Chemours Company – Fayetteville Works

Hearing Officer's Report and Recommendations

Public Hearing
February 18, 2019
Bladen Community College Auditorium
7418 NC Highway 41 W | Dublin, North Carolina 28332

Public Comment Period: January 18, 2019 through February 22, 2019

Pertaining to Permit Application No. 0900009.18B and
Draft Air Quality Permit No. 03755/T44 for:

Chemours Company – Fayetteville Works
22828 NC Highway 87W | Fayetteville, North Carolina 28306
Bladen County
Facility ID No. 0900009
Classification: Title V

Hearing Officer
T. Ray Stewart, Jr., P.E., CPM
Regional Supervisor, Raleigh Regional Office

Hearing Officers Report
Chemours Company – Fayetteville Works
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I. Background

On July 2, 2018, the North Carolina Department of Environmental Quality (DEQ), Division of Air Quality (DAQ), received an Air Quality Permit revision application (App. No. 0900009.18B) from Chemours Company – Fayetteville Works (Chemours). The purpose of the application was to modify the facility's existing Air Quality Permit (Permit No. 03735/T43) in order to construct and operate a thermal oxidizer/scrubber system and a lime processing system. Additionally, on November 9, 2018, an addendum to the above referenced Air Quality Permit revision application was received by the DAQ to add a pair of carbon adsorbers and the requirement for an Enhanced Leak Detection and Repair (LDAR) program to the facility's existing Air Quality Permit, as well as an agreement to reduce existing levels of GenX emissions by 99% by weight relative to the 2017 Total Reported Emissions of 2,302.7 pounds per year. The facility is located just southeast of Fayetteville, near Gray's Creek, Bladen County, North Carolina which is located in the DAQ Fayetteville Region (FRO).

II. Air Quality Permit Application and Permit Review

The DAQ's mission is to work with the state's citizens to protect and improve outdoor, or ambient, air quality in North Carolina for the health, benefit and economic well-being of all. To accomplish this mission, the DAQ requires industrial facilities to apply for and receive Air Quality Permits prior to construction and operation of the air pollution sources and air pollution control equipment to ensure compliance with all applicable federal and state regulations.

Chemours is a chemical manufacturing facility. The facility currently manufactures chemicals, plastic resins, plastic sheeting, and plastic film. Specific materials produced at Chemours include Nafion® Fluorocarbon membrane, fluorocarbon intermediates for Nafion® membranes and other fluorocarbon products, and fluoropolymer processing aids. The facility consists of two individual manufacturing plants (the FPS/IXM or Nafion® Process and the Polymer Processing Aid Process), a boiler house and a waste treatment operation. Currently, no process wastewater from the Chemours facility is discharged to the wastewater treatment plant (WWTP), except reject water from making filtered, deionized/degassed water at the power plant. The WWTP handles process and sanitary wastewater streams from two other facilities located on the site, Kuraray and DuPont. The facility also has two permanent boilers onsite, one boiler which is permitted but not yet constructed, and one permitted temporary boiler. Chemours is a major source of criteria pollutants under the 40 CFR Part 70 (Title V) Operating Permit Program, a major source of hazardous air pollutants (HAP) under 40 CFR 63, and a major source under New Source Review (NSR) under 40 CFR 51.

In June of 2017, the North Carolina Department of Environmental Quality and the Department of Health and Human Services (DEQ and DHHS) began investigating the presence of perfluoro-2-propoxypropanoic acid, the chemical compound known as GenX, in the Cape Fear River.

Chemours was identified as the company that produces GenX chemical for industrial processes. This investigation initially focused on the protection of public health and drinking water.

In the subsequent months, the DAQ began investigating the contribution of air emissions to the presence of GenX in the groundwater and the Cape Fear River. The DAQ and Chemours developed methodologies for sampling and analysis of sources of GenX. In January of 2018, at the direction of, and in coordination with the DAQ, Chemours began a stack testing program using these new methods.

At the same time, the DAQ also began a program of rainwater collection and analysis to determine GenX concentrations present in rainwater. Based on information collected from the stack testing program in conjunction with the rainwater sampling, the DAQ determined that the level of GenX emissions being released into the air was higher than it originally understood.

On April 6, 2018, the DAQ submitted a letter notifying Chemours of its intent to modify its Air Quality Permit (Permit No. 03735/T43) within 60 days of the written notice, as allowed under North Carolina General Statutes (N.C.G.S) 143-215.108(c)(3). Per 15A NCAC 02Q. 0519(a)(2), the Director of the DAQ is authorized to modify a permit for several reasons, including if "the conditions under which the permit or permit renewal was granted have changed," or if the Director finds that modification "…is necessary to carry out the purpose of N.C.G.S. 143, Article 21B" under 15A NCAC 02Q. 0519(a)(7). These provisions are incorporated into General Condition S of the permit.

In the letter, the DAQ stated its conclusion that the conditions under which the current permit (T43) was issued had changed. Specifically, at the time the currently effective permit was issued, the DAQ had no knowledge that:

- Chemours was emitting GenX compounds at the current rates, as determined by stack testing;
- the GenX compounds emitted from the facility at these rates were being transmitted and deposited on the land surface by rainfall several miles away from the facility; and
- such deposition caused or contributed to widespread contamination of groundwater in violation of the State's groundwater standards.

Further, the DAQ stated that modification of the permit was necessary to carry out the purpose of N.C.G.S. Chapter 143, Article 21B. As stated in the letter:

> *DAQ believes N.C.G.S. §143-211 establishes a clear mandate for environmental protection and conservation of natural resources by DAQ. The statute endorses a "total environment of superior quality" and repeatedly speaks to coordinated protection of water and air resources. (Groundwater is included in the definition of "waters" in N.C.G.S. §143-212.) A frequent refrain in this policy statement is prevention of damage*

and preservation of natural resources for the benefit of all citizens of the State, including preserving opportunities for "healthy industrial development" and encouraging "the expansion of employment opportunities." Overall, Article 21B directs DAQ to protect the public and North Carolina's endowment of natural resources.

The DAQ believed that there was a link between GenX emissions from Chemours and widespread contamination of groundwater and, therefore, the DAQ considered modification of the Chemours air permit to carry out the purposes of Article 21B. As such, the DAQ submitted its April 6th notification letter. By April 27, 2018, Chemours was required to do one of the following:

(1) respond to the DAQ in writing and demonstrate to the DAQ's satisfaction that emissions of GenX compounds from the Fayetteville Works under current conditions do not cause or contribute to violations of the groundwater rules; or

(2) respond to the DAQ in writing and demonstrate to the DAQ's satisfaction that emissions of GenX compounds under alternate conditions proposed by Chemours will not cause or contribute to violations of the groundwater rules.

The letter further stated that if Chemours submitted a response under option (1) above and DAQ found that Chemours had met its burden of demonstrating that emissions of GenX compounds did not cause or contribute to groundwater violations under current operating conditions, the DAQ would not modify the Permit. Should Chemours submitted a response under option (2) above and the DAQ found that Chemours had met its burden of demonstrating that emissions of GenX compounds would not cause or contribute to groundwater violations under alternate operating conditions proposed by Chemours, the DAQ would modify the Permit by inserting enforceable conditions corresponding to the alternate operating conditions that would take effect on the effective date of the proposed permit modification.

On April 27, 2018, Chemours submitted a response to the 60-day notification with proposed alternate conditions. In their response, Chemours committed to reducing air emissions of GenX compounds by taking the following actions:

- Installing state-of-the-art emission control technology. Chemours committed to installing a thermal oxidizer to destroy 99.99 percent of all GenX and other per- and polyfluoroalkyl substance (PFAS) vapors coming from the Vinyl Ethers North, Vinyl Ethers South, and relevant portions of the Polymers Plants. In addition to the thermal oxidizer, the control technology contains other elements, namely a thermolysis reactor and ion exchange and carbon adsorption controls to address aqueous streams.

- Interim Measures. Because the thermal oxidizer is estimated to take 18 to 24 months to manufacture and install, Chemours committed to taking multiple interim measures to reduce GenX emissions, as follows:

- By May 25, 2018, installation of carbon adsorption systems on the process and indoor air equipment emissions from the Polymer Processing Aid (PPA) facility and the indoor air equipment emissions at the Vinyl Ethers – North (VEN) facility. Chemours stated that they expected to reduce GenX emissions from PPA by more than 97 percent and more than 90 percent from the VEN indoor air.

- Improvements to the Division Waste Gas Scrubber installed on VEN facility by October 2018 that Chemours estimated would reduce GenX emissions by between 40 and 80 percent.

- Implementation of enhanced leak detection and repair (LDAR) facility-wide. Specifically:

  - Implementation of pressure testing using a 0.5 psig pressure drop over a 30-minute interval;

  - Implementation of an enhanced audial, visual, olfactory (AVO) inspection procedure;

  - Performance of an experimental evaluation to verify that a Flame Ionization Detector (FID) TVA-1000B would detect GenX vapors;

  - Identification and tagging of new LDAR points in the VEN, Semi-Works, and PPA areas;

  - Evaluation of preferred method to implement enhanced area monitoring and increase the number of area monitoring sample locations near streams with the potential to include 1 percent by weight of GenX compounds; and

  - Conduct an evaluation of the preferred methods to implement replacement or improvement of valves and connectors, and use the LDAR monitoring to initiate the replacement with low-emission technology.

As stated in Chemours' April 27, 2018 letter, Chemours proposed alternate conditions (discussed above) by which facility-wide GenX emissions would be reduced by 99 percent. The DAQ evaluated the Chemours proposal and requested that Chemours submit a permit application by which the DAQ would modify the permit to insert enforceable conditions corresponding to the alternate operating conditions. As such, Chemours submitted a Permit Application No. 0900009.18B on July 2, 2018 to request a modification to their current permit (T43) to add a Thermal Oxidizer/Scrubber System and Lime Processing System along with other ancillary equipment. Chemours has committed that the Thermal Oxidizer/Scrubber System and the associated equipment would be fully operational by December 31, 2019. On November 9, 2018, the DAQ received an addendum to the permit application in order to add the carbon adsorber

systems, previously an interim GenX emission reduction measure to the Air Quality Permit, as well as an Enhanced LDAR program and a requirement to reduce existing levels of GenX emissions by 99% by weight the 2017 Total Reported Emissions of 2,302.7 pounds per year.

In addition to the above referenced permit application, a Proposed Consent Order (PCO) was lodged with the Bladen County Superior Court on November 28, 2018. The PCO listed the State of North Carolina, via the DEQ, as the Plaintiff, Cape Fear River Watch as the Plaintiff-Intervenor, and Chemours as the Defendant. The PCO contained the following requirements:

- Install pollution control technology on an accelerated basis.
- Reduce GenX emissions by 82% by October 6, 2018.
- Reduce GenX emissions by 92% by December 31, 2018.
- Reduce GenX emissions by 99% by December 31, 2019 and control all PFAS at an efficiency of 99.99% through a thermal oxidizer by December 31, 2019

The DEQ put the PCO out for public comment from November 21, 2018 through January 7, 2019, receiving approximately 380 public comments. As a result of those comments, a revised PCO was filed and submitted to Superior Court Judge Douglas B. Sasser for approval on February 20, 2019. Judge Sasser approved, signed and entered the revised PCO on February 25, 2019. In addition to the above referenced requirements, in order to ensure compliance with the 82% and 92% interim reductions in GenX emissions, the final, approved Consent Order requires Chemours to submit an inventory report on a monthly basis, due within 21 days of the previous month, that contains the following information:

- A detailed summary of GenX emissions during the previous calendar month;
- Cumulative GenX emissions to date during the relevant annual compliance period; and
- Projected GenX emissions during the relevant annual compliance period

III. Notice of Public Hearing

On January 18, 2019, a notice of public hearing was posted in the Fayetteville Observer, the Wilmington Star, the Bladen Journal, and on the DAQ website. Likewise, a press release was sent to the media statewide on the same day. The public comment period was noted as January 18, 2019 through February 22, 2019. Copies of the permit application, air permit review and draft air permit were posted on the DAQ website for public review. Copies of the air quality permit application and related documents were also available in the DAQ's FRO and Raleigh Central Office throughout the comment period. The public hearing was held on February 18, 2019 at the Auditorium Building of the Bladen Community College.

IV. Overview of Public Comments Received

From the comments received during the comment period, including oral comments during the Public Hearing, it is apparent that citizens in the area near the Chemours facility and down the Cape Fear River are concerned about potential impacts of GenX and PFAS on their health and property, have a deep distrust of Chemours, and are highly skeptical about the ability of the DEQ to bring about and implement a solution that will prevent further contamination of their air, drinking water, and the Cape Fear River. At the public hearing on February 18, 2019, 18 local citizens were in attendance, along with 28 DEQ staff members. Three of the local citizens in attendance spoke at the hearing. Additionally, a total of 7 written comments from 6 individual citizens were received via email during the public comment period. Of those written comments, 3 were submitted by the 3 individuals who spoke at the public hearing. The content of their written and oral comments were nearly identical.

All comments received during the public comment period, both oral and written, have been evaluated and copies of all written comments and any attachments to those written comments are provided in the appendices of this report. The comments received, both oral and written, expressed similar concerns. Due to the relatively small number of public comments, each of the individuals' written and/or oral comments will be summarized below and addressed on a per individual basis.

A. Commenter: Gail Marie Goodman

Ms. Goodman submitted written comments via email on Tuesday, January 29, 2019 and Sunday, February 10, 2019. Her comments are summarized below:

- She requested a public meeting at UNCW in Wilmington.
- She mentioned the documentary *The Devil We Know* and requested that the DEQ try to get it broadcast on local TV stations.
- She expressed concern about the effects of Chemours pollutants on human and animal health, referencing her own health.
- She expressed a great deal of concern about the thermal oxidizer, especially any problems or accidents that it may create.
- She expressed the opinion that the DEQ should be "addressing our rivers and drinking water first."

Hearing Officer's Response to Ms. Goodman's Comments

The DEQ is deeply concerned about GenX and PFAS contamination of the air, drinking water, and surface water near the Chemours facility and downstream along the Cape Fear River, as well

as the effects of GenX and PFAS exposure on human and animal health. While several public meetings have already been held related to the GenX issue, the DEQ will consider the Wilmington area in planning of future meetings.

The DEQ has no control over the broadcast of the documentary *The Devil We Know* on local TV stations.

The DEQ feels that thermal oxidation is a proven technology for the thermal breakdown/destruction of organic compounds and converting them to simpler and more easily captured compounds. The proposed thermal oxidizer and scrubber system is an appropriate choice to accomplish the required reductions. These systems are designed to minimize emissions. For example, as a part of the thermal oxidizer system, Chemours will install two gas accumulation tanks. These tanks will be sized to hold the waste gas feed to the thermal oxidizer for one hour in the case a malfunction of the thermal oxidizer to allow for the safe shutdown of the associated processes.

While the installation of the proposed thermal oxidizer/scrubber system would have no impact on the remediation of existing GenX and PFAS contamination of the soil, drinking water, and surface water near the Chemours facility, the DEQ feels confident that the new system would be highly effective in preventing further GenX and PFAS contamination from air emissions in the future.

B. Commenter: Kathleen Gallagher

Ms. Gallagher submitted written comments via email on Friday, February 15, 2019. Based on her email signature, Ms. Gallagher was making her comments as a representative of an organization called "NC Stop GenX in Our Water." Her comments are summarized below:

- She references a U.S. Environmental Protection Agency (EPA) Consent Order and Determinations Supporting Consent Order with DuPont, issued under the authority of the Toxic Substances Control Act (TSCA), and signed by EPA on January 26, 2009 and DuPont on January 28, 2009.

- She also references the Notice of Violation (NOV) issued by the EPA, dated February 13, 2019, for violations of TSCA.

- She states that with the issuance of a revised Air Quality Permit, "which does not comply with the TSCA Consent Orders, the State of North Carolina will also be liable for violating TSCA…knowingly."

- She states the DEQ should ensure that the company is in full compliance with TSCA prior to the issuance of the revised Air Quality Permit.

Hearing Officer's Response to Ms. Gallagher's Comments

The Consent Order signed and filed by Judge Sasser on February 25, 2019 requires reductions in GenX emissions from a baseline that already reflects substantial pre-existing emissions controls. The baseline emissions, prior to 2018, account for the primary sources of GenX emissions at the facility already being controlled by scrubbers. In requiring an additional 99% reduction from this baseline, the Consent Order and the proposed revised Air Quality Permit requires Chemours to go far beyond what it has done in the past. Ultimately, by the end of 2019, Chemours will be required to control air emissions of all PFAS compounds routed to the thermal oxidizer by 99.99%.

The air pollutant emissions reductions required under the TSCA Consent Order and the Consent Order signed by Judge Sasser are based on different sources of statutory/regulatory authority. TSCA is administered by the EPA, not the DEQ. It is an independent source of federal authority. The air emissions reductions required under the Consent Order signed by Judge Sasser and by the permit are based on the impacts of Chemours' air emissions on groundwater, and it is North Carolina's statutes and regulations that are being enforced through these required reductions in air emission. Nothing in the Consent Order or the proposed revised Air Quality Permit will in anyway interfere with the EPA's ability to exercise its authority as necessary to ensure compliance with TSCA or other federal law. The Consent Order, which includes the emissions reduction requirement being incorporated into the proposed revised Air Quality Permit, has undergone review by the United States Department of Justice, which has affirmed that the Consent Order does not infringe upon regulatory authority of the EPA.

C. Commenter: Debra Stewart

Ms. Stewart was one of three speakers at the Public Hearing held on Monday, February 18, 2019. Likewise, Ms. Stewart also submitted written comments via email on Wednesday, February 20, 2019. Her oral and written comments were very similar and are summarized below:

- She stated that she wants no new/revised Air Quality Permit issued to Chemours and wants the facility to be shut down.

- She stated that she feels that the facility has "a poor track record" which makes them "incapable" of operating the facility in compliance.

- She expressed concern about the effects of Chemours pollutants on human and animal health.

Hearing Officer's Response to Ms. Stewart's Comments

As discussed earlier in the Hearing Officer's Response to Ms. Goodman, the DEQ is deeply concerned about GenX and PFAS contamination of the air, drinking water, and surface water

near the Chemours facility and downstream along the Cape Fear River, as well as the effects of GenX and PFAS exposure on human and animal health.

While recent investigations and their associated findings have indicated a need to revise the existing Air Quality Permit for Chemours in order to require additional air pollution control equipment on processes that emit GenX and PFAS, a review of DAQ records indicate the facility has not been issued a Notice of Violation for violations of existing state and federal air quality regulations or its Air Quality Permit since 2009. The Hearing Officer feels that the requirements of the proposed revised Air Quality Permit, in combination a consistent regimen of compliance inspections by DAQ personnel should be sufficient to ensure compliance.

D. Commenter: Bruce Skinner

Mr. Skinner was one of three speakers at the Public Hearing held on Monday, February 18, 2019. Likewise, Mr. Skinner also submitted written comments via email on Friday, February 22, 2019. His oral and written comments were very similar and are summarized below:

- He referenced proposed operational limits for the proposed thermal oxidizer and caustic scrubber in the air permit revision application, then recommended these parameters be monitored continuously by dual, parallel instrumentation. Moreover, he recommended that for any given operational parameter, the parallel instrumentation must agree within ±2% of total range of each control loop in order to ensure the proper operation and reliability of the proposed thermal oxidizer and caustic scrubber.

- He referenced the Enhanced LDAR program required in the draft revised Air Quality Permit proposal and had the following comments/questions:

    - The Enhanced LDAR program should be in place for all process lines with the potential of having ≥1% by weight (b.w.) of GenX or other related compounds.

    - He asked at what pressure will any pressure testing begin.

    - He asked how will transfer piping or process lines without a pressure transmitter on them be able to monitor and record the pressures during the testing period and stated that the data from these tests must be recorded in "the CMS."

- He referenced the ventilation exhaust stacks in the "tower" areas and made the following comments:

    - The ventilation stacks for the enclosed tower areas are not monitored for release of chemicals. The system currently produces an alarm when a leak is detected in the towers. This is a possible source of the contamination from the facility. How will this be addressed?

- All the stacks need to have a Gas Chromatograph sampling line with continuous monitoring, as the amount and type of chemicals being exhausted from the towers must be determined.

- He made a comment about the reporting of information: "The proposal indicates values must be reported to the DEQ on a monthly and quarterly basis. Can this info be shared with the public to allow transparency of the operation?"

Hearing Officer's Response to Mr. Skinner's Comments

After the careful review of the permit application by the DAQ's professional staff and after careful consideration of Mr. Skinner's comments, it is the finding of the Hearing Officer that the proposed revised Air Quality Permit's requirements for the monitoring of the operating parameters of thermal oxidizer/scrubber system and carbon adsorber, as well as the permit's Enhanced LDAR program requirements, are sufficient to enable the DAQ to determine the Chemours facility's compliance with the Consent Order.

However, the Hearing Officer has concerns that the current draft revised Air Quality Permit does not sufficiently ensure that the instrumentation and equipment used to monitor the operating parameters of the thermal oxidizer, 4-Stage Scrubber System, and carbon adsorbers will be properly installed, maintained, and calibrated. Likewise, the Hearing Officer has the same concerns about ensuring the proper installation, maintenance, and calibration of any instrumentation and equipment used to implement the Enhanced LDAR Program required by Condition 2.2.D.1.h of the draft revised Air Quality Permit. As such, the Hearing Officer will make appropriate recommendations at the end of this report.

E. Commenter: Rick Spence

Mr. Spence was one of three speakers at the Public Hearing held on Monday, February 18, 2019. Likewise, Mr. Spence also submitted written comments via email on Friday, February 22, 2019. His oral and written comments were very similar and are summarized below:

- He stated that there was zero GenX or PFAS before Chemours/DuPont. He wanted zero GenX or PFAS while they are here and wanted zero when they are gone.

- He expressed the need for a state employee to be at Chemours at all times in order to monitor all air and water emissions.

- He requested that any leaks or spills to be immediately reported to authorities.

- He expressed the need for a facility within 30 minutes of the Chemours site that can test for GenX and PFAS that are in the air, water and ground. Moreover, he requested that this facility not use Chemours employees.

- He requested that water and air testing be done every 30 days at locations where GenX has been tested for previously. He stated that testing at these sites should stop only after 12 consecutive monthly tests show zero GenX/PFAS contamination.

- He requested that the DEQ hold a public meeting every 90 days in order to inform the public of what is being accomplished. Moreover, he requested that notices of meetings be mailed to every residence or business within a 10-mile radius of the plant or 5 miles from the Cape Fear River at least 30 days before the meeting.

- He requested that if there are any spills by the facility, the facility will generate a mass mailing to everyone in the area.

- He requested that "milestones" should be set. If the "milestones" are not met, he stated that those instances "will cause a 50 million dollar fine per each occurrence payable to a local fund for water and air quality."

- He stated that Chemours should "pay the state for all of the above expenses and the state will write the checks for the work."

- He stated that he did not want Chemours to leave the area, because he wanted the company to fund the cleanup and "not laugh all the way to the bank."

Hearing Officer's Response to Mr. Spence's Comments

It was clear from Mr. Spence's comments that he has a deep distrust of Chemours and the ability of the facility to comply with the final, signed Consent Order and the draft revised Air Quality Permit. Many of the requests of Mr. Spence, such as having a state employee at Chemours at all times in order to monitor air and water emissions, having a facility within 30 minutes of the Chemours site that can test for GenX and PFAS that are in the air, water and ground, and having Chemours pay the DEQ the cost of any testing and monitoring work so that the DEQ can hire the contractors, are outside the authority of this permitting action and are simply infeasible to implement. It is the view of the Hearing Officer that the proposed permit revision contains significant monitoring, recordkeeping, and reporting requirements to enable the DAQ to monitor the Chemours facility's compliance with its Air Quality Permit and the final, signed Consent order.

On a similar note, while the concerns expressed by Mr. Spence regarding the DEQ's continued outreach and notifications to local citizens, especially regarding leaks and spills, are legitimate and understandable, the scope of this Public Hearing was the proposed draft revision of Chemours Air Quality Permit and its appropriateness to ensure compliance with state and federal air quality regulations and the final, signed Consent Order. The Hearing Officer recommends that the DEQ continue to expand its public outreach efforts on the GenX and PFAS issue as appropriate.

Finally, Article IX, Section 7 of our State Constitution states, in part, "...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." Thus, any civil financial penalties levied by the DEQ against Chemours for violations of state and federal air quality regulations or its Air Quality Permit must go to the local school systems.

F. Commenter: Stan Long

Mr. Long submitted written comments via email on Friday, February 22, 2019. His comments are summarized below:

- He asked when well water in the area surrounding the facility would be tested again.
- He asked that any enforceable conditions in the Air Quality Permit be communicated by mail to all persons in the affected area, especially those folks on bottled water.
- He stated that permit application stated that Chemours would not accept waste streams from offsite. He asked that the Chemours site in question not be allowed to accept waste streams from any other facilities, including other Chemours facilities.
- He asked about the manner by which the facility would dispose of the aqueous hydrogen fluoride (HF) collected by the catch tank.

Hearing Officer's Response to Mr. Long's Comments

While Mr. Long's concerns about GenX and PFAS contamination in the well water of citizens living near the Chemours facility are understandable, as are his concerns about the waste streams that the Chemours facility may receive, they are not within the purview of this Public Hearing.

In response to Mr. Long's request that any enforceable conditions in the draft revised Air Quality Permit be communicated by mail to all persons in the affected area, it is DAQ policy to ensure that all Air Quality Permits, including their enforceable conditions, are available for download from the DAQ website. Likewise, a paper copy of the signed Air Quality Permit will be available for the public to view at the FRO.

Finally, the aqueous hydrogen fluoride (HF) collected by the catch tank is combined with a lime slurry in the Crystallizer to form calcium fluoride (CaF_2) crystals in a slurry with water. CaF_2 is considered a non-toxic, non-hazardous material. The Crystallizer is a closed vessel and does not generate air emissions. The CaF_2 crystal slurry is then transferred to the Filter Press, where the CaF_2 solids are removed from the water. The dried CaF_2 is then loaded as a solid into trucks for disposal offsite.

V. Conclusions and Recommendations

After considering all the public comments addressing whether the DAQ should modify the facility's existing Air Quality Permit (Permit No. 03735/T43) in order allow for the construction and operation of a thermal oxidizer/scrubber system and a lime processing system, the recommendations of the Hearing Officer are as follows:

- Issuance of the revised Air Quality Permit (Permit No. 03735/T44) to Chemours, with the following changes to the draft revised Air Quality Permit:
    - Remove all references of the "Proposed Consent Order" and replace them with "Consent Order."
    - Ensure that the meanings of the acronyms "CMS" and "MPCU" are defined within the Air Quality Permit at their first use.
    - Add a Permit Condition that explicitly requires the submittal of an installation, maintenance, and calibration plan, for approval by the DAQ, for any instrumentation and equipment used to monitor and record the operating parameters of the thermal oxidizer, 4-stage scrubber system, and carbon adsorbers (Control Device ID Nos. NCD-Q1, NCD-Q2, ACD-A2, and NCD-Q3). The Permit Condition should also require the subsequent implementation of said plan upon its approval.
    - Add a Permit Condition that explicitly requires the submittal of an installation, maintenance, and calibration plan, for approval by the DAQ, for any instrumentation and equipment used to implement the Enhanced LDAR program required by Condition 2.2.D.1.h of the draft permit. The Permit Condition should also require the subsequent implementation of said plan upon its approval.

T. Ray Stewart, Jr., P.E., CPM
Hearing Officer

3/12/2019
Date

Appendix A:

Written Comments

From: Gail Goodman
To: SVC_DENR.DAQ.publiccomments
Subject: [External] Chemours 18B permit
Date: Tuesday, January 29, 2019 10:58:30 PM

CAUTION: External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to report.spam@nc.gov <mailto:report.spam@nc.gov>

To whom it concerns,

Please hold a public meeting at UNCW in Wilmington. It's been a very long time and I don't think that is fair.
I just watched the 2018 Netflix documentary, "The Devil We Know". How on earth are they still functioning with the mountain of proof and lives lost (murder) both human and animal? Chemours is continuing to poison us, deform us, make us sick and kill us.
I've been drinking and cooking with bottled water two years now. I have to bathe in it, though, and breath it. That is not right and paying a water bill is not right either. I've had cancer twice.
If you're in this to help, shut them down!

Hold a meeting in Wilmington and try to get that documentary broadcast on a local channel like fox, pbs, wect, etc..

Thanks,
Gail Marie

Sent from my iPad

From: Gail Goodman
To: SVC_DENR.DAQ.publiccomments
Subject: [External] Chemours 188 permit
Date: Sunday, February 10, 2019 3:13:33 PM

CAUTION: External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to report.spam@nc.gov <mailto:report.spam@nc.gov>

A thermal oxidizer!
What will that unleash from the pit of you know where?
Then comes the problems and accidents in building it. As well, the problem and accidents that happen after its built.
Why is Chemours necessary? Why is Teflon necessary?
Further, how can you move on, for 2 years now, without addressing our rivers and our drinking water first. You have your priorities backwards! That needs to be fixed yesterday!
Again, are you thinking of YOUR children? If you're living in Raleigh, they might relocate to Wilmington or, better yet, Fayetteville!
Seriously?
Gail Marie

Sent from my iPad

From: Kathleen Gallagher
To: SVC_DENR.DAQ.publiccomments
Cc: Tiradu.Nestor@epa.gov; Abraczinskas, Michael; garvey.mark@epa.gov
Subject: [External] Chemours 188. Air permit opposition
Date: Friday, February 15, 2019 1:29:35 PM

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These comments our in opposition of any air permit for Chemours until they come into complete compliance to TSCA orders.

Please downloaded, print and read the following documents. The documents embedded are the 2009 TSCA Order, February 13, 2019 Notice of Violation from USEPA, and reports regarding the violations.

If NCDEQ issues a new air permit, which does not comply with TSCA Consent Orders, the State of North Carolina will also be liable for violating TSCA, therefore, violating the environment and human health, knowingly.

Dupont, then Chemours, was, and still is, subject to a 2009 TSCA consent order issued by the USEPA. Both companies are prohibited from air emissions and imports of these two chemicals:

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

As described in the air permit, "GenX Compounds" means HFPO Dimer Acid, also known as C3 Dimer Acid (CAS No. 13252-13-6); HFPO Dimer Acid Fluoride, also known as C3 Dimer Acid Fluoride (CAS No. 2062-98-8); and HFPO Dimer Acid Ammonium Salt, also known as C3 Dimer Acid Ammonium Salt (CAS No. 62037-80-3).

PubChem lists over 40 synonyms for GenX. (13252-13-6)
https://pubchem.ncbi.nlm.nih.gov/compound/114481#section=Depositor-Supplied-Synonyms&fullscreen=true

II. TERMS OF MANUFACTURE, IMPORT, PROCESSING, DISTRIBUTION IN COMMERCE, USE, AND DISPOSAL PENDING SUBMISSION AND EVALUATION OF INFORMATION PROHIBITION
The Company is **prohibited** from manufacturing, importing, processing, distributing in commerce, using, or disposing of the PMN substances in the United States, for any nonexempt
commercial purpose, pending the development of information necessary for a reasoned

evaluation of the human health and environmental effects of the substance, and the completion of
EPA's review of, and regulatory action based on, that information, except in accordance with the
conditions described in this Order.

CONTROL OF EFFLUENT & EMISSIONS
(a) The Company shall recover and capture (destroy) or recycle the PMN substances at an overall efficiency of **99% from all the effluent process streams and the air emissions (point source and fugitive)**. This was a requirement 10 years ago. Yet, the permit refers:

STATE-ENFORCEABLE ONLY
1. 15A NCAC 02Q .0519(a)(7) and PROPOSED CONSENT ORDER
a. To carry out the purposes of N.C.G.S. §143 Article 21B and to ensure that air emissions do not contribute to groundwater violations, and pursuant to the Proposed Consent Order, the Permittee shall reduce facility-wide annual emissions (including fugitive, maintenance, malfunction, or accidental emissions) of GenX Compounds to less than 23.027 pounds per year, which constitutes a **99 percent reduction from the 2017 Total Reported Emissions of 2,302.7 pounds per year.** The Section 2.2 D.1 requirements shall survive termination of the Proposed Consent Order and any part thereof.
1) the proposed Consent Order has not been signed by a judge, and likely never will be.
2) why is North Carolina ignoring USEPA TSCA Orders for this company?
3) 99% under TSCA is based on zero or pre manufacture baseline, not 2017 emissions.

Had NC understood and enforced all USEPA TSCA orders, NC would not have this catastrophic environmental toxic pollution. Now the NCDEQ is fully aware, and should mandate full compliance before an air permit is renewed, and at that time, compliant with all TSCA Orders.

Additionally, below is a link with other chemicals subject to TSCA orders. Until each and every one of of these chemicals is researched and comply with TSCA, any air permit should be denied.

https://iaspub.epa.gov/enviro/tsca.get_chem_info?v_registry_id=110000559609

Thank you.

Kathleen Gallagher
NC Stop GenX in Our Water 501c3

2009 genx consent order.pdf

Chemours-TSCA-NOV-CBI-SANITIZED-...


TSCA-NON-CBI-R3-Chemours-Inspecti...
Chemours-R4-Sanitized-Report-1.pdf
Addendum-to-R4-Chemours-NonCBI-2...

From: Debra Stewart
To: SVC_DENR.DAQ.publiccomments
Subject: [External] Chemours 18B
Date: Wednesday, February 20, 2019 4:41:56 PM

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No new air permits!! This company needs to adhere to laws and strict rules and enforcement already on the books that protect the environment, communities, and citizens from Chemours spewing toxins in the air and water. Their poor track record proves they are incapable of handling their production, management, and legal disposal of toxic waste. We are in a crisis here as many people are beginning to connect the dots with their own illnesses and those of their neighbors, family, pets, and livestock. This company needs to shut down.

Sent from my iPhone

From: Bruce Skinner
To: SVC_DENR.DAQ.publiccomments
Cc: Bruce Skinner
Subject: [External] Chemours 18b
Date: Friday, February 22, 2019 10:42:21 AM

My comments concerning Chemours request to operate Thermal Oxidizer for PFAS elimination are in Bold type.

Info from Permit Application

Table 5-1: Proposed Operational Limits

Parameter	Value	Units
Thermal Oxidizer (NCD-Q1)		
Minimum Combustion Chamber Temperature	1,800	°F
Maximum Waste Gas Feed Rate	2,200	lb/hr
Caustic Scrubber (NCD-Q2)		
Minimum Scrubber Liquor Flow (4th Stage)	40	gal/min
Minimum Scrubber Liquor pH (4th Stage)	7.1	N/A

Comments:

Due to the critical nature of these parameters, they should have dual instruments, continuous monitor, and they must agree within 2% of total range of each control loop to insure the proper operation, accuracy and reliability of the Thermal Oxidizer and the Caustic Scrubber.

20190118 Chemours 18b Draft Proposal

Inspections and Monitoring – Enhanced Leak Detection and Repair Program [15A NCAC 02Q .0508(f)] h. No later than [enter date 60 days after effective date of permit], the Permittee shall develop, and submit to NC DAQ for approval, an enhanced leak detection and repair program. The Permittee shall conduct inspections and monitor to detect leaks from equipment identified in the approved program. The program shall address the following. i. Pressure testing for 30-minute intervals to detect a pressure drop rate up to 0.5 pounds per square inch (gauge) for those process lines with the potential to include 1 percent by weight

of GenX Compounds, or greater.

Comments:

This will be in place for all lines with the potential of having 1% or greater by weight of GenX and other compounds.

What is the test pressure at which the test will begin?

How will transfer piping or process lines without a pressure transmitter on them, monitor and record the pressures during the testing period. These test must be recorded in the CMS.

The procedures for performing the pressure checks must include all vessels, all piping with line numbers, valve numbers and reporting transmitters. How will this info be documented and shared with DEQ to insure compliance?

Ventilation Exhaust stacks in the Tower areas

Comment:

The ventilation stacks for the enclosed tower areas are not monitored for release of chemicals. All the stacks need to have a Gas Chromatograph sampling line with continuous monitoring. It must be determined the amount and type of chemicals being exhausted for the towers. The system currently produces an alarm when a leak is detected in the towers. This is a possible source of the contamination from the facility. How will this be addressed?

Reporting of information:

The proposal indicate values must be reported to DEQ on a monthly and quarterly basis. Can this info be shared with the public to allow transparency of the operation?

Thank you, Bruce Skinner

Contact Info: email: bsgcncusa@gmail.com

Cell Phone: 910.308.8734

Address: 3834 Tranquility Road, Fayetteville, NC 28306

From: Rick Spence
To: SVC_DENR.DAQ.publiccomments
Subject: [External] Chemours 188
Date: Friday, February 22, 2019 2:04:24 PM
Attachments: image001.png

There was zero GenX or PFAS before Chemours/Dupont. We want zero GenX or PFAS while they are here and we want zero when they are gone.

1 We need a state employee at Chemours 24/7 monitoring all air and water emissions.

2 Any leaks or spills will cause immediate notification to authorities.

3 We need a facility within 30 minutes of the Chemours site that can test for GenX and PFAS and any other of the numerous chemicals, toxins and poisons that are in the air, water and ground. This

Facility is not to use Chemours employees.

4 Water and air testing is to be done every 30 days at every site where GenX has been tested for. Testing at this site will stop when 12 consectutive monthly tests show zero contamination.

5 Notices of meetings will be mailed to every residence or business within a 10 mile radius of the plant or 5 miles from the Cape Fear River at least 30 days before the meeting.

6 We will have a meeting every 90 days and be apprised of what is being accomplished.

7 Any spills will generate a mass mailing to everyone in the area.

8 Milestones will be set and if they are not met, will cause a 50 million dollar fine per each occurrence payable to a local fund for water and air quality.

9 Chemours is to pay the state for all of the above expenses and the state will write the checks for the work.

10 We don't want Chemours to leave the area. We want them to fund the cleanup and not laugh all the way to the bank.

Rick Spence
Plumbing Manager
Smith's Refrigeration, Inc.
(910) 739-7970

From: Stan Long
To: SVC_DENR.DAQ.publiccomments
Subject: [External] Chemours 18b
Date: Friday, February 22, 2019 2:37:31 PM
Attachments: Chemours 18B.pptx

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According to DAQ, a causal link between GenX Compound emissions from Chemours and widespread degradation of groundwater has been confirmed and, therefore, DAQ is required to consider modification of the Chemours air permit to carry out the purposes of Article 21B. As such, DAQ submitted their April 6th notification letter. DAQ provided an opportunity for Chemours to show compliance by doing one of the following

When will a well water retest be conducted on those of us within the affected area ?

DAQ evaluated the Chemours proposal and asked Chemours to submit a permit application by which DAQ will modify the permit to insert enforceable conditions

The enforceable conditions should be communicated by mail to all persons within the affected area, essentially those of us that are on bottled water.

Chemours stated in their permit application that this system will not accept any waste streams outside of the Fayetteville Works site boundary.

This should include any waste compound (liquid vapor or solid) from other Chemours or similar industries

Catch Tank: This tank collects dilute (18 weight percent) aqueous hydrogen fluoride (HF) acid generated during the thermal conversion of fluorinated hydrocarbons.

How will the Catch Tank waste be disposed

- [redacted]

Appendix B:

Kathleen Gallagher Email Attachment Titled
"2009 genx consent order"

RA
3/10/09

MP
3/11/09

TK
4/9/09

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF POLLUTION PREVENTION AND TOXICS

REGULATION OF NEW CHEMICAL SUBSTANCES

PENDING DEVELOPMENT OF INFORMATION

In the matter of:	)	Premanufacture Notice Numbers:
	)	
	)	
	)	
	)	
	)	
DuPont Company	)	P-08-508 and P-08-509
	)	
	)	
	)	EPA SANITIZED
	)	
	)	

Consent Order and Determinations Supporting Consent Order

TABLE OF CONTENTS

I. INTRODUCTION

Under the authority of § 5(e) of the Toxic Substances Control Act ("TSCA") (15 U.S.C. 2604(e)), the Environmental Protection Agency ("EPA" or "the Agency") issues the attached Order, regarding premanufacture notices ("PMNs") P-08-508 for the chemical substance [ ] and P-08-509 for the chemical substance [ ] ("the PMN substances") submitted by DuPont Company ("the Company"), to take effect upon expiration of the PMN review period. The Company submitted the PMNs to EPA pursuant to § 5(a)(1) of TSCA and 40 CFR Part 720.

Under § 15 of TSCA, it is unlawful for any person to fail or refuse to comply with any provision of § 5 or any order issued under § 5. Violators may be subject to various penalties and to both criminal and civil liability pursuant to § 16, and to specific enforcement and seizure pursuant to § 17. In addition, chemical substances subject to an Order issued under § 5 of TSCA, such as this one, are subject to the § 12(b) export notice requirement.

II. SUMMARY OF TERMS OF THE ORDER

The Consent Order for these PMN substances requires the Company to:

(a) submit to EPA certain toxicity and pharmacokinetics testing on the PMN substance described in P-08-509 at least 14 weeks before manufacturing or importing a total of [ ] kilograms (kgs) of the two PMN substances (or 2 years, whichever comes later, for two of the studies) and [ ] kgs of the two PMN substances combined;

(b) require any workers who may be exposed to wear impervious gloves and distribute the PMN substances to only those customers that agree to require impervious gloves;

(c) require any workers who may be exposed via inhalation to P-08-508 to wear a respirator with a NIOSH Assigned Protection Factor ("APF") of 3000 and distribute to only those customers that agree to require those respirators;

(d) require any workers who may be exposed via inhalation to P-08-509 to wear an appropriate NIOSH-approved respirator and distribute only to customers that agree to require respirators for any workers reasonably likely to be exposed by inhalation;

(e) as an alternative to using respirators, maintain workplace airborne concentrations of the PMN substances in the United States at or below a specified New Chemical Exposure Limit ("NCEL") of 0.01 mg/m3 (based on the current ACGIH TLV/TWA for the ammonium salt of perfluorooctanoic acid ("APFO")) and distribute only to those customers in the United States that maintain this NCEL. (To pursue this option, a sampling and analytical method must be developed by the Company, verified by an independent third-party laboratory, and submitted to EPA.);

(f) for operations in the United States, recover and capture (destroy) or recycle the PMN substances from all the process wastewater effluent streams and air emissions (point source and fugitive) at an overall efficiency of 99% and distribute only to those customers that achieve this percentage of efficiency or destruction;

(g) distribute the polymers containing the PMN substances (residuals) at levels not to exceed those specified in this Order and verified using the method in Larsen et al. (2006);

and

(h) maintain certain records.

III. CONTENTS OF PMN

Confidential Business Information Claims (Bracketed in the Preamble and Order): specific chemical identity, production volume, manufacturing process and sites, processing, use, and other information

Chemical Identities:

Specific: **P-08-508** [ ]

CAS no.: [ ] and **P-08-509** [

] CAS no.: [ ].

Generic chemical identity: **P-08-508**– Perfluorinated aliphatic carboxylic acid and **P-08-509**–Perfluorinated Aliphatic Carboxylic Acid, Ammonium Salt

Use:

Specific: **P-08-508**-[

] and **P-08-509**-[

] Intended to replace [

]

Generic: **P-08-508**-Intermediate for polymerization aid, **P-08-509**-polymerization aid

Maximum 12-Month Production Volume: **P-08-508**-[ ] kgs, **P-08-509**-[ ] kgs

Test Data Submitted with PMN: Physical and Chemical characteristics; Determination of the Dissociation Constant (salt); Determination of Water Solubility and Vapor Pressure; Biopersistence and Pharmacokinetic Screen in the Rat; In Vitro Trout Hepatocyte

Bioaccumulation Screen; Thermal Decomposition Study results

Toxicity: Acute oral toxicity, up-and-down procedure and Acute Oral Test (rats and mice); Approximate Lethal Dose (ALD) in rats and mice; Acute Dermal Toxicity in Rats; Approximate Lethal Dose (ALD) by Skin Absorption in Rabbits; Local Lymph Node Assay (LLNA) in Mice; Acute Eye Irritation in rabbits; Acute Dermal Irritation Study in Rabbits; 7-day Repeated Dose Oral Toxicity in Rats and Male Mice; 28-Day Repeated Dose Oral Toxicity Study in Rats and Mice; Corrositex in vitro test; Combined Two Week Inhalation Toxicity and Micronucleus Studies in Rats-Transformation Byproduct. In Vitro Micronucleus and Chromosome Abberration Assay in Mouse Bone Marrow Cells; In Vitro Rat Hepatocyte Screen, Bacterial Acute Mutation test; Determination of permeabillity coefficient (Kp) using a static in vitro diffusion cell model; In Vitro evaluation for Chromosome Aberrations in Human Lymphocytes-transformation byproduct

Mutagenicty test in Salmonella Typhimurium-transformation; byproduct; Combined two week inhalation toxicity and micronucleus studies in -transformation byproduct; Water solubility, vapor pressure, and octanol water partition coefficient and other p-chem properties of transformation byproduct; Thermal Transformation Byproduct

Ecotoxicity/Fate: Acute toxicity to fish (Rainbow trout), daphnia, and algae; Ready Biodegradability Study; Activated Sludge Respiration Inhibition Test; and Assessment of Hydrolysis as a Function of pH

In general, the test substance was the salt (509), except for some acute studies, pharmacokinetics, and mutagenicity where the test substance was both the acid (508) and the salt (509) or as noted below. For a complete listing, see the PMN.

IV. EPA'S ASSESSMENT OF EXPOSURE AND RISK

The following are EPA's predictions regarding the probable toxicity, human exposure and environmental release of the PMN substances, based on the information currently available to the Agency.

Human Health Effects and Fate Summary:

EPA has concerns that these PMN substances will persist in the environment, could bioaccumulate, and be toxic ("PBT") to people, wild mammals, and birds. EPA's concerns are based on data on the PMN substances, analogy to other [ ] chemicals, and to perfluorooctanoic acid ("PFOA") and perfluorooctane sulfonate ("PFOS") which are both currently under review by EPA for PBT concerns. Some [ ], PFOA, and PFOS are expected to persist for years in the environment. Biodegradation and photolysis tests of some analogous substances indicate little or no biodegradation or photolysis of perfluoroalkyl compounds. Bioaccumulation concerns are based on the measured presence of certain perfluoroalkyl compounds, including PFOA, in wildlife and in human blood samples.

Based on test data on structurally similar [ ] chemicals and data on the PMN substances themselves, EPA has human health concerns for the PMN substances. The PMN substances are expected to be absorbed by all routes of exposure. The PMN substances show low acute oral toxicity ($\geq$ 3400 mg/kg). The acute dermal toxicity study with P-08-509 shows low acute dermal toxicity (>5000mg/kg). The PMN substance P-08-508 is expected to be highly irritating or corrosive. There is high concern for eye irritation for both PMN substances.

The PMN substance P08-509 was tested in a 28-day repeated dose study in rats and mice. In the rat study, the doses were 0, 0.3, 3, and 30 mg/kg/day in males and 0, 3, 30, and 300 mg/kg/day in females. The EPA reviewer set the NOAEL in males at 0.3 mg/kg/day based on dose related trends and statistical significance of change in hematologic findings (decreases in red blood cell counts, hemoglobin, and hematocrit in males), increase in clinical chemistry, increases in absolute and relative organ/body and liver weights. Histopathologic findings in the liver included minimal or mild hepatocellular hypertrophy in males at 3 and 30 mg/kg/day. In this study in rats, the EPA reviewer set the NOAEL at 30 mg/kg/day in females based on increased liver weights and liver pathology as hepatocellular hypertrophy in females given 300 mg/kg/day. The investigators concluded that the NOAELs were 30 mg/kg/day in males and 300 mg/kg/day in females, stating that all changes in treated groups are within historical control ranges at the testing facility and as adaptive responses.

In the mouse study, the doses were 0 (vehicle control), 0.1, 3, or 30 mg/kg/day of test substance in deionized water by gavage daily for 28 days with terminal sacrifice on day 29. In addition, 10 male and female mice were similarly treated with 0 (vehicle control), 30 (males), or 300 (females) mg/kg/day and killed after 28 days of recovery following treatment.
The EPA reviewer set the NOAEL at 0.1 mg/kg/day based on signs of anemia and liver effects at higher dose levels. The investigators placed the NOAEL at 0.1 mg/kg/day in males and 3 in females.

A related [ ] substance was also tested in a 28-day study in rats. The doses were 0, 5, 25, and 100 mg/kg/day with a NOAEL of 5 mg/kg/day and effects on the liver and kidney at 25 and 100 mg/kg/day. A single dose pharmacokinetic study was conducted in the rat and the

monkey. Male and female results were similar. Toxicity studies on some [ ] have shown systemic toxicity in animals at levels as low as 0.13 mg/kg in a 90-day oral toxicity study.

Some data exists on the transformation product [ ] and [ ] in combined two week inhalation toxicity and micronucleus studies. Doses were 0, 5,000, 25,000 and 175,000 ppm. The NOAEL was determined to be 175,000 ppm. No systemic toxicity relevant to humans was exhibited for [ ]. For [ ], increased absolute and relative liver weights were seen in this limited study at 25,000 ppm. Mutagenicity in this study was negative.

Several mutagenicity studies were conducted on both PMN substances, P-08-508 and 509. They were not gene mutagens in two species of prokaryotes, and not inducers of DNA effects in mammalian cells *in vivo*. They were chromosome mutagens in mammalian and human cells in culture, but not in mammals *in vivo*. The EPA reviewer concluded that the positive data on the PMNs for *in vitro* chromosomal aberrations in mammalian and human cells are of some concern. However, the negative responses for *in vivo* chromosomal effects as micronuclei and as chromosomal aberrations, and for induction of DNA effects, alleviates that concern. No additional mutagenicity testing is recommended.

For chronic and carcinogenic effects, no information was submitted. EPA believes that a 2-year Chronic Toxicity/Carcinogenicity study (OPPTS 870.~~3100~~, OECD 453) is needed.

Pharmacokinetic studies were conducted in rats. Groups of 3 male and 3 female rats were dosed via single oral gavage with either 10 or 30 mg/kg of the PMN substance P-08-508 (98%) and P-08-509 (84.5%). Blood samples were taken before dosing and periodically thereafter up to 168 hours (7 days) after dosing. In addition, fat and liver samples were taken at terminal sacrifice. Samples were analyzed for the parent compound using HPLC/MS with a level of

quantitation (LOQ) at 20 ng/ml. Clearance times were calculated for the 2 doses for males and females as follows:

	10 mg/kg (508)	30 mg/kg (508)	10 mg/kg (509)	30 mg/kg (509)
Male	28 hr	22 hr	12 hr	22 hr
Female	8 hr	4 hr	4 hr	8 hr

The Company has done some limited biomonitoring in workers and site monitoring. EPA has reviewed the biomonitoring and concluded that samples did not take place over a long enough period of time to see if accumulation occurred and that the limit of detection was not sensitive enough to draw any conclusions at this time.

Toxicity studies on the analogs PFOA and PFOS indicate developmental, reproductive and systemic toxicity in various species. Cancer may also be of concern. These factors, taken together, raise concerns for potential adverse chronic effects in humans and wildlife. For additional information about PFOA, consult the docket EPA-HQ -OPPT-2003-0013. Additional information about PFOA and other perfluorinated substances may also be found in the *Administrative Record for PFOS, PFOA, and Telomers and Related Chemicals (AR-226). Administrative Record (AR-226)* is not currently available online, but copies can be requested on CD-ROM from the EPA Docket office by calling 202/566-0280 or sending an email request to oppt.ncic@epa.gov.

The data on the PMN substance and some other data indicate a different and less toxic profile for the PMN substances than for PFOA and PFOS. However, based on: 1) the persistence of the PMN substances, 2) the toxicity of the PMN substances and some of the [ ] analogs, and 3) the possibility or likelihood that this substance may be used as

a major substitute for a major use of PFOA, EPA believes that more information is needed on the toxicity and pharmacokinetics of the PMN substance P-08-509 that will be applied to the characterization of both PMN substances.

EPA believes that additional pharmacokinetic, reproductive, and long-term toxicological testing on the PMN substance P-08-509 in animals is warranted. EPA will require at a certain production volume that a modified reproductive test (OECD 421, modified) be conducted. The modifications for the reproductive test include: (1) increase the parental sample size to 20; (2) the duration of the study should be extended to until the pups have reached sexual maturation; (3) parental males should be dosed for 10 weeks prior to mating; (4) dosing of the parental animals should be continued through lactation and then the pups should be directly dosed until they reach sexual maturation; (5) pup body weight should be recorded on lactation days 0, 4, 7, 14, and 21 and then at weekly intervals, (6) litter size can be standardized to 4 pups/litter on lactation day 4 (optional); (7) at weaning one pup/sex/litter shall be randomly selected to follow until sexual maturation; and (8) the time of sexual maturation should be recorded (i.e. vaginal opening and preputial separation). In addition, the Company will also conduct Repeated Dose Pharmacokinetics and Metabolism testing (OPPTS 870.7485); a Combined Carcinogenicity/Chronic Toxicity test (OPPTS 870.4300/OECD 453); and an Avian Reproduction test (OECD 206, OPPTS 850.2300).

Environmental Effects Summary:

EPA expects the PMN substances to be highly persistent in the environment. In addition, they may be bio-accumulative or biopersistent based on the predicted log Koc and because some

related substances show evidence of biopersistence. No short-term ecotoxicological concerns were raised for the PMN substances. Reported results in acute toxicity tests in fish (rainbow trout), Daphnia magna and green algae were: fish–96 hr LC 50>96.9 mg/l; Daphnia magna 48 hr EC50 > 102 mg/l; and 72 hr EC50>106 mg/l. However, there is high concern for possible environmental effects over the long-term. As stated previously, the analog PFOA is persistent in the environment and has a long bioretention time in various species. It has been detected in a number of species of wildlife, including marine mammals. It is toxic to mammalian and other species. The presence in the environment and toxicological properties of PFOA continue to be investigated. EPA believes development of additional data is warranted. EPA will require at a certain production volume that a Fish Early Life Stage Toxicity test (OPPTS 850.1400), a Daphnid Chronic Toxicity test (OPPTS 850.1300), and an Avian Reproduction test-Bobwhite Quail (OPPTS 850.2300) be conducted.

Exposure and Environmental Release Summary:

These PMN substances will be manufactured by [

]. P-08-509 will be used as a polymerization aid in the manufacture of [ ].

Several points of exposure and release were submitted and evaluated for these PMN substances. Doses were calculated for dermal and inhalation exposure to P-08-508 from loading and unloading drums and sampling. Inhalation exposures are to vapors with up to 20 workers potentially exposed. EPA estimates that these quantities could be between 3.8 mg/day (typical) to 230 mg/day (worst case). There may be dermal exposure to a liquid containing P-08-508. For P-08-509, manufacture and use were assumed at up to 3 sites (2 DuPont sites and one potential customer site). According to the Company, only one site will be used at a time. At these sites, the material will be unloaded and charged to various process vessels, such as a blend tank or a polykettle. Due to the low vapor pressure of P-08-509, only dermal exposure was evaluated. Based on the possibility of inadvertent exposure at low levels, the Order requires that any person who is reasonably likely to be exposed by inhalation to the PMN substance P-08-509 to wear an appropriate NIOSH-approved respirator. EPA has established for both PMN substances a New Chemical Exposure Limit ("NCEL") at 0.01 mg/m3, the Threshold Limit Value ("TLV") currently recommended for APFO by the ACGIH in the United States, in order to "level the playing field" and allow the substitution of the PMN substance P-08-509 into the marketplace. EPA believes that this limit should be adequate for the PMN substances based on current information. If this ACGIH level were to change or there is data on the PMN substances that EPA believes warrants a change, the NCEL may be changed in order to correspond with the new level or data.

Releases to the environment were estimated to water and to air (fugitive) and to air via incineration. Based on submitter information, the Company currently collects the waste containing the PMN substances and sends the waste to an off-site RCRA incinerator. In the future, the Company intends to develop and use methods to recapture and/or recycle the substances, but is not now doing so. EPA requires in the attached Consent Order that the substances be recovered, recycled and/or destroyed at levels achieving 99% efficiency. EPA will require that the Company directly sell the substances only to customers, if any, that achieve comparable recovery or destruction. The Company shall distribute the PMN substance, P-08-509 in polymers, aqueous or solid, so that the residual P-08-508/509 cumulative total [

] are below 200 ppb level using the ASE method developed by Larsen et al. (The Analyst 2006 p. 1105) with the level of quantification (LOQ) for the standard solution at 0.5 ppb. If non-heat treated solid polymer is distributed then the substance cannot be further distributed, until it is sufficiently heat treated. The Company should make every effort to minimize or prevent any release to the environment of these substances. If any new uses of the substance are found, the Company shall find ways to recover and/or recycle the substance to comparable levels. Fugitive releases may be of particular concern.

V. EPA'S CONCLUSIONS OF LAW

The following findings constitute the basis of the Consent Order:

A. EPA is unable to determine the potential for human health and environmental effects from exposure to the PMN substances. EPA therefore concludes, pursuant to § 5(e)(1)(A)(i) of TSCA,

that the information available to the Agency is insufficient to permit a reasoned evaluation of the human health and environmental effects of the PMN substances.

B. In light of the potential risk of human health and environmental effects posed by the uncontrolled manufacture, import, processing, distribution in commerce, use, and disposal of the PMN substances, EPA has concluded, pursuant to § 5(e)(1)(A)(ii)(I) of TSCA, that uncontrolled manufacture, import, processing, distribution in commerce, use, and disposal of the PMN substances may present an unreasonable risk of injury to human health and the environment.

C. In light of the estimated production volume of, environmental release of, and human exposure to, the PMN substances, EPA has further concluded, pursuant to § 5(e)(1)(A)(ii)(II) of TSCA, that the PMN substances will be produced in substantial quantities for a potential PBT substance, may reasonably be anticipated to enter the environment in substantial quantities for a potential PBT substance, and there may be significant (or substantial) human exposure to the substances.

VI. INFORMATION REQUIRED TO EVALUATE HUMAN HEALTH AND ENVIRONMENTAL EFFECTS

Triggered Testing. The Order prohibits the Company from exceeding specified production volumes unless the Company submits the information described in the Testing section of this Order in accordance with the conditions specified in the Testing section.

Pended Testing. The Order does not require submission of the following information at any specified time or production volume. However, the Order's restrictions on manufacture, import, processing, distribution in commerce, use, and disposal of the PMN substances will

remain in effect until the Order is modified or revoked by EPA based on submission of the following or other relevant information.

Fate and Physical/Chemical Properties information as follows:

Physical/Chemical Property Testing	**OPPTS or OECD Guideline**
UV visible absorption	OPPTS 830.7050 or OECD 101
Hydrolysis as a function of pH	OPPTS 835.2130 or OECD 111

Environmental Fate Testing	**OPPTS or OECD Guideline**
Modified Semi-Continuous Activated Sludge (SCAS) with Analysis for degradation products	OPPTS 835.5045, OPPTS 835.3210 or OECD 302A
Aerobic and Anaerobic Transformation in Soil	OECD 307
Aerobic and Anaerobic transformations in Aquatic Sediment Systems	OECD 308
Direct Photolysis in Water (if wavelengths >290 nm are absorbed)	OPPTS 835.2210
Indirect Photolysis in Water	OPPTS 835.5270
Phototransformation of Chemicals on Soil Surfaces	OECD Jan. 2002 Draft
Simulation test-Aerobic Sewage Treatment (Activated Sludge Units)	OECD 303A
Anaerobic biodegradability of organic compounds in digested sludge	OECD 311
Fish Bioconcentration test	OPPTS 850.1730

CONSENT ORDER

I. SCOPE OF APPLICABILITY AND EXEMPTIONS

(a) Scope. The requirements of this Order apply to all commercial manufacturing, processing, distribution in commerce, use and disposal of the chemical substances [

] (P-08-508) and [

] (P-08-509) ("the PMN substances")

in the United States by DuPont Company ("the Company"), except to the extent that those activities are exempted by paragraph (b).

(b) Exemptions. Manufacturing, processing, distribution in commerce, use and disposal of the PMN substances is exempt from the requirements of this Order (except the requirements in the Recordkeeping and Successor Liability Upon Transfer Of Consent Order sections) only to the extent that (1) these activities are conducted in full compliance with all applicable requirements of the following exemptions, and (2) such compliance is documented by appropriate recordkeeping as required in the Recordkeeping section of this Order.

(1) Export. Until the Company begins commercial manufacture of the PMN substances

for use in the United States, the requirements of this Order do not apply to manufacture, processing or distribution in commerce of the PMN substances solely for export in accordance with TSCA §12(a) and (b), 40 CFR 720.3(s) and 40 CFR Part 707. However, once the Company begins to manufacture the PMN substances for use in the United States, no further activity by the Company involving the PMN substances is exempt as "solely for export" even if some amount of the PMN substances is later exported. At that point, the requirements of this Order apply to all activities associated with the PMN substances while in the territory of the United States. Prior to leaving U.S. territory, even those quantities or batches of the PMN substances that are destined for export are subject to terms of the Order, and count towards any production volume test triggers in the Testing section of this Order.

(2) Research & Development ("R&D"). The requirements of this Order do not apply to manufacturing, processing, distribution in commerce, use and disposal of the PMN substances in small quantities solely for research and development in accordance with TSCA §5(h)(3), 40 CFR 720.3(cc), and 40 CFR 720.36. The requirements of this Order also do not apply to manufacturing, processing, distribution in commerce, use and disposal of the PMN substances when manufactured solely for non-commercial research and development per 40 CFR 720.30(i) and TSCA §5(i).

(3) Byproducts. The requirements of this Order do not apply to the PMN substances when they are produced, without separate commercial intent, only as a "byproduct" as defined at 40 CFR 720.3(d) and in compliance with 40 CFR 720.30(g).

(4) No Separate Commercial Purpose. The requirements of this Order do not apply to the PMN substances when they are manufactured, pursuant to any of the exemptions in 40 CFR

720.30(h), with no commercial purpose separate from the substance, mixture, or article of which it is a part.

(5) Imported Articles. The requirements of this Order do not apply to the PMN substances when they are imported as part of an "article" as defined at 40 CFR 720.3(c) and in compliance with 40 CFR 720.22(b)(1).

(c) Automatic Sunset. If the Company has obtained for the PMN substances a Test Market Exemption ("TME") under TSCA §5(h)(1) and 40 CFR 720.38 or a Low Volume Exemption ("LVE") or Low Release and Exposure Exemption ("LoREX") under TSCA §5(h)(4) and 40 CFR 723.50(c)(1) and (2) respectively, any such exemption is automatically rendered null and void as of the effective date of this Consent Order.

II. TERMS OF MANUFACTURE, IMPORT, PROCESSING, DISTRIBUTION IN COMMERCE, USE, AND DISPOSAL PENDING SUBMISSION AND EVALUATION OF INFORMATION

PROHIBITION

The Company is prohibited from manufacturing, importing, processing, distributing in commerce, using, or disposing of the PMN substances in the United States, for any nonexempt commercial purpose, pending the development of information necessary for a reasoned evaluation of the human health and environmental effects of the substance, and the completion of EPA's review of, and regulatory action based on, that information, except in accordance with the conditions described in this Order.

TESTING

(a) Section 8(e) Reporting. Any information on the PMN substances which reasonably supports the conclusion that the PMN substances presents a substantial risk of injury to health or the environment required to be reported under EPA's section 8(e) policy statement at 43 Federal Register 11110 (March 16, 1978) as amended at 52 Federal Register 20083 (May 29, 1987), shall reference the appropriate PMN identification number for this substance and shall contain a statement that the substance is subject to this Consent Order. Additional information regarding section 8(e) reporting requirements can be found in the reporting guide referenced at 56 Federal Register 28458 (June 20, 1991).

(b) Notice of Study Scheduling. The Company shall notify, in writing, the EPA Laboratory Data Integrity Branch (2225A), Office of Enforcement and Compliance Assurance, U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, N.W., Washington, D.C. 20460, of the following information within 10 days of scheduling any study required to be performed pursuant to this Order, or within 15 days after the effective date of this Order, whichever is later:

(1) The date when the study is scheduled to commence;

(2) The name and address of the laboratory which will conduct the study;

(3) The name and telephone number of a person at the Company or the laboratory whom EPA may contact regarding the study; and

(4) The appropriate PMN identification number for each substance and a statement that the substance is subject to this Consent Order.

(c) Good Laboratory Practice Standards and Test Protocols. Each study required to be performed pursuant to this Order must be conducted according to TSCA Good Laboratory Practice Standards at 40 CFR Part 792 and using methodologies generally accepted in the relevant scientific community at the time the study is initiated. Before starting to conduct any such study, the Company must obtain approval of test protocols from EPA by submitting written protocols. EPA will respond to the Company within 4 weeks of receiving the written protocols. Published test guidelines specified in paragraph (d) provide general guidance for development of test protocols, but are not themselves acceptable protocols. Approval of the test protocol does not mean pre-acceptance of test results. Because the Chronic Daphnid Toxicity study and the 90-day toxicity study enumerated below were begun before the execution of this Order the requirement for submission and approval of the protocols for these two studies only is waived.

(d) Triggered Testing Requirements. (i) The Company is prohibited from manufacturing or importing the PMN substances beyond the following aggregate manufacture and import volumes of both PMN substances combined ("the production limits"), unless the Company conducts the following studies and submits all final reports and underlying data in accordance with the conditions specified in this Testing section.

Production Limit	Study	Guideline
[ ] kilograms *	1) Repeated dose Metabolism and Pharmacokinetics rats and mice	OPPTS 870.7485
	2) Modified 1-generation Reproduction study	OECD 421, modified, per (iv) below

	3) Avian Reproduction-Bobwhite Quail	OPPTS 850.2300
	4) Fish Early Life Stage Toxicity	OPPTS 850.1400
	5) Daphnid Chronic Toxicity	OPPTS 850.1300

*An alternate Production Limit for studies 1 and 2 only is two years from the date of commencement of nonexempt commercial manufacture of either PMN substance, or [ ] kilograms, whichever comes later.

[ ] kilograms	6) 90-day toxicity study	OPPTS 870.3100 (OECD 408)
	7) Chronic toxicity/ carcinogenicity study	OPPTS 870.4300 (OECD 453)

(ii) the test substance shall be the substance described in P-08-509;

(iii) EPA recommends that the Company conduct the pharmacokinetics testing first to confirm species acceptability and to provide a reliable half-life for these substances;

(iv) The modifications for the 1-generation reproduction study (study 2 above) are: 1) increase the parental sample size to 20; 2) the duration of the study shall be extended to until the pups have reached sexual maturation; 3) parental males shall be dosed for 10 weeks prior to mating; 4) dosing of the parental animals shall be continued through lactation and then the pups should be directly dosed until they reach sexual maturation; 5) pup body weight shall be recorded on lactation days 0, 4, 7, 14, and 21 and then at weekly intervals; 6) litter size can be

standardized to 4 pups/litter on lactation day 4 (optional); 7) at weaning one pup/sex/litter shall be randomly selected to follow until sexual maturation; and 8) the time of sexual maturation shall be recorded (i.e. vaginal opening and preputial separation).

(e) Test Reports. The Company shall: (1) conduct each study in good faith, with due care, and in a scientifically valid manner; (2) promptly furnish to EPA the results of any interim phase of each study; and (3) submit, in triplicate (with an additional sanitized copy, if confidential business information is involved), the final report of each study and all underlying data ("the report and data") to EPA no later than 14 weeks prior to exceeding the applicable production limit. The final report shall contain the contents specified in 40 CFR 792.185. Underlying data shall be submitted to EPA in accordance with the applicable "Reporting", "Data and Reporting", and "Test Report" subparagraphs in the applicable test guidelines. However, for purposes of this Consent Order, the word "should" in those subparagraphs shall be interpreted to mean "shall" to make clear that the submission of such information is mandatory. EPA will not require the submission of raw data such as slides and laboratory notebooks unless if EPA finds, on the basis of professional judgment, that an adequate evaluation of the study cannot take place in the absence of these items.

(f) Testing Waivers. The Company is not required to conduct a study specified in paragraph (d) of this Testing section if notified in writing by EPA that it is unnecessary to conduct that study.

(g) Equivocal Data. If EPA finds that the data generated by a study are scientifically equivocal,

the Company may continue to manufacture and import the PMN substances beyond the applicable production limit. To seek relief from any other restrictions of this Order, the Company may make a second attempt to obtain unequivocal data by reconducting the study under the conditions specified in paragraphs (b), (c), and (e)(1) and (2). The testing requirements may be modified, as necessary to permit a reasoned evaluation of the risks presented by the PMN substances, only by mutual consent of EPA and the Company.

(h) EPA Determination of Invalid Data.

(1) Except as described in subparagraph (h)(2), if, within 6 weeks of EPA's receipt of a test report and data, the Company receives written notice that EPA finds that the data generated by a study are scientifically invalid, the Company is prohibited from further manufacture and import of the PMN substances beyond the applicable production limit.

(2) The Company may continue to manufacture and import the PMN substances beyond the applicable production limit only if so notified, in writing, by EPA in response to the Company's compliance with either of the following subparagraphs (h)(2)(i) or (h)(2)(ii).

(i) The Company may reconduct the study in compliance with paragraphs (b), (c), and (e)(1) and (2). If there is sufficient time to reconduct the study and submit the report and data to EPA at least 14 weeks before exceeding the production limit as required by subparagraph (e)(3), the Company shall comply with subparagraph (e)(3). If there is insufficient time for the Company to comply with subparagraph (e)(3), the Company may exceed the production limit and shall submit the report and data in triplicate to EPA within a reasonable period of time, all as specified by EPA in the notice described in subparagraph (h)(1). EPA will respond to the

Company, in writing, within 6 weeks of receiving the Company's report and data.

(ii) The Company may, within 4 weeks of receiving from EPA the notice described in subparagraph (h)(1), submit to EPA a written report refuting EPA's finding. EPA will respond to the Company, in writing, within 4 weeks of receiving the Company's report.

(i) Company Determination of Invalid Data.

(1)Except as described in subparagraph (i)(2), if the Company becomes aware that circumstances clearly beyond the control of the Company or laboratory will prevent, or have prevented, development of scientifically valid data under the conditions specified in paragraphs (c) and (e), the Company remains prohibited from further manufacture and import of the PMN substances beyond the applicable production limit.

(2) The Company may submit to EPA, within 2 weeks of first becoming aware of such circumstances, a written statement explaining why circumstances clearly beyond the control of the Company or laboratory will cause or have caused development of scientifically invalid data. EPA will notify the Company of its response, in writing, within 4 weeks of receiving the Company's report. EPA's written response may either:

(i) allow the Company to continue to manufacture and import the PMN substances beyond the applicable production limit, or

(ii) require the Company to continue to conduct, or to reconduct, the study in compliance with paragraphs (b), (c), and (e)(1) and (2). If there is sufficient time to conduct or reconduct the study and submit the report and data to EPA at least 14 weeks before exceeding the production limit as required by subparagraph (e)(3), the Company shall comply with

subparagraph (e)(3). If there is insufficient time for the Company to comply with subparagraph (e)(3), the Company may exceed the production limit and shall submit the report and data in triplicate to EPA within a reasonable period of time, all as specified by EPA in the notice described in subparagraph (i)(2). EPA will respond to the Company, in writing, within 6 weeks of receiving the Company's report and data, as to whether the Company may continue to manufacture and import beyond the applicable production limit.

(j) Unreasonable Risk.

(1) EPA may notify the Company in writing that EPA finds that the data generated by a study are scientifically valid and unequivocal and indicate that, despite the terms of this Order, the PMN substances will or may present an unreasonable risk of injury to human health or the environment. EPA's notice may specify that the Company undertake certain actions concerning further testing, manufacture, import, processing, distribution, use and/or disposal of the PMN substances to mitigate exposures to or to better characterize the risks presented by the PMN substances. Within 2 weeks from receipt of such a notice, the Company must cease all manufacture, import, processing, distribution, use and disposal of the PMN substances, unless either:

(2) within 2 weeks from receipt of the notice described in subparagraph (j)(1), the Company complies with such requirements as EPA's notice specifies; or

(3) within 4 weeks from receipt of the notice described in subparagraph (j)(1), the Company submits to EPA a written report refuting EPA's finding and/or the appropriateness of any additional requirements imposed by EPA. The Company may continue to manufacture,

import, process, distribute, use and dispose of the PMN substances in accordance with the terms of this Order pending EPA's response to the Company's written report. EPA will respond to the Company, in writing, within 4 weeks of receiving the Company's report. Within 2 weeks of receipt of EPA's written response, the Company shall comply with any requirements imposed by EPA's response or cease all manufacture, import, processing, distribution, use and disposal of the PMN substances.

(k) Other Requirements. Regardless of the satisfaction of any other conditions in this Testing section, the Company must continue to obey all the terms of this Consent Order until otherwise notified in writing by EPA. The Company may, based upon submitted test data or other relevant information, petition EPA to modify or revoke provisions of this Consent Order pursuant to Part VI. of this Consent Order.

PROTECTION IN THE WORKPLACE

(a) Establishment of Program. During manufacturing, processing, and use of the PMN substances at any site controlled by the Company (including any associated packaging and storage and during any cleaning or maintenance of equipment associated with the PMN substances), the Company must establish a program whereby:

(1) General Dermal Protection. Each person who is reasonably likely to be dermally exposed in the work area to the PMN substances through direct handling of the substance or through contact with equipment on which the substance may exist, or because the substance

becomes airborne in a form listed in subparagraph (a)(5) of this section, is provided with, and is required to wear, personal protective equipment that provides a barrier to prevent dermal exposure to the substance in the specific work area where it is selected for use. Each such item of personal protective equipment must be selected and used in accordance with Occupational Safety and Health Administration ("OSHA") dermal protection requirements at 29 CFR 1910.132, 1910.133, and 1910.138.

(2) Specific Dermal Protective Equipment. The dermal personal protective equipment required by subparagraph (a)(1) of this section must include, but is not limited to, the following items:

(i) Gloves.

(ii) Full body chemical protective clothing.

(iii) Chemical goggles or equivalent eye protection.

(iv) Clothing which covers any other exposed areas of the arms, legs and torso. Clothing in this subparagraph (a)(2)(iv) need not be tested or evaluated under the requirements of subparagraph (a)(3)

(3) Demonstration of Imperviousness. The Company is able to demonstrate that each item of chemical protective clothing selected, including gloves, provides an impervious barrier to prevent dermal exposure during normal and expected duration and conditions of exposure within the work area by any one or a combination of the following:

(i) Permeation Testing. Testing the material used to make the chemical protective clothing and the construction of the clothing to establish that the protective clothing will be impervious for the expected duration and conditions of exposure. The testing must subject the

chemical protective clothing to the expected conditions of exposure, including the likely combinations of chemical substances to which the clothing may be exposed in the work area. Permeation testing shall be conducted according to the American Society for Testing and Materials ("ASTM") F739 "Standard Test Method for Resistance of Protective Clothing materials to Permeation by Liquids or Gases." Results shall be recorded as a cumulative permeation rate as a function of time (or versus time), and shall be documented in accordance with ASTM F739 using the format specified in ASTM F1194-99 "Guide for Documenting the Results of Chemical Permeation Testing on Protective Clothing Materials." Gloves may not be used for a time period longer than they are actually tested and must be replaced at the end of each work shift during which they are exposed to the PMN substances.

(ii) Manufacturer's Specifications. Evaluating the specifications from the manufacturer or supplier of the chemical protective clothing, or of the material used in construction of the clothing, to establish that the chemical protective clothing will be impervious to the PMN substances alone and in likely combination with other chemical substances in the work area.

(4) Respiratory Protection. Each person who is reasonably likely to be exposed by inhalation in the work area to the PMN substance, P-08-508, in the form listed in subparagraph (a)(5) of this section, is provided with, and is required to wear, at a minimum, a NIOSH-certified respirator with an Applied Protection Factor ("APF") of 3000 from the respirators listed in subparagraph (a)(6) of this section. All respirators must be used in accordance with OSHA and NIOSH respiratory protection requirements at 29 CFR 1910.134 and 42 CFR Part 84. All respirators must be issued, used, and maintained according to an appropriate respiratory

protection program under the OSHA requirements in 29 CFR 1910.134.

In addition, each person who is reasonably likely to be exposed by inhalation in the work area to the PMN substance P-08-509 must be provided with and wear an appropriate NIOSH-approved respirator.

(5) Physical States. The following physical states of airborne chemical substances are listed for subparagraphs (a)(1) and (4) of this section:

(i) Particulate (including solids or liquid droplets),

(ii) Gas/vapor (all substances in the gas form), or

(iii) Combination Gas/Vapor and Particulate (gas and liquid/solid physical states are both present; a good example is paint spray mist, which contains both liquid droplets and vapor).

(6) Authorized Respirators. The following NIOSH-certified respirators meet the minimum requirements for P-08-508 in subparagraph (a)(4) of this section:

–a NIOSH-certified supplied-air respirator operated in pressure demand or other positive pressure mode and equipped with a tight-fitting full face piece.

NEW CHEMICAL EXPOSURE LIMIT

(a) Alternative to Requirements of Respirator Section.

(1) EPA recommends and encourages the use of pollution prevention, source reduction, engineering controls and work practices, rather than respirators, as a means of controlling inhalation exposures whenever practicable.

(2) Whenever a person is reasonably likely to be exposed to the PMN substances by

inhalation, as an alternative to compliance with the respirator requirements in the Protection in the Workplace section of this Order, the Company may comply with the requirements of this New Chemical Exposure Limit section. However, before the Company may deviate from the respirator requirements in the Protection in the Workplace section of this Order, the Company must:

(i) submit to EPA a copy of the Company's sampling and analytical method for the PMN substances, verified in accordance with subsection (c)(3) of this New Chemical Exposure Limit section;

(ii) obtain exposure monitoring results in accordance with this New Chemical Exposure Limit section; and

(iii) based on those exposure monitoring results, select, provide, and ensure use if necessary of the appropriate respiratory protection specified in paragraph (e)(2) of this New Chemical Exposure Limit section by persons who are reasonably likely to be exposed to the PMN substances by inhalation.

(3) After appropriate respiratory protection has been selected at a workplace based on the results of actual exposure monitoring conducted in accordance with this New Chemical Exposure Limit section, the Company shall not, at that workplace, use the respiratory protection required in the Protection in the Workplace section of this Order (unless it is the same as required by this New Chemical Exposure Limit section).

(b) Exposure Limit.

(1) General. The following new chemical exposure limit ("NCEL") for the PMN

substances is an interim level determined by EPA based on the limited information available to the Agency at the time of development of this Order. The NCEL for the PMN substances is as follows:

(i) Time-Weighted Average ("TWA") Limit. The Company shall ensure that no person is exposed to an airborne concentration of both PMN substances combined in excess of 0.01 mg/m3 (the NCEL) as an 8-hour time-weighted average, without using a respirator in accordance with subsection (e) of this New Chemical Exposure Limit section.

(ii) Non-8-Hour Work-shifts. For non-8-hour work-shifts, the NCEL for that work-shift ("NCELn") shall be determined by the following equation: NCELn = NCEL x (8/n) x [(24-n)/16], where n = the number of hours in the actual work-shift.

(2) Automatic Sunset. If, subsequent to the effective date of this Order, OSHA promulgates, pursuant to §6 of the Occupational Safety and Health Act, 29 U.S.C. 655, a final chemical-specific permissible exposure limit ("PEL") specifically applicable to these PMN substances and the OSHA PEL is not challenged in court within 60 days of its promulgation, then any respirator requirements in the Protection in the Workplace section of this Order and any requirements of this New Chemical Exposure Limit section applicable to workers and situations subject to the OSHA PEL sball automatically become null and void. However, the requirements of this Consent Order are not negated by any pre-existing OSHA PEL applicable to the PMN substances.

(c) Performance-Criteria for Sampling and Analytical Method.

(1) Applicability. For initial development and validation of the sampling and analytical

method for the PMN substances, all the requirements of this subsection (c) apply. For subsequent exposure monitoring conducted pursuant to subsection (d) of this New Chemical Exposure Limit section, only the following requirements apply: (c)(4)(i), (4)(ii), (4)(iv)(II), (4)(v)(II), (8), (9), and (10). Any deviation from the requirements of this subsection (c) must be approved in writing by EPA.

(2) Submission of Verified Method and Certification Statement. The Company shall submit to EPA a copy of a validated sampling and analytical method for the PMN substances which satisfies the criteria specified in this subsection (c). The method description shall expressly state how the method compares with each quantitative requirement specified in this subsection (c). The submission must include a written statement, signed by authorized officials of both the Company and the Laboratory, certifying the truth and accuracy of the independent laboratory verification conducted pursuant to subsection (c)(3). To assist EPA in identifying the document, it shall state in a conspicuous, underlined subject-line at the top of the first page: "NCEL Sampling and Analytical Method for PMN # _____," after-which the correct PMN number for this chemical substance shall be stated.

(3) Verification of Analytical Method by Independent Third-Party Laboratory.

(i) Verification. The Company shall have an independent reference laboratory ("Laboratory") verify the validity of the analytical method for the PMN substances, in accordance with the other requirements in this subsection (c)(3). It is the Company's responsibility to ensure that the Laboratory complies with all the requirements specified in this subsection (c)(3).

(ii) Independent Reference Laboratory. The independent reference laboratory must be a separate and distinct person (as defined at 40 CFR 720.3(x)) from the Company and

from any other person who may have developed the method for the Company.

(iii) Accreditation. The Laboratory must be accredited by a formally recognized government or private laboratory accreditation program for chemical testing and/or analysis.

(iv) Good Laboratory Practice Standards. The Laboratory verification of the analytical method for the PMN substances must comply with TSCA Good Laboratory Practice Standards ("GLPS") at 40 CFR Part 792. (Certain provisions of the TSCA GLPS applicable to toxicity testing in laboratory animals, such as 40 CFR 792.43 ("Test system care facilities"), 792.45 ("Test system supply facilities") and 792.90 ("Animal and other test system care"), are clearly inapplicable to the NCEL requirements.) However, compliance with TSCA GLPS is not required under this New Chemical Exposure Limit section where the analytical method is verified by a laboratory accredited by either: (A) the American Industrial Hygiene Association ("AIHA") Industrial Hygiene Laboratory Accreditation Program ("IHLAP"); or (B) another comparable program approved in advance in writing by EPA.

(v) Analysis of Duplicate Samples. The Company shall collect six duplicate samples (a total of 12) at the TWA concentration. The samples shall be taken either from a controlled environment (e.g., a sealed chamber or "glove box") which closely resembles the actual workplace conditions or, for solids and liquids with very low vapor pressure, by injecting the PMN substances onto a sample collection device. The duplicate samples shall be collected on identical collection media, at the same time, and under the same conditions. One set of six samples shall immediately be analyzed by the Company, the other set of six samples shall be analyzed by the Laboratory using the method developed by or for the Company.

(vi) Sample Storage Study. If the results of the analysis of duplicate samples

pursuant to paragraph (c)(3)(v) do not satisfy the requirements in paragraph (c)(3)(vii), the Company must perform a sample storage study as follows:

(I) Triplicate Samples. The Company shall collect six triplicate samples (a total of 18) at the TWA concentration. The samples shall be taken either from a controlled environment (e.g., a sealed chamber or "glove box") which closely resembles the actual workplace conditions or, for solids and liquids with very low vapor pressure, by injecting the PMN substances onto a sample collection device. The triplicate samples shall be collected on identical collection media, at the same time, and under the same conditions. One set of six samples shall immediately be analyzed by the Company.

(II) Analysis After Sample Storage. A sample storage evaluation shall be performed with the two remaining sets of six samples. One set of six samples shall be analyzed by the Laboratory using the method developed by or for the Company, and the other shall be analyzed by the Company on the same day as the Laboratory analyzes its six samples. Specialized storage conditions for the samples including extraction conditions, time from sampling to extraction, time from collection or extraction (if applicable) to analysis and storage conditions must be specified in the method description.

(vii) Comparison of Results. The difference between the results of the two sets of six samples analyzed by the Laboratory and the Company as required in either paragraph (c)(3)(v) or (c)(3)(vi)(II) shall be evaluated using a two-sample t-test with unequal variances, and the two sides of the critical regions shall not exceed a 5% significance level. (See Attachment B - Statistical Analysis of NCELs Analytical Method Verification Results.) The arithmetic mean of each set of six samples must be within 10% of the overall arithmetic mean of the two sets of

sample measurements. If the arithmetic mean of each set of six samples is not within 10% of the overall arithmetic mean, then the sample storage time between collection and analysis must be reduced until the average of each set of six samples is within 10% of the overall arithmetic mean.

(4) Accuracy. The sampling and analytical method must clearly demonstrate the following:

(i) General. The sampling and analytical method, and all exposure monitoring data relied on by the Company, shall be accurate to within ±25% at a 95% confidence level for concentrations of the PMN substances ranging from one half the NCEL to twice the NCEL.

(ii) NCEL Quantitation Limits. The analytical method should be capable of reliably quantifying the PMN substances across the full range of reasonably likely exposures. At a minimum, the analytical method must be capable of reliably quantifying from a lower quantitation limit ("LQL") of one half the NCEL to an upper quantitation limit ("UQL") of at least twice the NCEL. If the Company obtains an exposure monitoring sample that is more than 10% above the actual UQL of the analytical method, the Company must comply with paragraph (e)(4)(i).

(iii) Lower Quantitation Limit Signal-To-Noise Ratio. The analytical method shall be capable of quantifying the PMN to a concentration of one half the NCEL with a signal that is at least five times the baseline noise level. Baseline noise must be amplified to a measurable level when possible, even if the required amplification is beyond that used in routine analysis of samples. (If baseline noise cannot be obtained, another reference must be selected. This may be a peak considered to be noise caused by the reagent matrix.) The sampling preparation method must be specified and the detection limit for the analytical procedure must be

reported as mass per injection for chromatographic techniques.

(iv) Instrument Calibration.

(I) Initial Calibration. For method development and validation (but not subsequent exposure monitoring), the initial calibration shall at a minimum consist of five (5) calibration standards with a linear correlation of 0.95 -- these five (5) calibration standards must consist of one standard at each of the following concentrations: one half the NCEL (0.5 x NCEL); between one half and one times the NCEL (0.5 x NCEL < > 1 x NCEL); one times the NCEL (1 x NCEL); between one and two times the NCEL (1 x NCEL < > 2 x NCEL), and twice the NCEL (2 x NCEL).

(II) Continuing Calibration. During each week of both method development/validation and subsequent exposure monitoring, the Company shall conduct both an initial instrument calibration and a continuing calibration. The Company shall perform at least one continuing calibration sample at the NCEL concentration, and at least one additional calibration sample per every 10 samples analyzed. The continuing calibration sample shall fall within $\pm$ 25% of the initial calibration value. If not, then the initial calibration must be repeated, and any samples associated with that outlying calibration check must be re-analyzed.

(v) Calculated Percent Recovery.

(I) Initial Calculation. For method development and validation, the Company must calculate the percent of the PMN substances recovered by the analytical method from a sample containing a known quantity of the PMN substances. The sample shall be taken either from a controlled environment (e.g., a sealed chamber or "glove box") which closely resembles the actual workplace conditions or, for solids and liquids with very low vapor

pressure, by injecting the PMN substances onto a sample collection device. (Such a sample is referred to as a "matrix spike"). The calculated percent recovery for each matrix spike shall be greater than or equal to 75% and less than or equal to 125%. Spike concentrations for the PMN substances must be included in the sampling and analytical method submitted to EPA.

(II) Subsequent Calculation. During each subsequent exposure monitoring episode or campaign, at least 1 matrix spike, prepared by injecting the PMN substances onto a sample collection device, shall be analyzed. (This matrix spike must be prepared at the NCEL concentration.)

(vi) Sampling Device Capacity. The capacity of the sampling device must be tested and results reported to show under a known and well-defined set of conditions that the device is capable of collecting the new chemical in solid, liquid or vapor phase with minimal loss. The sampling device's capacity (air volume and collected analyte mass) must be specified. For methods that use adsorbent tubes as the collection medium, evidence of the capacity must be provided in the form of breakthrough testing. This testing must be done at a concentration twice the NCEL and under conditions similar to those expected in the workplace. Breakthrough is defined to have occurred when the concentration of the PMN substances in the effluent stream is equal to 5% of the concentration of the influent stream, or when 20% of the PMN substances is detected in the backup section of the sampler.

(vii) Sampling Device Desorption Efficiency. Where applicable, the desorption efficiency must be evaluated for the air sampling device. A minimum of six air samples spiked with the PMN substances at least the NCEL concentration must be prepared. A recovery of at least 75% must be obtained for each of the six samples.

(5) Precision. The estimate of the coefficient of variation of each set of six samples from the controlled atmosphere test (spiked at 1.0 NCEL, per paragraphs (c)(3)(v) or (vi)) must be less than 0.105, including allowance of 0.05 for error due to sampling.

(6) Interpretation of Accuracy and Precision Data.

(i) If a single matrix spike recovery is less than 75% recovery or greater than 125% or the estimated coefficient of variation is greater than 0.105, then the Company must re-prepare the matrix spike, re-sample, and re-analyze all samples associated with such matrix spike or triplicate samples.

(ii) For percent recoveries less than 90% but greater than 75%, correction for low recovery is required. Correct for recovery first by dividing the observed amount by the proportion recovered before determining if measurements fall below the NCEL. For example, if the observed level is 30 mg/m^3 and the percent recovery is 75%, use the value 30 $mg/m^3/(0.75)$ = 40 mg/m^3 when determining whether the levels are below the exposure limit.

(7) Representativeness. All sample conditions used to develop the methodology shall mimic the actual workplace environment expected to be monitored. Conditions such as the temperature, humidity, lighting, and presence of other chemicals, etc. must mimic the conditions in the workplace to be monitored.

(8) Changes Affecting Validity. If the workplace environment changes from the initial conditions described in the verified sampling and analytical method in a way reasonably likely to invalidate the accuracy of the method, then the Company must comply with the respirator requirements in the Protection in the Workplace section of this Order, unless the Company re-validates the method to confirm that the requirements for accuracy and precision in paragraphs

(c)(4) and (5) are met. Examples of possible changes include but are not limited to: introduction of a new chemical substance to the workplace which may interfere with the analysis of the new chemical; introduction of light to the workplace which may interfere with light-sensitive PMN substances; or introduction of water/increased humidity to the workplace which could react with the PMN substances and cause difficulties in collection and analysis.

(9) Comparability. All data and results shall be reported in the same units of measurement as the NCEL.

(10) Responsibility for Method Validity. The independent laboratory verification and EPA receipt of the sampling and analytical method pursuant to this subsection (c) do not ensure that the method will produce valid exposure monitoring data. The Company is ultimately responsible for ensuring the validity of its exposure monitoring data.

(d) Monitoring Potential Exposure.

(1) General.

(i) Action Level. The "action level" is defined as an airborne concentration of the PMN substances, calculated as an 8-hour time-weighted average, equal to one half the NCEL TWA specified in subparagraph (b)(1). For non-8-hour work shifts, the action level is equal to one half the NCELn. (The NCELn is described in subparagraph (b)(1)(ii).) The Company may exceed the action level without penalty. The purpose of the action level is solely to determine the requisite monitoring frequency.

(ii) Representative Exposure Groups. Whenever exposure monitoring is required by this New Chemical Exposure Limit section, the Company shall take representative samples of

what the potential exposure of each person who is reasonably likely to be exposed to airborne concentrations of the PMN substances would be if respirators were not worn. The Company shall do so by sampling the breathing zone air of at least one person that represents, and does not underestimate, the potential exposure of every person performing the same or substantially similar operations in each work shift, in each job classification, in each work area (hereinafter identified as an "exposure group") where inhalation exposure to the PMN substances is reasonably likely to occur. The exposure of each person need not be itself directly sampled if that exposure is represented by sampling the exposure of another person in the same exposure group.

(iii) Good Laboratory Practice Standards. Determinations of potential inhalation exposure shall be made according to TSCA Good Laboratory Practice Standards at 40 CFR Part 792 and the sampling and analytical method developed pursuant to subsection (c) of this New Chemical Exposure Limit section. [Certain provisions of the TSCA GLPS applicable to toxicity testing in laboratory animals, such as 40 CFR 792.43 ("Test system care facilities"), 792.45 ("Test system supply facilities") and 792.90 ("Animal and other test system care"), are clearly inapplicable to the NCEL requirements.] However, compliance with TSCA GLPS is not required where exposure monitoring samples are analyzed by a laboratory accredited by either: (A) the American Industrial Hygiene Association ("AIHA") Industrial Hygiene Laboratory Accreditation Program ("IHLAP"); or (B) another comparable program approved in advance in writing by EPA.

(iv) Full Shift Exposure Samples. Representative 8-hour TWA airborne concentrations shall be determined on the basis of samples representing the full shift exposure for

each exposure group.

(2) Initial Monitoring. Before the Company may deviate from the respirator requirements of the Protection in the Workplace section, the Company shall conduct initial exposure monitoring to accurately determine the airborne concentration of the PMN substances for each exposure group in which persons are reasonably likely to be exposed to the PMN substances.

(3) Periodic Monitoring.

(i) If any representative samples taken during the initial exposure monitoring reveal an airborne concentration at or above the action level but at or below the TWA, the Company shall repeat the exposure monitoring for that exposure group at least every 6 months. If the PMN substances are not manufactured, processed, or used at all during a given 6 month calendar period, the Company is not required to conduct exposure monitoring until manufacture, processing, or use of the PMN substances is resumed. However, cessation of manufacturing, processing and use of the PMN substances for less than the 6 month period does not constitute grounds for postponement of the 6 month deadline to conduct exposure monitoring.

(ii) If any representative samples taken during the initial exposure monitoring reveal an airborne concentration above the TWA, the Company shall repeat the exposure monitoring for that exposure group at least every 3 months. If the PMN substances are not manufactured, processed, or used at all during a given 3 month calendar period, the Company is not required to conduct exposure monitoring until manufacture, processing, or use of the PMN substances is resumed. However, cessation of manufacturing, processing and use of the PMN substances for less than the 3 month period does not constitute grounds for postponement of the

3 month deadline to conduct exposure monitoring.

(iii) The Company may alter the exposure monitoring schedule from every 3 months to every 6 months for any exposure group for whom two consecutive measurements taken at least 7 days apart indicate that the potential exposure has decreased to the TWA or below, but is at or above the action level. Where the PMN substances are manufactured, processed, or used in batches of duration less than 7 days, the 2 consecutive measurements may be taken at least 24 hours apart, provided that the measurements accurately reflect the highest peak exposures and variability in exposure.

(4) Termination of Monitoring.

(i) If representative samples taken during the initial exposure monitoring reveal an airborne concentration below the action level, the Company may discontinue monitoring for that exposure group, except when additional exposure monitoring is required by paragraph (d)(5) of this New Chemical Exposure Limit section.

(ii) If representative samples taken during the periodic monitoring reveal that an airborne concentration, as indicated by at least 2 consecutive measurements taken at least 7 days apart, are below the action level, the Company may discontinue the monitoring for that exposure group, except when additional monitoring is required by paragraph (d)(5) of this New Chemical Exposure Limit section. Where the PMN substances are manufactured, processed, or used in batches of duration less than 7 days, the 2 consecutive measurements may be taken at least 24 hours apart, provided that the measurements accurately reflect the highest peak exposures and variability in exposure.

(5) Additional Monitoring.

(i) For a previously monitored exposure group, the Company shall, within 7 days of any of the events listed below in this paragraph (d)(5)(i), conduct the initial exposure monitoring followed by any periodic or additional exposure monitoring required by subsection (d) of this New Chemical Exposure Limit section:

(I) change in the production volume, process, control equipment, personnel or work practices that may reasonably cause new or additional exposures to the PMN substances;

(II) spills, leaks, ruptures or other breakdowns occur that may reasonably cause new or additional exposures to the PMN substances; and

(III) whenever else the Company has any reason to suspect a change that may reasonably result in new or additional exposures to the PMN substances.

(ii) In no event is the additional exposure monitoring requirement in paragraph (d)(5)(i) intended to delay implementation of any necessary cleanup or other remedial action. During any cleanup or remedial operations that may occur before commencing additional exposure monitoring, the Company shall ensure that potentially exposed persons use at least the respiratory protection specified in subsection (e) for the measured airborne concentration, or more protective respiratory equipment deemed appropriate by the best professional judgment of a qualified expert.

(6) Notification of Monitoring Results.

(i) Within 15 working days after receipt of the results of any exposure monitoring required by this Order, the Company shall notify each person whose exposure is represented by that monitoring. The notice shall identify the NCEL, the exposure monitoring results, and any

corresponding respiratory protection required by subsection (e). Affected persons shall be notified in writing either individually or by posting the information in an appropriate and accessible location.

(ii) Whenever the NCEL is exceeded, the written notification required by the preceding paragraph shall describe the action being taken by the Company to reduce inhalation exposure to or below the NCEL, or shall refer to a document available to the person which states the actions to be taken to reduce exposure.

(7) Exemption based on Objective Data. Where the Company has documented and reliable objective data demonstrating that, even under worst-case conditions, employee exposure to the PMN substances will not exceed the action level (defined in paragraph (d)(1)(i)) under the expected handling procedures and conditions for a specific "exposure group" (defined in paragraph (d)(1)(ii)), then that exposure group is exempt from this New Chemical Exposure Limit section (except paragraph (d)(5) "Additional Monitoring" and subsection (f) "NCEL Record-keeping") and the respirator requirements in the Protection in the Workplace section of this Order. Any such objective data must accurately characterize actual employee exposures to the PMN substances and must be obtained under conditions closely resembling the types of materials, processes, control methods, work practices, and environmental conditions in the Company's current workplace operations with the PMN substances. Examples of objective data that may be used to demonstrate that employee exposure will not exceed the action level, even under worst case conditions, include information on the physical and chemical properties of the PMN substances, industry-wide studies, and/or laboratory test results.

(e) Respiratory Protection.

(1) General. Whenever the Company has conducted exposure monitoring at a workplace in accordance with subsection (d) of this New Chemical Exposure Limit section and the measured airborne concentration of the PMN substances for any person who is reasonably likely to be exposed to the PMN substances by inhalation exceeds the NCEL, the Company shall provide those persons the respirators specified in this subsection (e) (rather than the respirator(s) identified in the Protection in the Workplace section of this Order), and shall ensure that the respirators are used (including training, fit testing, and maintenance) in accordance with OSHA and NIOSH respiratory protection requirements at 29 CFR 1910.134 and 42 CFR Part 84. When the Company has not yet measured the airborne concentration of the PMN substances at a workplace in accordance with this New Chemical Exposure Limit section, the Company shall comply with the respirator requirements in the Protection in the Workplace section of this Order at that workplace.

(2) Selection of Appropriate Respiratory Protection. After the Company has conducted exposure monitoring in accordance with subsection (d) of this New Chemical Exposure Limit section, the Company shall select, provide, and ensure that persons who are reasonably likely to be exposed to the PMN substances by inhalation use, at a minimum, the respiratory protection which corresponds in the following table to the measured airborne concentration (or a more protective respirator which corresponds to a concentration higher than measured)

Measured Concentration of PMN Substance	**Required Respiratory Protection**

≤ NCEL -- No respiratory protection is required.

≤ 10 x NCEL *If Data on Cartridge Service Life Testing has been Reviewed and Approved by EPA:*

-- NIOSH-certified air-purifying, tight-fitting full-face respirator equipped with the appropriate gas/vapor cartridges (organic vapor, acid gas, or substance-specific).

-- NIOSH-certified powered air-purifying respirator equipped with a loose fitting hood or helmet and equipped with the appropriate gas/vapor cartridges (organic vapor, acid gas, or substance-specific).

≤ 25 x NCEL *If Data on Cartridge Service Life Testing has been Reviewed and Approved by EPA:*

-- NIOSH-certified air-purifying, tight-fitting full-face respirator equipped with the appropriate gas/vapor cartridges (organic vapor, acid gas, or substance-specific).

-- NIOSH-certified powered air-purifying respirator equipped with a loose-fitting hood or helmet and the appropriate gas/vapor cartridges (organic vapor, acid gas, or substance-specific).

≤ 50 x NCEL *If Data on Cartridge Service Life Testing has been Reviewed and Approved by EPA:*

-- NIOSH-certified air-purifying, tight-fitting full-face respirator equipped with the appropriate gas/vapor cartridges (organic vapor, acid gas, or substance-specific).

If No Cartridge Service Life Testing is Available:

-- NIOSH-certified supplied-air respirator operated in pressure demand or continuous flow mode and equipped with a tight-fitting full facepiece.

≤ 2000 x NCEL -- NIOSH-certified supplied-air respirator operated in pressure demand or

other positive pressure mode and equipped with a tight-fitting full facepiece.

> 2000 x NCEL -- Any self-contained respirator equipped with a full facepiece and operated in a pressure demand or other positive pressure mode.

-- Any supplied-air respirator equipped with a full facepiece operated in a pressure demand or other positive pressure mode in combination with an auxiliary self-contained breathing apparatus operated in a pressure demand or other positive pressure mode.

(3) Reductions in Respiratory Protection. After appropriate respiratory protection has been selected based on the results of actual exposure monitoring conducted at a workplace in accordance with subsection (d) of this New Chemical Exposure Limit section, the Company shall not, at that workplace, use the respiratory protection required by the Protection in the Workplace section of this Order (unless it is the same as required by this New Chemical Exposure Limit section). Before the Company may make any reduction in any respiratory protection selected pursuant to this New Chemical Exposure Limit section, the Company must verify, by 2 consecutive measurements taken at least 7 days apart, that the new respiratory protection is appropriate in accordance with paragraph (e)(2). Where the PMN substances is manufactured, processed, or used in batches of duration less than 7 days, the 2 consecutive measurements may be taken at least 24 hours apart, provided that the measurements accurately reflect the highest peak exposures and variability in exposure.

(4) Special Situations.

(i) Measurements Outside Quantitation Limits. When a value less than the lower quantitation limit ("LQL") of the analytical method (as described in paragraph (c)(4)(ii)) is

measured, the Company shall estimate potential exposure using generally established and accepted statistical methods. If the Company obtains an exposure monitoring sample that is more than 10% above the actual upper quantitation limit ("UQL") of the analytical method, the Company must ensure that its workers wear at least a NIOSH-certified supplied-air respirator operated in pressure demand or other positive pressure mode and equipped with a tight-fitting full facepiece. Any reductions in this respiratory protection must comply with paragraph (e)(3). The Company may submit an improved analytical method provided that it complies fully with subsection (c) of this New Chemical Exposure Limit section, including the verification required by subsection (c)(3).

(ii) Cleanup and Remedial Actions. During any special cleanup or other remedial actions that may occur before commencing additional exposure monitoring (as discussed in paragraph (d)(5)(ii)), the Company shall ensure that potentially exposed persons use at least the respiratory protection specified above in this subsection (e) for the measured airborne concentration, or more protective respiratory equipment deemed appropriate by the best professional judgment of a qualified expert.

(f) NCEL Recordkeeping.

(1) Whenever the Company elects to comply with this New Chemical Exposure Limit section rather than the respirator requirements in the Protection in the Workplace section of this Order, the Company shall maintain the following records until 30 years after the date they are created, and shall make them available for inspection and copying by EPA in accordance with section 11 of TSCA:

(i) A copy of the sampling and analytical methods used and continuing evidence

of their accuracy over time as required by section (c);

(ii) Records documenting compliance with the analytical method verification requirements of subsection (c)(3), including copies of the signed certification statement and the verification results obtained by both laboratories;

(iii) Records documenting either compliance with the Good Laboratory Practice Standards at 40 CFR Part 792, or use of a laboratory accredited by the American Industrial Hygiene Association ("AIHA") or another comparable program approved in advance in writing by EPA. Where the Company elects to not comply with TSCA GLPS, such records shall include the written accreditation from the AIHA or the written approval from EPA.

(iv) Records documenting all exposure monitoring dates, duration, and results of each sample taken;

(v) Records documenting the name, address, work shift, job classification, and work area of the person monitored and of all other persons whose exposures the monitoring is intended to represent;

(vi) Any conditions that might have affected the monitoring results;

(vii) Notification of exposure monitoring results required by paragraph (d)(6);

(viii) Records documenting any changes in the production, process, control equipment, personnel or work practices that may reasonably cause new or additional exposures to the PMN substances;

(ix) Records documenting any spills, leaks, ruptures or other breakdowns that may cause new or additional exposure;

(x) The type of respiratory protective devices worn by the monitored person, if any;

(xi) Records documenting any actions taken to mitigate exposures to the PMN substances;

(xii) Records documenting reliance on the objective data exemption in paragraph (d)(7), including: (A) the source of the data, (B) protocols and results of any relevant testing or analysis, (C) a description of the operation exempted and how the data demonstrate that employee exposures will not exceed the action level, (D) other data relevant to the operations, materials and employee exposures covered by the exemption.

MANUFACTURING

(a) (1) Prohibition. The Company shall not cause, encourage, or suggest the manufacture or import of the PMN substances by any other person.

(2) Sunset Following SNUR. Subparagraph (a)(1) shall expire 75 days after promulgation of a final significant new use rule ("SNUR") governing the PMN substances under section 5(a)(2) of TSCA unless the Company is notified on or before that day of an action in a Federal Court seeking judicial review of the SNUR. If the Company is so notified, subparagraph (a)(1) shall not expire until EPA notifies the Company in writing that all Federal Court actions involving the SNUR have been resolved and the validity of the SNUR affirmed.

(3) Notice of SNUR. When EPA promulgates a final SNUR for the PMN substances and subparagraph (a)(1) expires in accordance with subparagraph (a)(2), the Company shall notify each person whom it causes, encourages or suggests to manufacture or import the PMN substances of the existence of the SNUR.

CONTROL OF EFFLUENT & EMISSIONS

(a) The Company shall recover and capture (destroy) or recycle the PMN substances at an overall efficiency of 99% from all the effluent process streams and the air emissions (point source and fugitive).

DISTRIBUTION

(a) Distribution Requirements. Except as provided in paragraph (b), the Company shall distribute the PMN substances outside the Company, only to a person who has agreed in writing prior to the date of distribution, to:

(1) Comply with the same requirements and restrictions, if any, required of the Company in the Protection in the Workplace and the New Chemical Exposure Limit sections of this Order;

(2) Distribute the PMN substances only to a person who will either recover and capture (destroy) or recycle the PMN substances from all effluent process streams and air emissions (point source and fugitive) at an overall efficiency of 99%; and

(3) Distribute the PMN substance P-08-509 in an aqueous dispersion of the polymer product or on a heat treated solid product such that the contents polymer residual P-08-508/509 cumulative total [ ] are below 200 ppb level using the ASE method developed by Larsen et al[1] with the level of quantification (LOQ) for the standard solution at 0.5 ppb. If non-heat treated solid polymer is distributed by the Company, such person shall not further distribute until heat treatment is performed at temperature and residence time sufficient to produce a product with P08-508/509 cumulative residual levels equivalent to the heat treated

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[1]Larsen et al, "Efficient "total" extraction of perfluorooctanoate from polytetrafluoroethylene fluoropolymer", *Analyst*, 2006, 131, 1105-1108.

polymer distributed by the Company, (i.e., below 200 ppb).

(b) Temporary Transport and Storage. Notwithstanding paragraph (a), the Company may distribute the PMN substances outside the Company for temporary transport and storage in sealed containers provided the following two conditions are met:

(1) Subsequent to any such exempt temporary transport or storage of sealed containers, the PMN substances may be distributed only to the Company or a person who has given the Company the written agreement required by paragraph (a).

(2) Any human exposure or environmental release resulting from opening the sealed containers and removing or washing out the PMN substances may occur only while the PMN substances is in the possession and control of the Company or a person who has given the Company the written agreement required by paragraph (a).

(c) Recipient Non-Compliance. If, at any time after commencing distribution in commerce of the PMN substances, the Company obtains knowledge that a recipient of the substance has failed to comply with any of the conditions specified in paragraph (a) of this Distribution section or, after paragraph (a)(1) expires in accordance with subparagraph (d)(1), has engaged in a significant new use of the PMN substances (as defined in 40 CFR Part 721, Subpart E) without submitting a significant new use notice to EPA, the Company shall cease supplying the substance to that recipient, unless the Company is able to document each of the following:

(1) That the Company has, within 5 working days, notified the recipient in writing that the recipient has failed to comply with any of the conditions specified in paragraph (a) of this Distribution section, or has engaged in a significant new use of the PMN substances without

submitting a significant new use notice to EPA.

(2) That, within 15 working days of notifying the recipient of the noncompliance, the Company received from the recipient, in writing, a statement of assurance that the recipient is aware of the terms of paragraph (a) of this Distribution section and will comply with those terms, or is aware of the terms of the significant new use rule for the PMN substances and will not engage in a significant new use without submitting a significant new use notice to EPA.

(3) If, after receiving a statement of assurance from a recipient under subparagraph (c)(2) of this Distribution section, the Company obtains knowledge that the recipient has failed to comply with any of the conditions specified in paragraph (a) of this Distribution section, or has engaged in a significant new use of the PMN substances without submitting a significant new use notice to EPA, the Company shall cease supplying the PMN substances to that recipient, shall notify EPA of the failure to comply, and shall resume supplying the PMN substances to that recipient only upon written notification from the Agency.

(d) Sunset Following SNUR. (1) Paragraph (a)(1) of this Distribution section shall expire 75 days after promulgation of a final SNUR for the PMN substances under section 5(a)(2) of TSCA, unless the Company is notified on or before that day of an action in a Federal Court seeking judicial review of the SNUR. If the Company is so notified, paragraph (a)(1) of this Distribution section shall not expire until EPA notifies the Company in writing that all Federal Court actions involving the SNUR have been resolved and the validity of the SNUR affirmed.

(2) When EPA promulgates a final SNUR for the PMN substances and paragraph (a)(1) of this Distribution section expires in accordance with subparagraph (d)(1), the Company shall notify each person to whom it distributes the PMN substances of the existence of the SNUR. Such

notification must be in writing and must specifically include all limitations contained in the SNUR which are defined as significant new uses, and which would invoke significant new use notification to EPA for the PMN substances. Such notice must also reference the publication of the SNUR for this PMN substances in either the Federal Register or the Code of Federal Regulations. After promulgation of a SNUR and expiration of subparagraph (a)(1), such notice may substitute for the written agreement required in the introductory clause of paragraph (a); so that, if the Company provides such notice to the persons to whom it distributes the PMN substances, then the Company is not required to obtain from such persons the written agreement specified in paragraph (a).

III. RECORDKEEPING

(a) Records. The Company shall maintain the following records until 5 years after the date they are created and shall make them available for inspection and copying by EPA in accordance with section 11 of TSCA:

(1) Exemptions. Records documenting that the PMN substances did in fact qualify for any one or more of the exemptions described in Section I, Paragraph (b) of this Order. Such records must satisfy all the statutory and regulatory recordkeeping requirements applicable to the exemption being claimed by the Company. Any amounts or batches of the PMN substances eligible for the Export exemption in Section I, Paragraph (b)(3) of this Order, are exempt from all the requirements in this Recordkeeping section, if the Company maintains, for 5 years from the date of their creation, copies of the export label and export notice to EPA, required by TSCA sections 12(a)(1)(B) and 12(b), respectively. Any amounts or batches of the PMN substances eligible for the Research and Development exemption in Section I, Paragraph (b)(2) of this Order, are exempt from all the requirements in this Recordkeeping section, if the Company maintains, for

5 years from the date of their creation, the records required by 40 CFR 720.78(b). For any amounts or batches of the PMN substances claimed to be eligible for any other exemption described in Section I, Paragraph (b) of this Order, the Company shall keep records demonstrating qualification for that exemption as well as the records specified in paragraphs (2) and (3) below, but is exempt from the other recordkeeping requirements in this Recordkeeping section;

(2) Records documenting the manufacture and importation volume of the PMN substances and the corresponding dates of manufacture and import;

(3) Records documenting the names and addresses (including shipment destination address, if different) of all persons outside the site of manufacture or import to whom the Company directly sells or transfers the PMN substances, the date of each sale or transfer, and the quantity of the substance sold or transferred on such date;

(4) Records documenting the address of all sites of manufacture, import, processing, and use;

(5) Records documenting establishment and implementation of a program for the use of any applicable personal protective equipment required pursuant to the Protection in the Workplace section of this Order;

(6) Records documenting the determinations required by the Protection in the Workplace section of this Order that chemical protective clothing is impervious to the PMN substances;

(7) Records required by paragraph (f). of the New Chemical Exposure Limits section of this Order, if applicable;

(8) Records documenting compliance with any applicable manufacturing, processing, use, and distribution restrictions in the Manufacturing and Distribution sections of this Order, including distributees' written agreement to comply with the Distribution section of this Order;

(9) Records documenting compliance with the Control of Effluent & Emissions section of this Order;

(10) Copies of any Transfer Documents and notices required by the Successor Liability section of this Order, if applicable; and

(11) The Company shall keep a copy of this Order at each of its sites where the PMN substances are manufactured or imported.

(b) Applicability. The provisions of this Recordkeeping Section are applicable only to activities of the Company and its Contract Manufacturer, if applicable, and not to activities of the Company's customers.

(c) OMB Control Number. Under the Paperwork Reduction Act and its regulations at 5 CFR Part 1320, particularly 5 CFR 1320.5(b), the Company is not required to respond to this "collection of information" unless this Order displays a currently valid control number from the Office of Management and Budget (OMB), and EPA so informs the Company. The "collection of information" required in this TSCA §5(e) Consent Orders has been approved under currently valid **OMB Control Number 2070-0012.**

IV. REQUESTS FOR PRE-INSPECTION INFORMATION

(a) EPA's Request for Information. Pursuant to section 11 of TSCA and 40 CFR 720.122, EPA may ocassionally conduct on-site compliance inspections of Company facilities and conveyances associated with the PMN substances. To facilitate such inspections, EPA personnel may contact the Company in advance to request information pertinent to the scheduling and conduct of such

inspections. Such requests may be written or oral. The types of information that EPA may request may include, but are not limited to, the following:

(i) Expected dates and times when the PMN substances will be in production within the subsequent 12 months;

(ii) Current workshift schedules for workers who are involved in activities associated with the PMN substances and may reasonably be exposed to the PMN substances;

(iii) Current job titles or categories for workers who are involved in activities associated with the PMN substances and may reasonably be exposed to the PMN substances;

(iv) Existing exposure monitoring data for workers who are involved in activities associated with the PMN substances and may reasonably be exposed to the PMN substances;

(v) Records required by the Recordkeeping section of this Order; and/or

(vi) Any other information reasonably related to determining compliance with this Order or conducting an inspection for that purpose.

(b) Company's Response. The Company shall respond to such requests within a reasonable period of time, but in no event later than 30 days after receiving EPA's request. When requested in writing by EPA, the Company's response shall be in writing. To the extent the information is known to or reasonably ascertainable to the Company at the time of the request, the Company's response shall demonstrate a good faith effort to provide reasonably accurate and detailed answers to all of EPA's requests.

(c) Confidential Business Information. Any Confidential Business Information ("CBI") that the Company submits to EPA pursuant to paragraph (b) shall be protected in accordance with §14 of

TSCA and 40 CFR Part 2.

V. SUCCESSOR LIABILITY UPON TRANSFER OF CONSENT ORDER

(a) Scope. This section sets forth the procedures by which the Company's rights and obligations under this Order may be transferred when the Company transfers its interests in the PMN substances, including the right to manufacture the PMN substances, to another person outside the Company (the "Successor in Interest").

(b) Relation of Transfer Date to Notice of Commencement ("NOC").

(1) Before NOC. If the transfer from the Company to the Successor in Interest is effective before EPA receives a notice of commencement of manufacture or import ("NOC") for the PMN substances from the Company pursuant to 40 CFR 720.102, the Successor in Interest must submit a new PMN to EPA and comply fully with Section 5(a)(1) of TSCA and 40 CFR part 720 before commencing manufacture or import of the PMN substances.

(2) After NOC. 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 and shall not be required to submit a new PMN to EPA.

(c) Definitions. The following definitions apply to this Successor Liability section of the Order:

(1) "Successor in Interest" means a person outside the Company who has acquired the Company's full interest in the rights to manufacture the PMN substances, including all ownership rights and legal liabilities, through a transfer document signed by the Company, as transferor, and the Successor in Interest, as transferee. The term excludes persons who acquire less than the full

interest of the Company in the PMN substances, such as a licensee who has acquired a limited license to the patent or manufacturing rights associated with the PMN substances. A Successor in Interest must be incorporated, licensed, or doing business in the United States in accordance with 40 CFR 720.22(a)(3).

(2) "Transfer Document" means the legal instrument(s) used to convey the interests in the PMN substances, including the right to manufacture the PMN substances, from the Company to the Successor in Interest.

(d) Notices.

(1) Notice to Successor in Interest. On or before the effective date of the transfer, the Company shall provide to the Successor in Interest, by registered mail, a copy of the Consent Order and the "Notice of Transfer" document which is incorporated by reference as Attachment C to this Order.

(2) Notice to EPA. Within 10 business days of the effective date of the transfer, the Company shall, by registered mail, submit the fully executed Notice of Transfer document to: U.S. Environmental Protection Agency, New Chemicals Branch (7405), 1200 Pennsylvania Avenue, N.W., Washington, D.C. 20460.

(3) Transfer Document. Copies of the Transfer Document must be maintained by the Successor in Interest at its principal place of business, and at all sites where the PMN substances is manufactured or imported. Copies of the Transfer Document must also be made available for inspection pursuant to Section 11 of TSCA, must state the effective date of transfer, and must contain provisions which expressly transfer liability for the PMN substances under the terms of this Order from the Company to the Successor in Interest.

(e) Liability.

(1) The Company shall be liable for compliance with the requirements of this Order until the effective date of the transfer described above.

(2) The Successor in Interest shall be liable for compliance with the requirements of this Order effective as of the date of transfer.

(3) Nothing in this section shall be construed to prohibit the Agency from taking enforcement action against the Company after the effective date of the transfer for actions taken, or omissions made, during the time in which the Company manufactured, processed, used, distributed in commerce, or disposed of the PMN substances pursuant to the terms of this Consent Order.

(f) Obligations to Submit Test Data under Consent Order. If paragraph (d) of the Testing section of this Consent Order requires the Company to submit test data to EPA at a specified production volume ("test trigger"), the aggregate volume of the PMN substances manufactured and imported by the Company up to the date of transfer shall count towards the test trigger applicable to the Successor in Interest.

VI. MODIFICATION AND REVOCATION OF CONSENT ORDER

The Company may petition EPA at any time, based upon new information on the health effects of, or human exposure to, the PMN substances, to modify or revoke substantive provisions of this Order. The exposures and risks identified by EPA during its review of the PMN substances and the information EPA determined to be necessary to evaluate those exposures and risks are described in the preamble to this Order. However, in determining whether to amend or revoke this Order, EPA will consider all relevant information available at the time the Agency makes that

determination, including, where appropriate, any reassessment of the test data or other information that supports the findings in this Order, an examination of new test data or other information or analysis, and any other relevant information.

EPA will issue a modification or revocation if EPA determines that the activities proposed therein will not present an unreasonable risk of injury to health or the environment and will not result in significant or substantial human exposure or substantial environmental release in the absence of data sufficient to permit a reasoned evaluation of the health or environmental effects of the PMN substances.

In addition, the Company may petition EPA at any time to make other modifications to the language of this Order. EPA will issue such a modification if EPA determines that the modification is useful, appropriate, and consistent with the structure and intent of this Order as issued.

VII. EFFECT OF CONSENT ORDER

By consenting to the entry of this Order, the Company waives its rights to file objections to this Order pursuant to section 5(e)(1)(C) of TSCA, to receive service of this Order no later than 45 days before the end of the review period pursuant to section 5(e)(1)(B) of TSCA, and to challenge the validity of this Order in any subsequent action. Consenting to the entry of this Order, and agreeing to be bound by its terms, do not constitute an admission by the Company as to, the facts or conclusions underlying the Agency's determinations in this proceeding. This waiver does not affect any other rights that the Company may have under TSCA.

1/26/09
Date

/s/
Jim Willis, Director
Chemical Control Division
Office of Pollution Prevention and Toxics

1/28/09
Date

/s/
Name: James R. Hoover

Title: Global Regulatory Manager

Company: DuPont Company

ATTACHMENT A

DEFINITIONS

[Note: The attached Order may not contain some of the terms defined below.]

"Chemical name" means the scientific designation of a chemical substance in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry or the Chemical Abstracts Service's rules of nomenclature, or a name which will clearly identify a chemical substance for the purpose of conducting a hazard evaluation.

"Chemical protective clothing" means items of clothing that provide a protective barrier to prevent dermal contact with chemical substances of concern. Examples can include, but are not limited to: full body protective clothing, boots, coveralls, gloves, jackets, and pants.

"Company" means the person or persons subject to this Order.

"Commercial use" means the use of a chemical substance or any mixture containing the chemical substance in a commercial enterprise providing saleable goods or a service to consumers (e.g., a commercial dry cleaning establishment or painting contractor).

"Common name" means any designation or identification such as code name, code number, trade name, brand name, or generic chemical name used to identify a chemical substance other than by its chemical name.

"Consumer" means a private individual who uses a chemical substance or any product containing the chemical substance in or around a permanent or temporary household or residence, during recreation, or for any personal use or enjoyment.

"Consumer product" means a chemical substance that is directly, or as part of a mixture, sold or made available to consumers for their use in or around a permanent or temporary household or residence, in or around a school, or in recreation.

"Container" means any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers.

"Contract Manufacturer" means a person, outside the Company, who is authorized to manufacture and import the PMN substance under the conditions specified in Part II. of this Consent Order and in the Consent Order for Contract Manufacturer.

"Identity" means any chemical or common name used to identify a chemical substance or a mixture containing that substance.

"Immediate use." A chemical substance is for the "immediate use" of a person if it is under the control of, and used only by, the person who transferred it from a labeled container and will only be used by that person within the work shift in which it is transferred from the labelled container.

"Impervious." Chemical protective clothing is "impervious" to a chemical substance if the substance causes no chemical or mechanical degradation, permeation, or penetration of the chemical protective clothing under the conditions of, and the duration of, exposure.

"Manufacturing stream" means all reasonably anticipated transfer, flow, or disposal of a chemical substance, regardless of physical state or concentration, through all intended operations of manufacture, including the cleaning of equipment.

"MSDS" means material safety data sheet, the written listing of data for the chemical substance.

"NIOSH" means the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services.

"Non-enclosed process" means any equipment system (such as an open-top reactor, storage tank, or mixing vessel) in which a chemical substance is manufactured, processed, or otherwise used where significant direct contact of the bulk chemical substance and the workplace air may occur.

"Non-industrial use" means use other than at a facility where chemical substances or mixtures are manufactured, imported, or processed.

"PMN substance" means the chemical substance described in the Premanufacture notice submitted by the Company relevant to this Order.

"Personal protective equipment" means any chemical protective clothing or device placed on the body to prevent contact with, and exposure to, an identified chemical substance or substances in the work area. Examples include, but are not limited to, chemical protective clothing, aprons, hoods, chemical goggles, face splash shields, or equivalent eye protection, and various types of respirators. Barrier creams are not included in this definition.

"Process stream" means all reasonably anticipated transfer, flow, or disposal of a chemical substance, regardless of physical state or concentration, through all intended operations of processing, including the cleaning of equipment.

"Scientifically invalid" means any significant departure from the EPA-approved protocol or the Good Laboratory Practice Standards at 40 CFR Part 792 without prior or subsequent Agency approval that prevents a reasoned evaluation of the health or environmental effects of the PMN substance.

"Scientifically equivocal data" means data which, although developed in apparent conformity with the Good Laboratory Practice Standards and EPA-approved protocols, are inconclusive, internally inconsistent, or otherwise insufficient to permit a reasoned evaluation of the potential risk of injury to human health or the environment of the PMN substance.

"Sealed container" means a closed container that is physically and chemically suitable for long-term containment of the PMN substance, and from which there will be no human exposure to, nor environmental release of, the PMN substance during transport and storage.

"Use stream" means all reasonably anticipated transfer, flow, or disposal of a chemical substance, regardless of physical state or concentration, through all intended operations of industrial, commercial, or consumer use.

"Waters of the United States" has the meaning set forth in 40 CFR 122.2.

"Work area" means a room or defined space in a workplace where the PMN substance is manufactured, processed, or used and where employees are present.

"Workplace" means an establishment at one geographic location containing one or more work areas.

ATTACHMENT B

STATISTICAL ANALYSIS OF NCELs ANALYTICAL METHOD VERIFICATION RESULTS

This Attachment describes the statistical technique (with examples) for comparing the analytical results obtained by two laboratories pursuant to paragraph (c)(3)(vii) of the New Chemical Exposure Limit section of this Order.

STATISTICAL TECHNIQUE

To obtain two-sample t test with unequal variances, perform the following operations:

- Compute means of the data measured by two laboratories.
- Compute mean squares

$$S_i^2 = \sum(\bar{X}_{ij} - X_i)^2/(n_i - 1),\ i=1, 2$$

- Form the ratio

$$T = (\bar{X}_1 - \bar{X}_2)/(W_1 + W_2)^{1/2}$$

- Compute degrees of freedom

$$f = (W_1 + W_2)^2/[W_1^2/(n_1 - 1) + W_2^2/(n_2 - 1)]$$

where,

$W_1 = S_1^2/n_1,\ i = 1, 2$

$\bar{X}_1$ = Average of the results from the company laboratory

$\bar{X}_2$ = Average of the results from the independent laboratory

n_1 = Number of samples analyzed by the company laboratory

n_2 = Number of samples analyzed by the independent laboratory.

Then compare the absolute value of T to the 97.5 percentile point of a t distribution with f degrees of freedom. If the absolute value exceeds the 97.5 percentile point, the results measured

by two laboratories are significantly different at 95% level. Otherwise, they are not significantly different. In general, f may not be a integer. Use interpolation to obtain the 97.5 percentile point of a t distribution with f degrees of freedom.

EXAMPLES -- The following examples (based on simulated data) illustrate the method:

Example 1

Data Set 1	Data Set 2
80.56	97.11
100.01	102.13
86.04	99.83
52.61	97.83
84.85	105.44
95.75	100.04

$\bar{X}_1 = 83.30$ $n_1 = 6$ $\bar{X}_2 = 100.40$ $n_2 = 6$

$S_1^2 = 278.72$ $W_1 = 46.25$ $S_2^2 = 9.26$ $W_2 = 1.54$

Absolute value of $T = 2.467$ $f = 5.33$

The t table shows that the 97.5 percentile point is 2.571 and 2.447 for 5 and 6 degrees of freedom, respectively. For 5.33 degrees of freedom, the 97.5 percentile point will be approximately 2.530 which is greater than the absolute value of T, 2.467. Hence, the means of two data sets are not significantly different at the 5% level.

However, if this problem had been treated as an ordinary two-sample t test, the means would be significantly different at the 5% level because the absolute of T is greater than 2.228, the 97.5 percentile point for the t distribution with 10 degrees of freedom.

Example 2

Data Set 1	Data Set 2
82.87	108.05
101.85	96.51
87.44	100.04
99.68	104.33
101.15	110.32
99.21	107.00

$\bar{X}_1 = 95.37$ $n_1 = 6$ $\bar{X}_2 =$ 104.37 $n_2 = 6$

$S_1^1 = 65.59$ $W_1 = 10.93$ $S_2^2 = 27.25$ $W_2 = 4.54$

Absolute value of $T = 2.290$ $f = 8.54$

The t table shows that for 8 and 9 degrees of freedom the 97.5 percentile point is 2.306 and 2.262, respectively. For 8.54 degrees of freedom the 97.5 percentile point will be approximately 2.282 which is less than the absolute value of T, 2.290. Hence, the means of two data sets are significantly different at the 5% level.

ATTACHMENT C

NOTICE OF TRANSFER
OF
TOXIC SUBSTANCES CONTROL ACT
SECTION 5(e) CONSENT ORDER

_____ _____
Company (Transferor) PMN Number

1. Transfer of Manufacture Rights. Effective on _____, the Company did sell or otherwise transfer to _____, ("Successor in Interest") the rights and liabilities associated with manufacture of the above-referenced chemical substance, which was the subject of a premanufacture notice ("PMN") and is governed by a Consent Order issued by the U.S. Environmental Protection Agency ("EPA") under the authority of §5(e) of the Toxic Substances Control Act (TSCA, 15 U.S.C. §2604(e)).

2. Assumption of Liability. The Successor in Interest hereby certifies that, as of the effective date of transfer, all actions or omissions governed by the applicable Consent Order limiting manufacture, processing, use, distribution in commerce and disposal of the PMN substance, shall be the responsibility of the Successor in Interest. Successor in Interest also certifies that it is incorporated, licensed, or doing business in the United States in accordance with 40 CFR 720.22(a)(3).

3. Confidential Business Information. The Successor in Interest hereby:

___ reasserts,

___ relinquishes, or

___ modifies

all Confidential Business Information ("CBI") claims made by the Company, pursuant to Section 14 of TSCA and 40 CFR part 2, for the PMN substance(s). Where "reasserts" or "relinquishes" is indicated, that designation shall be deemed to apply to all such claims. Where "modifies" is indicated, such modification shall be explained in detail in an attachment to this Notice of Transfer. Information which has been previously disclosed to the public (e.g., a chemical identity that was not claimed as CBI by the original submitter) would not subsequently be eligible for confidential treatment under this Notice of Transfer.

TOXIC SUBSTANCES CONTROL ACT
SECTION 5(e) CONSENT ORDER

NOTICE OF TRANSFER
(continued)

Company (Transferor) | PMN Number

Signature of Authorized Official | Date

Printed Name of Authorized Official

Title of Authorized Official

Successor in Interest

Signature of Authorized Official | Date

Printed Name of Authorized Official

Title of Authorized Official

Address

City, State, Zip Code

TOXIC SUBSTANCES CONTROL ACT
SECTION 5(e) CONSENT ORDER

NOTICE OF TRANSFER
(continued)

_____
Successor's Technical Contact

_____
Address

_____
City, State, Zip Code

_____
Phone

Appendix C:

Kathleen Gallagher Email Attachment Titled
"Chemours-TSCA-NOV-CBI-SANITIZED-021318-SIGNED-1"

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 13 2019

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

Mr. Mark Vergnano, President and CEO
The Chemours Company
Care of the Corporate Secretary
1007 Market Street
Wilmington, Delaware 19899

Re: Notice of Violation of the Toxic Substances Control Act

Dear Mr. Vergnano:

The purpose of this letter is to notify you that the U.S. Environmental Protection Agency (EPA) has determined that The Chemours Company (Chemours) is in violation of the Toxic Substances Control Act (TSCA), 15 U.S.C. § 2601 et seq., and its implementing regulations. Representatives of the EPA conducted inspections at Chemours' Fayetteville Works facility located near Fayetteville, North Carolina on June 28 and 29, 2017, and at the Washington Works facility near Parkersburg, West Virginia on October 17 and 18, 2017. The inspection reports provide a detailed description of the observations made during each inspection along with observations from the review of information Chemours provided to the inspectors. As detailed in this Notice of Violation (NOV), Chemours violated Section 5 of TSCA, 15 U.S.C. § 2604 and Section 8 of TSCA, 15 U.S.C. § 2607, and the regulations promulgated at 40 CFR Parts 720, 721, and 711, as indicated below.

Law Governing Violations

The violations described in this NOV concern the manufacture of new chemicals subject to TSCA. In creating TSCA, Congress found, in part, that "(1) human beings and the environment are being exposed each year to a large number of chemical substances and mixtures; (2) among the many chemical substances and mixtures which are constantly being developed and produced, there are some whose manufacture, processing, distribution in commerce, use, or disposal may present an unreasonable risk of injury to health or the environment . . ." TSCA § 2(a), 15 U.S.C. 2601(a). Congress' primary purpose in creating TSCA was "to assure that such innovation and commerce in such chemical substances and mixtures do not present an unreasonable risk of injury to health or the environment." TSCA § 2(b)(3), 15 U.S.C. § 2601(b)(3).

The EPA found that Chemours failed to submit a Pre-Manufacture Notice in violation of TSCA Section 5. Section 5 of TSCA requires anyone who plans to manufacture (including import) a new chemical substance for a non-exempt commercial purpose to provide the EPA with notice before initiating the activity. This notice is known as a PMN.

The EPA found that Chemours failed to comply with applicable Significant New Use Rules (SNUR) and failed to submit a required Significant New Use Notice (SNUN). The EPA can determine that a use of a chemical substance is a "significant new use." EPA can issue SNURs to require notice to the EPA before chemical substances and mixtures are used in new ways that may create risks. Once the EPA determines that a use of a chemical substance is a significant new use, TSCA Section 5(a) requires persons to submit a SNUN to the EPA at least 90 days before they manufacture (including import) or process the chemical substance for that use. The SNUN notification obligates the EPA to assess risks that may be associated with the significant new use.

The EPA found that Chemours failed to comply with a TSCA Section 5(e) order. One outcome of the EPA's review of a new chemical substance or review of a SNUN for a significant new use is the issuance of an order under Section 5(e) of TSCA. Most TSCA Section 5(e) orders are consent orders that are negotiated with the submitter of the notification. A Section 5(e) order typically contains some or all of the following requirements as conditions: testing for toxicity or environmental fate once a certain production volume or time period is reached; use of worker personal protective equipment; New Chemical Exposure Limits (NCELs) for worker protection; hazard communication language; distribution and use restrictions; and, restrictions on releases to water, air and/or land.

The EPA found that Chemours failed to comply with TSCA Section 8 and the Chemical Data Reporting (CDR) Rule. TSCA Section 8 gives the EPA the authority to require reporting and record-keeping by persons who manufacture, import, process, and/or distribute chemical substances in commerce. The CDR rule issued under TSCA requires manufacturers (including importers) to give the EPA information on the chemicals they manufacture domestically or import into the United States. The EPA uses the data, which provides important screening-level exposure related information, to help assess the potential human health and environmental effects of these chemicals and makes the non-confidential business information it receives available to the public.

The EPA found, as detailed in this NOV, that Chemours failed to comply with several requirements of TSCA. It is unlawful for any person to fail or refuse to comply with any requirement of TSCA or any rule promulgated, order issued, or consent agreement entered into under TSCA, including any requirement for submitting reports, notices or other information and maintaining records.

Violations

The EPA identified the following TSCA violations at the Fayetteville Works facility:

1. Failure to submit a SNUN for [CONFIDENTIAL BUSINESS INFORMATION (CBI) DELETED], a chemical subject to a SNUR restricting its annual production to 10,000 pounds. [40 CFR Part 721 for SNURs, specifically [CBI DELETED].]

2. Failure to submit a PMN for one chemical substance that was manufactured for a commercial purpose and not listed on the TSCA inventory. [40 CFR Part 720].
3. Failure to include three chemical substances [CBI DELETED] on the 2016 CDR [40 CFR Part 711].
4. Failure to report to two significant figures of accuracy on four chemical substances [CBI DELETED] included on the 2016 CDR. [40 CFR Part 711].
5. Failure to submit a SNUN for hexafluoropropylene oxide (HFPO), a chemical subject to a SNUR requiring HFPO to be used in an enclosed process in accordance with 40 CFR § 721.4160. HFPO is manufactured at the Fayetteville facility to be used as part of the manufacture of other perfluoroalkyl substances (PFAS). HFPO is a separate chemical with its own limitations for use under a TSCA Section 5 SNUR. On June 13, 2018, Chemours provided the EPA with HFPO process emissions estimates. The inspection report for the Fayetteville Works (Attachment A) describes the release of HFPO to the environment and the SNUR requirement for Chemours to use HFPO in an enclosed process.
6. Failure to notify [CBI DELETED], a customer, that HFPO was subject to a SNUR. Chemours distributed HFPO to [CBI DELETED].

The EPA identified the following TSCA violations at the Washington Works facility:

7. Failure to report to two significant figures of accuracy on two chemical substances [CBI DELETED] included on the 2016 CDR. [40 CFR Part 711].
8. Failure to properly control the effluent and emissions during the use of GenX as required by a 2009 TSCA Section 5(e) consent order (Consent Order). The Consent Order states that DuPont/Chemours "shall recover and capture (destroy) or recycle" GenX chemical substances "at an overall efficiency of 99% from all the effluent process streams and the air emissions (point source and fugitive)." [Consent Order, page 36 under the heading "Control of Effluent and Emissions"]. The inspection report for the Washington Works (Attachment B) describes the failure to meet the Consent Order requirement.

Enforcement

The EPA continues to investigate and review information concerning the compliance status of these and other Chemours facilities relating to TSCA. The violations articulated above are those that the EPA has determined, at this point, are sufficiently supported by evidence to warrant the violations identified in this NOV. The EPA may find additional TSCA violations as the investigation continues. The EPA has authority under TSCA to pursue enforcement actions for violations through the assessment of administrative penalties, injunctive relief and/or criminal actions. Section 17 of TSCA, 15 U.S.C. § 2616, authorizes the EPA to seek appropriate action in the United States district courts to restrain any person from taking any action prohibited by TSCA, including any rule or order under Section 5 of TSCA. Pursuant to Section 16(a) of TSCA, 15 U.S.C.§ 2615(a), as adjusted by the Civil Monetary Penalty Inflation Adjustment Rule, 40 CFR Part 19, violations are subject to a civil penalty for each offense.

Requested Actions

This NOV notifies Chemours of the opportunity to provide additional information to the EPA with respect to these violations. To the extent that Chemours has information that would inform the EPA's TSCA compliance investigation, the EPA requests that Chemours submit such information in writing to Mr. Mark Garvey, of my staff, at the following mailing address within 14 days of the date Chemours is in receipt of this NOV. For any submission containing CBI, please contact Mr. Mark Garvey for instructions on proper submission.

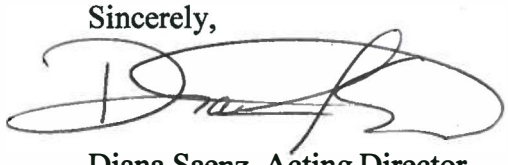
Mark Garvey, Attorney-Advisor
Waste and Chemical Enforcement Division
Office of Civil Enforcement
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., N.W., Mail Code 2249A
Washington, D.C. 20460
Telephone: (202) 564-4168
E-mail: garvey.mark@epa.gov

The EPA also requests Chemours' immediate action to correct the violations identified in the NOV and come into compliance with TSCA. The EPA further requests that within 30 days from the date of this letter, Chemours submit to EPA an outline of the actions that Chemours has already undertaken and/or provide the time-frame for actions it will implement to come into compliance with TSCA.

The Agency previously requested information from Chemours pursuant to TSCA Section 11 documenting when Chemours first learned about the GenX-related contamination in and around the Fayetteville Works and Washington Works facilities, including GenX contamination in drinking water. This information has not yet been provided by Chemours. The EPA is requesting that such documentation or substantiation be included in Chemours' response. Submission of this information is significant to Chemours' compliance with substantial risk information required under TSCA Section 8(e).

If you have any questions regarding this TSCA NOV, please contact Mark Garvey at (202) 564-4168 or as indicated above.

Sincerely,



Diana Saenz, Acting Director
Waste and Chemical Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
United States Environmental Protection Agency

Attachments:

Attachment A – Inspection Report for Fayetteville Facility
Attachment B – Inspection Report for Washington Works Facility

cc: Joel Gross, Counsel for Chemours
cc: Sheila Holman, North Carolina Department of Environmental Quality – *TSCA CBI sanitized version only*
cc: Jeremy Bandy, West Virginia Department of Environmental Protection – *TSCA CBI sanitized version only*

Appendix D:

Kathleen Gallagher Email Attachment Titled
"TSCA-NON-CBI-R3-Chemours-Inspection-Report"

TOXIC SUBSTANCES CONTROL ACT – NEW AND EXISTING CHEMICALS PROGRAM

COMPLIANCE MONITORING INSPECTION REPORT

The Chemours Company

Washington Works
8480 DuPont Road
Washington, WV 26181

Report Date: **July 31, 2018**

Report Prepared By:
Lauren O. Davis
U.S. Environmental Protection Agency, Region 3
Toxics Programs Branch
1650 Arch Street
Philadelphia, PA 19103

Inspectors:

Lauren O. Davis	**EPA Region 3, Lead Inspector**
Verne George	**EPA Region 4, Inspector**
Daryl Hudson	**Eastern Research Group, Contractor to EPA**
Dan-Tam Nguyen	**Eastern Research Group, Contractor to EPA**

Inspection Dates: **October 17-18, 2017**

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ACRONYMS

[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
CASRN	Chemical Abstracts Service Registration Number
CBI	Confidential Business Information
CDR	Chemical Data Reporting
d	Day
[redacted]	[redacted]
DCO	Document Control Officer
DMR	Discharge Monitoring Report
EPA	U.S. Environmental Protection Agency
ERG	Eastern Research Group, Inc., Contractors to EPA
[redacted]	[redacted]
[redacted]	[redacted]
gal	Gallons
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
kg	Kilogram
L	Liter
µg	Micrograms
NCEL	New Chemical Exposure Limit
NIOSH	National Institute for Occupational Safety and Health
PAIR	Preliminary Assessment Information Rule
PBT	Persist in the environment/could bio-accumulate/toxic to people, wild mammals, & birds
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctane sulfonate
PMN	Pre-manufacture Notice
[redacted]	[redacted]
ppb	Parts Per Billion
PPE	Personal Protective Equipment
[redacted]	[redacted]
[redacted]	[redacted]
SNUN	Significant New Use Notice
SNUR	Significant New Use Rule
[redacted]	[redacted]
TSCA	Toxic Substances Control Act
yr	Year

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SUMMARY

The Chemours Company FC, LLC (Chemours) is a chemical manufacturer, processor and exporter as defined under the Toxic Substances Control Act (TSCA), 5 U.S.C. Section 2601 *et. seq.* On October 17-18, 2017, a TSCA compliance monitoring inspection was conducted by the U.S. Environmental Protection Agency (EPA) at the Chemours plant site located at 8480 DuPont Road Washington, WV 26181 (Washington Works Facility), pursuant to Section 11(a) of TSCA, 15 U.S.C. Section 2610 (a). The inspection was conducted as a follow-up to the Region IV inspection of Chemours Fayetteville Works located in Fayetteville, North Carolina (Fayetteville Works Facility). Region IV conducted this inspection due to community concerns with the reported release of potentially harmful chemicals, associated with Chemours' GenX process, into the Cape Fear River, a source of drinking water supply for numerous counties in North Carolina.

GenX technology was developed by E. I. du Pont de Nemours and Company (DuPont) and now used by Chemours to manufacture high-performance fluoropolymers without the use of perfluorooctanoic acid (PFOA).

Based upon inspection observations and the review of records provided by Chemours, the Washington Works Facility: (1) manufactured, processed, exported and/or distributed in commerce, several chemical substances that are subject to TSCA;

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1.0 INTRODUCTION

EPA became aware of community concerns about the alleged release of potentially harmful chemicals into the Cape Fear River by Chemours' Fayetteville Works Facility in June 2017. The chemicals of concern were associated with Chemours' GenX process. Chemours stated that GenX was a technology developed by E. I. du Pont de Nemours and Company (DuPont) and is now used by Chemours to manufacture high-performance fluoropolymers without the use of perfluorooctanoic acid (PFOA).

[redacted], the EPA received [redacted] PMNs from DuPont. The notices were submitted pursuant to Section 5 of TSCA. The PMN number [redacted] was assigned to the chemical substance with a generic chemical identity, perfluorinated aliphatic carboxylic acid (Chemical Abstracts Service Registration Number [redacted], and PMN number [redacted] was assigned to the chemical substance with a generic chemical identity, [redacted]. In the PMN submission, DuPont claimed the specific chemical identities and the CASRNs of the chemical substances as TSCA Confidential Business Information (CBI).

[redacted], the EPA and DuPont entered into a TSCA Section 5(e) Consent Order (the Consent Order) governing the manufacture, processing, use, distribution in commerce, release and disposal of the PMN substances [redacted]. The EPA concluded, [redacted]

The Consent Order indicates that EPA's concerns were based on data collected on the PMN substances, analogs to the PMN substances, perfluorooctanoic acid (PFOA), [redacted] PFOA and PFOS were both under review by EPA for similar PBT concerns. Due to the possibility that the PMN substances were likely to be used as a substitute for PFOA, the Consent Order states, "more information is needed on the toxicity and pharmacokinetics of the PMN substance [redacted] that will be applied to the characterization of both PMN substances" and also noted the "high concern for possible environmental effects over the long-term." Due to EPA's concerns, the Consent Order authorized the manufacture of the PMN substances provided that DuPont "shall recover and capture (destroy) or recycle the PMN substances at an overall efficiency of 99% from all effluent process streams and air emissions (point source and fugitive)."

The effective date of Chemours spinoff from DuPont was [redacted]. The Consent Order provides for Successor of Liability of Transfer of Rights to manufacture the PMN substances.

2.0 INSPECTION

2.1 Inspection Notice

To determine Chemours' compliance with the Consent Order for the PMN substances and with other TSCA requirements, the EPA determined that an on-site TSCA compliance monitoring inspection at the Washington Works Facility was warranted pursuant to Section 11(a) of TSCA. The inspection team consisted of Lauren O. Davis EPA Region III, lead TSCA inspector, Verne George EPA Region IV, TSCA inspector, Daryl Hudson and Dan-Tam Nguyen, Eastern Research Group, Inc., (ERG) (contractors to EPA with EPA TSCA inspection credentials), and Scott Rice Region III TSCA inspector-in-training.

On September 27, 2017, Ms. Lauren O. Davis contacted Ms. Heather J. Shore to schedule a targeted inspection at Washington Works to determine compliance with TSCA Sections 4, 5, 8, 12, and 13. Based on the discussions with Ms. Shore, the inspection was scheduled for October 17-18, 2017.

On September 27, 2017, the Toxics Programs Branch mailed an inspection notice to the Washington Works Facility confirming the inspection date and requesting that certain records be made available for review during the inspection. A copy of the letter was also emailed to Ms. Shore on September 27, 2017 (See Exhibit: A0 Notice of Inspection Letter).

2.2 Inspection Entry

The final inspection team included all the planned inspection team members as follows:

Lauren O. Davis	TSCA Lead Inspector (EPA Region III)
Scott Rice	TSCA Co-inspector (EPA Region III)
Verne George	TSCA Co-inspector (EPA Region IV)
Daryl Hudson	TSCA Co-inspector (ERG)
Dan-Tam Nguyen	TSCA Co-inspector (ERG)

On October 17, 2017, the inspection team arrived at the facility security office at approximately 8:50 am. The inspection team signed in and was provided with facility identity badges. The security office called Ms. Shore who shortly arrived at the security office to guide the inspection team to the main office building.

The inspection team was escorted to a conference room. As the first step of the opening conference, each inspection team member presented their EPA credentials to the following Chemours representatives:

Bob Fehrenbacher	Washington Works Plant Manager;
Laura Korte	Global Product Manager;
Misti D. McCullough	Washington Works Environmental, Health & Safety Manager;
Heather J. Shore	Washington Works Health & Safety Manager and;
Richard L. Chalfant	Industrial Hygiene & Ergonomics Lead

2.3 Opening Conference

2.3.1 Introduction

Ms. Davis informed Chemours representatives that the inspection was being conducted pursuant to Section 11(a) of TSCA to determine compliance with Sections 4, 5, 8, 12, and 13 of TSCA. Ms. Shore signed a TSCA Notice of Inspection form (Form 7740-3) and a Confidentiality Notice form (Form 7740-4). Two copies of each form were signed by Chemours' representatives and a copy of each form was provided to the EPA (See Exhibits A1: Notice of Inspection Form and A2: TSCA Inspection Confidentiality Notice).

Ms. Davis explained that the inspection would consist of: an opening conference with the facility staff about the company, the nature of the company's business, chemical imports/exports and production processes, a tour of the Washington Works Facility, and a closing conference with Chemours representatives.

Ms. Davis explained the TSCA Inspection Confidentiality Notice and stated that to ensure confidentiality of documents provided by Washington Works Facility, Chemours must make a TSCA CBI claim as documents are provided to EPA. Ms. Davis also stated that no documents claimed by Chemours to contain TSCA CBI would be taken by the inspectors at the conclusion of the inspection. Non-CBI documents were collected by the inspectors and listed on the TSCA Receipt for Samples and Documents (EPA Form 7740-1) (See Exhibit: A3: TSCA Receipt for Samples and Documents). CBI documents requested by the inspectors were sent to the attention of the Region III Document Control Officer (DCO) per the instructions provided in the Notice of Inspection. Chemours was also instructed to mail, in the same manner, copies of the documents to the ERG contractor's TSCA CBI DCO at the ERG address provided in the Notice of Inspection.

Ms. Shore explained that the subject matter experts for Washington Works different process areas would come to the conference room throughout the day to explain their process areas. The presenters included: Ken Kelch, [redacted]; John Powers, [redacted]; Chris Ashley, [redacted]; Dave Ruffin, [redacted]; Bob Harper, [redacted] John Logue, [redacted] and Courtney Sterrick, [redacted].

2.3.2 Summary

An overview of the Washington Works Facility was provided by Ms. McCullough in a slide show presentation. A hard copy of the slide show presentation was provided to the inspection team (See Exhibit A4: Presentation, Washington Works Overview). In summary:

Chemours owns the entire Washington Works industrial site. This is the largest manufacturing facility owned by Chemours. Lucite International (contract production), DowDuPont, and Kuraray also operate at this location. Chemours also owns the historic Blennerhassett Island and it is leased back to the state of West Virginia as a State Park. Fluoropolymer production began in 1950.

- The Washington Works Facility consists of 721 acres with 172 acres within the fence line and is situated along the Ohio River.

- At this site there are approximately 680 full service employees, 180 contract "partners" and 50-500 contractors who work on a part-time and part-year basis.

- Chemours was a wholly owned subsidiary of DuPont when it acquired the Washington Works Facility from DuPont on February 1, 2015. Chemours later spun off from DuPont on July 1, 2015.

- The Fluoro Enterprise Operations consist of: (1) TFE and HFP Monomers, (2) Telomers, (3) TEFLON™ PFA resin & dispersions, (4) TEFLON™ FEP resin & dispersions, (5) TEFLON™ PTFE resin & dispersions and (6) TEFLON™ PTFE granular molding resins.

2.4 Washington Works Facility Tour

2.4.1 Introduction

As requested, Chemours gave the inspection team a tour of the Washington Works Facility. The tour mainly focused on process areas using [redacted]. Chemours provided the EPA inspectors with fire resistant jump-suits and rubber gloves. The inspectors used their own hard hats, safety shoes, safety glasses and hearing protection. The inspection team requested the tour to gain a general perspective and knowledge of the production areas, to supplement the review of summary flow charts, process diagrams and other information concerning operations at the Washington Works Facility.

2.4.2 Summary

The focus of the plant tour included process areas using or capturing/recovering [redacted] The inspection team toured the PFA, FEP and [redacted] process areas. A portion of the [redacted] requires persons in that area to wear respirators as required in the TSCA Consent Order. However, scheduled maintenance work was being performed on the [redacted] so there was no manufacturing activity in this part of the plant.

2.5 Closing Conference

The inspection team concluded the first inspection day, October 17, 2017, at approximately 5 pm and scheduled the closing conference for the next day. The inspection team arrived at the main office building at approximately 8:50 am on October 18, 2017. Ms. Shore assisted the inspection team in obtaining facility badges and escorted the team to the conference room. The inspection team held an inspection team only private meeting to discuss topics needing further clarification.

The inspection team provided Chemours with a list of information that needed further clarification. The inspection team requested such information to be sent to the EPA and ERG after the inspection. Lastly, the inspection team discussed with Chemours the need for further information that may be required upon review of the information provided by Chemours to EPA and ERG before and during the inspection. The inspection concluded at approximately 12:30 pm.

3.0 FINDINGS

3.1. Introduction

The findings discussed below are based on statements and observations made during the inspection and based on information provided by Chemours before and after the inspection. Additional background information about Chemours claimed as CBI by Chemours can be found in Exhibit B0: Response to Notice of Inspection (See Exhibit B0: Response to Notice of Inspection).

3.2 TSCA Section 4

Based on Chemours' list of raw materials, Chemours purchased [redacted] from a domestic supplier (See Exhibit B1: List 4-List of Raw Materials). This chemical substance, [redacted], is subject to a test rule. The sunset date to test this chemical is [redacted]. The [redacted] is processed at the Washington Works Facility in the production of PTFE. [redacted] is used to clean the polymer solids from the reactor in the [redacted] See Exhibit B11: [redacted] Process Description).

3.3 TSCA Section 5

The Washington Works Facility does not and has not toll manufactured or contract manufactured raw materials or intermediates for the product lines reviewed during the inspection. The Washington Works Facility does contract [redacted] (See Exhibit B0: Response to Notice of Inspection).

3.3.1 GenX Evaluation: [redacted]

The Washington Works Facility processes the [redacted] GenX for commercial purposes. There are three versions of the [redacted] collectively referred to as [redacted] (See Exhibit B1: List 4- List of Raw Materials). [redacted] is supplied by Chemours Fayetteville Works (See Exhibit B1: List 4- List of Raw Materials). [redacted] is processed in three of Washington Works product lines: [redacted]. It is recovered in the [redacted]. The amount of [redacted] in each product line is provided in Exhibit B2 (See Exhibit B2: [redacted].

3.3.1.1 [redacted] *Process Discussion*

[redacted] is a Teflon® product manufactured in the [redacted]. Production consists of [redacted] key steps: [redacted] (See Exhibit B3: [redacted]). [redacted] is processed in the [redacted] and is used [redacted] (See Exhibit B4: [redacted]). The [redacted] packed [redacted] and sent offsite or to [redacted]. The majority of the [redacted] product from the [redacted]

During the , the . The which yields The . In the phase, These are either directed to packout or sent to In the hase, This provides for certain customers (See Exhibit B5: .

There are final products from the which are made in

was commenced by E.I. DuPont de Nemours & Co. Inc. on . supplied by (See Exhibit B1: List 4- List of Raw Materials). It was commenced by E.I. DuPont de Nemours & Co. Inc. on . is also supplied by (See Exhibit B1: List 4- List of Raw Materials).

3.3.1.2 Process Discussion

are manufactured for (See Exhibit B7:). The raw materials Some also contain . Other raw materials include is manufactured in (See Exhibit B8:). It is products are formed

3.3.1.3 [redacted] *Process Discussion*

The [redacted] process consists of [redacted]

[redacted]

[redacted] (See Exhibit B10: [redacted] Detail).

[redacted] pursuant to the Title V Permit [redacted] The contents of the [redacted] The product is sampled [redacted]

The [redacted] (See Exhibit B11: [redacted] Description and B12: [redacted] Flow Diagram).

[redacted]

The [redacted] (See Exhibit B11: [redacted] Description). [redacted] (See Exhibit B13: [redacted]).

In [redacted] (See: Exhibit B14: TSCA Information Request Letter).

[redacted] at the Washington Works Facility: [redacted] (See Exhibit B15: [redacted] Description). [redacted] (See Exhibit B16: [redacted]). [redacted] (See Exhibit B17: [redacted]). [redacted] (See Exhibit B1: List 4- List of Raw Materials). [redacted] (See Exhibit B18: [redacted]).

3.3.1.4. [redacted] *Process Discussion*

[redacted] *Description*

[redacted] See Exhibit B19: [redacted] Description). [redacted]

[redacted]

[redacted]

[redacted] *Process Description*

[redacted] (See Exhibit B21: [redacted]).

[redacted] *Process Equipment Description*

[redacted] (See Exhibit B22: [redacted]).

[redacted]

[redacted] *Process Description*

[redacted]

(See Exhibit B23:).

(See Exhibit B24: List of

3.3.2 Non-GenX Evaluation: Monomers and Telomers

3.3.2.1 Monomers

Two monomers manufactured at Washington Works are TFE and HFP. TFE is manufactured from (See Exhibit: B25: Monomer Process Description).

(See Exhibit B26:).

. HFP synthesis occurs . to HFP (See Exhibit B27: HFP Synthesis Area).

(See Exhibit B28:).

(See Exhibit B29:).

[redacted] (See Exhibit B30: [redacted] Flow Diagram). [redacted].

[redacted] (See Exhibit B31: [redacted] (See Exhibit B32: [redacted]

3.3.2.2. Telomers

[redacted] (See Exhibit B33: Telomers Process Description). [redacted] (See Exhibit B34: [redacted] Flow Diagram). The [redacted]

[redacted]

[redacted]

[redacted]

3.3.3 TSCA Section 5 Exemptions and Significant New Use Notice

3.3.3.1 TSCA Section 5 Exemptions

Research and Development Exemption
Based on the information provided, Washington Works did not engage in any research and development activities associated with any new chemical substance since this plant became a Chemours site on July1, 2015.

Test Market Exemption
Based on the information provided, Washington Works did not submit a test market exemption application to EPA since this plant became a Chemours facility on July1, 2015.

Polymer Exemption
Based on the information provided, Washington Works did not submit a polymer exemption application to EPA since this plant became a Chemours facility on July1, 2015.

Low Volume Exemption
Based on the information provided, Washington Works did not submit a low volume exemption application to EPA since this plant became a Chemours facility on July1, 2015.

Low Release and Exposure Exemption
Based on the information provided, Washington Works did not submit a low release and exposure exemption application to EPA since this plant became a Chemours facility on July 1, 2015.

Instant Photographic and Peel-apart Film Articles
Based on the information provided Washington Works did not submit an instant photographic and peel-apart film article notice to EPA since this plant became a Chemours facility on July 1, 2015.

3.3.3.2 Significant New Use Rule Notices (SNUN)

In the [redacted], three manufactured chemicals are subject to SNUNs ([redacted]). They are:

[redacted]

- Chemical abbreviation: [redacted]
- SNUN: According to 40 CFR Section 721 [redacted]

[redacted]

- Chemical abbreviation: [redacted]
- SNUN: According to 40 CFR Section 721 [redacted]

[redacted]

- Chemical abbreviation: [redacted]
- SNUN: : According to 40 CFR Section 721 [redacted]

Included in Chemours List of Chemical Substances Manufactured (See Exhibit B6: List1- List of Chemical Substances Manufactured) are two chemicals that have Significant New Use Notices. They are:

[redacted]

- Chemical abbreviation: [redacted]
- SNUN: According to 40 CFR Section 721 [redacted]

[redacted]

- Chemical abbreviation: [redacted]
- SNUN: According to 40 CFR Section 721 [redacted]

3.4 TSCA Section 8 Evaluation

3.4.1 Preliminary Assessment Information Rule (PAIR)

Based on the records provided to EPA, Washington Works did not manufacture, import, or use any chemical substance that was subject to reporting under PAIR.

3.4.2 Allegation of Significant Adverse Reaction

Based on the discussions with Chemours representatives, Washington Works has no allegations of significant adverse reaction on file for the chemical substances manufactured, imported, processed, distributed, or exported.

3.4.3 Health and Safety Studies

Based on the discussions with Chemours representatives, Washington Works has no health and safety studies on file for the chemical substances manufactured, imported, processed, distributed, or exported.

3.4.4 Substantial Risk to Human Health/Environment

Based on the discussions with Chemours representatives regarding health and safety studies, Washington Works does not handle 8(e) reporting. This is done by the corporate office in Delaware. Washington Works did not include any health and safety studies in their response.

3.4.5 Chemical Data Reporting (CDR)

Washington Works reported its 2016 CDR on September 20, 2016. It was revised on October 16, 2017 for the following chemicals:

[redacted]

Below is a table of the original and revised CDR data:

CASRN	September 20, 2016	October 16, 2017
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

Chemours justification for this revision is provided in Exhibit B35 (See Exhibit B35: [redacted]). Several chemicals were manufactured by Washington Works. Not all the chemicals manufactured met the reporting thresholds (See Exhibit B6: List 1-List of Chemical Substances Manufactured). The original and revised versions of the CDR were provided during the inspection (Exhibits B36 Chemical Data Report, September 20, 2016: and B37: Chemical Data Report, October 16, 2017).

3.5 TSCA Section 12 Evaluation

Based upon the information provided, Washington Works does export chemicals (See Exhibit B38: List of

Chemical Substances Exported). [redacted]

3.6 TSCA Section 13 Evaluation

The Washington Works site does not import any chemicals. Imports are handled by The Chemours Company, LLC headquarters office in Wilmington, DE.

3.7 TSCA 5(e)/(f) Consent Order Evaluation

3.7.1 Terms

Prohibition

Based on the Consent Order, DuPont/Chemours was prohibited from manufacturing or importing [redacted] beyond the production limits as referenced in the Consent Order unless they (DuPont/Chemours) conducted the studies referenced in the Consent Order and submit all the final reports. On or about [redacted], DuPont submitted to the EPA, the final reports for the trigger testing requirements as referenced in Section II (d) of the Consent Order. On [redacted], DuPont submitted the [redacted]. On or about August 1, 2011, the EPA acknowledged the receipt of the studies and determined that [redacted] The EPA's letter also indicated that DuPont had fulfilled its obligations under the Consent Order for [redacted] Documentation of this information can be found in Exhibits B13 through B15 of the TSCA NEC Inspection Report for The Chemours Company – Fayetteville Works, dated April 24, 2018, prepared by U.S. Environmental Protection Agency, Region 4.

Testing

TSCA Section 8(e) Reporting: Based on the Consent Order, any information on the PMN substances ([redacted]) which reasonably supports the conclusion that the PMN substances present a substantial risk of injury to health or the environment is required to be reported under the TSCA Section 8(e) policy statement found at 43 Federal Register 11110 (March 16, 1978), as amended at 52 Federal Register 20083 (May 29, 1987), shall reference the appropriate PMN identification number for the substance and shall contain a statement that the substance is subject to a consent order. Chemours representatives indicated Chemours corporate office in Delaware (not the Washington Works facility) is responsible for all reporting under TSCA Section 8(e). See *Section 3.4.4* above.

Protection in the Workplace

Chemours has the following dermal protective items for use in the process areas using [redacted]: gloves; full-body chemical protective clothing; chemical goggles or equivalent eye protection; and clothing which covers other exposed area of the arms, legs and torso. Chemours provided a summary qualitative exposure assessment for tasks involving work with [redacted] (See Exhibit B39: Qualitative Exposure Assessment). This document outlines typical route of exposure for tasks and provides required personal protective equipment (PPE) for each task where exposure to [redacted] may occur. Note: Chemours did not provide any chemical permeation testing on the equipment list provided. However, EPA cross-referenced the equipment used at Washington Works with information from EPA Region 4's inspection of Chemours Fayetteville Works and determined the gloves used are the same at both facilities. Chemours did provide [redacted] testing information to the Region 4 inspectors.

Respiratory Protection: Initially, for any process area associated with [redacted], the Consent Order required the use, at a minimum, of a [redacted] On August 20, 2009, DuPont requested the EPA's approval to use [redacted]. On February 1, 2010, the EPA modified the Consent Order in response to Dupont's request by authorizing: [redacted] In the February 1, 2010, letter, the EPA also approved DuPont's request to use [redacted] Documentation of this information can be found in Exhibits B17 through B18 of the TSCA NEC Inspection Report for The Chemours Company – Fayetteville Works, dated April 24, 2018, prepared by U.S. Environmental Protection Agency, Region 4.

3.7.2 New Chemical Exposure Limit (NCEL)

The NCEL section of the Consent Order details an [redacted]. In order to deviate from the respirator requirements, certain criteria must be met:

[redacted]

As stated in the Protection in the Workplace, Respiratory Protection discussion above, the EPA reviewed DuPont's request and stated the use of [redacted] met the Selection of Appropriate Respiratory Protection for measured concentrations less than or equal to [redacted] NCEL.

Chemours provided a summary qualitative exposure assessment for tasks involving work with [redacted] (See Exhibit B39: Qualitative Exposure Assessment). This document outlines typical route of exposure for tasks

and provides required personal protective equipment (PPE) for each task where exposure to [redacted] may occur. In areas where the [redacted] may be present (given that under certain conditions [redacted]

Manufacturing

According to the Consent Order, DuPont/Chemours shall not cause, encourage, or suggest the manufacture or import of the PMN substances by any other person. This prohibition shall expire 75 days after promulgation of a final Significant New Use Rule (SNUR) governing the [redacted] and [redacted] under Section 5(a)(2) of TSCA unless DuPont/Chemours is notified on or before a Federal Court action occurs seeking judicial review of the SNUR. Once this prohibition expires, DuPont/Chemours shall notify each person whom it causes, encourages or suggests to manufacture or import the [redacted] of the existence of the SNUR. To date, no SNUR has been promulgated for either chemical EPA identifies as [redacted].

Control of Effluent and Emissions (During the Use of the [redacted]

The Consent Order states that DuPont/Chemours "shall recover and capture (destroy) or recycle" the [redacted] "at an overall efficiency of 99% from all the effluent process streams and air emissions (point source and fugitive)."

Based on the Process Flow Diagrams for production lines using [redacted] wastes are collected and shipped offsite for incineration, or are sent to [redacted] and ultimately to [redacted] Chemours has a consent order with the State of West Virginia to monitor/discharge the [redacted] from the facility through [redacted]. Results of this monitoring are sent monthly to the West Virginia Department of Environmental Protection as part of the site's discharge monitoring reports (DMRs). Chemours provided DMRs (dated July 1, 2015 through September 30, 2017) for [redacted], which is the discharge point from [redacted]. The DMR reports indicated there were no exceedances of the limits set for the [redacted] (See Exhibit A5: Electronic DMR Data). The following presents calculated release amounts based on information obtained from the DMRs.

Results from daily grab samples (averages reported) ranged from [redacted]. Using [redacted] and the corresponding reported average flowrate [redacted] equates to a release of approximately [redacted]. [redacted]

In comparison, the maximums reported from daily grab samples ranged from [redacted]. Using [redacted] and the corresponding reported maximum flowrate [redacted] equates to a release of approximately [redacted]

Comparing the calculated releases to [redacted] usage in [redacted] (see Exhibit B2: [redacted]), shows a range of calculated [redacted] released per amount used (as a percentage) from approximately [redacted]. Calculations:

[redacted]

Note: the [redacted] calculation assumes the maximum effluent concentration and maximum daily flow rate coincide (which may or may not be the case). Both calculations assume a consistent use rate over 365 days/yr of operation.

No information was provided regarding air releases of the [redacted] from this facility. EPA assumes releases of the [redacted]. The amount of [redacted] that may be released to air ([redacted]) is unknown.

Distribution

The Consent Order states DuPont/Chemours shall distribute the [redacted] only to a person who has agreed in writing (prior to distribution) to:

1. Comply with the same requirements and restrictions stated in the Protection in the Workplace and the NCEL sections of the Consent Order;
2. Distribute the [redacted] and [redacted] only to a person who will either recover and capture (destroy) or recycle the [redacted] and [redacted] from all effluent process streams and air emissions (point source and fugitive) at an overall efficiency of 99%; and
3. Distribute the [redacted] in aqueous dispersion of the polymer product or on a heat treated solid product such that the contents polymer residual [redacted] and [redacted] total (anion peak in the MS/MS) are below [redacted] level using the Accelerated Solvent Extraction (ASE) method.

DuPont/Chemours may distribute the [redacted] and [redacted] outside of DuPont/Chemours for temporary transport and storage. No information was obtained during or following the inspection that any of the PMN substances were temporary transported and stored. Neither PMN substance was exported from Washington Works; however, products made using [redacted] were exported to foreign countries. See *Section 3.5* above for a discussion of substances exported to foreign countries.

Review of safety data sheets for the [redacted] indicate distribution to be in aqueous dispersion form. A visual inspection of the [redacted] raw materials storage area by the Region 3 Inspection Team found only containers with aqueous products.

3.7.3 Recordkeeping

The Consent Order states that DuPont/Chemours "shall maintain records until 5 years after the date created and shall make them available for inspection and copying by the EPA in accordance with Section 11 of TSCA." The records associated with Chemours compliance with the Consent Order and other sections of TSCA were requested during the inspection and were either provided during the inspection or following the

inspection. The records provided to the EPA covered activities that occurred on or after July 1, 2015 (the date Chemours spun off from DuPont).

3.7.4 Request for Pre-inspection Information

The Consent Order states that the EPA may conduct compliance inspections of DuPont/Chemours facilities and conveyances associated with the [redacted] and [redacted], and that the EPA may contact DuPont/Chemours "in advance to request information pertinent to the scheduling and contact of such inspections." Prior to the inspection, the EPA did contact Chemours to schedule the inspection and provided information requests as part of the NOI letter. Chemours provided most of the information requested in the NOI letter during the inspection. Information that was not readily available to Chemours during the inspection was provided to the inspectors following the inspection. Subsequent to the inspection, Region 3 submitted an information requests to Chemours and Chemours responded to the request.

3.7.5 Successors Liability Upon Transfer of Consent Order

On or about February 6, 2015, DuPont submitted a TSCA Notice of Transfer to the EPA regarding the manufacturing rights and liabilities associated with [redacted] and [redacted]. On or about July 1, 2015, Chemours spun off from DuPont.

4.0 REPORT APPROVAL

4.1 Report – Primary Author

Lauren O. Davis Lead TSCA Inspector U.S. EPA, Region 3 Land and Chemicals Division Toxics Programs Branch	Date

4.2 Report - Co-Author

Daryl Hudson TSCA Inspector (Contractor to EPA) Eastern Research Group, Inc.	Date

4.3 Report – Technical Reviewer

Craig Yussen Chemical Engineer U.S. EPA, Region 3 Land and Chemicals Division Toxics Programs Branch	Date

4.5 Report - Approver

Stacie Pratt Chief U.S. EPA, Region 3 Land and Chemicals Division Toxics Programs Branch	Date

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EXHIBIT A0: Notice of Inspection Letter

EXHIBIT A1: Notice of Inspection Form (EPA Form 7740-3)

EXHIBIT A2: TSCA Inspection Confidentiality Notice (EPA Form 7740-4)

EXHIBIT A3: TSCA Receipt for Samples and Documents (EPA Form 7740-1)

EXHIBIT A4: Presentation, Washington Works Overview

EXHIBIT A5: Electronic DMR Data

EXHIBIT B0: Response to Notice of Inspection

EXHIBIT B1: List of Raw Materials

EXHIBIT B2: [redacted]

EXHIBIT B3: [redacted]

EXHIBIT B4: [redacted] Flow Diagram

EXHIBIT B5: [redacted]

EXHIBIT B6: List of Chemical Substances Manufactured

EXHIBIT B7: [redacted] Process Overview

EXHIBIT B8: [redacted] Flow Diagram

EXHIBIT B9: [redacted] Flow Diagram

EXHIBIT B10: [redacted] Detail

EXHIBIT B11: [redacted] Description

EXHIBIT B12: [redacted] Flow Diagram

EXHIBIT B13: [redacted] Flow Diagram

EXHIBIT B14: TSCA Information Request Letter

EXHIBIT B15: [redacted] Description

EXHIBIT B16: [redacted]

EXHIBIT B17: [redacted]

EXHIBIT B18: Response to Information Request Letter and [redacted] Documentation

EXHIBIT B19: [redacted] Description

EXHIBIT B20: [redacted]

EXHIBIT B21: [redacted]

EXHIBIT B22: [redacted]

EXHIBIT B23: [redacted]

EXHIBIT B24: List of [redacted]

EXHIBIT B25: [redacted]

EXHIBIT B26: [redacted]

EXHIBIT B27: [redacted]

EXHIBIT B28: [redacted]

EXHIBIT B29: [redacted]

EXHIBIT B30: [redacted] Flow Diagram

EXHIBIT B31: [redacted]

EXHIBIT B32: [redacted]

EXHIBIT B33: [redacted]

EXHIBIT B34: [redacted] Flow Diagram

EXHIBIT B35: [redacted]

EXHIBIT B36: Chemical Data Report, September 20, 2016

EXHIBIT B37: Chemical Data Report, October 16, 2017

EXHIBIT B38: List 5-List of Chemical Substances Exported

EXHIBIT B39: Qualitative Exposure Assessment

Appendix E:

Kathleen Gallagher Email Attachment Titled "Chemours-R4-Sanitized-Report-1"

TOXIC SUBSTANCES CONTROL ACT – NEW AND EXISTING CHEMICALS PROGRAM

COMPLIANCE MONITORING INSPECTION REPORT

The Chemours Company

Fayetteville Works
22828 NC Highway 87 West
Fayetteville, NC 28306-7332

Report Date: April 24, 2018

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Inspection Dates: June 28 - 29, 2017

INFORMATION REDACTED (BLACKED OUT) IN THIS REPORT IS INFORMATION PROVIDED TO THE EPA REGION 4 BY THE FACILITY WITH A TSCA CBI CLAIM PURSUANT TO TSCA SECTION 14(C), REQUEST FOR NONDISCLOSURE

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ACRONYMS

[redacted]

ADME	Absorption, Distribution, Metabolism, Excretion
[redacted]	
APF	Applied Protective Factor
APFO	Ammonium perfluorooctanoate
ASE	Accelerated Solvent Extraction
CASRN	Chemical Abstracts Service Registration Number
CBI	Confidential Business Information
CDR	Chemical Data Reporting
[redacted]	
DCO	Document Control Officer
EPA	U.S. Environmental Protection Agency
ERG	Eastern Research Group, Inc., Contractors to the EPA
[redacted]	
LLC	Limited Liability Company
NCEL	New Chemical Exposure Limits
NCDEQ	North Carolina Department of Environmental Quality
NOC	Notice of Commencement
OCSPP	EPA's Office of Chemical Safety and Pollution Prevention
P&ID	Piping and Instrumentation Diagram
[redacted]	
PAIR	Preliminary Assessment Information Rule
PBT	Persist in the environment/could bio-accumulate/toxic to people, wild mammals, & birds
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctane sulfonate
[redacted]	
PMN	Premanufacture Notice
[redacted]	
PPVE	Perfluoropropyl vinyl ether
[redacted]	
SNUN	Significant New Use Notice
SNUR	Significant New Use Rule
TSCA	Toxic Substances Control Act
WWTP	Waste Water Treatment Plant

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SUMMARY

The Chemours Company FC, LLC (Chemours) is a chemical manufacturer, processor and exporter as defined under the Toxic Substances Control Act (TSCA). On June 28 - 29, 2017, a TSCA compliance monitoring inspection was conducted by the U.S. Environmental Protection Agency at the Chemours' Fayetteville Works Facility located at 22828 NC Highway 87 West, Fayetteville, North Carolina (the Facility). The inspection was conducted due to community concerns with the reported release of potentially harmful chemicals, associated with Chemours' GenX process, into the Cape Fear River, a source of drinking water supply for numerous counties in North Carolina.

Chemours represents that GenX is a technology developed by E. I. du Pont de Nemours and Company (DuPont) and now used by Chemours to manufacture high-performance fluoropolymers without the use of perfluorooctanoic acid (PFOA). The GenX technology is used at the Facility in the [redacted]

[redacted]

Based on oral and written statements provided by Chemours, during the production of PPVE [redacted]

During the inspection, Chemours stated that after June 21, 2017, the Facility began collecting the aqueous waste generated in the wet scrubber and storing it in temporary storage tanks. The Facility then ultimately ships the waste to an offsite facility for incineration rather than directing it to the WWTP which was discharged to the Cape Fear River. [redacted] (Section 2.4.2) of this report.

Based on inspection observations and the review of records provided by Chemours, the Facility: (1) manufactured, processed, exported and/or distributed in commerce, several chemical substances subject to TSCA; [redacted]

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SCOPE

The scope of this inspection includes a review of Chemours' compliance with TSCA Sections 4, 5, 8, 12 and 13 which covers activities that occurred at the Facility on or before June 29, 2017, (the final date of the inspection). Between June 29, 2017, and March 14, 2018, the EPA submitted several follow up information request letters to Chemours. Between July 1, 2017, and March 29, 2018, Chemours responded to the EPA's information request letters.

In addition to documenting facts and observations based on the inspection and information provided by Chemours, some preliminary evaluation of compliance with TSCA is included in this inspection report.

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1. INTRODUCTION

In June 2017, in response to the community's concerns about the reported release of potentially harmful chemicals (GX902 and GX903) into the Cape Fear River by Chemours' Fayetteville Works Facility, North Carolina (the Facility), the U.S. Environmental Protection Agency commenced a Toxic Substances Control Act (TSCA) investigation. The chemicals of concern were associated with the GenX technology developed by E. I. du Pont de Nemours and Company (DuPont). The GenX technology is now used by Chemours to manufacture high-performance fluoropolymers without the use of Perfluorooctanoic acid (PFOA). Based on this information, the EPA immediately began investigating these concerns.

[redacted] the EPA received two TSCA Premanufacture Notices (PMNs) from DuPont. The notices were submitted pursuant to TSCA Section 5. The PMN number [redacted] was assigned to the chemical substance with the generic chemical identity, perfluorinated aliphatic carboxylic acid (Chemical Abstracts Service Registration Number [redacted] and PMN number [redacted] was assigned to the chemical substance with the generic chemical identity, [redacted]. In the PMNs, DuPont claimed the specific chemical identities and the CASRNs of the chemical substances as TSCA Confidential Business Information (CBI). This claim was not made in later documents submitted to the EPA by Chemours.

[redacted], the EPA and DuPont entered into a final TSCA Section 5(e) Consent Order (the Consent Order) governing the manufacture, processing, use, distribution in commerce, release and disposal of the PMN substances [redacted] Section V of the Consent Order includes, the following conclusions: [redacted].

The Consent Order indicates that the EPA concerns were based on data collected on the PMN substances, analogous to other similar chemicals, and to PFOA [redacted] which were both under review by EPA for similar PBT concerns. PFOA and its salt, Ammonium perfluorooctanoate (APFO), are long-chain synthetic perfluorinated chemicals (C8), which have human health and environmental concerns, and have been used in the manufacture of products such as Teflon®. Due to the possibility or likelihood of the use as a major substitute for PFOA, the EPA states in the Consent Order, "more information is needed on the toxicity and pharmacokinetics of the PMN substance [redacted] that will be applied to the characterization of both PMN substances" and also noted the "high concern for possible environmental effects over the long-term."

Due to the stated concerns of the EPA, the Consent Order authorized the manufacture of the PMN substances, but under the terms in Section II (Control of Effluent and Emissions), the EPA noted that DuPont "shall recover and capture (destroy) or recycle the PMN substances at an overall efficiency of 99% from all effluent process streams and air emissions (point source and fugitive)."

Pursuant to Section V of the Consent Order, (Successor Liability Upon Transfer of Consent Order), a "Successor in Interest" means a person outside the Company who has acquired the Company's full interest in the rights to manufacture the PMN substances, including all ownership rights and legal liabilities, through a transfer document signed by the Company, as transferor, and the Successor in Interest, as transferee. According to the Transfer Notice submitted to the EPA by Chemours, the effective date of the transfer of the manufacture rights and interest for the chemicals subject to the Consent Order was February 1, 2015, (See Exhibit B1 – DuPont/Chemours Notice of Transfer Document).

2. INSPECTION

2.1. Inspection Notice

To determine Chemours' compliance with the Consent Order for the PMN substances and with other requirements of TSCA, the EPA determined that an on-site TSCA compliance monitoring inspection was warranted. An inspection team was organized and included Verne George, EPA Region 4 lead TSCA inspector and Keith Bates, EPA Region 4 TSCA Co-inspector, with expertise in addressing confidentiality of TSCA CBI claims. The TSCA inspection team also included Daryl Hudson and Dan-Tam Nguyen, (experts in chemical processes and manufacturing) from Eastern Research Group, Inc. (ERG), contractors to the EPA with EPA TSCA inspection credentials.

On June 22, 2017, Verne George contacted Mr. Michael Johnson, Environmental Manager, for the Chemours operations at the Facility and former employee of DuPont to schedule a "for cause TSCA compliance monitoring inspection" to determine Chemours' compliance with TSCA Sections 4, 5, 8, 12, and 13. Based on the discussions with Mr. Johnson, the inspection was scheduled for June 28 - 29, 2017.

On June 22, 2017, the EPA Region 4, Chemical Management and Emergency Planning Section mailed an inspection notice (letter) to Chemours confirming the inspection date and requesting certain identified records be made available for review during the inspection. A copy of the letter was also emailed to Mr. Johnson on June 22, 2017, (See Exhibit A1 – Notice of Inspection Letter).

2.2. Inspection Entry

The final inspection team included all the planned inspection team members as follows:

Verne George	TSCA Lead Inspector (EPA Region 4)
Keith Bates	TSCA Co-inspector/TSCA CBI Document Control Officer (DCO) (EPA Region 4)
Daryl Hudson	TSCA Co-inspector (ERG)
Dan-Tam Nguyen	TSCA Co-inspector (ERG)

On June 28, 2017, the inspection team arrived at the facility security office at approximately 8:50 am. The security office called Mr. Johnson who shortly arrived at the security office to guide the inspection team to the main office building. Mr. Bates collected a small map of the Facility at the security office from a stack of such maps in plain view and available for site visitors after asking permission from the security guard (See Exhibit A5 - Document Number: 0101F1908562817: Site Map).

Upon arrival at the main office building, the inspection team signed in and was provided facility identity badges. The inspection team was escorted to a conference room and as the first step of the opening

conference each inspection team member presented their EPA credentials to the following Chemours representatives:

Ellis McGaughy	Fayetteville Works Manager;
Laura Korte	Global Product Manager;
Michael Johnson	Fayetteville Works Environmental Manager; and
Joel Blake	Fayetteville Works Environmental Health & Safety Manager.

Mr. George informed Chemours that the inspection was being conducted pursuant to TSCA Section 11 to determine compliance with TSCA Sections 4, 5, 8, 12, and 13. Mr. Johnson signed a TSCA Notice of Inspection (Form 7740-3) and Confidentiality Notice (Form 7740-4). The original copies were given to Chemours and a copy of each form was provided to the EPA (See Exhibit A2 – Notice of Inspection Form and Exhibit A3 – TSCA Inspection Confidentiality Notice).

Mr. George explained that the inspection would consist of: an opening conference with facility staff about the company, the nature of the company's business, chemical imports/exports and production processes; a tour of the facility; a private discussion and review of information provided by the facility that would only include the EPA representatives; and a closing conference with the Chemours representatives.

Mr. Bates explained the TSCA Inspection Confidentiality Notice and indicated that to ensure confidentiality of documents provided by the Facility, the Facility must make a TSCA CBI claim as documents are provided. Mr. Bates also indicated that no documents claimed by the Facility to contain TSCA CBI would be taken with the inspectors at the conclusion of the inspection. However, any such documents needed by the inspectors must be sent to his attention by mail after the inspection in an inner envelope marked "TSCA CBI – To Be Opened By Addressee Only," and an outer envelope with the EPA Region 4 mailing address. The facility was also directed to mail, in the same manner, copies of the documents to the ERG contractor's TSCA CBI Document Control Officer (DCO) at the ERG address provided.

2.3. Opening Conference

2.3.1. Introduction

Included in Section 2.3.2. of this report is a summary of the opening conference. Compliance evaluation is generally determined by the review of appropriate records provided by the facility. Details of the review of the information provided to the inspection team at the time of the inspection, and information provided by Chemours after the inspection, are discussed in Section 3.0 of this report.

2.3.2. Summary

An overview of information about the Facility was provided by Mr. Johnson in a slide show presentation. A hard copy of the slide show presentation was provided to the inspection team (See Exhibit A6 - Document Number: 0201F1908562817: Presentation, Fayetteville Works Overview). The summary indicated that Chemours owns the entire Facility. DuPont and Kuraray America, Inc., also operate at the Facility and all share the utilities, roads, grounds and emergency response responsibilities.

- The Facility was constructed by DuPont between 1968 and 1971. Production began in May 1970.

- The Facility consists of approximately 2,150 acres with approximately 400 acres within the fence line and is situated along the Cape Fear River.

- Chemours was a wholly owned subsidiary of DuPont when it acquired the Facility from DuPont on February 1, 2015. Chemours later spun off from DuPont on July 1, 2015.

- Chemours operates the following manufacturing areas at the Facility: (1) Nafion® IXM; (2) Polymer Processing Aid; (3) Monomers; and (4) Power/Utilities/WWTP.).

In the opening conference, Mr. Johnson indicated that the GenX technology is used in the [redacted] process at the Facility and that the [redacted] produces the chemical substances covered under the Consent Order [redacted]. Based on information provided by Chemours, the end products from the [redacted] include various concentrations of [redacted]. These products are identified by Chemours as GX902, GX903, GX905C and GX905D. Further description of these chemical substances can be found in Section 3.0 of this report.

Mr. Johnson asserted that the chemicals from the [redacted] covered in the Consent Order are not released into the Cape Fear River and that all of the waste generated from the [redacted] is trucked to an offsite disposal facility. Mr. Johnson indicated that some of the [redacted]. He also stated that dependent upon various conditions such as the pH level in the outfall, the chemical, GX903 [redacted] can form in the river. This CASRN [redacted]) is the same CASRN as the chemical that EPA assigned PMN number [redacted]. Mr. Johnson indicated that the Consent Order applies to the [redacted] and not the PPVE process, but due to the community concerns, beginning June 21, 2017, waste from the PPVE process has been collected in temporary storage tanks and will ultimately be shipped for incineration at an offsite facility when a contract is finalized.

The production managers for [redacted] discussed the processes during the opening conference. Summary flow charts for both the [redacted] and PPVE were provided to the inspection team, a TSCA CBI claim was made for the [redacted], but not for the PPVE flow chart.(See Exhibit A7 - Document No. 0301F1908562817: PPVE Flow Chart). All the copies of the summary flow chart for the [redacted] were returned to Mr. Johnson after the discussion due to Chemours' TSCA CBI claim on the process. To ensure that the inspection team fully understood the processes, both production managers were asked to create written summaries of the [redacted] and PPVE processes. The summaries were sent to the EPA and ERG after the inspection.

During the discussion of worker protection requirements required under the Consent Order, Chemours provided documentation that modifications to the Consent Order, as requested by DuPont, were approved by the EPA on February 1, 2010 (See Exhibit A8 - Document No. 0401F1908562817: EPA Consent Order Modification Letter, February 1, 2010).

2.4. Facility Tour

2.4.1. Introduction

As requested, Chemours gave the inspection team a tour of the Facility. The tour mainly focused on the [redacted] and PPVE processes. Chemours provided the EPA inspectors with fire resistant jump-suits and rubber gloves. The inspectors used their own hard hats, safety shoes, safety glasses and hearing

protection. The inspection team requested the tour to gain a general perspective and knowledge of the production areas to facilitate later review of summary flow charts, process diagrams and other operations information.

2.4.2. Summary

PPVE Process Area

The first area toured during the inspection was the PPVE process area. This area is described as the Nafion® IXM Monomers area and is the location of the Facility waste water treatment plant (WWTP). This area is on the east side of the Facility and is approximately 2,000 feet from the Cape Fear River. The land between the PPVE process area and the river is mostly wooded.

For the PPVE process, Chemours did not provide any information on releases of GX902 or GX903. Chemours did provide the following information indicating: (1) [redacted]; and (2) the [redacted]. Assuming all the [redacted] is converted to GX903 or GX902 and is incinerated at the same efficiency as provided for the [redacted] waste streams, the percentage released is [redacted]. There was not enough information provided to the inspection team to calculate the [redacted] in/out of the [redacted]. Chemours also indicated that as of June 21, 2017, KOH scrubber wastes are no longer being sent to the WWTP (collected and incinerated/deep well injected).

[redacted] Process Area

The next area toured during the inspection was the [redacted] area. [redacted]. Based on the [redacted] Flow Diagram and [redacted] Process Summary, Exhibits B11 and B12, [redacted]

The information provided by Chemours during and subsequent to the inspection indicates that the estimated annual air releases from the [redacted] are less than [redacted] percent. Chemours released approximately [redacted] from the [redacted] process. Based on Chemours batch sizes, batches/year, and annual production volume estimates, the percentage released is calculated to be approximately [redacted] percent. For details on the [redacted] estimate emissions, see Exhibit B42 - Air Emission Data.

2.5. Closing Conference

The inspection team concluded the first inspection day, June 28, 2017, at approximately 3:30 pm and scheduled the closing conference for the next day. The inspection team arrived at the main office building at approximately 9:00 am on June 29, 2017. Mr. Johnson assisted the inspection team in obtaining facility badges and escorted the team to the conference room. The inspection team held an

inspection team only private meeting at the beginning of the second inspection day to discuss topics needing clarification.

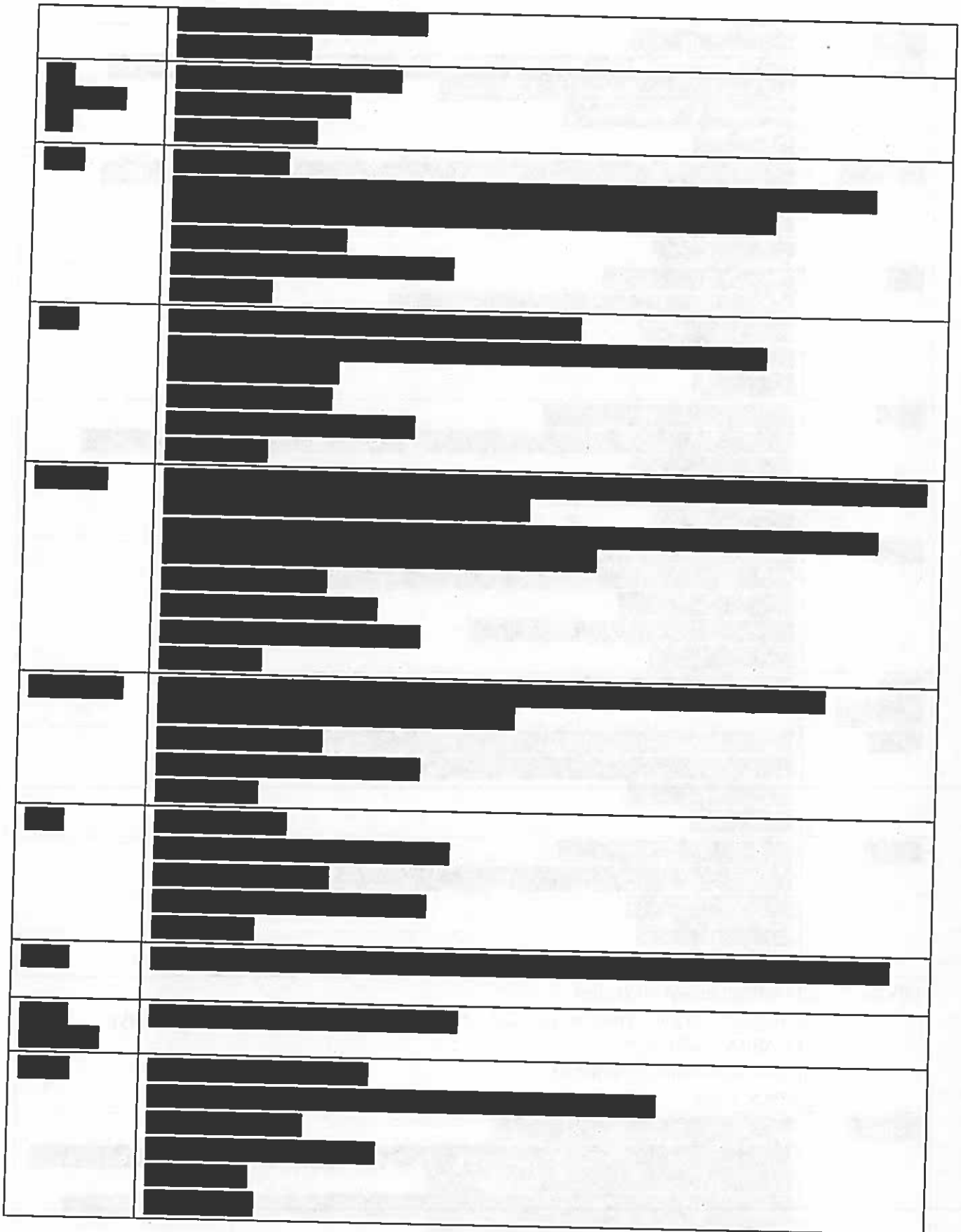
The closing conference began with a discussion of the topics needing clarification. The inspection team provided Chemours with a list of information that would need to be sent to the EPA and ERG after the inspection. A TSCA Receipt for Samples and Documents, EPA Form 7740-1 (See Exhibit A4 – TSCA Receipt for Samples and Documents) was created for the documents the inspection team collected during the inspection. Lastly, the inspection team discussed the EPA and ERG next steps which would be a review of the information provided by Chemours and potential requests for further information. The inspection concluded at approximately 12:30 pm.

3. FINDINGS

3.1. Introduction

The findings discussed below are based on statements and observations made during the inspection and on information provided by Chemours after the inspection.

For consistency and clarity, chemical substances referenced in this report will be referred to as follows from this point forward regardless of how the chemical substances are referred to in referenced documents and diagrams, unless otherwise identified:



[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
PPVE	Perfluoropropyl vinyl ether Systematic Name: Propane, 1,1,1,2,2,3,3-heptafluoro-3-[(1,2,2-trifluoroethenyl)oxy]- CASRN: 1623-05-8 Molecular Formula: C5F10O PMN: None
[redacted]	[redacted]

	[redacted]

3.2. TSCA Section 4 Evaluation

Based on Chemours' raw material lists for 2015 and 2016, Chemours purchased [redacted] from a domestic supplier. The chemical substance was once subject to a [redacted]. The [redacted] Chemical was used at the Facility in the production of [redacted]. The chemical was sent offsite for incineration as part of the material collected in the waste fluorocarbon system.

3.3. TSCA Section 5 Evaluation

3.3.1. PPVE Process

3.3.1.1. PPVE Process Discussion

[redacted], DuPont and later Chemours in 2015, manufactured PPVE and [redacted] for commercial use. PPVE and [redacted] are manufactured in the PPVE process. Based on the intended use, PPVE and [redacted] are subject to TSCA. The PPVE production process involves the following steps: [redacted]. For a detail description of the production of PPVE and [redacted], see: (1) Section *3.4.5.2 of this report ([redacted] Discussion);* (2) Exhibit B3 - PPVE Process Narrative); (3) Exhibit A7 -PPVE Flow Chart; and (4) Exhibit B2 - [redacted].

During the inspection, Chemours provided a flow chart of the PPVE process. The PPVE Flow Chart indicates that either [redacted] or [redacted] may be present in the NPDES effluent discharged into the Cape Fear River depending on the pH level of the final effluent to outfall 002. For details on the release of [redacted] or [redacted] as discussed during the inspection, see Exhibit A7 - PPVE Flow Chart.

During the inspection, the inspection team requested a written detail summary of the PPVE process. On July 31, 2017, Chemours submitted to Region 4 and ERG a written summary of the PPVE process (See Exhibit: B3 - PPVE Process Narrative). The PPVE Process Narrative stated [redacted]

Based on the PPVE Process Narrative, [redacted]

[redacted].

According to statements made by Mr. Johnson during the inspection, the PPVE process and its waste streams are not regulated by the Consent Order for the chemical substances manufactured or processed for commercial purposes in the PPVE process.

3.3.1.2. PPVE Process Waste Stream

Based on Chemours' July 31, 2017, PPVE Process Narrative, [redacted]

In an effort to determine when Chemours first became aware of the release/forming of the GenX chemicals [redacted] in the WWTP or Cape Fear River, on August 15, 2017, Region 4 submitted a letter to Chemours regarding a description of the PPVE process. Region 4's request was as follows: "Regarding the PPVE process, when (date) did Chemours become aware that the GenX chemicals were being released to the Cape Fear River or formed in the Cape Fear River? For the period prior to the TSCA Inspection, if Chemours has analytic data/sample results of: (A) the earliest signs of [redacted] contamination in the PPVE sumps; or (B) earliest releases/forming of GenX chemicals in the Cape Fear River, please submit those records to the EPA."

On September 1, 2017, Chemours indicated [redacted] Chemours did not provide a direct response concerning the date/time period as to when they first became aware that [redacted] and/or [redacted] was released into the Cape Fear River or formed in the Cape Fear River. However, during the June 15, 2017, public meeting between Chemours and North Carolina local and state officials, Chemours indicated that DuPont was aware since 1980 that GenX was released into the Cape Fear River as a byproduct.

Chemours also provided analytic data for the time period covering June 14, 2017, and July 28, 2017 (See Exhibit B5 - Chemours letter to the EPA with analytical data).

During the inspection, the PPVE Flow Chart did not indicate that [redacted] was a component in the effluent that was released from Chemours WWTP to outfall 002. The PPVE Process Narrative provided by Chemours after the inspection indicated that [redacted]. For details on the formation and releases of the [redacted], see Exhibit B3 - PPVE Process Narrative. According to

Chemours, as discussed during the inspection, the PPVE process and its waste stream are not subject to the Consent Order.

For the PPVE process, Chemours did not provide any information on releases of [redacted]. Chemours did provide the following information: (1) [redacted] was sent to the waste fluorocarbon system (incineration) in 2016; and (2) the [redacted]

[redacted] efficient in removing [redacted] (based on stack testing). Assuming all the [redacted] is converted to [redacted] and is incinerated at the same efficiency as provided for the [redacted] waste streams, the percent released is [redacted] percent. Sufficient information is not available for the inspection team to calculate the [redacted] in/out of the [redacted]. Chemours also indicated that KOH scrubber wastes are no longer being sent to the WWTP (collected and incinerated/deep well injected).

Based on the information (records/discussions) provided by Chemours, there is no indication that Chemours informed the EPA of the PPVE process, as it relates to the presence of [redacted] and [redacted] in the effluent leaving the WWTP and the formation of [redacted] in the combined effluent going to outfall 002 which was ultimately discharged into the Cape Fear River.

Based on the PPVE Process Narrative, prior to June 21, 2017, [redacted]. The PPVE Process Narrative did not indicate how much or what percent of the waste was captured. (See Exhibit B3 - PPVE Process Narrative).

3.3.2. [redacted] Process

3.3.2.1. PMN, Issuance of Order and Notice of Commencement

On or about [redacted], DuPont submitted a consolidated PMN to the EPA for the manufacture of [redacted]. The EPA identified the PMNs as [redacted] respectively. Based on the information provided by Chemours, GenX is the technology used to identify the production process of the GenX chemicals. The GenX chemicals (PMN Substances) are manufactured in the [redacted] Process.

Based on the PMNs, the intended uses for the [redacted].

In addition, the intended uses for [redacted]

As referenced in the Preamble to the Consent Order (Preamble, Section V, EPA's Conclusions of Law), the following finding constitute the basis for the Consent Order: [redacted]. (See Exhibit B7- Consent Order, Section I).

The chemical substances [redacted] that are subject to the Consent Order are the same two chemical substances that are associated with the [redacted] process waste stream that were

either: (1) formed in the [redacted]; (2) formed in the [redacted]; or (3) formed in the Cape Fear River. During the PMN review period and during the negotiation of the Consent Order, Chemours did not provide any information to the EPA concerning: (1) the effluent (wastewater) from the PPVE process that contained some [redacted]; and (2) the [redacted] formed in the combined [redacted] or in the Cape Fear River.

On [redacted], EPA's Director of the Chemical Control Division (Jim Willis) signed the TSCA Section 5(e) Consent Order, and on [redacted], DuPont's representative (James Hoover) signed the Consent Order. The effective date of the Consent Order was [redacted]. (See Exhibit B7 - TSCA Section 5(e) Order [redacted].

On [redacted], DuPont commenced the first commercial production of [redacted] at the Facility. On [redacted], DuPont submitted to EPA's Office of Chemical Safety and Pollution Prevention (OCSPP), a TSCA Notice of Commencement (NOC) for [redacted]. (See Exhibit: B8 – TSCA NOC [redacted]).

On [redacted], DuPont commenced the first commercial production of [redacted] at the Facility. On [redacted], DuPont submitted an NOC to OSCPP for [redacted]. (See Exhibit: B9 – TSCA NOC [redacted].

The following products are associated with the two PMN substances: (1) [redacted] (GX903); and (2) [redacted] (GX905C, GX905D and GX902). (See Exhibit A9 - Document No. 0501F1908562817: Safety Data Sheet – GX902; Exhibit A10 - Document No. 0601F1908562817: Safety Data Sheet – GX905C; Exhibit A11 - Document No. 0701F1908562817: Safety Data Sheet – GX905D; Exhibit A12 - Document No. 0801F1908562817: Safety Data Sheet – GX903; and Exhibit A13 - Document No. 0901F1908562817: Copies of Product Labels (GX905D, GX902, GX903).

3.3.2.2. [redacted] *Process Discussion*

Based on the PPVE Process Narrative, [redacted] is produced in the PPVE process. The PPVE production process is located at the Vinyl Ether North area of the Facility. The [redacted] is transported from the PPVE process area via [redacted] for use as a [redacted] process for production of the PMN substances ([redacted]).

According to the [redacted] Process Summary, the production of [redacted] and [redacted] involves [redacted] steps including: [redacted]. In addition to the [redacted] process description below, for details on the production of the two PMN substances in the [redacted] process, see Exhibit B11 - [redacted] Process Flow Diagram and Exhibit B12 - [redacted] Process Summary.

[redacted]

[redacted]

Based on the discussions with Chemours during the inspection and as referenced in the [redacted] Process Flow Diagram, [redacted]. For details on the release, containment and disposal of effluent from the [redacted] process, see Exhibit B11 - [redacted] Process Flow Diagram and Exhibit B12 - [redacted] Process Summary.

In addition, as referenced in the [redacted] Process Summary regarding air emissions, [redacted] For details on air emissions, see Exhibit B11 - [redacted] Process Flow Diagram, Exhibit B12 - [redacted] Process Summary and Exhibit B42 - Air Emission Data.

The following feedstocks are used in the [redacted] process: (1 [redacted]; (2) [redacted]; and (3) [redacted].

The EPA regulates the manufacture, processing, use, distribution in commerce, disposal, and release of the GenX chemicals [[redacted] and [redacted] (GX902[redacted])], pursuant to the Consent Order.

3.3.2.3. TSCA 5(e) [redacted] *Consent Order Discussion*

Terms

Prohibition

Based on the Consent Order, DuPont/Chemours was prohibited from manufacturing or importing [redacted] and [redacted] beyond the production limits as referenced in the Consent Order unless they (DuPont/Chemours) conducted the studies referenced in the Consent Order and submit all the final reports. On or about [redacted], DuPont submitted to the EPA, the final reports for the trigger testing requirements as referenced in Section II (d) of the Consent Order. (See Exhibit B13 – DuPont December 10, 2010, Letter).

On April 27, 2011, DuPont submitted the [redacted] (See Exhibit B14 – DuPont April 27, 2011, Letter). On or about August 1, 2011, the EPA acknowledged the receipt of the studies and determined that [redacted]. The EPA's letter also indicated that DuPont had fulfilled its obligations under the Consent Order for [redacted] (See Exhibit B15 – EPA August 1, 2011, Letter)

Testing

TSCA Section 8(e) Reporting: Based on the Consent Order, any information on the PMN substances ([redacted]) which reasonably supports the conclusion that the PMN substances present a substantial risk of injury to health or the environment is required to be reported under the TSCA Section 8(e) policy statement found at 43 Federal Register 11110 (March 16, 1978), as amended at 52 Federal Register 20083 (May 29, 1987), shall reference the appropriate PMN identification number for the substance and shall contain a statement that the substance is subject to a consent order.

As indicated previously in the PPVE process discussion section of this report, based on the PPVE Process Narrative: [redacted] Subsequent to the inspection, Region 4 requested information from Chemours concerning the date when they became aware that the PMN substances were either released to the Cape Fear River or formed in the Cape Fear River. Chemours response referenced the date [redacted] they spun off from DuPont. For details on the release/forming of the PMN substances in the WWTP or Cape Fear River, see Exhibit B3 – PPVE Process Narrative.

As also indicated in the PPVE process discussion section of this report, on August 15, 2017, Region 4 requested additional information from Chemours as a follow up to the June 2017 inspection, The request was as follows: "Regarding the PPVE process, when (date) did Chemours become aware that the GenX chemicals were being released to the Cape Fear River or formed in the Cape Fear River? For the period prior to the TSCA Inspection, if Chemours has analytic data/sample results of: (A) the earliest signs of Dimer Acid Fluoride (DAF) contamination in the PPVE sumps; or (B) earliest releases/forming of GenX chemicals in the Cape Fear River, please submit those records to the EPA."

On September 1, 2017, Chemours' response indicated that [redacted], (See Exhibit B4 - Chemours September 1, 2017, letter to the EPA). Chemours did not indicate when they first became aware the [redacted] and/or [redacted] was released into the Cape Fear River and/or formed in the Cape Fear River. In addition, during the June 15, 2017, public meeting between Chemours and North Carolina's local and state officials, Chemours

indicated they have been aware since 1980, that GenX was released to the Cape Fear River as a byproduct. During the inspection, the Region 4 Inspection Team asked Chemours about the chemical substance that was discovered in the Cape Fear River. Chemours stated that [redacted].

Chemours did not provide any records or documentation in response to the EPA's requests regarding when they first became aware of the release/forming of the PMN substances ([redacted]) in the Cape Fear River.

Protection in the Workplace

Chemours has the following dermal protective items for use in the [redacted] process area: gloves; full body chemical protective clothing; chemical goggles or equivalent eye protection; and clothing which covers other exposed area of the arms, legs and torso. Chemours provided documentation demonstrating [redacted] (See Exhibit B16 – Chemours Permeation Testing).

Respiratory Protection: Initially, for the [redacted] process area associated with [redacted], the Consent Order required the use, at a minimum, of a [redacted]. On August 20, 2009, DuPont requested the EPA's approval to use [redacted] (See Exhibit B17 – DuPont August 20, 2009, Letter). On February 1, 2010, the EPA modified the Consent Order in response to DuPont's request by authorizing: [redacted]. In the February 1, 2010, letter, the EPA also approved DuPont's request to use [redacted]. (See Exhibit B18 – EPA February 1, 2010, Modification of Order).

New Chemical Exposure Limit (NCEL)

The NCEL section of the Consent Order details an [redacted]. In order to deviate from the respirator requirements, certain criteria must be met:

[redacted]

As stated in the Protection in the Workplace, Respiratory Protection discussion above, the EPA reviewed DuPont's request and stated the use of [redacted] met the *Selection of Appropriate Respiratory Protection* for measured concentrations less than or equal to [redacted] NCEL.

Performance Criteria for Sampling and Analytical Method

The initial calibration language in the Consent Order was also modified. The original language stated: "… the initial calibration shall at a minimum consist of five (5) calibration standards…" The revised Consent Order states the method utilized six calibration standards. Further, the modified order states "… modified calibration ranging from 0.01 to 0.2 x NCEL." Lastly, the Subsequent Calculation text was changed to reflect that the spike must be prepared at [redacted].

Manufacturing

According to the Consent Order, DuPont/Chemours shall not cause, encourage, or suggest the manufacture or import of the PMN substances by any other person. This prohibition shall expire 75 days after promulgation of a final Significant New Use Rule (SNUR) governing the [redacted] and [redacted] under Section 5(a)(2) of TSCA unless DuPont/Chemours is notified on or before a Federal Court action occurs seeking judicial review of the SNUR. Once this prohibition expires, DuPont/Chemours shall notify each person whom it causes, encourages or suggests to manufacture or import the [redacted] and [redacted] of the existence of the SNUR. To date, no SNUR has been promulgated for either chemical EPA identifies as [redacted] or [redacted].

Control of Effluent and Emissions (During the Manufacture of [redacted] and [redacted])

The Consent Order states that DuPont/Chemours "shall recover and capture (destroy) or recycle" the [redacted] and [redacted] "at an overall efficiency of 99% from all the effluent process streams and air emissions (point source and fugitive)."

Based on the [redacted] Process Flow Diagram and [redacted] Process Summary, the [redacted]. Chemours stated that no effluent from the [redacted] process goes to the WWTP.

Regarding the air emissions from the [redacted] process, the [redacted].

For detail, see Exhibit B11 - [redacted] Process Flow Diagram and Exhibit B12 - [redacted] Process Summary.

As reference in the [redacted] process discussion, the air emissions estimate from the [redacted] process is [redacted]. For details on the [redacted] releases (effluent and emission), see the [redacted] process discussion above. In addition, for details on the PPVE release, see the PPVE process discussion above.

Distribution

The Consent Order states DuPont/Chemours shall distribute the [redacted] and [redacted] only to a person who has agreed in writing (prior to distribution) to:

1. Comply with the same requirements and restrictions stated in the Protection in the Workplace and the NCEL sections of the Consent Order;
2. Distribute the [redacted] and [redacted] only to a person who will either recover and capture (destroy) or recycle the [redacted] and [redacted] from all effluent process streams and air emissions (point source and fugitive) at an overall efficiency of 99%; and
3. Distribute the [redacted] in aqueous dispersion of the polymer product or on a heat treated solid product such that the contents polymer residual [redacted] and [redacted] total (anion peak in the MS/MS) are below [redacted] level using the Accelerated Solvent Extraction (ASE) method.

DuPont/Chemours may distribute the [redacted] and [redacted] outside of DuPont/Chemours for temporary transport and storage. Based on the records associated with the distribution and users of [redacted] and [redacted], there was no information showing that any of the PMN substances were temporary transported and stored. The distribution records for both PMN substances show that Chemours shipped them to their production sites in Deep Water, New Jersey (Chambers Works); Washington, West Virginia (Washington Works); or the substances were exported to foreign countries.

Review of safety data sheets for the [redacted] and all products containing the [redacted] indicate distribution of all products to be in aqueous dispersion form. A visual inspection of the [redacted] product storage area by the Region 4 Inspection Team found only final product containers with aqueous products.

Recordkeeping

The Consent Order states that DuPont/Chemours "shall maintain records until 5 years after the date created and shall make them available for inspection and copying by the EPA in accordance with Section 11 of TSCA." The records associated with Chemours compliance with the Consent Order and other sections of TSCA were requested during the inspection and were either provided during the inspection or following the inspection. The records provided to the EPA covered activities that occurred before July 1, 2015, (the date Chemours spun off from DuPont) and activities that occurred on or after July 1, 2015. However, when the EPA requested records pertaining to: (1) when Chemours became aware that the GenX chemicals were being released to the Cape Fear River or formed in the Cape Fear River; and (2) the analytic data/sample results associated with signs of [redacted] contamination in the PPVE sumps, Chemours stated: "[redacted]. Prior to that [redacted]."

Request For Pre-inspection Information

The Consent Order states that the EPA may conduct compliance inspections of DuPont/Chemours facilities and conveyances associated with the [redacted] and [redacted]

[redacted], and that the EPA may contact DuPont/Chemours "in advance to request information pertinent to the scheduling and contact of such inspections." Prior to the inspection, the EPA did contact Chemours to schedule the inspection and provided information requests as part of the NOI letter. Chemours provided most of the information requested in the NOI letter during the inspection. Information that was not readily available to Chemours during the inspection was provided to the inspectors following the inspection. Subsequent to the inspection, Region 4 submitted several information requests to Chemours and Chemours responded to the requests in phases.

Successors Liability Upon Transfer of Consent Order

On or about February 6, 2015, DuPont submitted a TSCA Notice of Transfer to the EPA regarding the manufacturing rights and liabilities associated with [redacted] and [redacted]. On or about July 1, 2015, Chemours spun off from DuPont.

3.3.3. Non-GenX Evaluation

3.3.3.1. Exemptions

Low Volume

Based on the records or statements provided to the EPA by Chemours, the Facility did not manufacture or import any chemical substances that were subject to a low volume exemption.

Research and Development

Based on the records or statements provided to the EPA, Chemours did not engage in any research and development activities associated with new chemical substances at the Facility.

Polymer

Based on the records or statements provided to the EPA, Chemours did not submit any polymer exemption notices to the EPA.

3.3.3.2. Bona Fide Intent

Based on the records or statements provided to the EPA, within the past two years, Chemours did not submit any bona fide intent to the EPA for the Facility.

3.3.3.3. Significant New Use Rules

Based on the records provided to the EPA, Chemours manufactured three chemical substances that are subject to a SNUR: (1) [redacted]; (2) [redacted]; and (3) [redacted].

[redacted]

Based on the results of the EPA's review of Chemours' production records and TSCA 2016 Chemical Data Reporting (CDR) submission, Chemours manufactured [redacted] is subject to a SNUR promulgated at 40 CFR § 721.[redacted]. The effective date of the [redacted] SNUR is [redacted]. Pursuant to 40 CFR § 721.[redacted], the significant new use for [redacted] is any use other than as an [redacted]. Pursuant to 40 CFR § 721.[redacted], an [redacted] is defined as a process that is designed and operated so that [redacted]. A process with [redacted].

Chemours indicated in their August 22, 2017, letter to the EPA: "[redacted]. In 2015, approximately [redacted] of the quantity of [redacted] manufactured at Fayetteville Works was not used on site. Greater than [redacted]. The remaining quantities (i.e., approximately [redacted] pounds) were shipped from Fayetteville Works to [redacted]. Chemours understands that [redacted]." (See Exhibit B19 - Chemours August 21, 2017, Letter).

Based on the process description, flow diagram and use of [redacted], Chemours manufactured [redacted] at the Facility.

The [redacted] report indicated that Chemours manufactured [redacted] pounds of [redacted]. In 2015, approximately [redacted] was used at the Facility and the [redacted]. (See Exhibit B20 – 2016 Amended CDR).

Based on records submitted to the EPA, Chemours provided documentation (Safety Data Sheet) informing the following customers that [redacted] was subject to a SNUR:

[redacted]

The Facility used [redacted]. (See Exhibit B21- Flow Diagrams and Production day/volume).

The columns in the tables below reference: (1) the [redacted] production processes; and (2) CASRNs of the substances (intermediates/raw materials/end products) present in the production of the [redacted].

[redacted] Production Processes	CASRNs of the Substances Present in [redacted] Processes
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

[redacted] Production Processes	CASRNs of the Substances Present in [redacted] Processes
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

Chemours used [redacted] in each of the [redacted] processes referenced in the tables above. As of [redacted], (the effective date), [redacted] was subject to a SNUR promulgated at 40 CFR § 721. [redacted]. Pursuant to 40 CFR § 721. [redacted], a significant new use [redacted]. As referenced in 40 CFR § 721. [redacted], an [redacted].

The North Carolina Department of Environmental Quality (NC DEQ) obtained air emission estimates data for the PPVE North/South and [redacted] process areas generated from Chemours' website. The air emission estimates projected the potential for the release of nine chemical substances associated with the [redacted] processes. (See Exhibit B22- Air Emission Estimates).

The following CASRNs are [redacted] that are present in the [redacted]: [redacted]. Chemours' air emission estimates for 2012 through 2016 projected the release of these chemical substances when used in a [redacted] production process.

The table below (2012 – 2016 air emissions estimates) references: (1) Chemours designated Emission Point IDs; (2) the substances present in the [redacted] that could potentially be released to the air; and (3) projected annual releases (pounds) of the substance present in the [redacted] processes.

Emission Point ID	Substances Present in [redacted] Processes Released to Air	2012 (Pounds)	2013 (Pounds)	2014 (Pounds)	2015 (Pounds)	2016 (Pounds)
NEP-Hdr1 & NEP-Hdr2	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
NEP-Hdr1 & NEP-Hdr2	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
NEP-Hdr1, NEP-Hdr2 and AEP-A1	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
NEP-Hdr1 & NEP-Hdr2	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
NEP-Hdr1 & NEP-Hdr2	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
NEP-Hdr1 & NEP-Hdr2	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
NEP-Hdr1 & NEP-Hdr2	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
NEP-Hdr1 & NEP-Hdr2	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
NEP-Hdr1 & NEP-Hdr2	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Based on Chemours' air emission estimates, it is projected that the chemical substances referenced above (substances present in the [redacted] processes) could potentially be released to the air. Pursuant to 40 CFR § 721.[redacted] (SNUR), [redacted] can only be used [redacted]

[redacted]. The projected release of significant quantities of air emissions associated with the chemical substances referenced in the table above, may constitute a significant new use of [redacted]. Pursuant to 40 CFR § 721.5(a)(1), "A person who intends to manufacture, import, or process for commercial purposes a chemical substance identified in a specific section" 40 CFR Part 721, Subpart E, "and intends to engage in a significant new use of the substance identified in that section" must submit a significant new use notice (SNUN) as specified under the provisions of Section 5(a)(1)(B) of TSCA, 40 CFR Part 720 and 40 CFR § 721.25. Based on a review of the EPA records regarding submissions for [redacted], DuPont/Chemours did not submit a SNUN to the EPA. Based on the projected air emission release (estimates) associated with the chemicals present in the [redacted] processes, Chemours did not submit SNUN to the EPA at least 90 days prior to using [redacted] as an [redacted]. The [redacted] processes are located in the [redacted] process areas.

Based on Chemours records associated with the use of [redacted], between July 1, 2015 and June 29, 2017, Chemours used [redacted] days for a combined total of [redacted] pounds of [redacted]. For those days when Chemours used/consumed [redacted], the daily amount consumed ranged from [redacted] pounds. To determine the amount of [redacted] that was actually used on a daily basis between July 1, 2015 and June 29, 2017, see Exhibit B40 - [redacted] Production and Use.

[redacted]

In [redacted], DuPont submitted a consolidated PMN to the EPA to manufacture [redacted]. The EPA identified the PMNs as [redacted] and [redacted]. The two PMN substances are present in the [redacted] production process (See Exhibit B37- Block Diagram for [redacted]).

The EPA's confidential records associated with DuPont's consolidated PMN for [redacted] available through EPA's Virtual Desktop Infrastructure (VDI) system identifies [redacted] as a [redacted] used in the production of [redacted]. A review of the [redacted] process provided to the EPA subsequent to the inspection revealed that [redacted] was not included in the [redacted] Summary Block Diagram also provided (See Exhibit: B23 Chemours September 6, 2017, letter and [redacted] Summary Block Diagram). [redacted] is manufactured in Chemours' [redacted] process (See Exhibit B38-[redacted] Flow diagram and [redacted] information in EPA's VDI system). [redacted] is produced for commercial purpose. In addition, based on Chemours' March 29, 2018, letter (see Exhibit 41 – March 29, 2018 Letter), [redacted] is also used as [redacted].

As of [redacted] was subject to a SNUR promulgated at 40 CFR § 721.[redacted]. Based on the SNUR promulgated at 40 CFR § 721.[redacted], [redacted]. Manufacture, import, or processing of [redacted] subject to reporting as a significant new use.

Chemours' letter dated September 6, 2017, listed several factors (use, production, pollution prevention, and hazard assessment) associated with the PMN submission as it relates to [redacted]. See Exhibit: B23 – Chemours September 6, 2017 Letter.

Based on the EPA records, there is no record on file indicating that either Chemours or its predecessor (DuPont) submitted a SNUN to the EPA for [redacted]. Chemours' September 6, 2017, letter indicated:

[redacted]

(7) [redacted]

In its September 6, 2017 Letter, Chemours did not state that a SNUN was submitted to the EPA for [redacted]. Instead, in the letter/summary, Chemours stated that, "[redacted]" For detail and confirmation of Chemours statement, see Exhibit B23 - September 6, 2017, Letter and Exhibit B4 - September 1, Letter. Pursuant to 40 CFR § 721.5(a)(1), a person who intends to manufacture, import, or process for commercial purposes a chemical substance identified in a specific section in 40 CFR Part 721, Subpart E, and intends to engage in a significant new use of the substance identified in that section must submit a SNUN as specified under the provisions of Section 5(a)(1)(B) of TSCA, 40 CFR Part 720 and 40 CFR § 721.25. Based on the [redacted] production records, on July 16, 2015, Chemours exceeded the SNUR [redacted]. Based on EPA's review, Chemours did not submit a SNUN as required pursuant to the provisions of TSCA Section 5(a)(1)(B), 40 CFR Part 720 and 40 CFR § 721.25.

Chemours letter dated October 4, 2017, stated [redacted]. The October 4, 2017 Letter (Exhibit B34) also stated if the [redacted]

Based on production records for [redacted] and [redacted], between July 5, 2015, and July 16, 2015 (11 day period), Chemours manufactured a total of [redacted]. During this period (July 5, 2015 and July 16, 2015), the production of [redacted] generated [redacted] percent ([redacted]) [redacted]. According to the March 29, 2018 Letter (Exhibit B41), [redacted] was used [redacted] was manufactured for commercial purpose. Based on [redacted] production records, on July 16, 2015, Chemours [redacted] threshold [redacted]. Between July 16, 2015, and June 29, 2017, Chemours manufactured [redacted]. Between July 16, 2015, and June 29, 2017, the daily production range [redacted]. To determine the amount of [redacted] that was produced on a daily basis between July 16, 2015, and June 29, 2017, see Exhibit B40 - [redacted] Production and Use and Exhibit B41 – March 29, 2018 Letter.

A review of the P&IDs shows [redacted] and [redacted] were transferred from the [redacted] unit to [redacted] unit by way of [redacted]. For details on the transfer of [redacted] and [redacted], see Exhibits B43 and B44 - P&ID ([redacted]).

[redacted]

The production records indicated [redacted] was manufactured at the Facility. [redacted] is subject to a SNUR promulgated at 40 CFR § 721.[redacted]. The effective date of the SNUR for [redacted] was [redacted]. The significant new use for [redacted] includes the manufacture (including import) or processing for [redacted]. The manufacture (including import) or processing of [redacted].

Chemours indicated [redacted]. In the reaction process, [redacted]. Based on Chemours' 2016 CDR report, [redacted] was used at the Facility as [redacted].

[redacted]

In [redacted] DuPont submitted a PMN to the EPA to manufacture a chemical that the EPA identified as [redacted] for use as [redacted]. At the time of the PMN submission, [redacted] was listed on the TSCA inventory, but the [redacted] was not listed on the TSCA inventory (See Exhibit: B25- Chemours October 13, 2017, Letter).

Based on Chemours' 2016 CDR report, between 2012 and 2015, DuPont/Chemours manufactured the [redacted]. This means DuPont manufactured [redacted] before they manufactured the [redacted].

A review of EPA's confidential database (VDI) revealed DuPont did not submit a Notice of Commencement (NOC) to EPA when [redacted] was manufactured for commercial purpose as

an [redacted]. This means [redacted] was not added/listed on the TSCA inventory.

The production of [redacted]. Between October 10, 2015, and November 27, 2015, Chemours manufactured [redacted] for commercial purpose. The production record did not reference the amount of [redacted] that was produced during the production of [redacted]. During the production period (October 10, 2015, and November 27, 2015), the record did not indicate the actual number of days [redacted] was produced. For details on the production volume associated with of [redacted], see Exhibit B26- July 31, 2017 Letter).

Based on EPA's certified statement ([redacted]), [redacted] is not listed on the TSCA inventory. According to the certified statement, [redacted] is regulated under a [redacted] (See Exhibit B27- TSCA Certified Statement). Pursuant to 40 CFR Part 720, a chemical substance that is not listed on the TSCA inventory is classified as a new chemical substance. Pursuant to 40 CFR Part 720, manufacturers, including importers, must submit a PMN for a new chemical substance at least ninety (90) days prior to the first commercial production.

A review of the [redacted] process flow diagram shows [redacted]. (See Exhibit B25- Chemours October 13, 2017, Letter). Based on the [redacted] is actually an [redacted] that is used in the production of the [redacted] Since [redacted] was not listed on the TSCA Inventory when it was produced for commercial purpose, Chemours was required to submit a PMN to the EPA for [redacted] pursuant to 40 CFR § 720,22. Based on EPA's confidential records (VDI), Chemours did not submit a PMN for [redacted].

3.4. TSCA Section 8 Evaluation

3.4.1. Preliminary Assessment Information Rule (PAIR)

Based on the records provided to EPA, Chemours did not manufacture, import, or use any chemical substance that was subject to reporting under PAIR.

3.4.2. Allegation of Significant Adverse Reaction

Based on the discussions with Chemours representatives and review of the records for the past two years, there was no allegation of significant adverse reaction on file for the chemical substances manufactured, imported, processed or distributed at the Facility.

3.4.3. Health and Safety Studies

Based on the discussions with Chemours representatives regarding health and safety studies, Mr. Johnson indicated they would check with the corporate officials to confirm the status of studies. Chemours did not include any health and safety studies in their response.

3.4.4. Substantial Risk to Human Health/Environment

During the inspection, the inspection team inquired about: (1) documentation of allegations of adverse reactions that may be subject to TSCA Section 8(c) reporting; (2) a list of Section 8(d) health and safety studies submitted to EPA and copies of any known health and safety information that were not submitted to EPA; and (3) any substantial risk information not known to EPA (TSCA Section 8(e)). At the time of the inspection, Chemours indicated they had no such records as referenced above, and they would check with their corporate office in Delaware, and, if applicable, they would submit the records to EPA and ERG. No records pertaining to TSCA Sections 8(c), 8(d) or 8(e) were submitted to Region 4 or ERG.

As discussed in Section 3.3.1 (PPVE Process) above, the effluent from the PPVE process contains the PMN substance ( ) and depending on the pH level in the combined effluent to the outfall the may convert to the other PMN substance ( ) which is discharged into the Cape Fear River. During a public meeting on June 15, 2017, between Chemours and the New Hanover County Board of Commissioners, Chemours indicated that dating back to 1980; GenX (which Chemours referred to as a byproduct) was also a component in the wastewater discharged to the Cape Fear River.

The Consent Order (page 4, Testing) indicates that any information on the PMN substances (and) which reasonably supports the conclusion that the PMN substances present a substantial risk of injury to health or the environment is required to be reported under EPA's TSCA Section 8(e) policy statement at 43 Federal Register 11110 (March 16, 1978) as amended at 52 Federal Register 20083 (May 29, 1987), and shall reference the appropriate PMN identification number for this substance and shall contain a statement that the substance is subject to a consent order. (See Exhibit A15 – Federal Register, May 29, 1987)

As discussed in the PPVE process (Section *3.3.1.2),* Chemours did not provide any record as to when they first became aware that the PMN substances (and) were either released from the WWTP or formed in the Cape Fear River.

3.4.5. Chemical Data Reporting

3.4.5.1. CDR Introduction

On September 20, 2016, Chemours submitted a TSCA 2016 CDR report for chemical substances. Based on EPA's review of Chemours' 2015 production volumes and comparison with the submitted CDR report, the following chemical substances were not reported to two significant figures of accuracy on the 2016 CDR: (1) ; (2) ; and (3) . After June 29, 2017, without notice from the EPA, on August 3, 2017, Chemours submitted an amended CDR (revising production volumes) for: ; ; and . In addition to Chemours 2016 CDR submission, Chemours did not include the following chemical substances on the 2016 CDR: (1) ; (2) ; and (3) .

3.4.5.2. CDR Discussion

Based on the 2015 production records, Chemours manufactured pounds of . The original 2016 CDR report indicated pounds of

were produced in 2015. The amended 2016 CDR report indicated [redacted] pounds of [redacted] were produced (See Exhibit B28 - 2016 Original CDR and Amended CDR).

Based on the amended 2016 CDR and EPA's calculation, the original 2016 CDR was not reported to two significant figures of accuracy.

For calendar year 2015, [redacted] was over-reported on the 2016 CDR.

[redacted]

Based on the 2015 production records, Chemours manufactured [redacted] pounds of [redacted]. The original 2016 CDR report indicated [redacted] pounds of [redacted] were produced in 2015. The amended 2016 CDR report indicated [redacted] pounds of [redacted] were produced (See Exhibit: B29 -2016 Original CDR and Amended CDR).

Based on the amended 2016 CDR and EPA's calculation, the initial 2016 CDR was not reported to two significant figures of accuracy.

For calendar year 2015, [redacted] was under-reported on the 2016 CDR.

[redacted]

Based on the 2015 production records, Chemours manufactured [redacted] pounds of [redacted]. The 2016 original CDR report indicated [redacted] pounds of [redacted] were produced in 2015. The amended 2016 CDR report indicated [redacted] pounds of [redacted] were produced (See Exhibit: B30 - 2016 CDR, and amended CDR).

Based on the amended 2016 CDR, and EPA's calculation, the initial 2016 CDR was not reported to two significant figures of accuracy.

For calendar year 2015, [redacted] was under reported on the 2016 CDR.

[redacted]

Based on the PPVE Process Narrative, the PPVE Flow Chart and the [redacted] Production Block Diagram, during the first step of the [redacted] process, the [redacted] (See Exhibit A7 - PPVE Flow Chart, Exhibit B2 - [redacted] and B3 - PPVE Process Narrative).

In the second step of the PPVE process, the [redacted]

[redacted]. (See Exhibit A7 - PPVE Flow Chart, Exhibit B2 - [redacted] Production and B3 - PPVE Process Narrative).

In an effort to confirm whether the [redacted] used to produce [redacted] is actually [redacted], on August 14, 2017, Region 4 requested additional information from Chemours via email and in a letter dated August 15, 2017 (See Exhibit B31 - EPA August 15, 2017 Letter). The request was as follows: "Regarding the PPVE process, the flow diagram shows that the [redacted] goes either to a [redacted] for use in the [redacted] production process or it is used in the subsequent steps to produce [redacted]. Based on the review of the PPVE diagram, it appears that the [redacted] that is used to produce [redacted] can be classified as a [redacted]. If Chemours classified the [redacted] as an [redacted], please explain the isolation of the [redacted] in the [redacted] process."

On August 22, 2017, Chemours provided an explanation on the 2016 CDR report for [redacted]. The statement is as follows: "The quantities of [redacted] that are used [redacted]. However, [redacted].

For purposes of the 2016 CDR report, Chemours indicated that they [redacted]. Chemours is treating the entire production of [redacted] as an isolated intermediate. (See Exhibits: B33- Chemours July 31, 2017 letter).

Region 4 first became aware there was an additional step/process between the [redacted] when Chemours submitted a response letter dated August 22, 2017. As a result, on September 20, 2017, Region 4 requested the following information from Chemours: "[redacted]

On October 4, 2017, Chemours responded to Region 4's request. Chemours response indicated: [redacted]

Based on the Chemours October 4, 2017 letter, in 2015, [redacted] (See Exhibit B34 – Chemours' October 4, 2017, Letter and Exhibit B35 – PPVE Flow Chart).

In an attempt to identify the actual location of the [redacted], Region 4 and ERG reviewed the PPVE P&ID. Based on the review of the P&ID, the EPA was able to locate [redacted]. However, on the same day (August 14, 2017) that Region 4 inquired about the [redacted] of [redacted] process, Chemours made a revision to the system associated with [redacted]. (See Exhibit B36 - P&ID # W553421). P&ID # W553421 shows that on August 14, 2017, there was a revision associated with the [redacted]. Based on the EPA's review of the [redacted] production process, Chemours classified [redacted] as an [redacted].

[redacted]

In [redacted], DuPont submitted a consolidated PMN to EPA to manufacture [redacted] and [redacted]. As referenced in the PMN, [redacted] was used as an [redacted] for production of [redacted]. The EPA identified the PMNs as [redacted]. DuPont submitted a TSCA NOC for both PMN substances. In 2012, DuPont submitted a TSCA 2012 CDR report to the EPA for both PMN substances [redacted] that were produced at the Facility.

In 2015, Chemours used the same production site (the Facility) to produce both chemicals substances. Chemours included [redacted] on the TSCA 2016 CDR, but failed to report the [redacted] ([redacted]) that was used to produce [redacted].

Chemours' Block Diagram for [redacted] shows [redacted] as a [redacted] being transferred to a [redacted] Based on the PMN submission, [redacted] is an [redacted]. (See Exhibit B37 - [redacted] Block Diagram).

Based on the Chemours' March 29, 2018 Letter (Exhibit B41), Chemours does [redacted] generated as a [redacted], The March 29, 2018 Letter also indicated between July 1, 2015, and June 29, 2017, Chemours [redacted]. Based on the 2015-2017 production volume for [redacted], Chemours manufactured a reportable [redacted] in 2015. Pursuant to 40 CFR § 711.5, a report must be submitted for any chemical substance that is on the TSCA Master Inventory File at the beginning of a submission period described in § 711.20, unless the chemical substance is specifically excluded by § 711.6. [redacted] was on the TSCA Master Inventory at the beginning of a submission period and based on the [redacted] submission, [redacted] was not exempt from the 2016 CDR requirements. Chemours did not include [redacted] in the Facility's 2016 CDR, as required by 40 CFR § 711.5.

[redacted]

In 2015, Chemours manufactured [redacted] during the production of [redacted]. Based on the [redacted] Block Flow Diagram, [redacted] is a [redacted] that is transferred to the [redacted] for use in the production of either [redacted] or [redacted] (See Exhibit: B38 - [redacted] Block Flow Diagram). In addition, the [redacted] production summary indicated certain [redacted] generated during the [redacted] reaction [redacted] also are [redacted] (See Exhibit B4 - Chemours September 1, 2017 Letter to the EPA).

Based on the information referenced in the [redacted] Block Flow diagram and written response (summary), [redacted] is a [redacted] that was transferred from the [redacted]. In addition, as referenced in [redacted] is also listed as a [redacted] for production of [redacted]. For details on the use of [redacted], see [redacted] and [redacted] in EPA's VDI and Exhibit B41).

Based on the 2016 CDR approximately [redacted] were produced in 2015. Based on the Chemours' March 29, 2018 Letter, the production of [redacted]. That meant that approximately [redacted] were produced in 2015 (See Exhibit B41). Chemours' letter dated October 4, 2017, stated [redacted] are produced as [redacted] unit and [redacted]. The October 4, 2017 Letter (Exhibit B38) also stated if the [redacted]. For details on the production, use and release/disposal of [redacted] see Exhibit B34 - October 4, 2017 Letter. Chemours did not include [redacted] in the Facility's 2016 CDR that was submitted to the EPA, as required by 40 CFR § 711.5. Based on Chemours 'March 29, 2018 Letter (Exhibit 41), [redacted] is used as an [redacted] to produce [redacted].

A review of the P&IDs shows [redacted] and [redacted] were transferred from the [redacted]. For details on the transfer of [redacted], see Exhibits B43 and B44 - P&ID ([redacted]).

[redacted]

In 2015, Chemours manufactured [redacted] during the production of [redacted]. Based on the [redacted] Block Flow Diagram, [redacted] that is transferred to the [redacted] (See Exhibit B38 - [redacted] Block Flow Diagram). In addition, the [redacted] production summary indicated certain [redacted] process also are removed during [redacted]. (See Exhibit B4 - Chemours September 1, 2017, Letter to the EPA).

Based on the information referenced in the [redacted] Block Flow Diagram and Chemours' written response (summary), [redacted] that is transferred from the [redacted] process to the [redacted]. In addition, as referenced in P[redacted], [redacted] for production of [redacted]. (See [redacted] in EPA's VDI and Exhibit B37 - [redacted] Block Diagram).

Based on the 2016 CDR, approximately [redacted] were produced in 2015. Based on Chemours March 29, 2018 Letter, the production of [redacted]. This means approximately [redacted] were produced in 2015 (See Exhibit B41). Chemours' letter dated October 4, 2017, stated [redacted] are produced as [redacted]. The October 4, Letter (Exhibit B34), also stated [redacted] from the [redacted] unit are treated as a waste and vented to and captured by the

[redacted]. For details on the production, use and release/disposal of [redacted], see Exhibit B34 - October 4, Letter. Chemours did not include [redacted] in the 2016 CDR that was submitted to the EPA as required by 40 CFR § 711.5. Based on Chemours' March 29, 2018 Letter (Exhibit B41), [redacted] is used as an [redacted] to produce [redacted].

A review of the P&IDs shows [redacted] were transferred from the [redacted]. For details on the transfer of [redacted] and [redacted], see Exhibits B43 and B44 - P&ID ([redacted]).

[redacted]

In 2011, DuPont manufactured [redacted] at the Facility. DuPont included [redacted] in their 2012 CDR. In 2015, Chemours used the same production site (the Facility) to produce [redacted] as an [redacted] for the production of [redacted] and [redacted]. For details on the production/use of [redacted], see Exhibit B 45 - Co-production of [redacted].

Based on the production volume for the other [redacted] that is used in the [redacted] and [redacted] processes, Chemours may have produced a reportable quantity (greater than 25,000 pounds) of [redacted]. Pursuant to 40 CFR § 711.5, a report must be submitted for any chemical substance that is on the TSCA Master Inventory File at the beginning of a submission period described in § 711.20, unless the chemical substance is specifically excluded by § 711.6. [redacted] was on the TSCA Master Inventory at the beginning of a submission period. Chemours did not include [redacted] in the Facility's 2016 CDR, as required by 40 CFR § 711.5. Based on Exhibit B 45, [redacted]

3.5. TSCA Section 12 Evaluation

Customers (foreign and domestic) that processed [redacted] (GX903 and Various Concentrations of [redacted] (GX902, GX905C and GX905D)):

GenX Acid (GX903) is shipped to Chemours Chambers Works facility in Deep Water, New Jersey.

GenX Salt (GX905C, GX905D & GX902) is shipped to Chemours Washington Works facility in Washington, West Virginia.

GenX Salt (GX905C, GX905D & GX902) is exported to the Netherlands.

GenX Acid (GX903) and GenX Salt (GX905C, GX905D & GX902) are exported to Japan. GenX Salt (GX905D & GX902) is exported to China.

GenX Salt (GX905D & GX902) is exported to India.

Export notices dating back to 2015 were submitted to the EPA (See Exhibit: B10 – GenX Customer List).

3.6. TSCA Section 13 Evaluation

As a follow up to the EPA's June 22, 2017, NOI, during the inspection, the EPA inspection team asked Chemours if the Facility imported any chemical substance in the past four years. See Exhibit A1- NOI. Chemours stated that all chemical import activities are controlled by the corporate office in Wilmington, Delaware. As a result, Chemours did not provide any records on the import of chemical substances associated with the Facility.

Subsequent to the inspection and through coordination with Region 4's Resource Conservation and Restoration Division, it was disclosed to Region 4's TSCA New and Existing Chemicals Program that the Facility received imported spent [redacted], a [redacted]. The importation of [redacted] was discussed further with representatives from EPA Headquarters Office of Pollution Prevention and Toxics (OPPT).

On January 22, 2018, OPPT submitted a written request for information to Chemours regarding the reclamation of [redacted] and [redacted]. The EPA requested the following information: (1) Time period (dates of reclamation); (2) The origin of the waste material ([redacted]) and the amount; (3) The reclamation process including process diagrams; (4) The name of the compounds and the amount processed daily; (5) The disposition of the reclaimed materials (end use); (6) The on-site emission point sources and daily release; and (7) Applicable statutory reporting requirements for the reclaimed materials ([redacted] and [redacted]).

On February 2, 2018, Chemours submitted their response to OPPT's concerns. On or about March 1, 2018, OPPT submitted a copy of Chemours' response to Region 4. Based on Chemours response, the spent [redacted] that was imported for reclamation was included on Chemours Corporate Headquarter 2016 CDR. A review of the EPA's confidential CDR database (VDI) revealed Chemours' Corporate Headquarter submitted a 2016 CDR report for the imported [redacted]. For details on the import and reclamation of [redacted] and [redacted], see Exhibit 46 - February 2, 2018 Letter.

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4.0. REPORT APPROVAL

4.1. Report – Primary Author

4/30/18

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Date

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4.4. Report – Approver

4/30/18

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Date

Appendix F:

Kathleen Gallagher Email Attachment Titled
"Addendum-to-R4-Chemours-NonCBI-2 import"

TOXIC SUBSTANCES CONTROL ACT – NEW AND EXISTING CHEMICALS PROGRAM

COMPLIANCE MONITORING INSPECTION REPORT (Non-CBI)

The Chemours Company

Fayetteville Works
22828 NC Highway 87 West
Fayetteville, NC 28306-7332

Report Date: August 27, 2018

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Inspection Dates: June 28 - 29, 2017

Section 3.6 (TSCA Section 13 Evaluation)

As a follow up to the U.S, Environmental Protection Agency, Region 4's Chemours Company (Chemours) April 24, 2018, Inspection Report (Inspection Report), specifically Section 3.6 (TSCA Section 13 Evaluation), additional information is being presented in this follow up to highlight the 2016 Chemical Data Reporting (CDR) as it relates to the import of [confidential business information (CBI) deleted] which is a component in FRD-902. FRD-902 is a spent [CBI deleted] that contains [CBI deleted].

On or about January 4, 2018, Region 4 became aware that Chemours' Corporate Office in Wilmington, Delaware imported FRD-902 from [CBI deleted]. FRD-902 was processed at [CBI deleted] to reclaim the [CBI deleted] for commercial use.

On January 16, 2018, a representative of the EPA Office of Pollution Prevention and Toxics (OPPT) contacted Chemours' Corporate Office to discuss: (1) the import of FRD-902; and (2) the reclamation of the [CBI deleted] in FRD-902. As referenced in the Inspection Report, on January 22, 2018, OPPT submitted a written request to Chemours' Corporate Office regarding the reclamation of [CBI deleted]. Based on the EPA CDR database [confidential database], Chemours' Corporate Office submitted a 2016 CDR report for the [CBI deleted] that was reclaimed from the FRD-902 spent [CBI deleted]. The inspection report did not reference the date Chemours' Corporate Office submitted the 2016 CDR report for the [CBI deleted] that was reclaimed from the FRD-902 spent [CBI deleted].

Further review of the EPA CDR database [confidential database] by Region 4, subsequent to the date of the Inspection Report (April 24, 2018) revealed that on January 19, 2018, Chemours' Corporate Office submitted a 2016 CDR report for the [CBI deleted] that was reclaimed from the FRD-902 spent [CBI deleted]. The EPA CDR database [confidential database] also shows that Chemours' Corporate Office reported that they imported [CBI deleted] pounds of [CBI deleted] in 2014 and [CBI deleted] pounds of [CBI deleted] in 2015. As referenced in the Inspection Report, [CBI deleted] is subject to a consent order pursuant to the Toxic Substances Control Act (TSCA) Section 5e.

Pursuant to 40 C.F.R. § 711.8(b), for the 2016 CDR submission period and subsequent submission periods, any person who manufactured (including imported) for commercial purposes any chemical substance that is the subject of a rule proposed or promulgated under TSCA Section 5(a)(2), 5(b)(4), or 6, or is the subject of an order in effect under TSCA Section 5(e) or 5(f), or is the subject of relief that has been granted under a civil action under TSCA Section 5 or 7, is subject to reporting as described in § 711.8(a), except that the applicable production volume threshold is 2,500 lbs. (1,134 kg). Since [CBI deleted] is subject to a TSCA Section 5e order and the import volumes for 2014 or 2015 were greater than 2,500 pounds, Chemours was required to submit a 2016 CDR report to the EPA for the [CBI deleted] that was: (1) imported as a component in the FRD-902 spent [CBI deleted]; and (2) reclaimed for commercial purpose.

Pursuant to 40 C.F.R. § 711.20, all information reported to EPA in response to the requirements of this part (40 C.F.R. Part 711) must be submitted during an applicable submission period. The 2016 CDR submission period was June 1, 2016, to October 31, 2016. During the 2016 CDR submission period,

Chemours did not submit to EPA the 2016 CDR report for the [CBI deleted] that was reclaimed from the FRD-902 spent [CBI deleted] in 2014 and 2015. Based on the EPA CDR database, on January 19, 2018, (subsequent to the 2016 CDR submission period) Chemours submitted a 2016 CDR report for the [CBI deleted] that was reclaimed from the FRD-902 spent [CBI deleted].