**NORTH CAROLINA DIVISION OF AIR QUALITY**

# Air Permit Review

**Permit Issue Date:**

**Region:** Fayetteville Regional Office
**County:** Bladen
**NC Facility ID:** 0900009
**Inspector's Name:** Gregory Reeves
**Date of Last Inspection:** 03/10/2015
**Compliance Code:** 3 / Compliance - inspection

## Facility Data

**Applicant (Facility's Name):** Chemours Company - Fayetteville Works

**Facility Address:**
Chemours Company - Fayetteville Works
22828 NC Highway 87 West
Fayetteville, NC 28306

**SIC:** 2869 / Industrial Organic Chemicals,
**NAICS:** 32512 / Industrial Gas Manufacturing

**Facility Classification: Before:** Title V **After:** Title V
**Fee Classification: Before:** Title V **After:** Title V

## Permit Applicability (this application only)

**SIP:**
**NSPS:**
**NESHAP:** Subpart DDDDD
**PSD:**
**PSD Avoidance:**
**NC Toxics:**
**112(r):**
**Other:**

## Contact Data

| Facility Contact | Authorized Contact | Technical Contact |
|---|---|---|
| Michael Johnson<br>Environmental Manager<br>(910) 678-1155<br>22828 NC Highway 87 West<br>Fayetteville, NC 28306+7332 | Ellis McGaughy<br>Plant Manager<br>(910) 678-1224<br>22828 NC Highway 87 West<br>Fayetteville, NC 28306 | Michael Johnson<br>Environmental Manager<br>(910) 678-1155<br>22828 NC Highway 87 West<br>Fayetteville, NC 28306+7332 |

## Application Data

**Application Number:** 0900009.14A, 0900009.14B
**Date Received:** 04/23/2014, 09/12/2014
**Application Type:** Renewal
**Application Schedule:** TV-Renewal

**Existing Permit Data**

**Existing Permit Number:** 03735/T41
**Existing Permit Issue Date:** 11/24/2015
**Existing Permit Expiration Date:** 01/31/2020

**Total Actual emissions in TONS/YEAR:**

| CY | SO2 | NOX | VOC | CO | PM10 | Total HAP | Largest HAP |
|---|---|---|---|---|---|---|---|
| 2014 | 1.95 | 76.26 | 332.17 | 38.10 | 8.60 | 33.58 | 19.57 [Methanol (methyl alcohol)] |
| 2013 | 0.2100 | 80.13 | 312.90 | 30.45 | 9.47 | 33.71 | 19.93 [Methanol (methyl alcohol)] |
| 2012 | 1.23 | 63.76 | 260.86 | 29.24 | 7.95 | 28.44 | 18.70 [Methanol (methyl alcohol)] |
| 2011 | 2.74 | 73.06 | 271.17 | 31.42 | 11.31 | 29.39 | 17.51 [Methanol (methyl alcohol)] |
| 2010 | 2.04 | 43.89 | 296.10 | 13.12 | 9.25 | 37.52 | 17.49 [Methanol (methyl alcohol)] |

**Review Engineer:** Heather Sands

**Review Engineer's Signature:** **Date:**

**Comments / Recommendations:**
Issue 03735/T42
**Permit Issue Date:**
**Permit Expiration Date:**

## I. PURPOSE OF APPLICATION

The Chemours Company FC, LLC doing business as Chemours Company – Fayetteville Works (Chemours) currently holds Title V Permit No. 03735T41 with an expiration date of January 31, 2020, or the date the renewal of permit 03735T38 has been issued or denied, whichever is earlier, for a chemical manufacturing company in Fayetteville, Bladen County, North Carolina. This permit application is for a permit renewal. The renewal application was received on April 22, 2014 (and amended, see application chronology in section III, below for more details), or at least nine months prior to the expiration date. Therefore the existing permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied.

In addition, a permit application for a minor modification was received on September 12, 2014. Chemours was planning on installing an emergency generator. This permit consolidates the minor modification and the Title V Renewal. However, since the time of the permit application, the DAQ policy on handling insignificant activities has changed. Insignificant activities that are also subject to MACT or GACT regulations are no longer required to be on the permit.

Chemours also has requested[1] that the three pieces of equipment be removed from their permit because they are no longer operational. The following provides a list of these pieces of equipment and the rational for removing them from the permit:

- Semiworks (ID No. NS-J): Semiworks No. 3 was a short-lived membrane-related process that was located in what is now the Kuraray SentryGlas® Manufacturing Building, which is no longer owned and operated by Chemours.[2] It was operational in late 1990's or early 2000's, and that activity has been ceased.
- TFE/HCl separation unit (ID No. NS-L): This process separated tetrafluoroethylene (TFE) raw material from anhydrous hydrochloric acid (HCl), which was added to the extremely flammable TFE to make it non-flammable, and safer to transport on the highway. Chemours is now receiving the TFE as a mixture with $CO_2$ to make it non-flammable without the toxicity concerns related to anhydrous HCl. As a result, Chemours constructed and began operating the TFE/CO2 separation unit (ID No. NS-M), which separates the TFE from the $CO_2$. As a result, the TFE/HCl separation unit has been completely disassembled and removed from the facility.
- Building exhaust vent wet scrubber (ID No. ACD-A3): This scrubber was a "voluntary use only" wet scrubber that was installed inside the Polymer Processing Aid (PPA) Process Building with the intent to further reduce the emissions (about 50 lb/yr) of the product that process produced. In April 2013, the PPA Process ceased producing that particular product and the wet scrubber was no longer necessary for control. That scrubber had operational problems and is no longer operational.

On January 12, 2016, Chemours submitted an addendum to their renewal application via email. Chemours is planning on making a modification in the HFPO Process that would allow a solid waste stream to be ultimately converted into a raw material. The HFPO process generates carbonyl fluoride ($COF_2$) as a byproduct. In addition, an HFPO waste stream is currently shipped

[1] Comments on preliminary draft, received 08/31/2015, and clarification via email received 01/15/2016.
[2] In August 2014, a 300 permit was issued for Kuraray America Inc. to reflect the sale of this building.

off site to be treated and disposed. The new equipment, Solvent Reclamation Converters, is being installed to process the waste stream prior to disposal and will generate additional $COF_2$ for use in the plant. The HFPO process will include a new process vent ($E_{SRC}$) that is controlled by the existing wet scrubbers (ID No. NCD-Hdr1 or NCD-Hdr2). Under normal operation, the process is closed and there are no emission points. When there are process upsets downstream, the process vent ($E_{SRC}$) will be routed to the waste gas scrubbers.

## II. FACILITY DESCRIPTION

Chemours Company – Fayetteville Works is a chemical manufacturing facility that employs approximately 500 employees and 250 full-time contractors on a 24 hr, 7 day per week basis. The facility consists of two individual manufacturing plants (FPS/IXM Process and Polymer Processing Aid Process), a boiler house and a waste treatment operation. The facility also has two permanent boilers onsite, one permanent boiler which is permitted but not yet constructed, and one permitted temporary boiler.

## III. HISTORY/BACKGROUND/APPLICATION

Permit History since Last Title V Permit Renewal

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| February 22, 2010 | Title V Permit Renewal. Air Permit No. 03735T35 was issued with an expiration date of January 31, 2015. Permit also addressed the second step in a two-step significant modification for two permit applications. The first was a permit application to operate polyphenol fluoride process No. 2 (ID No. FS-C). The second was a permit application to operate a new boiler (ID No. PS-C), to allow natural gas firing in the existing boilers, and to permit several decontamination sources (ID Nos. NS-N, NS-O, and NS-P). |
| December 10, 2010 | Air Permit No. 03735T36 was issued for a modification to add Case-by-Case Boiler MACT conditions under section 112(j) for four boilers: PS-A, PS-B, PS-C and PS-Temp. |
| August 17, 2011 | Air Permit No. 03735T37 was issued for a modification requested by the Permittee to change how vinyl fluoride (VF) emissions from the maintenance headers of the Polyvinyl Fluoride Manufacturing Facility No. 1 and No. 2 sources (ID Nos. FEP-B2 and FEP-C2) were calculated. |
| December 16, 2013 | Air Permit No. 03735T38 was issued for several modifications: (1) removal of No. 6 fuel oil from three boilers (ID Nos. PS-A, PS-B and PS-C); (2) removal of case-by-case MACT testing conditions associated with No. 6 fuel oil; (3) replacement of existing NSPS and MACT conditions for the temporary boiler (ID No. PS-Temp) with avoidance conditions; (4) addition of insignificant activities; (5) a 502(b)(10) modification to the fabric filter (ID No. BCD-C2) installed on the Butacite® flake dryer (ID No. BS-C); and (6) a 502(b)(10) modification to replace the aqueous $CO_2$ |

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| | scrubber system with a gas separation "permeator" system to eliminate wastewater discharge from the vinyl ethers north process **(ID No. NS-B).** |
| February 2, 2015 | Air Permit No. 03735T39 was issued for an administrative amendment to change the name of the facility from DuPont to Chemours Company – Fayetteville. |
| July 9, 2015 | Air Permit No. 03735T40 was issued for an administrative amendment to change the ownership of the facility. The former owner was E. I. du Pont de Nemours and Company. The new owner name is The Chemours Company FC, LLC. The Permittee name is now Chemours Company - Fayetteville Works. |
| November 24, 2015 | Air Permit no. 03735T41 was issued for an administrative amendment to remove equipment no longer owned and operated by Chemours Company - Fayetteville Works. |

Application Chronology

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| April 3, 2014 | Meeting between DuPont personnel and DAQ to discuss the process for a compliant transfer of ownership of the Butacite® and SentryGlas® units located at the E.I. DuPont de Nemours and Company's Fayettevill Works Plant to Kuraray America, Inc. (KAI), a subsiderary of Kuraray Co., Ltd. (Kuraray). |
| April 22, 2014 | Received application for permit renewal. |
| April 23, 2014 | Sent acknowledgement letter indicating that the application for permit renewal was complete. |
| May 7, 2014 | Received Regional Office P&O Review from the Fayetteville Regional Office (FRO). |
| May 9, 2014 | Received addendum to permit application 090009.14A for the Title V permit renewal. The Permittee requested removal of the wet scrubber installed on the building exhaust vent of the polymer processing aid process. The facility no longer operates the two processes, ammonium perfluorooctanoate (APFO) and perfluorooctanoic acid (PFOA), on which the scrubber was installed to control. |
| May 20, 2014 | Received Regional Office P&O Review from FRO for the May 9th permit application addendum. |
| May 29, 2014 | Received a summary of the April 3, 2014, meeting between DAQ and DuPont personnel regarding the change in ownership of the Butacite® and SentryGlas® units. Also included was a written agreement between KAI |

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| | and DuPont reflecting the date of transfer of the permit and permit responsibility. |
| June 3, 2014 | Received addendum to permit application 090009.14A for the Title V permit renewal. The Permittee requested that the Kuraray Butacite® and SentryGlas® sources be removed from the renewed Title V permit. |
| August 26, 2014 | Air Permit No. 10396R00 was issued from the FRO for Kuraray America, Inc. to operate the Butacite® and SentryGlas®. |
| September 12, 2014 | Received permit application No. 090009.14B for a minor modification to install a stationary emergency generator driven by a diesel reciprocating internal combustion engine (RICE). |
| September 26, 2014 | Minor modification permit acknowledgement letter was issued allowing the modification to be implemented. |
| October 2, 2014 | Received Regional Office P&O Review from the FRO for the September 26, 2014 minor modification application. |
| October 6, 2014 | Received addendum to permit application No. 090009.14B with revised forms. |
| December 3, 2014 | Received Permit Application No. 090009.14C for an Administrative Amendment for a name change. DuPont requested that the permit be modified to change the name from DuPont Company – Fayetteville Works to The Chemours Company FC, LLC DBA, Chemours Company - Fayetteville Works. |
| December 10, 2014 | Sent acknowledgement letter that the application for administrative amendment was complete. |
| June 8, 2015 | Email from Mike Johnson confirming that the rental boiler PS-Temp meets the definition of a *temporary boiler* under MACT and NSPS. |
| June 9, 2015 | Received an addendum to Permit Application No. 090009.14A (via email from Mike Johnson and copied to the Chemours Responsible Official) requesting revisions to the language in Section 2.1 C.3.c(i) be modified to allow for the process vent mass flow rates to be determined either via measurement or estimate. |
| July 15, 2015 | Received an addendum to Permit Application No. 090009.14A (via email from Mike Johnson and copied to the Chemours Responsible Official) requesting that the main boiler (ID No. PS-A) be permitted as a "unit designed to burn gas 1 subcategory" and the backup boiler (ID No. PS-B) be permitted as a "unit designed to light liquid subcategory." |

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| July 28, 2015 | DAQ sent an information request to Chemours regarding how to permit the boilers at the facility and requesting a copy of the 1995 modeling analysis. |
| July 31, 2015 | Response to July 28, 2015 information request was received. |
| August 13, 2015 | DAQ sent a preliminary draft of the permit renewal and air permit review to Chemours for an advanced review. |
| August 31, 2015 | Chemours provided DAQ with comments on the preliminary draft. |
| November 20, 2015 | Received Permit Application No. 090009.15B for an Administrative Amendment to remove equipment no longer owned and operated by Chemours Company - Fayetteville Works. |
| December 28, 2015 | Sent email to Chemours to confirm that they wish to leave toxics limits in the permit as is and to confirm some corrections to typographical errors in the toxics tables. |
| January 11, 2016 | Email from Chemours was received requesting that no changes to the toxics limits be made as a part of this renewal, with the exception of the correction of typographical errors. |
| January 12, 2016 | Conversation with Mike Johnson via email and telephone to discuss incorporating a modification to the HFPO process into the permit (see discussion below). |

## IV. PERMIT MODIFICATIONS/CHANGES AND TVEE DISCUSSION

The following table describes the changes made to the current permit (Air Permit No. 03735T41) as part of the renewal process.

| Old Page No. | New Page No. | Condition No. | Description of Change(s) |
|---|---|---|---|
| Cover letter | Cover letter | | - Amended application type, permit revision numbers and dates.<br>- Added increment tracking paragraph.<br>- Updated to current permit shell, including new logo. |
| Cover letter attachment | Cover letter attachment | Summary of changes to permit | - Updated to current permit language. |
| Cover letter attachment | Cover letter attachment | Insignificant activities list | - Added three Diesel emergency engines;<br>- Changed emission source description to of I-12 to "IXM Dispersion Process" to protect the process trademark.<br>- added "MACT" to footnote 3 of table. |
| 1 | 1 | Permit Cover Page | - Updated permit revision number and permit issuance date;<br>- Added new DEQ logo. |
| Table of Contents | Table of Contents | | - Added Section 2.3 – "Permit Shield for Nonapplicable Requirements." |
| 3 – 44 | 3 – 56 | All | - Updated permit revision number in header;<br>- Updated permit language to match permit shell. |

| Old Page No. | New Page No. | Condition No. | Description of Change(s) |
|---|---|---|---|
| 3 – 5 | 3 – 4 | Section 1 | - Added information to the emission source description of the boilers to show that they are equipped with oxygen trim systems<br>- Edited emission source descriptions to correct errors;<br>- Revised emission source descriptions in FPS/IXM process area (NS-A through NS-P) to protect the process trademark;<br>- Removed equipment no longer in operation: NS-J, NS-L, and ACD-A3 |
| 6 – 28 | 5 – 39 | Section 2.1 | - Added ID Nos. and equipment names to permit conditions when not present;<br>- Corrected testing and monitoring/recordkeeping/ reporting rule cross references (when necessary);<br>- When possible, updated permit language so that the conditions do not reference the CFR, but instead references the location in the permit where the applicable cross reference can be found;<br>- Updated to current permit language; and<br>- Corrected numbering typographical errors.<br>- Added noncompliance statements when missing. |
| 6 – 11 | 5 –20 | Section 2.1 A | - Added language to Section 2.1 A.2 to clarify that the sulfur dioxide conditions apply to the existing boilers (ID Nos. PS-A and PS-B) when firing either natural gas or fuel oil and to the new boiler (ID No. PS-C) when firing natural gas.<br>- Added Section 2.1 A.3.c to visible emissions condition for the new boiler (ID No. PS-C)<br>- Added clarification in Section 2.1 A.4 that the NSPS, Subpart Dc only applies to the new boiler (ID No. PS-C) when No. 2 oil is being fired in the unit.<br>- Added 112(j) sunset date of May 20, 2019 to Section 2.1 A.6<br>- Inserted Section 2.1 A.6.f (and renumbered subsequent conditions) to require an initial notification for the new boiler (ID No. PS-C) if the boiler comes online prior to May 20, 2019.<br>- Added Section 2.1 A.7 and A.8 for Boiler MACT conditions. |
| 11 – 24 | 21 – 34 | Section 2.1 C | - Simplified the condition header to clarify what units are included under this condition.<br>- Removed the odorous emissions condition from the summary of limits and standards table and moved Section 2.1 C.3 to Section 2.2 B.5.<br>- Renumbered remaining Section 2.1 C conditions.<br>- Reworded Section 2.1 C.3.c(i) to remove specifics about how to determine the process vent mass flow rate.<br>- Added new Section 2.1 B.6.b testing requirement and renumbered remaining conditions.<br>- Updated MON language to reflect current regulation and reorganized the condition.<br>- Revised requirements for connectors in light liquid service to reflect MON alternative for demonstration of compliance using the connectors in heavy liquid service standards. |
| 24 | 35 | Section 2.1 D | - Removed the odorous emissions condition from the summary of limits and standards table and moved Section 2.1 D.1 to Section 2.2 B.5. |
| 26 – 28 | 37 – 39 | Section 2.1 F | - Removed the NSPS avoidance condition (Section 2.1 F.4) because it is redundant given the new Section 2.3 Permit Shield for Nonapplicable Requirements section. Renumbered remaining conditions. |
| 29 – 30 | 39 – 41 | Section 2.2 A | - Fixed error in formula for $SO_2$ emissions under Section 2.2 A.1.d. The factor should be 142, instead of 42. |

| Old Page No. | New Page No. | Condition No. | Description of Change(s) |
|---|---|---|---|
| 30 – 35 | 41 - 45 | Section 2.2 B | - Corrected units for acrylonitrile. Emission limit should have been in lb/yr instead of lb/hr.<br>- Corrected the trichlorofluoromethane emission limit so that the allowable emissions reflect the averaging period for the AAL (which is lb/hr, not lb/day). The new number came from the 1995 modeling analysis.<br>- Added Section 2.2 B.5 for facilitywide odorous emissions requirements. |
| NA | 46 | Section 2.3 | - Added permit condition for Permit Shield for Nonapplicable Requirements for the temporary boiler (ID No. PS-Temp) because NSPS Subpart Dc does not apply as long as boiler meets definition of temporary boiler. |
| 36-44 | 47 | Section 3 | - Replaced with version 4.0, dated 12/17/15 |

The following changes were made to Title V Equipment Editor:

- End dated the following sources that were removed from the permit issued in November 2015 (Air Permit No. 03735T41):
  - Butacite® Process Area consisting of:
    - One butyraldehyde storage tank (ID No. BS-A) controlled by a brine cooled condenser (ID No. BCD-A),
    - Four Butacite® flake reactors (ID Nos. BS-B1.1 through BS-B1.4) controlled by a packed-bed scrubber (ID No. BCD-B1),
    - Four Butacite® flake reactors (ID Nos. BS-B2.1 through BS-B2.4) controlled by a packed-bed scrubber (ID No. BCD-B2),
    - One Butacite® flake dryer (ID No. BS-C) controlled by a cyclone (ID No. BCD-C1) and fabric filter (ID No. BCD-C2) and,
    - Butacite® Line No. 3 Sheeting Extrusion Process, including four (4) extruders (ID No. BS-E1) controlled by a water-cooled condenser (ID No. BCD-E1) (voluntary use only)
    - Butacite® Line No. 4 Sheeting Extrusion Process, including four (4) extruders (ID No. BS-E2) controlled by a water-cooled condenser (ID No. BCD-E2) (voluntary use only)
    - Butacite® Line No. 3 Back-End Process, including a quencher, dryer/relaxer, and wind-up area (ID No. BS-E3)
    - Butacite® Line No. 4 Back-End Process, including a quencher, dryer/relaxer, and wind-up area (ID No. BS-E4)
    - Butacite® PVA Unloading System and Storage Silos (ID No. BS-F)
    - Butacite® PVA Dissolver Tank System (ID No. BS-G)
  - SentryGlas® Process (ID No. SGS-A);
  - Polyvinyl Fluoride Process No. 1 (ID No. FS-B);
  - Polyvinyl Fluoride Process No. 2 (ID No. FS-C);
  - Polyvinyl Fluoride Process No. 1 house vacuum system (ID No. I-01A);
  - Polyvinyl Fluoride Process No. 2 house vacuum system (ID No. I-01B); and
  - Plasticizer storage tank (ID No. I-11).
- Added three insignificant activities:
  - Diesel Engine for Stack Blower Emergency Electrical Generator (ID No. I-RICE-01);
  - Diesel Engine for Emergency Fire Water Pump (ID No. I-RICE-02); and
  - Diesel Engine for HFPO Barricade Emergency Electrical Generator (ID No. I-RICE-03).

- Added "equipped with an oxygen trim system" for the three boilers (ID Nos. PS-A, PS-B, and PS-C).
- Added the word "temporary" to one boiler description (ID No. PS-Temp).
- Removed the FPS/IXM Process Area trademark name throughout TVEE.
- End dated the following equipment which is no longer operating:
  - Semiworks (ID No. NS-J);
  - TFE/HCl separation unit (ID No. NS-L); and
  - Building exhaust vent wet scrubber (ID No. ACD-A3).

## V. REGULATORY REVIEW – STATE RULES

Chemours is subject to the regulations discussed below. An extensive review for each applicable regulation is not included in this document, as the facility's status with respect to most of these regulations has not changed. For some regulations below more discussion is provided for clarification and background, as necessary. When necessary, the permit was updated to reflect the most current requirements for all applicable regulations.

### A. 15A NCAC 02D .0503: Particulates from Fuel Burning Indirect Heat

This rule applies to particulate matter emissions from the combustion of a fuel that are discharged from any stack or chimney into the atmosphere. The regulation provides the following equation to be used for any maximum heat input that is not on the table provided in regulation 02D .0503:

$$E = 1.0090 \times Q^{-0.2594}$$

Where:

E = allowable emissions limit for particulate matter in lb/million Btu; and
Q = maximum heat input in million Btu/hr.

The following sources are subject to regulation 02D .0503:

- Two natural gas/No. 2 fuel oil-fired boilers (ID Nos. PS-A and PS-B), 139.4 and 88.4 million Btu per hour maximum heat input, respectively. The allowable emission rate of 0.2667 lb/million Btu was calculated based on the combined heat inputs of the two boilers (total of 227.8 million Btu/hr).
- One natural gas/No. 2 fuel-oil fired temporary boiler (ID No. PS-Temp). This boiler is permitted as a temporary boiler and will have a maximum heat input of 100 million Btu/hr. The allowable emission rate of 0.2426 lb/million Btu was calculated based on a heat input of 327.8 million Btu/hr (100 million Btu/hr for the temporary boiler plus the combined heat inputs of PS-A and PS-B, 227.8 million Btu/hr).
- One natural gas/No. 2 fuel oil-fired boiler (ID No. PS-C), 97 million Btu/hr maximum heat input. This unit has not been built. The allowable emission rate of 0.2268 lb/million Btu was calculated based on the maximum heat input of 97 million Btu/hr plus the maximum heat inputs from Boilers PS-A, PS-B, and PS-Temp (327.8 million Btu/hr).

There are no monitoring, recordkeeping and reporting requirements for the boilers associated with regulation 02D .0503 when firing natural gas, No. 2 fuel oil, No. 4 fuel oil, diesel fuel, and saleable animal fat. No changes to these requirements are associated with this permit renewal.

## B. 15A NCAC 02D .0515: Particulates from Miscellaneous Industrial Processes

This rule applies to stacks, vents, or outlets emitting particulates from industrial processes with no other applicable standards. The allowable emission rate is in terms of pounds per hour and is calculated using one of the following equations:

*For process rates up to 30 tons per hour:*

$E = 4.10(P)^{0.67}$

*For process rates greater than 30 tons per hour:*

$E = 55.0(P)^{0.11} - 40$

Where:
E = Allowable emission rate in pounds per hour
P = Process weight in tons per hour

Liquid and gaseous fuels and combustion air are not considered as part of the process weight. The IXM membrane coating process (ID No. NS-I) is subject to .0515. According to the original Title V permit review, the process weight for the membrane coating process is less than 30 tons per hour. Therefore, the first equation above applies [$E = 4.10(P)^{0.67}$]. Chemours is required to maintain production records in tons per hour to demonstrate compliance with the allowable emissions limit and include the information in the semiannual summary report. No changes to these requirements are associated with this permit renewal.

## C. 15A NCAC 02D .0516: Sulfur Dioxide Emissions from Combustion Sources

This regulation limits sulfur dioxide emissions from combustion sources to 2.3 lb/million Btu heat input. Fuel combustion sources subject to sulfur dioxide emission standards under new source performance standards (NSPS) or maximum achievable control technology (MACT) standards are required to meet the NSPS or MACT standards instead of this regulation. Although three of the boilers (ID Nos. PS-A, PS-B, and PS-C) are subject to standards under the Boiler MACT (40 CFR 63, subpart DDDDD), it does not contain sulfur dioxide standards; therefore boilers subject to the Boiler MACT will still be required to meet the standards under 02D .0516 (see Section VI for further details). However, one of these boilers (ID No. PS-C) is subject to an NSPS (40 CFR part 60, subpart Dc) and therefore is only subject to standards under 02D .0516 when firing natural gas (the NSPS does not have sulfur dioxide standards that apply when firing natural gas, see Section VI for further details). The temporary boiler (ID No. PS-Temp), is exempted from the boiler NSPS and Boiler MACT (neither one of these standards apply to temporary boilers) and is subject to 02D .0516.

The three boilers subject to 02D .0516 (ID Nos. PS-A, PS-B, and PS-Temp) fire natural gas and No. 2 fuel oil, which have an inherently low sulfur content; therefore, compliance with this rule is expected. Further, for natural gas and No. 2 fuel oil-fired combustion sources, no monitoring/recordkeeping/reporting is required. No changes to the requirements for 02D .0516 are associated with this permit renewal.

## D. 15A NCAC 02D .0521: Control of Visible Emissions

This regulation applies to fuel burning equipment and other process that may have a visible emission. Sources manufactured prior to July 1, 1971 are subject to the 40 percent opacity requirement and those manufactured after July 1, 1971 are subject to the 20 percent opacity requirements under 02D .0521. At Chemours, the following sources are subject to the 20-percent opacity requirements under 02D .0521:

- Three natural gas/No. 2 fuel oil-fired boilers (ID Nos. PS-A, PS-B and PS-Temp) – Sources subject to visible emission standards under NSPS or MACT standards are required to meet the NSPS or MACT standards instead of this regulation. The temporary boiler (ID No. PS-Temp) is exempted from both the NSPS and Boiler MACT. Although the boilers (ID Nos. PS-A and PS-B) are subject to standards under the Boiler MACT, it does not contain visible emission standards; therefore boilers subject to the Boiler MACT are subject to the standards under 02D .0521 (see Section VI for further details). One boiler (PS-A) was manufactured prior to 1971 and is subject to the 40 percent opacity requirement. The other two boilers (PS-B and PS-Temp) are subject to the 20 percent opacity requirement. There are no requirements for monitoring/ recordkeeping/reporting when firing natural gas and No. 2 fuel oil in these boilers.
- Natural gas/No. 2 fuel oil-fired boiler (ID No. PS-C) – This boiler is subject to the Boiler MACT, which does not have visible emissions standards, and to the opacity standards under the NSPS, subpart Dc, which only apply when oil is being combusted [40 CFR 60.43c(c)]. Therefore the boiler is not required to meet the standards under 02D .0521 when oil is being combusted (see Section VI for further details), but is required to meet the 02D .0521 standards when firing natural gas. The current permit (T41) did not contain visible emission requirements under 02D .0521 for this boiler when natural gas was being fired. Therefore, a condition was added to Section 2.1 A.3 requiring the visible emissions from the boiler (ID No. PS-C) to be less than 20 percent opacity when natural gas is being fired. There are no requirements for monitoring/ recordkeeping/reporting when firing natural gas in this boiler.
- Membrane coating process (ID No. NS-I) – this unit is subject to the 20 percent opacity requirement under 02D .0521 and no monitoring/recordkeeping/reporting is required for visible emissions from this source.

No further changes to the requirements for 02D .0521 are associated with this permit renewal.

## E. 15A NCAC 02D .0524: New Source Performance Standards

Chemours is subject to two NSPS under 40 CFR part 60: Subpart Dc and Subpart IIII. One boiler in the permit (ID Nos. PS-C) has not been constructed and will be subject to Subpart Dc, the NSPS for Small Industrial-Commercial-Institutional Steam Generating Units. The temporary boiler (ID No. PS-Temp) is exempt from the NSPS. Chemours has also submitted a permit application for a minor modification to install an emergency generator, which will be subject to

Subpart IIII, the NSPS for Stationary Compression Ignition Internal Combustion Engines. See section VI for further discussion regarding the NSPS.

## F. 15A NCAC 02D .1109: Case-by-Case MACT

This condition applies to three boilers (ID Nos. PS-A, PS-B, and PS-C) at Chemours. The temporary boiler (PS-Temp) is subject to an avoidance condition under 15A NCAC 02Q .0317 (see below) which exempts this boiler from case-by-case MACT. The other boilers are subject to work practice standards when firing No. 2 fuel oil and natural gas. As a part of this renewal, a condition was added to address when the requirements under the revised MACT Subpart DDDDD[3] will take effect. Section 2.1 A.6.c of the existing permit specifies that the boilers be in compliance with the Case-by-Case MACT requirements until May 19, 2019. On May 20, 2019, the Subpart DDDDD will take effect. No further changes to the 112(j) standards are required under this permit renewal. See Section VI for further discussion on Subpart DDDDD.

## G. 15A NCAC 02D .1111: Maximum Achievable Control Technology

Chemours is subject to the following MACT standards:

- National Emission Standards for Hazardous Air Pollutants (NESHAP) for Miscellaneous Organic Chemical Manufacturing (MON), 40 CFR part 63, subpart FFFF.
- NESHAP for Stationary Reciprocating Internal Combustion Engines [40 CFR part 63, Subpart ZZZZ]. Chemours owns and operates one engine subject to the provisions in Subpart ZZZZ (emergency fire engine, ID No. ES33).
- NESHAP for Industrial, Commercial and Institutional Boilers and Process Heaters - Major Sources, 40 CFR part 63, subpart DDDDD.

See section VI for further discussion on NESHAPS/MACT.

## H. 15A NCAC 02D .2100: Risk Management Program

The Chemours facility is subject to the Risk Management program under this regulation and Section 112(r) of the Clean Air Act and shall comply with all applicable requirements in accordance with 40 CFR Part 68. See Section VI.D, below for additional details.

## I. 15A NCAC 02Q .0317: Avoidance Conditions

Chemours has several conditions in their permit to avoid 15A NCAC 02D .0530, Prevention of Significant Deterioration (PSD).

- Limit $NO_X$ and $SO_2$ emissions from one boiler (ID No. PS-B) per consecutive 12-month period.

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[3] The EPA published revised MACT standards on March 21, 2011 for 40 CFR Part 63, Subpart DDDDD and also simultaneously issued a notice of delay and stayed the rule. The Sierra Club appealed EPA's decision to delay the rule in July of 2011. On January 9, 2012, the DC Circuit Court of Appeals rejected the EPA's administrative stay on Subpart DDDDD. As a consequence of the Court's decision, Subpart DDDDD standards are in effect. Any new boilers (as defined under Subpart DDDDD) are now considered to be subject to Subpart DDDDD rather than the Case-by-Case MACT. In November 2015, EPA finalized amendments to the Subpart DDDDD standards.

- Limit VOC emissions from the Vinyl Ethers North process (ID No. NS-B), the resins process (ID No. NS-G), the HFPO process (ID No. NS-A); and the HFPO product container decontamination process (ID No. NS-N) per consecutive 12-month period.
- Limit $SO_2$ emissions from the temporary boiler (ID No. PS-Temp) per consecutive 12-month period.

No changes to these avoidance conditions will be made as a part of this renewal. See Section VI for further discussion regarding PSD.

In addition, Chemours has avoidance conditions related to 15A NCAC 02D .0524, NSPS:

- The sulfur dioxide emission rate from the temporary boiler (ID No. PS-Temp) is limited to 0.060 lb/million Btu by firing natural gas or low sulfur distillate fuel oil.
- The boiler must be capable of moving from one location to another.
- The number of consecutive days the boiler is onsite is limited to 180 days.

The limit on the number of consecutive days the boiler is onsite also allows Chemours to avoid 15A NCAC 02D .1109, Case-by-Case MACT. As a part of this renewal, the Boiler MACT standards will be added to the permit so that after the compliance date of May 20, 2019, Chemours will begin to comply with those standards instead of 02D .1109. The avoidance condition in the permit (Section 2.1 F.6) will not be applied to the Boiler MACT, subpart DDDDD. Temporary boilers are specifically identified as not subject to subpart DDDDD [40 CFR 63.7491(j)]. Therefore, the temporary boiler (ID No. PS-Temp) will be added to a new Section 2.3, Permit Shield for Nonapplicable Conditions. See Section VI for additional information on the Boiler MACT.

Likewise, the NSPS (subpart Dc) was modified in February 2012 (77 FR 9461), and now specifies that temporary boilers are not subject to the subpart [40 CFR 60.40c(i)]. Therefore, the avoidance condition will be removed from the permit and the temporary boiler (ID No. PS-Temp) will be covered under Section 2.3 for the NSPS. Additional information on Subpart Dc is provided in Section VI.

***STATE ENFORCEABLE ONLY***

## J. <u>15A NCAC 02D .1100: Control of Toxic Air Pollutants</u>

Chemours has demonstrated compliance with the acceptable ambient levels (AALs) for several pollutants (see Table in Section 2.2 B.1 of the permit). These pollutants were modeled on a facility-wide basis. In addition, Chemours has demonstrated compliance with the AALs for hydrogen fluorides, which was modeled on a source by source basis. A detailed discussion of the NC Air Toxics is found in Section VII.

## K. <u>15A NCAC 02D .1806: Control and Prohibition of Odorous Emissions</u>

Under this regulation, Chemours is required to implement management practices or install odor control equipment to prevent odors from the facility to cross the facility's boundaries and result in objectionable odors outside the facility. This condition is applicable facility wide. In the current permit (T41), the 02D .1806 conditions are repeated for each individual emissions unit in

Section 2.1. Since this regulation applies facility wide, each individual 02D .1806 condition was removed from Section 2.1 and one condition added to Section 2.2. (Note: the wastewater treatment area, ID No. WTS-A, has installed odor controls and Chemours is required to conduct inspections and maintenance. Therefore this 02D .1806 condition was retained in Section 2.1 E.) No further changes are necessary as part of this renewal.

### L. 15A NCAC 02Q .0711, Emission Rates Requiring a Permit

Chemours triggered a toxics review for over 100 toxic air pollutants. See Section VII for further discussion regarding air toxics.

## VI. REGULATORY REVIEW - FEDERAL RULES (NSPS, NESHAP/MACT, NSR/PSD, 112(R), CAM

### A. New Source Performance Standards

Chemours is subject to two NSPS under 40 CFR Part 60: Subpart Dc (Small Industrial-Commercial- Institutional Steam Generating Units) and Subpart IIII (Stationary Compression Ignition Internal Combustion Engines).

***Small Industrial-Commercial-Institutional Steam Generating Units NSPS, Subpart Dc***
This rule applies to small industrial, commercial, and institutional steam generating units constructed, modified or reconstructed after June 9, 1989, and regulates $SO_2$ and PM (including opacity) emissions from boilers with maximum design capacity of 100 million Btu/hr or less, but greater than 10 million Btu/hr. Chemours has two boilers potentially subject to this NSPS: (1) natural gas/No. 2 fuel oil-fired boiler (ID No. PS-C) and (2) natural gas/No. 2 fuel oil-fired temporary boiler (ID No. PS-Temp).

Subpart Dc was amended in February 2012. Under these amendments, temporary boilers are now exempt from the requirements of Subpart Dc [40 CFR 60.40c(i)]. The NSPS defines temporary boilers as follows:

> *Temporary boiler* means a steam generating unit that combusts natural gas or distillate oil with a potential SO2 emissions rate no greater than 26 ng/J (0.060 lb/million Btu), and the unit is designed to, and is capable of, being carried or moved from one location to another by means of, for example, wheels, skids, carrying handles, dollies, trailers, or platforms. A steam generating unit is not a temporary boiler if any one of the following conditions exists:
> (1) The equipment is attached to a foundation.
> (2) The steam generating unit or a replacement remains at a location for more than 180 consecutive days. Any temporary boiler that replaces a temporary boiler at a location and performs the same or similar function will be included in calculating the consecutive time period.
> (3) The equipment is located at a seasonal facility and operates during the full annual operating period of the seasonal facility, remains at the facility for at least 2 years, and operates at that facility for at least 3 months each year.
> (4) The equipment is moved from one location to another in an attempt to circumvent the residence time requirements of this definition.

Chemours is permitted to operate a temporary boiler (ID No. PS-Temp) and the permit contains an NSPS avoidance condition (see Section V, above). Since the NSPS now states that a boiler meeting the above listed conditions is exempt from the subpart, avoidance conditions are no longer necessary. Therefore, as a part of this renewal, the NSPS avoidance condition will be removed from Section 2.1 F.4, and a new Section 2.3 (Permit Shield for Nonapplicable Requirements) will be added to the permit; under which the temporary boiler exemption will be listed.

The Fayetteville Regional Office (FRO) requested notification within 15 days of startup of the temporary boiler. This requirement was also added to section 2.3.

Subpart Dc also applies to the natural gas/No. 2 fuel oil-fired boiler (ID No. PS-C). As of this permit renewal, construction for this boiler has not commenced. Upon startup, the boiler will have to comply with the $SO_2$ and visible emission standards when No. 2 fuel oil is being fired. The following discusses each of these standards.

*Sulfur Dioxide Standards*

In accordance with NSPS Dc, the sulfur content of the fuel oil fired in the boiler is limited to less than or equal to 0.50 weight percent. Chemours intends to demonstrate compliance with this standard using fuel oil supplier certifications as described under 40 CFR 60.46c(e) for this boiler (ID No. PS-C). The fuel supplier certification must contain (1) the name of the oil supplier, (2) a statement from the oil supplier that the oil complies with the specification under the definition of distillate oil in 40 CFR §60.41c; and (3) a certified statement signed by the Chemours that the records of fuel supplier certification submitted represent all of the No. 2 fuel oil fired during the reporting period.

*Particulate Matter Standards*

Since Chemours is complying with the $SO_2$ limit by combusting only oil that contains no more than 0.50 weight percent sulfur, boiler is not subject to the PM limit in 40 CFR 60.43c [40 CFR 60.43c(e)(4)].

*Opacity Standards*

Under 40 CFR §60.43c(c) the discharging of any gases from the boiler (ID No. PS-C) into the atmosphere that exhibit greater than 20 percent opacity (6-minute average) is prohibited, except for one 6-minute period per hour of not more than 27 percent opacity at all times. This applies when No. 2 fuel oil is combusted in this boiler.

Opacity monitoring is not required when natural gas is fired in the boiler. When fuel oil is fired, a continuous opacity monitoring system (COMS) is required unless otherwise exempted. Section 60.47c(c) states the following:

> "...facilities that burn only distillate oil that contains no more than 0.5 weight percent sulfur...and that do not use a post-combustion technology to reduced SO2 or PM

emissions and that are subject to an opacity standard in §60.43c(c) are not required to operate a COMS if they follow the applicable procedures in §60.48c(f)."

Section 60.48c(f) contains the requirements for fuel supplier certification; therefore, a COMS is not required for the boiler..

As mentioned above, Subpart Dc was amended in February 2012. The 2012 amendments clarify that the following is required when exempted from COMS via the fuel supplier certification compliance method. The Permittee is required to conduct an initial Method 9 observation within 180 days after startup and subsequent Method 9 testing on the following schedule [60.47c(a)]:

- If no VE is observed, within 12 months from the date that the most recent performance test was conducted or within 45 days of the next day a fuel with an opacity standard is combusted, whichever is later.
- If VE are observed but the maximum 6-minute average opacity is $\leq$ 5 percent, within 6 months from the date that the most recent performance test was conducted or within 45 days of the next day a fuel with an opacity standard is combusted, whichever is later.
- If the maximum 6-minute average opacity is >5 and $\leq$ 10 percent, within 3 months from the date that the most recent performance test was conducted or within 45 days of the next day a fuel with an opacity standard is combusted, whichever is later.
- If the maximum 6-minute average > 10 percent within 45 days of the next day a fuel with an opacity standard is combusted, whichever is later.

Section 60.47c(a)(2) and (a)(3) provide the following alternatives:

- If the maximum 6-minute average opacity is less than 10 percent using Method 9 during the most recent performance test, the Permittee may elect to conduct subsequent monitoring using Method 22 as follows:
  - Conduct 10 minute observations (during normal operation) each operating day the affected facility fires fuel for which an opacity standard is applicable using Method 22 of appendix A-7 of this part and demonstrate that the sum of the occurrences of any visible emissions is not in excess of 5 percent of the observation period (i.e., 30 seconds per 10 minute period).
  - If the sum of the occurrence of any visible emissions is greater than 30 seconds during the initial 10 minute observation, immediately conduct a 30 minute observation.
  - If the sum of the occurrence of visible emissions is greater than 5 percent of the observation period (i.e., 90 seconds per 30 minute period), either document and adjust the operation of the boilers/heaters and demonstrate within 24 hours that the sum of the occurrence of visible emissions is equal to or less than 5 percent during a 30 minute observation (i.e., 90 seconds) or conduct a new Method 9 performance test using the within 45 calendar days.
  - Method 22 monitoring can be reduced to once every 7 operating days if no visible emission are observed for 10 operating days when firing No. 2 fuel oil. Daily observations must be resumed if any visible emissions are observed.
- If the maximum 6-minute opacity is less than 10 percent during the most recent Method 9 performance test use a digital opacity compliance system according to an approved site-specific monitoring plan.

The current permit (T41) does not contain this subsequent Method 9 monitoring for the boiler (PS-C). Therefore, as a part of this renewal, the above subsequent Method 9 monitoring schedule was added to the permit.

***Stationary Compression Ignition Internal Combustion Engine NSPS, Subpart IIII***

This NSPS applies to new stationary compression ignition internal combustion engines (ICE), defined as ICE that commenced construction after July 11, 2005, but were manufactured after April 1, 2006. Engines subject to Subpart IIII have certification and fuel requirements.

The potential emissions for the 197-bhp emergency engine (ID No. I-RICE-03) being installed at the Chemours facility were calculated based on 500 hours per year and no pollutants will be emitted greater than 5 tpy or 1,000 lb/yr for HAP. Therefore, this new emergency generator is an insignificant activity as defined under 02D .0503(8) and will be added to the insignificant activities table as an attachment to the permit. Although the emergency generator will have to comply with Subpart IIII, it will not be included as a condition in the permit.[4]

## B. National Emissions Standards for Hazardous Air Pollutants

Chemours is subject to three NESHAP under 40 CFR Part 63: Subpart FFFF (Miscellaneous Organic Chemicals NESHAP); Subpart DDDDD (Boiler MACT); and Subpart ZZZZ (Reciprocating Internal Combustion Engine MACT).

***Miscellaneous Organic Chemicals NESHAP (MON), Subpart FFFF***

The MON applies to each miscellaneous organic chemical manufacturing process unit (MCPU) that produces material or family of materials of organic chemicals classified using specific SIC codes, including SIC code 282 for Plastics Materials and Synthetic Resins. The FPS/IXM process area falls under SIC code 2821, a subset of SIC code 282. During the previous renewal, a detailed analysis describing MON applicability for the FPS/IXM process was presented. The following discussion summarizes that analysis.

There are four MCPUs associated with the FPS/IXM process: (1) the hexafluoropropylene oxide (HFPO) manufacturing process; (2) the Vinyl Ethers North (VEN) process; (3) the Vinyl Ethers South (VES) process; and (4) the polymers process. Generally, the MON has requirements for process vents, storage tanks, transfer racks, equipment leaks, and wastewater. There are no applicable requirements for process vents because the FPS/IXM process does not have any Group 1 process vents or Group 2 process vents with TRE less than or equal to 5.0. Similarly, all of the MACT-affected storage tanks at Chemours are Group 2 storage tanks, for which there are no applicable requirements. The Chemours facility does not have any transfer racks. The MACT requirements for the FPS/IXM process apply to the following: Equipment Leaks; Group 2 Wastewater; and Heat Exchange Systems.

In their renewal application, Chemours did not request modifications to the FPS/IXM process. However, as a part of this renewal, the MON permit conditions were updated to reflect current

[4] At the time the application for the emergency generator was submitted, it was DAQ policy to require that any emission unit subject to a MACT or GACT standard be included in the permitted, despite it qualifying as an insignificant emissions source due to its emissions being less than 5 tpy (or HAP emissions less than 1000 lb/yr). Since then, DAQ policy has changed and the source now qualifies as an insignificant source.

permit language. In several cases, additional language was added to clarify the requirements or to align the requirements with the subpart. In most cases, any revisions to Section 2.1 C.7 were editorial in nature, except for the following more significant changes in language:

- expanded to include more information regarding unsafe-to-monitor, difficult-to-monitor, and unsafe-to-repair provisions.
- modified to specify how the percent leaking pumps is determined.
- updated to include instrument inspection requirements previously in Section 2.1 C.8.w.
- revised to include special provisions for agitators, including unsafe-to-monitor and difficult-to-monitor agitator seals.
- updated to add the exemption for any pressure relief device that is equipped with a rupture disk system.
- modified to include a requirement for Chemours to provide verification that operating conditions for any associated control device have not been exceeded in the event of a new operating scenario being used.

Finally, in their August 31 email with comments on the preliminary draft, Chemours identified an error in the MON requirements for connectors in their permit. According to Chemours, it appeared that the regulatory language from Part 63 Subpart UU for the LDAR requirements was copied, instead of using the regulatory language from the actual Part 63 Subpart FFFF standard. Chemours has been complying with the MON MACT requirements. Specifically, the MON allows owners and operators to comply with the connectors in heavy liquid service in 40 CFR 63.1029 instead of the connectors in light liquid service in 40 CFR 63.1027. Therefore Section 2.1 C.7 was updated to reflect the MON MACT provisions for connectors.

***Boiler MACT, Subpart DDDDD***

Chemours is permitted to operate four boilers (ID Nos. PS-A, PS-B, PS-C, and PS-Temp). As discussed above, these boilers are currently subject to Case-by-Case MACT under 112(j). The 112(j) requirements expire on May 19, 2019, at which time the Boiler MACT standards under 40 CFR part 63, subpart DDDDD will apply. Since this permit will expire in 2020, the Boiler MACT requirements are being added to the permit as a part of this renewal. However, the conditions being added to the permit for Boiler MACT are in a simplistic form. As of this permit issuance, the Boiler MACT is undergoing the reconsideration process and amendments were proposed in December 2014. Therefore, due to the uncertainty of the final rule, the more detailed conditions are not being incorporated into the permit at this time. Once the amendments are finalized, it is recommended that the permit conditions be reviewed and revised as needed during the next significant modification.

All four boilers are currently permitted to burn natural gas and No. 2 fuel oil. However, No. 2 fuel oil is rarely fired at the facility. As a result, Chemours has requested that one existing boiler (ID No. PS-A) and the new boiler (ID No. PS-C, which has not been built) be permitted as being in the "unit designed to burn gas 1 subcategory." The other existing boiler (ID No. PS-B) will be permitted as being in the "unit designed to burn light liquid fuel subcategory." Fuel oil will be retained in the equipment description as being fired in these boilers to preserve the operational flexibility to burn fuel oil at any time when necessary. The temporary boiler (PS-Temp) is exempt from the Boiler MACT as specified under 40 CFR 63.7491(j) and will be included in Section 2.3, Permit Shield for Nonapplicable Requirements, of the permit. It should be noted that

the Boiler MACT allows temporary boilers to be onsite for 12 months. Because this exceeds the 180 days allowed by the NSPS, the Permit Shield states that boiler must follow the NSPS definition of a temporary boiler. The following discussion summarizes the applicable requirements for the permanent Chemours boilers.

*Requirements for the Units Designed to Burn Gas 1 Subcategory*

Two boilers at Chemours (ID Nos. PS-A and PS-C) are being permitted as being in the "unit designed to burn gas-1 subcategory." This subcategory is defined including boilers that burn only natural gas, refinery gas, and/or other gas 1 fuels. The Boiler MACT allows a boiler in this subcategory to burn liquid fuel for no more than 48 hours per year for periodic testing of the liquid fuel, maintenance, or operator training. In addition, fuel oil can be burned during periods of gas curtailment or gas supply interruptions of any duration.

Work Practice Standards: Existing and new boilers in the "unit(s) designed to burn gas 1 subcategory" are not subject to emissions limits. The existing and new boilers (ID Nos. PS-A and PS-C) are subject to work practices. Both existing and new boilers are required to conduct periodic boiler tune-ups. Because the boilers are (or will be in the case of boiler PS-C) equipped with oxygen trim systems, the boilers will have to be tuned-up every five years. The first tune-up for the existing boiler (ID No. PS-A) will be required on or before the compliance date of May 20, 2019, and then every five years (not more than 61 months after the previous tune-up). The first tune-up for the new boiler (ID No. PS-C) will have be no more than 61 months after initial startup of the unit [40 CFR 63.7515(d)]. In addition, Chemours will be required to perform a one-time energy assessment on the existing boiler (ID No. PS-A) no later than the compliance date of May 20, 2019. Compliance with the work practice standards will be demonstrated by records documenting the boiler tune-ups and the energy assessment.

Notification, Recordkeeping and Reporting Requirements: Chemours will be required to submit notifications when using fuel oil during periods of curtailment or natural gas supply interruptions. Chemours will be required maintain records of fuel usage and records associated with demonstration of compliance the work practice standards. Recordkeeping and reporting are also required for boilers in this subcategory.

*Requirements for the Units Designed to Burn Light Liquid Fuel Subcategory*

One boiler (ID No. PS-B) is being permitted as being in the "unit designed to burn light liquid fuel subcategory." This subcategory is defined as boilers that that burn any liquid fuel, but less than 10 percent coal/solid fossil fuel and less than 10 percent biomass/bio-based solid fuel on an annual basis or in combination with gaseous fuels. The boilers in this subcategory also have less than 10 percent of the heat input from liquid fuels on an annual basis comes from heavy liquids, such as residual fuel and any other liquid fuel not classified as distillate oil, biodiesel, or vegetable oil.

Emission Standards. The boiler (ID No. PS-B) is subject to emission standards for hydrogen chloride (HCl), mercury (Hg), CO, and Filterable PM (or total suspended metals, TSM). Subpart DDDDD includes compliance options for boilers:

- Comply with an alternative TSM limit instead of the PM limit;
- Comply with an output-based limit instead of an input-based limit;
- Comply with alternate CO CEMS-based limit instead of CO stack-based limit;
- Comply with Hg, HCl, and/or TSM limits by fuel analysis instead of performance stack tests;
- Comply by emissions averaging; and
- Earn efficiency credits from implementation of energy conservation measures to comply with output based-limits.

Chemours has requested compliance options for the boiler (ID No. PS-B). They requested that the boiler be permitted to comply with the Hg, HCl, and TSM limits by fuel analysis instead of performance testing. They will not be installing a CO CEMS, so they will comply with the CO stack-based limit. The boiler will also be permitted to comply with the heat input limits and will not use the emissions averaging and efficiency credit options provided by Subpart DDDDD.

Based on these options, compliance with the emission standards will be demonstrated using performance testing for CO with operating parameter limits based on oxygen concentration and boiler load and fuel analysis for Hg, HCl, and TSM with fuel usage monitoring.

Work Practice Standards. The boiler (ID Nos. PS-B) is also subject to work practice standards under Subpart DDDDD. The boiler will be required to conduct periodic boiler tune-ups. The boiler is equipped with an oxygen trim system and will have to be tuned-up every five years (not more than 61 months after the previous tune-up). The first tune-up for the boiler (ID No. PS-B) will be required on or before the compliance date of May 20, 2019. Chemours will also be required to perform a one-time energy assessment on the boiler (ID No. PS-B) no later than the compliance date of May 20, 2019. Compliance with the work practice standards will be demonstrated by records documenting the boiler tune-ups and the energy assessment.

Notification, Recordkeeping and Reporting Requirements: Chemours will be required to submit notifications of performance tests and performance evaluations. Chemours will be required maintain records of fuel usage and records associated with demonstration of compliance the work practice standards. Recordkeeping and reporting are also required for boilers in this subcategory.

***Reciprocating Internal Combustion Engine (RICE) MACT, Subpart ZZZZ***

Subpart ZZZZ applies to new and existing stationary reciprocating internal combustion engines (RICE) located at both major and area sources. A new RICE (for those with site rating equal to or less than 500 bhp and located at major sources) is defined as one that commenced construction on or after June 12, 2006. According to §63.6590(c)(6), a new emergency RICE with a site rating less than or equal to 500 bhp must meet the requirements of Subpart ZZZZ by meeting the requirements of NSPS Subpart IIII.

As discussed above, Chemours submitted a permit application for a minor modification to add a 197-bhp emergency generator (ID No. I-RICE-03). The emergency generator is subject to the MACT standard and compliance will be demonstrated by demonstrating compliance with NSPS Subpart IIII. However, as discussed in Section VI.A, above, this emergency generator is an

insignificant activity and will be on the insignificant activities table and will not have permit conditions.

## C. New Source Review/Prevention of Significant Deterioration

Chemours is located in Bladen County, which is a designated attainment/unclassified area for all pollutants regulated by the New Source Review (NSR) permitting program. In the current permit, Chemours has several PSD avoidance conditions which limit emissions from emission sources:

- Limit $SO_2$ and $NO_X$ emissions from one boiler (ID No. PS-B);
- Limit VOC emissions from the VEN process (ID No. NS-B);
- Limit VOC emissions from the resins process (ID No. NS-G);
- Limit VOC emissions from the HFPO process (ID No. NS-A);
- Limit VOC emissions from the HFPO product container decontamination process (ID No. NS-N);
- Limit $SO_2$ emissions from the temporary boiler (ID No. PS-Temp);
- Limit total $SO_2$ emissions from the four boilers (ID Nos. PS-A, PS-B, PS-C, and PS-Temp).

In Section 2.1 C.3.c, the monitoring/recordkeeping condition specifies how the VOC emissions for the previous calendar month are to be calculated. In their June 9, 2015, email, Chemours noted that requiring the use of a measured flow rate was too restrictive and they requested that the permit condition be revised to allow for measured or estimated flow rate. Upon review of this condition, it was determined that specifying how the process vent mass flow rates were calculated was not necessary. Therefore, Section 2.1 C.3.c(i) was revised to remove "Using measured vent flow rates and assumed compositions…."

In Section 2.1 C.5.c, the monitoring/recordkeeping condition specifies an equation for calculating the process VOC emissions ($E_P$, in lb/month). As discussed in Section I, Chemours is proposing to add solvent reclamation converters to the HFPO process (ID No. NS-A). This would include an additional process vent that will be controlled in the scrubber (ID No. NCD-HDR1 or NCD-HDR2). Therefore, the equation in Section 2.1 C.5.c(iii) was edited to include the VOC emissions from the solvent reclamation converters process vent ($E_{SRC}$) to the VOC emission calculation.

No further changes to these PSD avoidance conditions are necessary under this renewal.

## D. Section 112(r)

The 1990 Clean Air Act Amendments established provisions in Title 1, Part A, Section 112(r) for the prevention and mitigation of accidental chemical releases. The EPA published regulations under 40 CFR Part 68, "Chemical Accident Prevention Provisions." The goal of Part 68, and the risk management program required under Part 68, is to prevent accidental releases of substances that can cause serious harm to the public and the environment from short-term exposures and to mitigate the severity of releases that do occur.

Any tank, drum, container, pipe, or other "process" at a facility that contains any of the extremely hazardous toxic and flammable substances listed in 40 CFR 68.130 in an amount above the "threshold quantity" specified for that substance, the facility is required to develop and implement a risk management program (RMP).

According to the most recent 112(r) inspection report (March 9, 2015), Chemours owns and operates three processes that are subject to Section 112(r) and 40 CFR Part 68. However, one of these processes, Polyvinyl Fluoride Manufacturing is no longer owned or operated by the Chemours facility and was removed from the permit issued November 24, 2015. Therefore, Table 2 presents the two remaining processes reported in the facility's RMP.

**Table 2. Processes Subject to 112(r) and Included in the Chemours Risk Management Program**

| Process Description | Chemical Involved | Quantity of Chemical (lb) | Program Level |
|---|---|---|---|
| FPS/IXM Manufacturing Process | Sulfur Trioxide | 59,400 | 3 |
| TFE Process | Tetrafluoroethylene | 61,000 | 1 |

The Permittee is required to revise and update the RMP submitted under 40 CFR 68.150 once every five years, according to the requirements specified in 68.190(b)(2) through (b)(7). The latest RMP was submitted on August 18, 2014. As part of this permit renewal, the 112(r) language in the permit was modified to indicate the date of the most recent plan revision and the next renewal date. No further changes to the permit were necessary as part of this renewal.

## E. Compliance Assurance Monitoring

The compliance assurance monitoring (CAM) rule requires owners and operators to conduct monitoring to provide a reasonable assurance of compliance with applicable requirements under the act. Monitoring focuses on emissions units that rely on pollution control device equipment to achieve compliance with applicable standards. An emission unit is subject to CAM, under 40 CFR Part 64, if all of the following three conditions are met:

- The unit is subject to any (non-exempt, e.g., pre-November 15, 1990, Section 111 or 112 standard) emission limitation or standard for the applicable regulated pollutant.
- The unit uses any control device to achieve compliance with any such emission limitation or standard.
- The unit's pre-control potential emission rate exceeds 100 percent of the amount required for a source to be classified as a major source; i.e., either 100 tpy (for criteria pollutants) or 10 tpy of any individual/25 tpy of any combination of HAP.

In addition, an emissions unit is not subject to CAM if the unit is subject to one of the following emissions limitations or standards:

- Emission limitations or standards proposed by the Administrator after November 15, 1990 pursuant to section 111 or 112 of the Act.
- Stratospheric ozone protection requirements under title VI of the Act.
- Acid Rain Program requirements pursuant to sections 404, 405, 406, 407(a), 407(b), or 410 of the Act.
- Emission limitations or standards or other applicable requirements that apply solely under an emissions trading program approved or promulgated by the Administrator under the Act that allows for trading emissions within a source or between sources.
- An emissions cap that meets the requirements specified in §70.4(b)(12) or §71.6(a)(13)(iii) of this chapter.
- Emission limitations or standards for which Title V permit contains a continuous compliance determination method, as defined in 40 CFR 64.1, unless the applicable compliance method includes an assumed control device emission reduction factor that could be affected by the actual operation and maintenance of the control device (e.g., a surface coating line controlled by an incinerator for which continuous compliance is determined by calculating emissions on the basis of coating records and an assumed control device efficiency factor based on an initial performance test; in this example, this part would apply to the control device and capture system, but not to the remaining elements of the coating line, such as raw material usage).

Table 3 presents an analysis of the permitted emissions units from Section 1 of the permit. As shown in the table, CAM does not apply to the Chemours facility.

**Table 3. Compliance Assurance Monitoring Analysis**

| Emission Source ID No. | Emission Source Description | Control Device | Regulated Pollutant(s) | Applicable Standards | Pre-control PTE (tpy) | Is CAM Applicable? | CAM Disqualification/ Exemptions |
|---|---|---|---|---|---|---|---|
| *UNITS FOR WHICH CAM IS NOT APPLICABLE* | | | | | | | |
| PS-A | Natural gas/No. 2 fuel oil-fired boiler | None | PM | 2D .0503 | NA | No | These units do **not** use a control device to achieve compliance with an emission limitation or standard. *[CAM is not applicable pursuant to 15A NCAC 02D .0614(a)(2)]* |
| | | | VE | 2D .0521 | | | |
| | | | $SO_2$ | 2D .0516 | | | |
| | | | HAP | MACT | | | |
| PS-B | Natural gas/No. 2 fuel oil-fired boiler | None | PM | 2D .0503 | NA | No | |
| | | | VE | 2D .0521 | | | |
| | | | $SO_2$ | 2D .0516 | | | |
| | | | HAP | MACT | | | |
| PS-C | Natural gas/No. 2 fuel oil-fired boiler | None | PM | 2D .0503 | NA | No | |
| | | | VE | NSPS | | | |
| | | | $SO_2$ | NSPS | | | |
| | | | HAP | MACT | | | |
| PS-Temp | Natural gas/No. 2 fuel oil-fired temporary boiler | None | PM | 2D .0503 | NA | No | |
| | | | VE | 2D .0521 | | | |
| | | | SO2 | 2D .0516 | | | |
| NS-H | IXM membrane process | None | HAP/VOC | None | NA | No | |
| NS-I | IXM membrane coating | None | PM | 2D .0515 | NA | No | |
| | | | VE | 2D .0521 | | | |
| NS-K | E-2 Process | None | HAP/VOC | None | NA | No | |
| NS-M | TFE/$CO_2$ separation process | None | HAP/VOC | None | NA | No | |
| NS-N | HFPO product container decontamination process | None | HAP/VOC | None | NA | No | |

| Emission Source ID No. | Emission Source Description | Control Device | Regulated Pollutant(s) | Applicable Standards | Pre-control PTE (tpy) | Is CAM Applicable? | CAM Disqualification/ Exemptions |
|---|---|---|---|---|---|---|---|
| NS-O | Vinyl Ethers North product container decontamination process | None | HAP/VOC | None | NA | No | |
| NS-P | Vinyl Ethers South product container decontamination process | None | HAP/VOC | None | NA | No | |
| SW-1 | Semiworks polymerization operation | None | HAP/VOC | None | NA | No | |
| SW-2 | Semiworks laboratory hood | None | HAP/VOC | None | NA | No | |
| WTS-A | Extended aeration biological wastewater treatment facility | None | HAP/VOC | None | NA | No | |
| NS-D | RSU Process | Scrubber | TAP | None | NA | No | The control device is **not** used to achieve compliance with an applicable emission limitation or standard. *[CAM is not applicable pursuant to 15A NCAC 02D .0614(a)(2)]* |
| NS-E | FPS Liquid waste stabilization | Scrubber | TAP | None | NA | No | |
| NS-F | MMF Process | Scrubber | TAP | None | NA | No | |
| AS-A | Polymer Processing Aid Process | Scrubber | TAP | None | NA | No | |
| WTS-B, WTS-C | Two (2) Indirect steam-heated rotary sludge dryers | Scrubber | Odor | None | NA | No | |
| ***UNITS FOR WHICH CAM IS APPLICABLE BUT ARE EXEMPT FROM CAM*** | | | | | | | |
| NS-A | Hexfluoropropylene epoxide (HFPO) process | Scrubber | HAP/VOC | MACT (Subpart FFFF) | NA | No | This unit **is** subject to a MACT standard proposed after November 5, 1990 *[Exempt from CAM pursuant to 15A NCAC 02D .0614(b)(1)(A)]* |
| NS-B | Vinyl Ethers North process | Scrubber | HAP/VOC | MACT (Subpart FFFF) | NA | No | |
| NS-C | Vinyl Ethers South process | Scrubber | HAP/VOC | MACT (Subpart FFFF) | NA | No | |
| NS-G | IXM Resins process | Scrubber | HAP/VOC | MACT (Subpart FFFF) | NA | No | |

## VII. FACILITY WIDE AIR TOXICS

The current Chemours permit (T41) contains allowable emission limits for 103 toxic air pollutants. For 89 of these TAP, the allowable emission limits were based on a 1995 modeling demonstration. This modeling demonstration was revised in 2001 to add metals, revise the limits for aniline, ethylenediamine, methylene chloride (lb/hr), and tetrachlorodibenzo-p-dioxin. The analyses were based on a "worst case stack," which was used to define the worst-case ambient concentration in $\mu g/m^3$ associated with an emission rate of 1 lb/hr as a conservative modeling approach for facility-wide emissions. Allowable emissions were then back-calculated such that the predicted impact was 95 percent of the associated AAL.

This procedure was sufficient for all TAPs that are actually emitted except for HF. For HF emissions to show compliance, they were allocated between stacks. Emissions sufficient to produce 70% of the AAL were allocated to the worst-case stack, and emissions sufficient to produce 25% of the AAL were allocated to a stack that is an actual source of HF. Potential emissions of HF from facility-wide sources (less the one stack) were modeled to be significantly

below the resulting facility-wide emission rate. Potential emissions of HF from the single stack are also significantly below the allowable emission rate.

These modeling analyses were conducted for the facility as it existed in 1995 and 2001. Since that time, the facility has sold several of its process lines, and therefore, the actual emissions from the facility are lower than they were estimated to be for the modeling. As such, compliance with the toxics limits is expected and no changes will be necessary.

However, a review of the toxics limits and their origin revealed two errors in the table in Section 2.2 B.1.a that appear to have been made inadvertently. They are as follows:

- The allowable acrylonitrile emissions limit is 240 lb/hr. According to the original 1995 modeling analysis, the allowable is 240 lb/yr, and agrees with the original permit issued following the modeling analysis.
- The allowable trichlorofluoromethane emissions limit is 491,077 lb/day. However, the AAL for trichlorofluoromethane is an hourly standard. According to the 1995 modeling analysis, the hourly emissions limit should have been 8,185 lb/hr.

These changes to the table in Section 2.2 B.1.a were approved by Chemours in their January 11, 2016, email. No further changes to the toxics limits are necessary under this renewal.

## VIII. FACILITY EMISSIONS REVIEW

There is no increase in the Title V potential emission for this renewal. Actual emissions for 2010 through 2013 as reported in the emission inventories are presented in the table at the beginning of this permit review.

## IX. COMPLIANCE STATUS

The DAQ has reviewed the compliance status of this facility. During the most recent inspection, conducted on March 13, 2015, by Mr. Greg Reeves of the FRO, the facility appeared to be in compliance with all applicable requirements.

## X. PUBLIC NOTICE/EPA AND AFFECTED STATE(S) REVIEW

A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit and each final permit pursuant shall be provided to EPA. Also pursuant to 02Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice provided to the public under 02Q .0521 above.

The State of South Carolina is an affected area within approximately 50 miles of the facility.

Notice of the DRAFT Title V Permit to Affected States ran from February 29, 2016, to March 20, 2016. *Update with comments from Affected States, if any were received.*

Public Notice of the DRAFT Title V Permit ran from February 29, 2016, to March 20, 2016. *Update with comments from Public, if any were received.*

EPA's 45-day review period ran concurrent with the 30-day Public Notice, from February 29, 2016, to April 14, 2016. *Update with comments, if any were received from EPA and U.S. EPA Region 4 regarding the DRAFT Title V Permit.*

## XI. OTHER REGULATORY CONSIDERATIONS

**PE Seal**

Pursuant to 15A NCAC 02Q .0112 "Application requiring a Professional Engineering Seal," a professional engineer's seal (PE Seal) is required to seal technical portions of air permit applications for new sources and modifications of existing sources as defined in Rule .0103 of this Section that involve:

(1) design;
(2) determination of applicability and appropriateness;
(3) or determination and interpretation of performance; of air pollution capture and control systems.

A professional engineer's seal (PE Seal) was **NOT** required for this renewal.

**Zoning**

A Zoning Consistency Determination per 02Q .0304(b) was **NOT** required for this renewal.

## XII. CONCLUSIONS, COMMENTS, AND RECOMMENDATIONS

The comments from FRO on the application were received on May 8, 2014, and indicate that the application appeared in good order and the facility was in compliance. Comments on the application were incorporated (and discussed above in the regulatory review, when necessary).

The draft permit and air permit review were reviewed, and comments were received from FRO on January 19, 2016. The comments on both the permit and review have been incorporated into the documents.

This permit modification application for Chemours, in Fayetteville, Bladen County, North Carolina has been reviewed by NC DAQ to determine compliance with all procedures and requirements. NC DAQ has determined that this facility appears to be complying with all applicable requirements. The DAQ recommend issuance of Air Permit No. 03735T42.