a dispute arises between DEQ and Chemours regarding whether a document contains confidential business information, that dispute can be brought before the court.

H. Penalties and Investigation Costs [¶¶ 31-33]

i. **Comment:** Several commenters stated that the $12 million dollar penalty provided in the PCO is not large enough. Other comments noted that the $12 million dollar penalty was lower than monetary amounts relating to other cases involving PFAS contamination.

Response: See Summary of Responses to Comments, "The Civil Penalty" (pp. 26-27).

ii. **Comment:** Multiple commenters stated that funds from the civil penalty should be used to compensate individuals for harms allegedly caused by Chemours actions, should be allocated for environmental remediation, or should be used to support further research or other tasks to address contamination.

Response: Use of civil penalty funds is restricted by North Carolina law. The North Carolina Constitution provides that "the clear proceeds of all penalties and forfeitures and of all fines collected in the several counties for any breach of the penal laws of the State, shall belong to and remain in the several counties, and shall be faithfully appropriated and used exclusively for maintaining free public schools." Article IX, Sec. 7. In N.C. Sch. Bds. 'Ass'n v. Moore, 359 N.C. 474, 508, 614 S.E.2d 504, 525 (2005), the North Carolina Supreme Court held that payments by an environmental offender to fund a supplemental environmental project in lieu of paying a portion of a civil penalty assessed by DEQ are subject to Article IX, Section 7. Therefore, DEQ cannot require that any portion of the $12 million civil penalty be allocated for environmental remediation projects or to compensate third parties. See Summary of Responses to Comments, "The Civil Penalty" (pp. 26-27).

iii. **Comment:** Multiple commenters stated that the stipulated penalties set forth in the PCO are inadequate.

Response: DEQ believes that the stipulated penalties set forth in the Revised PCO are adequate to ensure compliance with the Revised PCO. It is also important to note that the stipulated penalties are only one of the tools DEQ has to ensure compliance with the terms of the Revised PCO. DEQ (for all provisions) and Cape Fear River Watch (for certain provisions) may call upon the court to exercise its contempt authority to require Chemours to comply with the terms of the Revised PCO. For this reason, the Revised PCO represents a powerful tool for ensuring that the pollution reduction measures set forth in the Revised PCO are achieved.

I. Release and Reservation of Rights [¶¶ 34-36]

i. **Comment:** One commenter stated that the PCO should expressly reserve the right to pursue all claims that may be available against DuPont.

Response: The Revised PCO does not release any claims against DuPont. To the extent the Revised PCO releases any claims that may be brought by DEQ, they are

claims by DEQ against Chemours only. However, DEQ has added new paragraph 35.1 for clarity which expressly states that the Revised PCO does not release DuPont from liability.

ii. **Comment:** One commenter stated that the PCO should not release Chemours from remediation of offsite PFAS contamination.

Response: The Revised PCO does not release Chemours from remediation of offsite PFAS contamination. The Revised PCO requires Chemours to submit a corrective action plan designed to remediate on- and offsite groundwater to the standards set forth in the 15A NCAC 02L rules; it requires Chemours to complete an on- and offsite assessment of soil and groundwater; and it requires Chemours to complete an assessment of PFAS contamination in sediment. DEQ will evaluate these submissions and be well positioned to require appropriate remedial measures pursuant to the Revised PCO or pursuant to DEQ's administrative authority. Furthermore, the Revised PCO does not release claims that fall outside the scope of civil penalties and injunctive relief, to the extent such claims are available under state or federal law. DEQ has only released claims for civil penalties and injunctive relief that could have been brought based on information known to DEQ at the time of the lodging of the original PCO. Thus, DEQ has not release claims based on new information, including information that might be collected as a result of the Revised PC.

iii. **Comment:** One commenter stated that Chemours should not be permitted to deny liability for the violations alleged in the Complaint, Amended Complaint and the NOVs.

Response: It is a common practice for a settlement of an enforcement action to state that by settling the matter in controversy the defendant does not admit to the violations alleged.

J. Intervention of Cape Fear River Watch [¶¶ 37-40]

i. **Comment:** One commenter stated that quarterly progress reports should be provided to public utilities.

Response: Quarterly progress reports will be available to all members of the public pursuant to paragraph 30.

K. Miscellaneous [¶¶ 41-52]

i. **Comment:** One commenter stated that the PCO should be revised to specify that it does not obligate DEQ to incorporate any terms of the Order into a permit, nor does it preclude full public participation in any permit sought by Chemours under state or federal law, regardless of whether the terms of the permit are consistent with the PCO.

Response: Paragraph 41 of the Revised PCO states that the Revised PCO "is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation." Nothing in the Revised PCO obligates DEQ to incorporate any term of the Order into a permit, nor does it preclude full public participation in any permit sought by Chemours under state or federal law. See Summary of Responses to Comments, "How the Revised PCO addresses the concerns of downstream users" (pp. 21-23); Response to Comment B.ii (p. 29); Response to Comment C.i (p. 31).

ii. Comment: One commenter was surprised to learn that DEQ and Chemours had undertaken a study of GAC systems of the sort that CFPUA has studied using funds appropriated by the General Assembly and that such a study should have been disclosed to the public. The commenter also commented that the study cannot support the assumption that installation of such a system will be effective at treating Chemours' wastewater discharge.

Response: This comment misinterprets this provision. The pilot study referred to in this provision is a pilot study of whole household carbon filtration systems. Information regarding this study has been available on DEQ's website for months prior to lodging of the PCO. By agreeing to the Revised PCO, DEQ is not authorizing the discharge of process wastewater from the Facility or prejudging the issuance of an NPDES Permit or any technology that Chemours might use to treat its wastewater. See Summary of Responses to Comments, "How the Revised PCO addresses the concerns of downstream users." (pp. 21-23).

L. General Comments

i. Comment: Multiple commenters stated that DEQ should not rely on submissions from Chemours.

Response: DEQ notes in response to this comment that multiple provisions of the Revised PCO require submissions to be made by third parties approved by DEQ. However, DEQ believes that certain submissions are appropriately submitted directly by Chemours. DEQ is frequently tasked with verifying the reliability of data and submissions by regulated entities and is confident in its ability to do so here. New paragraph 25.1 provides that DEQ may request split sampling and states that DEQ retains its authority to both observe sampling and take independent sampling.

ii. Comment: Multiple commenters stated that Chemours should establish an account for mitigation of damages to property, persons, and the environment, as well as for the compensation of DEQ for its time and resources. Another commenter similarly stated that the PCO should compensate landowners for loss of land values.

Response: See Summary of Responses to Comments, "The Civil Penalty" (pp. 26-27) regarding DEQ's lack of authority to require payment of damages to third

parties. DEQ further notes that the Revised PCO does not release any claims that DEQ or the State may have against Chemours for claims that go beyond the scope of injunctive relief and civil penalties. The Revised PCO only releases claims for injunctive relief and civil penalties that could have been brought based on information known to DEQ at the time of the lodging of the original consent order. It therefore does not release claims based on new information.

iii. **Comment**: Multiple commenters stated that the PCO should require medical monitoring.

Response: Multiple monitoring studies have been undertaken or proposed by state and federal public health agencies and university researchers. Such public health studies do not fall under the purview of DEQ, but DEQ does work and has worked with these agencies and researchers to assist and advise them in their efforts. Additionally, DEQ is working with various groups and agencies to identify additional study opportunities that will contribute to the database of epidemiological exposure and health data related to PFAS.

iv. **Comment:** One commenter stated that Chemours should establish a phone bank to warn residents within a safe range in case of accidental release or spill.

Response: To the extent this comment is concerned that an accidental spill at the site could affect the drinking water of private drinking water wells, it is important to note that current private drinking water well contamination is not the result of spills at the site, but rather, largely due to years of air emissions that will now be controlled by control equipment required under the Revised PCO, and not the result of any individual spill at the Facility. To the extent the commenter is concerned with quality of drinking water provided by downstream utilities, the Revised PCO requires Chemours to notify downstream utilities within one hour of any upset condition that would cause a material increase in PFAS concentrations.

v. **Comment:** One commenter stated that this PCO should be set aside until 90 days after the 2020 elections.

Response: DEQ believes that several measures required under the Revised PCO can and should be implemented far in advance of 2020, and DEQ does not believe there is a basis for setting aside the Revised PCO for that period of time.

vi. **Comment:** One commenter stated that the PCO does not address bioaccumulation in fish.

Response: DEQ has collected fish tissue samples for PFAS as requested by the public to evaluate the potential for bioaccumulation in the environment. DEQ will continue to evaluate available data on this issue.

vii. **Comment:** One commenter asked why other parties were not part of negotiations on the PCO.

Response: In this case, in light of the significant public interest in this case, DEQ released its original proposed order out for public comment in June of 2018 and also released the PCO out for public comment to ensure that the public was given the opportunity to share their comments regarding the outcome of this matter. Additionally, it is well settled law and policy that it is appropriate for government agencies to conduct discussions with parties to resolve litigation. DEQ believes the process followed in this case, including its negotiations with Chemours and Cape Fear River Watch, was fair and consistent with applicable law.

viii. **Comment:** Some commenters stated the definition of PFAS should be expanded to include so-called "precursors" or other compounds made of carbon and fluorine.

Response: The current definition of PFAS includes compounds often referred to as "precursors." "Precursor" for PFAS identifies PFAS that may degrade in the environment to "terminal" PFAS (i.e., PFAS that will not further degrade in the environment). The class of chemicals of concern associated with the Facility is PFAS (poly- and perfluoroalkyl substances). DEQ does not believe that non-PFAS compounds made of carbon and fluorine should be included in the definition of PFAS. There are multiple classes of chemicals containing fluorine and carbon atoms that are not PFAS.

ix. **Comment**: One commenter stated that Chemours should be required to discontinue its "GenX" product line.

Response: DEQ is tasked with ensuring that facilities such as Chemours' Fayetteville Works Facility operate in compliance with North Carolina's environmental laws and regulations. The provisions of this Revised PCO fulfill that obligation by preventing further PFAS contamination and requiring Chemours to address past contamination.

x. **Comment:** Multiple commenters stated that additional scientific study and investigation are warranted.

Response: DEQ agrees. The Revised PCO is just one part of DEQ's overall strategy to address PFAS contamination in the Cape Fear River Basin.

xi. **Comment:** One commenter stated that the PCO needs to take into account the EPA decision on PFAS and any new findings from the NC Policy Collaboratory PFAS group.

Response: DEQ agrees that consideration of any data, studies, or publications by EPA or the NC Policy Collaboratory relating to the contents of the Revised PCO is appropriate. DEQ looks forward to continued collaboration with EPA, other states and other entities to further expand our understanding of PFAS contamination and potential environmental and human health effects to better equip the state of North Carolina to respond to these concerns. To reiterate, the Revised PCO does not

release any claims by DEQ based on information not known at the time of the lodging of the Revised PCO.

xii. **Comment**: One commenter stated that DEQ should establish safe drinking water levels for PFAS.

Response: DEQ believes that developing appropriate regulatory standards that are protective of public health relating to PFAS is crucial. In August 2017, Governor Roy Cooper expanded the scope of the Secretaries' Advisory Board ("SAB"). Under the SAB's new charter, the scope of its work has expanded to a broader focus on the impact of new and emerging chemicals. The SAB will help the state Departments of Environmental Quality and Health and Human Services by examining new and emerging chemicals and providing guidance on how to manage the compounds to better protect public health and the environment. The Departments asked the SAB to review information on GenX, including a review of the DHHS provisional drinking water health goal and of available scientific information about health and environmental concerns and their control, and to provide recommendations to DEQ on the starting point for developing regulatory standards. To further support DEQ's ability to develop regulatory standards Chemours is being asked to develop a tiered approach to generate laboratory toxicity study data for PFAS identified as associated with this facility. DEQ will continue working with the SAB and the Environmental Management Commission to facilitate the development of regulatory standards.

xiii. **Comment:** Multiple commenters stated that Chemours should be shut down.

Response: Based on information known to DEQ, DEQ does not believe that shutting down the Facility is an appropriate exercise of DEQ's enforcement authority. DEQ believes that the Revised PCO requires aggressive measures to prevent further contamination from the site. DEQ further notes that shutting down the Facility will not address the predominant source of current contamination of the Cape Fear River – residual contamination of groundwater that has accrued over the last three decades of the Facility's operation. The Revised PCO has provisions that require the active and accelerated remediation of the soil and groundwater on- and offsite.

xiv. **Comment:** Multiple commenters stated that DEQ should have taken Chemours to trial.

Response: DEQ believes that the Revised PCO represents a fair, reasonable and appropriate settlement that is in the public interest, and that a trial may have delayed, or even derailed, relief to citizens affected by PFAS contamination. Furthermore, it is well established law and policy of this state and federal courts that "[s]ettlements negotiated by parties are encouraged by the courts." PCI Energy Servs. v. Wachs Tech. Servs., 122 N.C. App. 436, 440, 470 S.E.2d 565, 567 (1996).
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xv. **Comment:** Multiple commenters requested extensions of the Comment Period, which was originally set to expire on December 21, 2018.

Response: On December 21, 2018, DEQ extended the Comment Period to January 7, 2018.

xvi. **Comment**: One commenter stated that the river study submitted by Chemours contained multiple errors.

Response: The river study referenced in this comment is undergoing careful review by DEQ staff. The Revised PCO contains new paragraph 11.1, "Characterization of PFAS Contamination in Downstream Raw Water Intakes," which will afford DEQ the opportunity address any errors or concerns DEQ identifies with the approach taken in the river study. Furthermore, the Revised PCO does not prohibit DEQ from requiring additional and more refined studies of contamination in the Cape Fear River.

xvii. **Comment:** One commenter stated that Chemours should reimburse Cumberland County for no less than the cost of running municipal water lines to affected communities.

Response: The Revised PCO requires Chemours to provide for public water to parties with wells contaminated by GenX above 140 ng/L, unless cost-prohibitive, in which case such parties are entitled to carbon filtration systems or under sink reverse osmosis systems as set forth in paragraphs 19 and 20.

xviii. **Comment:** One commenter stated that DEQ should develop a plan of how to address the PFAS and PFOA (C8) build up in the riverbed sediment and in local ground water and crops.

Response: See Response to Comment C.v (p. 34).

xix. **Comment:** One commenter believes that chemicals from Chemours are getting into hay being consumed by horses or getting directly into the eyes of the horses and causing blindness.

Response: DEQ is not aware of evidence establishing a connection between the PFAS originating from the Facility and the outcomes observed by the commenter. However, DEQ will continue to study and collect available information regarding the risks posed by PFAS to human health, the environment, and animals.

xx. **Comment**: One commenter stated that a plasma reactor developed by a professor at Clarkson University is a cost-effective way to clean the river with a recirculation system.

Response: DEQ will continue to collect and study information regarding available technologies to address PFAS contamination in the Cape Fear River Basin. Based

on currently available information, DEQ understands that the technology being referred to in this comment is in a lab testing phase.

xxi. **Comment:** One commenter stated that there may be a loophole that allowed Chemours to legally put GenX into the Cape Fear River and that this loophole should be closed.

Response: See Response to comment C.i (p. 31).

xxii. **Comment:** Some commenters raised questions regarding reports that the Facility receives shipments of waste containing GenX compounds from another Chemours facility in the Netherlands. Some commenters indicated that DEQ should take some form of enforcement action on this basis, or that the Revised PCO should address these reports.

Response: DEQ does not have authority to regulate the import or export of materials from Chemours facility in the Netherlands into the United States. Such activities are regulated at the federal level. However, any PFAS compounds received by the Facility from Chemours Facility in the Netherlands or any other location will be subject to the restrictions imposed by the Revised PCO. Under the Revised PCO, Chemours is prohibited from discharging any process wastewater into surface waters and must control all PFAS emissions at an efficiency of 99.99%.

xxiii. **Comment:** Some commenters stated that DEQ should take action relating to Chemours' alleged violations of requirements of the Toxic Substances Control Act ("TSCA").

Response: DEQ does not have authority to enforce the requirements of TSCA or to enforce the 2009 Consent Order. However, DEQ will continue to work in consultation with EPA to ensure that DEQ has current information regarding the application of TSCA requirements to the Facility.