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May 7, 2018

Via U.S. Certified Mail – Return Receipt Requested

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**Notice of Intent to Sue
Toxic Substances Control Act - 15 U.S.C. § 2619**

RE: 60-Day Notice of Intent to Sue
Fayetteville Works Facility
Violation of Toxic Substances Control Act Consent Order for P-08-508 and P-08-509

To Whom It May Concern:

Pursuant to 15 U.S.C. § 2619 of the Toxic Substances Control Act (“TSCA”), the Cape Fear River Watch, through its undersigned counsel, provides notice of the violation of the U.S.

Environmental Protection Agency's ("EPA") consent order for the chemicals with TSCA Pre-manufacture Notice Numbers P-08-508 and P-08-509, as set forth below.¹ After the expiration of sixty days, the Cape Fear River Watch intends to bring suit for these violations pursuant to the citizen suit provision of the Toxic Substances Control Act, 15 U.S.C. § 2619.

I. Background

A. The Fayetteville Works Facility

The Fayetteville Works Facility, located at 22828 N.C. Highway 87 W., Fayetteville, North Carolina is currently owned and operated by Chemours Company FC, LLC ("Chemours"). From approximately 1971 until 2015, the facility was owned and operated by E.I. du Pont de Nemours and Company ("DuPont"). Chemours and DuPont² (collectively, "the companies") have knowingly polluted North Carolina's air, ground and surface waters, and soil with toxic GenX compounds, in violation of the companies' TSCA Consent Order, for nearly four decades.

The Fayetteville Works facility has five manufacturing areas:

1. Fluoromonomers/Nafion Membrane Manufacturing Area (hereinafter "Nafion Membrane Manufacturing Area") (operated by Chemours);³
2. Polymer Processing Aid ("PPA") Manufacturing Area (operated by Chemours);
3. Butacite Manufacturing Area (operated by Kuraray America Inc. and rented from Chemours);
4. SentryGlas Manufacturing Area (operated by Kuraray America Inc. and rented from Chemours); and
5. Polyvinyl Fluoride Manufacturing Area (operated by DuPont and rented from Chemours).⁴

Chemours' Fluoromonomers/Nafion Membrane Manufacturing Area produces, among other materials, fluorochemical products and components of the films and coatings used for electrochemical applications.⁵ Chemours' PPA Manufacturing area produces a polymer processing aid known as GenX (also known as C3 Dimer Acid and HFPO Dimer Acid, and has a Chemical Abstracts Registry⁶ ("CAS") number of 13252-13-6).⁷

¹ All attachments have been provided on enclosed compact discs.

² E.I. du Pont de Nemours and Company owned and operated the Fayetteville Works facility from the 1970s until the company formed Chemours Company FC, LLC, and transferred ownership to Chemours in 2015. Amended Complaint, N.C. Dept. of Environmental Quality v. Chemours, 17 CVS 580, 14 (N.C. Super. 2018) (hereinafter "N.C. DEQ Amended Complaint"), included as Attachment 1.

³ The N.C. Department of Environmental Quality also refers to this manufacturing area as the "Vinyl Ethers North process area." N.C. DEQ Amended Complaint at 15; N.C. DEQ, N.C. Division of Air Quality, Letter to Chemours, "60-Day Notice of Intent to Modify Air Quality Permit No. 03735T43, Apr. 6, 2018, 2 (hereinafter "N.C. DAQ 60-Day NOI"), included as Attachment 2.

⁴ Chemours NPDES Permit Renewal Application, Supplemental Information – Current Facility Operating Conditions, Apr. 27, 2016 (hereinafter "Chemours NPDES Application"), included as Attachment 3.

⁵ *Id.*

⁶ CAS numbers are universally used to provide a unique identifier for chemical substances.

⁷ Chemours NPDES Application; N.C. DEQ Amended Complaint at 14-15.

Both the PPA and the Nafion Membrane Manufacturing Areas release air emissions containing GenX, as well as two other closely related compounds which both convert to GenX in the presence of water:

- HFPO Dimer Acid Fluoride (also known as C3 Dimer Acid Fluoride), which has a CAS number of 2062-98-8, and
- HFPO Dimer Acid Ammonium Salt (also known as C3 Dimer Acid Ammonium Salt), which has a CAS number of 62037-80-3.⁸

Chemours has determined that the stack from its Nafion Membrane Manufacturing Area releases 1,257 pounds of GenX compounds per year, and the stack from its PPA Manufacturing Area releases 670 pounds per year.⁹ The company also estimated that leaks from the facility cause about 314 pounds of GenX compounds to be released.¹⁰ In total, the company reported that it emits GenX compounds at a rate of 2,758 pounds per year.¹¹

B. EPA's Toxic Substances Control Act consent order

Under Section 5 of the TSCA, no person may manufacture or import a “new chemical substance” or manufacture or process any chemical substance for “a significant new use” unless (1) pre-manufacture notice is filed with the EPA, (2) the EPA reviews the notice, and (3) the EPA makes a determination of the human health and environmental risks of the chemical.¹² Pre-manufacture notice submitted to the EPA must include data on the health and ecological effects of the chemical substance, including “all test data in the submitter’s possession or control,” as well as data “that are known to or reasonably ascertainable by the submitter.”¹³

If EPA determines that there is insufficient information about the chemical substance,¹⁴ the EPA “shall issue an order [...] to prohibit or limit the manufacture, processing, distribution in

⁸ N.C. DAQ 60-Day NOI at 3.

⁹ N.C. DAQ 60-Day NOI at 2. These estimates have likely changed. DEQ reported in its amended complaint that Chemours emits a total of 2,241 pounds of GenX compounds each year. On April 26, 2018, DEQ updated that number to 2,758 pounds per year. N.C. DEQ Presentation to the House Select Committee on North Carolina River Quality, slide 15, Apr. 26, 2018 (hereinafter “N.C. DEQ Apr. 26 Presentation”), included as Attachment 4.

¹⁰ N.C. DAQ 60-Day NOI at 2.

¹¹ N.C. DEQ Apr. 26 Presentation at slide 15; N.C. DEQ Amended Complaint at 28; N.C. DAQ 60-Day NOI at 2.

¹² 15 U.S.C. § 2604.

¹³ 40 C.F.R. § 720.50.

¹⁴ The full text of 15 U.S.C. § 2604(e)(1)(A), as amended in 2016 states that the EPA “shall issue an order” if it determines that:

- (i) the information available to the Administrator is insufficient to permit a reasoned evaluation of the health and environmental effects of a chemical substance with respect to which notice is required by subsection (a); or
- (ii)(I) in the absence of sufficient information to permit the Administrator to make such an evaluation, the manufacture, processing, distribution in commerce, use, or disposal of such substance, or any combination of such activities, may present an unreasonable risk of injury to health or the environment, without consideration of costs or other nonrisk factors, including an unreasonable risk to a potentially exposed subpopulation identified as relevant by the Administrator under the conditions of use; or
- (II) such substance is or will be produced in substantial quantities, and such substance either enters or may reasonably be anticipated to enter the environment in substantial quantities or there is or may be significant or substantial human exposure to the substance.

commerce, use, or disposal of such substance or to prohibit or limit any combination of such activities to the extent necessary to protect against an unreasonable risk of injury to health or the environment...”¹⁵ The statute states that “the submitter of the notice may commence manufacture of the chemical substance, or manufacture or processing of the chemical substance for a significant new use, including while any required information is being developed, *only in compliance with the order.*”¹⁶ 15 U.S.C. §2614 further states that “[i]t shall be unlawful for any person to fail or refuse to comply with any [...] order issued” under Section 5 of TSCA, and 15 U.S.C. §2615 provides for both civil and criminal penalties for violations of orders issued under Section 5.

DuPont filed pre-manufacture notices for two GenX compounds:

- P-08-508- Perfluorinated aliphatic carboxylic acid, or “GenX,” or HFPO Dimer Acid (CAS Number 13252-13-6) and
- P-08- 509- Perfluorinated Aliphatic Carboxylic Acid, Ammonium Salt, or HFPO Dimer Acid Ammonium Salt (CAS Number 62037-80-3).¹⁷

The EPA reviewed data submitted by DuPont on these two chemicals and voiced concerns that they would “persist in the environment” and that they “could bioaccumulate, and be toxic [...] to people, wild mammals, and birds.”¹⁸ The EPA described “human health concerns” for the chemicals because they “are expected to be absorbed by all routes of exposure” and GenX, in particular, “is expected to be highly irritating or corrosive.”¹⁹ Animal studies showed decreases in red blood cell counts, hemoglobin, and hematocrit, as well as increases in liver weights, and effects on kidneys.²⁰ The company’s toxicity studies also showed “systemic toxicity in animals.”²¹

Finding that DuPont was missing key toxicological studies, such as information on chronic and carcinogenic effects,²² EPA stated that “more information is needed on the toxicity and pharmacokinetics” of GenX—particularly given that GenX would likely “be used as a major substitute” for perfluorooctanoic acid (“PFOA”),²³ which has been found to cause developmental effects to fetuses and infants, kidney and testicular cancer, liver malfunction, hypothyroidism, high cholesterol, ulcerative colitis, lower birth weight and size, obesity, decreased immune response to vaccines, and reduced hormone levels and delayed puberty.²⁴ The consent order

¹⁵ 15 U.S.C. § 2604(e)(1)(A).

¹⁶ *Id.*

¹⁷ EPA, Consent Order and Determinations Supporting Consent Order for PMN Substances P-08-508 and P-08-509, v (2009) (hereinafter “TSCA Consent Order”), included as Attachment 5; Chemical substance identities were also confirmed with EPA TSCA chemical substance tracking site, Entries for P-08-508 and P-08-509, EPA ChemView site, *available at* <https://chemview.epa.gov/chemview> (last visited Apr. 16, 2018).

¹⁸ TSCA Consent Order at vii.

¹⁹ *Id.* at vii.

²⁰ *Id.* at vii.

²¹ *Id.* at ix.

²² *Id.* at ix.

²³ *Id.* at x-xi.

²⁴ The Madrid Statement on Poly- and Perfluoroalkyl Substances (PFASs), A 107 (May 2015, included as Attachment 6; *see also* EPA, Health Effects Support Document for Perfluorooctanoic Acid (PFOA) (2016), included

further stated that the substances are expected “to be highly persistent in the environment,” and that “there is high concern for possible environmental effects over the long-term.”²⁵

Ultimately, pursuant to Section 5(e)(1)(A)(i) of TSCA, the EPA determined “that the information available to the Agency is insufficient to permit a reasoned evaluation of the human health and environmental effects of the [pre-manufacture notice] substances.”²⁶ The consent order continues, “[i]n light of the potential risk of human health and environmental effects [...], EPA has concluded:

- that uncontrolled manufacture, import, processing, distribution in commerce, use and disposal of the [pre-manufacture notice] substances may present an unreasonable risk of injury to human health and the environment,”²⁷ and
- “that the [pre-manufacture notice] substances will be produced in substantial quantities [...], may be reasonably anticipated to enter the environment in substantial quantities [...], and there may be significant (or substantial human exposure to the substances.”²⁸

The consent order therefore requires the company to:

recover and capture (destroy) or recycle the [pre-manufacture notice] substances at an overall efficiency of 99% from all the effluent process streams and the air emissions (point source and fugitive).²⁹

Although DuPont has since submitted multiple studies to the EPA on the two chemicals since EPA issued the consent order, the EPA has not modified the Order with based on the studies submitted.³⁰ When DuPont transferred ownership of the Fayetteville Works Facility to Chemours in 2015, Chemours became responsible for complying with the DuPont’s consent order with the EPA.³¹

II. Chemours is in violation of its TSCA Consent Order with the EPA

Chemours is releasing GenX compounds, which include GenX, HFPO Dimer Acid Ammonium Salt, and HFPO Dimer Acid Fluoride, from at least two point sources—the Division stack from the Nafion Membrane Manufacturing Area and the PPA stack from the PPA Manufacturing Area without the controls required by the consent order. Based on testing the

as Attachment 7; EPA, Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA) (2016), included as Attachment 8.

²⁵ TSCA Consent Order at vii, xi, xii.

²⁶ *Id.* at xv.

²⁷ *Id.*

²⁸ *Id.*

²⁹ *Id.* at 36.

³⁰ Entries for P-08-508 and P-08-509, EPA ChemView, *available at* <https://chemview.epa.gov/chemview> (last visited Apr. 16, 2018).

³¹ TSCA Consent Order at 43 (“If the transfer from the Company to the Successor in Interest is effective after EPA receives a NOC, the Successor in Interest shall comply with the terms of this Order...”).

company conducted from January 22-25, 2018, Chemours determined that its stack from its Nafion Membrane Manufacturing Area releases 1,257 pounds of GenX compounds per year, and that its stack from its PPA Manufacturing Area releases 670 pounds per year.³²

Chemours is also releasing fugitive air emissions in violation of its consent order. Chemours has also estimated that simply the leaks from pumps, valves, and connectors located on the facility cause 314 pounds of GenX compounds to be emitted into the air each year.³³ Chemours has also caused large leaks of air emissions from its stacks. On October 6, 2017, Chemours concealed an air emissions leak that lasted 13 hours, containing 125 pounds of GenX compounds.³⁴

In total, Chemours estimates that it releases GenX compounds at a rate of 2,758 pounds per year.³⁵ Chemours has failed, and continues to fail, to “recover and capture (destroy) or recycle” its GenX, or HFPO Dimer Acid, and HFPO Dimer Acid Ammonium Salt air emissions “at an overall efficiency of 99%” in violation of its TSCA consent order.

III. Chemours’ violations are causing imminent danger to human health and safety

Chemours’ emissions of GenX and other perfluoroalkyl and polyfluoroalkyl substances compounds (collectively, “PFAS compounds”) have caused, and continue to cause, extensive toxic contamination of the air, surface and groundwaters, sediment, and even honey. As the North Carolina Department of Environmental Quality has stated,

It is now evident that a primary source of surface water and groundwater contamination in and around the Fayetteville Works facility is Chemours’ ongoing emissions of GenX and related compounds into the atmosphere and the deposition of those compounds onto the land and waters of the State.³⁶

GenX has been found in at least 690 private wells up to 5.5 miles away from the facility’s border, in levels as high as 4,000 ppt.³⁷ Groundwater sampled at the site of the facility has contained concentrations of GenX up to 640,000 parts per trillion.³⁸

Studies conducted by DuPont and others since issuance of the consent order indicate toxicity for humans. For instance, DuPont conducted such a 2-year Chronic Toxicity/Carcinogenicity study and found the following effects in rats:

³² N.C. DAQ 60-Day NOI at 2. These estimates have likely changed. DEQ reported in its amended complaint that Chemours emits a total of 2,241 pounds of GenX compounds each year. On April 26, 2018, DEQ updated that number to 2,758 pounds per year. N.C. DEQ Apr. 26 Presentation at slide 15.

³³ Chemours Letter to N.C. DEQ, “Chemours – Fayetteville Works – Emissions Test Report,” 2, Mar. 12, 2018, included as Attachment 9.

³⁴ DEQ Press Release, “DEQ investigating air emissions leak at Chemours,” Nov. 17, 2017, included as Attachment 10.

³⁵ N.C. DEQ Apr. 26 Presentation at slide 15; N.C. DAQ 60-Day NOI at 2; N.C. DEQ Amended Complaint at 28.

³⁶ N.C. DEQ Amended Complaint at 3.

³⁷ N.C. DEQ Apr. 26 Presentation at slides 9-10.

³⁸ N.C. DEQ Amended Complaint at 10-22, 24-25.

- Livers exhibited severe liver damage via degeneration and necrosis (cell death),
- Kidneys exhibited papillary necrosis (acute cell death) and chronic progressive nephropathy (chronic progressive degradation of kidney functions),
- Uteri exhibited stromal polyps (cell tumors),
- Stomachs exhibited non-glandular mucosal hyperplasia (increased cellular growth),
- Pancreases exhibited acinar cell tumors and equivocal acinar cell hyperplasia (increased cellular growth),
- Testes exhibited interstitial cell tumors and hyperplasia (increased cellular growth),
- Lungs exhibited histiocytosis (chronic scarring of lung tissue),
- Tongues exhibited mucosal hyperplasia/inflammation (increased cellular growth).³⁹

The hyperplasia, or increased cellular growth, that DuPont found in many of the organs is a known precursor to cancer.⁴⁰ Necrosis, which was found in both livers and kidneys, is the irreversible death of cells that happens when there is severe damage to cell membranes so that the contents of the cells leak out and the cell itself is ultimately dissolved.⁴¹ Tellingly, the EPA did not modify its 2009 TSCA Consent Order with DuPont based on the studies that the company submitted.⁴²

Numerous studies have been conducted that also indicate GenX, and similar PFAS alternatives with shorter carbon chains, are dangerous to human health and safety.⁴³ The California Department of Toxic Substances Control reviewed recent

³⁹ DuPont and Chemours' TSCA filing to EPA, "8EHQ-06- 1643 6/8EHQ-06- 16478," Jan. 8, 2013, included as Attachment 11.

⁴⁰ "[I]n many cases pathologic hyperplasia constitutes a fertile soil in which cancers may eventually arise. For example, patients with hyperplasia of the endometrium are at increased risk of developing endometrial cancer." Excerpt explaining "hyperplasia" from Vinay Kumar et al., Robbins basic pathology (9th ed. 2013), included as Attachment 12.

⁴¹ "Necrosis is the type of cell death that is associated with loss of membrane integrity and leakage of cellular contents culminating in dissolution of cells, largely resulting from the degradative action of enzymes on lethally injured cells." Excerpt explaining "necrosis" from Vinay Kumar et al., Robbins basic pathology (9th ed. 2013), included as Attachment 13.

⁴² Entries for P-08-508 and P-08-509, EPA ChemView, available at <https://chemview.epa.gov/chemview> (last visited Apr. 16, 2018).

⁴³ See Melisa Gomis et al., "Comparing the toxic potency in vivo of long-chain perfluoroalkyl acids and fluorinated alternatives," 113 *Environ. International* 1 (2018), included as Attachment 14; Gloria Post et al., "Key scientific issues in developing drinking water guidelines for perfluoroalkyl acids: Contaminants of emerging concern," 15 *PLoS Biol* e2002855 (2017), included as Attachment 15; Melissa Gomis, "From emission sources to human tissues: modelling the exposure to per- and polyfluoroalkyl substances," (2017), included as Attachment 16; Nan Sheng et al., "Cytotoxicity of novel fluorinated alternatives to long chain," 92 *Archives of Toxicol.* 359 (2017), included as Attachment 17; Melisa Gomis et al., "A modeling assessment of the physicochemical properties and environmental fate of emerging and novel per- and polyfluoroalkyl substances," 505 *Sci. of the Total Environ.* 981 (2014), included as Attachment 18; J.M. Rae et al., "Evaluation of chronic toxicity and carcinogenicity of ammonium 2,3,3,3-

scientific literature on such compounds and found that they, in particular GenX, are likely more toxic than the compounds they are replacing:

PFECAs and shorter-chain PFAAs may have *similar or higher toxic potency* than the longer-chain PFAAs they are replacing. Using a toxicokinetic model and existing toxicity data sets, a recent study found that PFBA, PFHxA, and PFOA have the same potency to induce increased liver weight, *whereas GenX is more potent*. The authors concluded that previous findings of lower toxicity of fluorinated alternatives in rats were primarily due to the faster elimination rates and lower distribution to the liver compared to PFOA and other longer-chain PFAAs.⁴⁴

Accordingly, GenX and similar short-chain PFAS compounds could be as harmful, if not more harmful, than the compounds they were created to replace.

Aware of the human health risks of GenX, the North Carolina Department of Health and Human Services has issued a health goal of 140 parts per trillion for the chemical.⁴⁵ Although the agency's establishment of a health goal validates the threat that GenX poses to public health and safety, compliance with the health goal does not ensure protection of the public, as the agency determined the health goal before many key studies on the human health risks of short-chain compounds had been published.⁴⁶

IV. Persons responsible for violations

The Fayetteville Works Facility is owned and operated by Chemours Company FC, LLC. Chemours Company FC, LLC is a Delaware limited liability company registered and doing business in North Carolina. Chemours Company FC, LLC is responsible for all violations at the Fayetteville Works Facility.

V. Persons giving notice

Cape Fear River Watch is a § 501(c)(3) nonprofit public interest organization headquartered in Wilmington, North Carolina that engages residents of the Cape Fear watershed through programs to preserve and safeguard the river. The organization has 1,100 members, including members who live near, drink water from, and fish, swim, and boat on the Cape Fear River downstream of the Chemours facility. Cape Fear River Watch's mission is "to protect and improve the water quality of the Lower Cape Fear River Basin through education, advocacy and action." In order to fulfill that mission, the organization works to protect the entire river from

tetrafluoro-2-(heptafluoropropoxy)-propanoate in SpragueDawley rats," 2 *Toxicol. Rep.* 939 (2015), included as Attachment 19.

⁴⁴ California Department of Toxic Substances Control, "Product – Chemical Profile for Perfluoroalkyl and Polyfluoroalkyl Substances (PFASs) in Carpets and Rugs" 29 (2018) (emphasis added), included as Attachment 20.

⁴⁵ N.C. DHHS, "Questions and Answers Regarding North Carolina Department of Health and Human Services Updated Risk Assessment for GenX (Perfluoro-2-propoxypropanoic acid)," July 14, 2017, included as Attachment 21.

⁴⁶ N.C. DHHS published its GenX health goal of 140 ppt on July 14, 2017. *Id.* Numerous studies on short-chain PFAS alternatives were published after that date. *See supra* note 43.

pollution, including toxic chemicals, such as the GenX compounds that have been released from the Fayetteville Works Facility for decades, and continue to be pumped into the environment at alarming rates.

The names, addresses, and phone numbers of the persons giving notice are:

Kemp Burdette
Cape Fear Riverkeeper
Cape Fear River Watch
617 Surry St.
Wilmington, N.C. 28401
Phone: (910) 762-5606

If you have any questions concerning this letter or the described violations, or if you believe this notice is incorrect in any respect, please contact the undersigned counsel, the Southern Environmental Law Center, at (919) 967-1450 (tel.), (919) 929-9421 (fax). During the notice period, we are available to discuss this matter with you, but suggest if you desire to institute negotiations in lieu of a civil action that you do so immediately as we do not intend to delay prosecution of this suit once the notice period has expired. Please be advised that the failure to remedy any of the violations set forth in this letter can result in a court order enjoining further violations and imposing civil penalties of \$37,500 per violation, per day for each violation of the Toxic Substances Control Act.⁴⁷ In addition, upon the successful prosecution of this suit, the Cape Fear River Watch to seek compensation for attorneys' fees and the costs of litigation under the citizen suit provisions of the Toxic Substances Control Act.⁴⁸

⁴⁷ 15 U.S.C. § 2615.

⁴⁸ 15 U.S.C. § 2619.

Thank you for your prompt attention to this matter.

Sincerely,



Geoff Gisler
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Enclosures – compact disc

Cc (*Via electronic mail, without attachments*):

Kemp Burdette, Cape Fear River Watch