

**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: Christy Richardson
Date of Last Inspection: 05/12/2009
Compliance Code: 3 / In Compliance - Inspection

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|---|--|--|---|
| Facility Data | | | Permit Applicability (this application only) |
| <p>Applicant (Facility's Name): DuPont Company - Fayetteville Works</p> <p>Facility Address: DuPont Company - Fayetteville Works 22828 NC Highway 87 West Fayetteville, NC 28302</p> <p>SIC: 3081 / Unsupported Plastics Film And Sheet NAICS: 326113 / Unlaminated Plastics Film and Sheet (except Packaging) Manufacturing</p> <p>Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V</p> | | | |
| Contact Data | | | Application Data |
| Facility Contact | Authorized Contact | Technical Contact | <p>Application Numbers: 0900009.08B, 0900009.08C, & 0900009.08E Date Received: 04/08/2008, 04/17/2008, & 12/09/2008 Application Type: Significant Modification (Part II), Renewal, and Significant Modification (Part II) Application Schedule: TV-Renewal Existing Permit Data Existing Permit Number: 03735/T34 Existing Permit Issue Date: 01/15/2009 Existing Permit Expiration Date: 01/31/2009</p> |
| Michael Johnson Environmental Manager (910) 678-1155 22828 NC Highway 87 West Fayetteville NC, 28306+7332 | Karen Wrigley Plant Manager (910) 678-1546 22828 NC Highway 87 West Fayetteville NC, 28306+7332 | Michael Johnson Environmental Manager (910) 678-1155 22828 NC Highway 87 West Fayetteville NC, 28306+7332 | |
| <p>Review Engineer: Fern Paterson, P.E.</p> <p>Review Engineer's Signature: _____ Date: _____</p> | | <p style="text-align: center;">Comments / Recommendations:</p> <p>Issue 03735/T35 Permit Issue Date: _____ Permit Expiration Date: _____</p> | |

I. Purpose of Application

The North Carolina Division of Air Quality (NC DAQ) received an application for renewal of its Title V Air Quality Permit on April 17, 2008 (Application No. 0900009.08C). No permit revisions were requested as part of the renewal application. However, NC DAQ consolidated the renewal applications with two "Part II" significant modification applications, as follows:

Application No.
0900009.08B

Date Received
April 8, 2008

Purpose of Application
Operate Polyvinyl Fluoride (PVF) Manufacturing Facility No. 2 (ID No. FS-C). This facility was issued a permit using procedures in 15A NCAC 2Q .0501(c)(2) in August 2008.

Operate a new boiler (**ID No. PS-C**), allow natural gas firing in existing boilers, and permit various decontamination processes (**ID Nos. NS-N, NS-O, and NS-P**). These sources were issued a permit using procedures in 15A NCAC 2Q .0501(c)(2) in January 2008.

II. Permit Modifications/Changes

The following table describes the modifications to the current permit.

| Page(s) | Section | Description of Change(s) |
|---------|-----------------------------|---|
| 1 | Permit Cover Page | Amend permit revision numbers and issuance/effective dates. |
| Global | Global | Change boiler ID Nos., as follows: <ul style="list-style-type: none"> • ID No. PS-1 → PS-A • ID No. PS-2 → PS-B |
| 3-5 | Section 1, Table | <ul style="list-style-type: none"> • Add ID Nos. BS-F & BS-G, which were previously included on the insignificant activity list (ID Nos. I-B1 & I-B2). • Remove ID No. BS-D, which is not longer at the facility. • Add MACT FFFF designations to all Butacite® sources. • Remove all footnotes regarding modification procedures and Title V shield applicability. |
| 10-11 | Section 2.1 A.5. | Revise PSD avoidance condition to include only NO _x and SO ₂ and update monitoring provisions to include specific compliance demonstration methodology. |
| 14-15 | Section 2.1 B.4. | <ul style="list-style-type: none"> • Remove MACT KK requirements. All affected printing operations (ID No. BS-D) have been removed from the facility. • Add MACT FFFF requirements. |
| 17-18 | Section 2.1 C.4. | Update PSD avoidance condition to include specific compliance demonstration methodology. |
| 18-19 | Section 2.1 C.5. | Update PSD avoidance condition to include specific compliance demonstration methodology. |
| 19-20 | Section 2.1 C.6. | Update PSD avoidance condition to include specific compliance demonstration methodology. |
| 20 | Section 2.1 C.7. | <i>(Formerly identified as 2.1 C.6, in error)</i> Update PSD avoidance condition to include specific compliance demonstration methodology. |
| 20-27 | Section 2.1 C.8 | Add facility-specific MACT FFFF requirements to the permit. |
| N/A | <i>Former</i> Section 2.1.D | Remove ID No. FS-A, which no longer operating at the facility. |

III. Statement of Compliance

The DAQ has reviewed the compliance status of this facility. On May 12, 2009, Ms. Christy Richardson (FRO) conducted a site inspection of the facility. At this time, the facility appeared to be operating in compliance with all applicable requirements as provided in the air quality permit.

On January 6, 2009, the facility was issued a Notice of Violation (NOV)/Notice of Recommendation for Enforcement (NRE) for operating the decontamination sources (**ID Nos. NS-N, NS-O, and NS-P**) without a permit. DuPont is seeking to permit these sources as part of this application.

In November 2007, the facility was issued a NOV for failure to submit a Part II significant modification application in a timely manner. Note that the required application was submitted and received by NC DAQ on October 11, 2007, and a revised permit was issued on January 24, 2008.

IV.

Regulatory Review

- A. **Natural Gas/No. 2 fuel oil/No. 6 fuel oil-fired boiler (ID No. PS-A), 139.4 million Btu per hour maximum heat input,**
Natural Gas/No. 2 fuel oil/No. 6 fuel oil-fired boiler (ID No. PS-B), 88.4 million Btu per hour maximum heat input, and
Natural Gas/No. 2 fuel oil-fired boiler (ID No. PS-C) equipped with a low-NOx burner, 97 million Btu per hour maximum heat input.

1. Applicable Regulatory Requirements:

- 15A NCAC 2D .0503
- 15A NCAC 2D .0516
- 15A NCAC 2D .0521
- 15A NCAC 2D .0524 (ID No. PS-C, only)
- 15A NCAC 2Q .0317 (PSD Avoidance)

2. Changes per the Title V Permit Renewal

a. **Change of Nomenclature**

All references to Boiler ID No. PS-1 have been changed to PS-A.
All references to Boiler ID No. PS-2 have been changed to PS-B.

b. **Update the Existing PSD Avoidance Condition for Boiler No. 2 (ID No. PS-B)**

The existing PSD Avoidance condition for Boiler No. 2 includes limits for PM, PM-10, SO₂, and NO_x. The permit is revised to include only SO₂ and NO_x emission limits. NO_x is a limiting pollutant, and using NC DAQ-approved estimation procedures, the boiler cannot exceed the PM/PM-10 limits without first violating the NO_x limit. Therefore, limiting the NO_x emission is sufficient to ensure that the boiler will not emit PM/PM-10 at rates at or above the PSD significant emission rates. The SO₂ PSD avoidance condition has been left in place. The proposed permit was also updated to include required emission estimation methods to define the monthly compliance determination method.

3. Revisions Per Application No. 0900009.08E

DuPont added natural gas firing capabilities to existing boilers (**ID Nos. PS-A and PS-B**). The boilers are not NSPS-affected boilers based on their construction dates, and were already permitted to fire No. 2 and No. 6 fuel oil. The boilers were capable of accommodating natural gas fuel firing, but DuPont will had to install a natural gas supply line to the facility. Per 40 CFR 60.14(e)(14), the addition of a new fuel source is NOT an NSPS modification, provided the existing facility was designed to accommodate the additional fuel. This modification did not trigger any additional requirements.

DuPont is also permitted a new natural gas/No. 2 fuel oil fired package boiler (**ID No. PS-C**) with a maximum heat input of 97 MMBtu/hr.

i. 15A NCAC 2D .0503 – Particulates from Fuel Burning Indirect Heat Exchangers

This regulation limits particulate matter (PM) emissions from the firing of fuel in indirect heat exchangers (in lb/mmBtu) based on the facility-wide heat input. The PM limit for the new boiler (**ID No. PS-C**) is determined by summing the heat input of the existing boilers with the maximum allowable heat input rate of the new boiler. The PM limit for the temporary boiler shall be 0.2268 lb/mmBtu, as demonstrated below:

| <u>Boiler ID No.</u> | <u>Heat Input Rate</u> |
|-------------------------|------------------------|
| ID No. PS-A | 139.4 mmBtu/hr |
| ID No. PS-B | 88.4 mmBtu/hr |
| ID No. PS-Temp | 100.0 MMBtu/hr |
| <u>ID No. PS-C</u> | <u>97.0 MMBtu/hr</u> |
| Total Heat Input | 424.8 mmBtu/hr |

PM Limit, as calculated pursuant to 15A NCAC 2D .0503(c)

$$E = 1.090(Q)^{-0.2594}$$

Where: E = Allowable emission limit for PM (in lb/mmBtu); and,
Q = Maximum heat input in MMBtu/hr

$$E = 1.090(424.8)^{-0.2594}$$

$$E = 0.2268$$

PM emissions from the worst-case fuel (No. 2 fuel oil) are estimated to be less than 0.03 lb/mmBtu using AP-42 emission factors, as follows:

$$\frac{\left(2 \frac{\text{lbPM}_{\text{filterable}}}{1,000 \text{ gal}} + 1.3 \frac{\text{lbPM}_{\text{condensable}}}{1,000 \text{ gal}} \right)}{140 \frac{\text{mmBtu}}{1,000 \text{ gal}}} = 0.024 \frac{\text{lbPM}_{\text{total}}}{\text{mmBtu}}$$

Because worst-case PM emission rates are estimated to be less than the allowable PM emission rate, no monitoring, recordkeeping, or reporting is required to demonstrate compliance with this limitation.

- ii. 15A NCAC 2D .0524 – 40 CFR 60, Subpart Dc, NSPS for Small Industrial-Commercial-Institutional Steam Generating Units – This regulation is applicable to boilers that commenced construction, reconstruction, or modification after June 9, 1989 AND that have a maximum heat input capacity equal to or greater than 10 million Btu per hour and less than or equal to 100 million Btu per hour (i.e., 10 mmBtu/hr \leq Q \leq 100 mmBtu/hr). The new boiler (**ID No. PS-C**) is affected by this NSPS.

The affected boiler is affected by the following emission standards:

- Sulfur Dioxide. The maximum sulfur content of any fuel oil received and fired in the Subpart Dc-affected boiler shall not exceed 0.5 percent by weight. To demonstrate compliance with this standard, the Permittee is required to retain copies of each fuel supplier certification, including the sulfur content of the oil (in percent by weight). The Permittee is also required to submit a semiannual report summarizing the monitoring activities (January 30th and July 30th).
- Visible Emissions. For any Subpart Dc-affected boiler with a maximum heat input capacity of greater than or equal to 30 million Btu per hour, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period, except for one six-minute period per hour of not more than 27 percent opacity. To demonstrate compliance with this standard, the Permittee is required to conduct a Method 9 opacity observation within 60 days of installing the unit. There are notification and test reporting requirements associated with this observation.

In addition, the affected boiler is required to keep a monthly record of the quantity of each fuel fired pursuant to 40 CFR 60.48c(g)(2), as follows:

“As an alternative to meeting the requirements of paragraph (g)(1) of this section, the owner or operator of an affected facility that combusts only natural gas, wood, fuels using fuel certification in §60.48c(f) to demonstrate compliance with the SO₂ standard, fuels not subject to an emissions standard (excluding opacity), or a mixture of these fuels may elect to record and maintain records of the amount of each fuel combusted during each calendar month.”

- iii.

15A NCAC 2Q .0317 – Avoidance Conditions for 15A NCAC 2D .0530; Prevention of Significant Deterioration – DuPont is located in Bladen County, which is a designated attainment/unclassified area for all pollutants regulated by the New Source Review (NSR) permitting program. Therefore, emissions increases associated with proposed construction activities must be evaluated to determine whether the Prevention of Significant Deterioration (PSD) program applies as provided in 15A NCAC 2D .0530. DuPont, which is a chemical processing plant with a 100-tpy major source threshold, is an existing major source under the PSD program.

In August 2008 (Permit No. 03735T33), the Permittee limited allowable SO₂ emissions from the three existing boilers (**ID Nos. PS-A, PS-B, and PS-Temp**) to no greater than 702.5 tpy in order to avoid PSD permitting for the proposed addition of a new Polyvinyl Fluoride (PVF) Manufacturing Line (**ID No. PS-C**). Because the new boiler will have the potential to provide steam to the new PVF line, SO₂ emissions from the proposed, new boiler (**ID No. PS-C**) must be added to SO₂ emissions from the existing boilers to demonstrate compliance with the existing PSD avoidance condition. Section 2.2.A.1. of the draft permit has been modified to include the new boiler in the monthly compliance demonstration for the existing PSD avoidance condition.

Emissions increases resulting from the installation of the new boiler and use of natural gas at the existing boilers are less than the significant emission rates for all PSD regulated pollutants, as shown in the table provided below. The new boiler increases the reliability of steam supply for the site, and does not debottleneck any process at the plant. Therefore, no PSD permitting was required for the proposed boiler, nor was the new boiler restricted by any new PSD avoidance limitations.

Table. Summary of Potential Emissions Increases

| Line | | Potential Emissions Increases Emissions (tpy) | | | | |
|--|--|---|-----------------|-----------------|-----------|-----------|
| | | PM-10 | SO ₂ | NO _x | CO | VOC |
| Potential Emissions Increases From Existing Boilers (ID Nos. PS-A, PS-B, and PS-Temp) | | | | | | |
| 1 | Past-Potential Boiler Emissions | N/A | N/A | N/A | 43.45 | 1.73 |
| 2 | Future-Potential Emissions Assuming 100% Natural Gas Firing | N/A | N/A | N/A | 100.22 | 6.56 |
| 3 | Potential Emissions Increase (Line 1 + Line 2) | N/A | N/A | N/A | 56.77 | 4.83 |
| Potential Emissions Increases From New Boiler (ID No. PS-C) | | | | | | |
| 4 | New Natural Gas/No. 2 Fuel Oil Fired Boiler (ID No. PS-C) | 3.17 | 0.25 | 20.83 | 34.99 | 2.29 |
| Total Emissions Increases | | | | | | |
| 5 | Total Emissions Increases (Line 3 + Line 4) | 3.17 | 0.25 | 20.83 | 91.76 | 7.12 |
| PSD Applicability Analysis | | | | | | |
| 6 | PSD Significant Emission Rate | 15 | 40 | 40 | 100 | 40 |
| 7 | PSD Permitting Required? | No | No | No | No | No |

NOTES:

- All emissions estimated using AP-42 emission factors and assuming natural gas has a heat content of 1,020 Btu/scf.
- No increased steam demand was anticipated as part of this proposed project. Therefore, to determine the worst-case emission increase resulting from this proposed modification, NC DAQ determined the existing-potential emission rate (from fuel oil firing) and compared it to the future-potential emission rate (from natural gas firing). The temporary, back-up boiler (**ID No. PS-Temp**) is only brought on-site when there is a need (e.g., when other boilers have maintenance problems) and has never operated for more than 2,000 hours in a calendar year (CY2004). Actual emissions increases for this boiler assume only 4,380 hours operation per year. No emissions increases are estimated for PM-10, SO₂, or NO_x because the emission factor (in lb/MMBtu) for these pollutants is lower for natural gas than currently permitted fuel oils.
- NO_x emissions for the new boiler (**ID No. PS-C**) are calculated using the emission factor for low-NO_x burners.

B. Butacite® Process Area

- Applicable Regulatory Requirements:
 - 15A NCAC 2D .0515
 - 15A NCAC 2D .0521
 - 15A NCAC 2D .1806 (State-Enforceable Only)
 - 15A NCAC 2D .1111 (40 CFR 63, Subpart FFFF)

2. Changes per the Title V Permit Renewal

a. **Remove Polyvinyl Butyral Sheetting Rotogravure Printing Operation (ID No. BS-D) and associated spray scrubber (ID No. BCD-D1)**

This emission source is no longer operational. The source was affected by 40 CFR 63, Subpart KK (MACT for the Printing and Publishing Industry). These requirements have been entirely removed from the proposed permit.

b. **Move PVA Dissolving System Batch Vents (i.e., PVA Unloading, Silos, & Dissolver Tank Systems) from the insignificant activity list to the body of the permit, and rename the systems. (ID No. I-B1 becomes BS-1; ID No. I-B2 becomes BS-2)**

These emission sources are affected Group 2 process vents under 40 CFR 63, Subpart FFFF (NESHAP for Misc. Organic Chemical Manufacturing).

c. **15A NCAC 2D .1111; 40 CFR 63, Subpart FFFF (Section 2.1 B.4) NESHAP for Miscellaneous Organic Chemical Manufacturing (“MON”)**

The Butacite® Polyvinyl Butyral Process has two affected existing miscellaneous organic chemical manufacturing process units (MPCUs), including the Butacite® PVA Dissolving System (**ID Nos. BS-1 & BS-2**)¹ and the Butacite® PVB Reactor System, which includes the remaining Butacite® process vents. Both MCPU’s are batch operations and total uncontrolled HAP emissions from both sources are less than 10,000 lbs/year. As defined in 40 CFR 63.2550, both existing MCPU’s are Group 2 process vents.

There are no control requirements for Group 2 batch process vents. However, pursuant to 40 CFR 63.2525(e), such sources must retain daily records of the completed batches and monthly records of total emissions (or total batches, correlated to total emissions) from each affected MCPU.

As provided in DuPont’s pre-compliance report, to demonstrate compliance with the standard, DuPont’s records must show that annual PVA production from Butacite® PVA Dissolving System (**ID Nos. BS-1 & BS-2**) is no greater than 59,000,000 lbs and annual PVA usage at the Butacite® PVB Reactor System to no greater than 50,857,000 lbs.

Wastewater.

Wastewater is generated from both the Butacite® MCPU’s that contains methanol, a HAP listed on Table 9 of 40 CFR 63, Subpart FFFF. Because the concentration of methanol in the wastewater falls well below the Group 1 threshold of 30,000 ppmw (with concentrations ranging between 8 ppmw and 2,500 ppmw), Butacite® process wastewater is classified as Group 2. There are no control requirements for Group 2 wastewater. However, pursuant to 40 CFR 63.2485(a) and 40 CFR 63.147(b)(8), the facility must retain a record identifying the stream, HAP concentration, and flowrate.

Heat Exchangers

The only use of cooling water in the Butacite® process is for cooling process reflux condensers. Because the process flues in both MCPUs have HAP concentrations less than 5% HAP by weight, there are not requirements for the heat exchangers pursuant to 40 CFR 63.104(a)(6).

¹ It is arguable that **ID Nos. BS-1**, which includes a PVA unloading system and storage silos, is not affected under 40 CFR 63, Subpart FFFF. Per 40 CFR 63.2550, an MPCU “includes any, all or a combination of reaction, recovery, separation, purification, or other activity, operation, manufacture, or treatment which are used to produce a product or isolated intermediate.” However, DuPont has included these sources in the MCPU in their precompliance report and notification of compliance status, and NC DAQ has included them in the proposed permit as affected sources.

C. Nafion® Process Area

1. Applicable Regulatory Requirements:

- 15A NCAC 2D .0515
- 15A NCAC 2D .0521
- 15A NCAC 2D .1806 (State-Enforceable Only)
- 15A NCAC 2D .1100 (State-Enforceable Only)
- 15A NCAC 2D .1111 (40 CFR 63, Subpart FFFF)
- 15A NCAC 2Q .0317 (PSD Avoidance)

2. Changes per the Title V Permit Renewal

a. **15A NCAC 2D .0317; PSD Avoidance Condition (Section 2.1 C.4) Vinyl Ethers North Process (ID No. NS-B); VOC emissions limited to less than 68.9 tpy**

This section of the permit was updated to specify required emission estimation methods for determining compliance with the emission limitation on a monthly basis.

b. **15A NCAC 2D .0317; PSD Avoidance Condition (Section 2.1 C.5) Resins Process (ID No. NS-G); VOC emissions limited to less than 40 tpy**

This section of the permit was updated to specify required emission estimation methods for determining compliance with the emission limitation on a monthly basis.

c. **15A NCAC 2D .0317; PSD Avoidance Condition (Section 2.1 C.6) HFPA Process (ID No. NS-A); VOC emissions limited to less than 85.3 tpy**

This section of the permit was updated to specify required emission estimation methods for determining compliance with the emission limitation on a monthly basis.

d. **15A NCAC 2D .1111; 40 CFR 63, Subpart FFFF (Section 2.1 C.7) NESHAP for Miscellaneous Organic Chemical Manufacturing (“MON”)**

The Nafion® processes at this facility manufacture plastic materials classified under SIC code 2821, and are therefore existing affected sources under the “MON”.² The initial compliance date for the sources was May 10, 2008. The proposed permit has been updated to include facility-specific “MON” requirements for these affected sources. Facility-specific compliance information was obtained from the Notification of Compliance Statute (NOCS) report, required by the rule, which was received by NC DAQ on October 3, 2008.

Affected miscellaneous organic chemical manufacturing process units (MCPUs) at the Nafion® process area include the following:

- **MCPU-1:** Hexafluoropropylene oxide (HFPO) manufacturing process (**ID No. NS-A**). This process uses benzene and toluene, which are both regulated HAP.
- **MCPU-2:** Vinyl Ethers North (VEN) process (**ID No. NS-B**) manufactures the isolated chemical intermediates “Dimer” and “Diadduct”, both of which are acid fluorides, in a continuous process. The Dimer process uses acetonitrile and the Diadduct process uses glycol ether.
- **MCPU-3:** Vinyl Ethers South (VES) process (**ID No. NS-C**) manufactures the isolated chemical intermediates “PMPF” and “PEPF”, both of which are acid fluorides, in a continuous process. The process uses acetonitrile.
- **MCPU-4:** Polymers process manufactures a copolymer in a continuous polymerization process. The process uses methanol in concentrations of 1%-2% by weight.

² On the initial compliance date, DuPont also owned and operated various Butacite® manufacturing processes that were affected by the MON. However, these processes are no longer operated at the facility.

Neither halides nor halogen HAP compounds are processed, used, or generated from the affected Nafion® sources.

Process Vents. All process vents at this facility are associated with continuous process operations. Affected “continuous process vents” are defined in 40 CFR 63.2550, and include the requirement that the exhaust stream contains total HAP at a concentration greater than 0.005% by weight at the point of discharge to the atmosphere (or at the point of entry into a control device, if any). Multiple process vents at the facility have total HAP concentrations of 0.005% by weight or less, and are therefore not affected vents (Either Group 1 or Group 2).

Group 1 continuous process vents at existing sources are defined in 40 CFR 63.2550 as having a flow rate ≥ 0.005 standard cubic meters per minute (scmm) and a TRE Index Value (calculated according to the 40 CFR 63.2455(b)) ≤ 1.9 . No process vents at the facility meet the Group 1 criteria for continuous process vents in 40 CFR 63, Subpart FFFF. The following table provides the basis for the vent/group determination for each process vent at the facility.

| Emission Source with Associated Process Vent | Source Determination | Basis |
|---|--|---|
| HFPO Process | | |
| Solvent Recycle Tank | Not a “Continuous Process Vent” | Total HAP concentration < 0.005%, as determined by process modeling and mass balance. |
| Oxidation Column No. 3 | Not a “Continuous Process Vent” | Total HAP concentration < 0.005%, as determined by process modeling and mass balance. |
| VEN Process | | |
| Catalyst Tank | Group 2 Continuous Process Vent | Flow rate < 0.005 scmm, as calculated using process information. |
| Reactor Vent Condenser | Not a “Continuous Process Vent” | Total HAP concentration < 0.005%, as determined by lab analysis. |
| SOR Condenser | Not a “Continuous Process Vent” | Total HAP concentration < 0.005%, as determined by process modeling and mass balance. |
| AF Overhead Receiver | Not a “Continuous Process Vent” | Total HAP concentration < 0.005%, as determined by process modeling and mass balance. |
| ABR Feed Tank | Not a “Continuous Process Vent” | Total HAP concentration < 0.005%, as determined by process modeling and mass balance. |
| VES Process | | |
| Catalyst Tank | Group 2 Continuous Process Vent | Flow rate < 0.005 scmm, as calculated using process information. |
| Reactor Vent Condenser | Not a “Continuous Process Vent” | Total HAP concentration < 0.005%, as determined by process modeling and mass balance. |
| Stripper Column Condenser | Not a “Continuous Process Vent” | Total HAP concentration < 0.005%, as determined by process modeling and mass balance. |
| AF Overhead Receiver | Not a “Continuous Process Vent” | Total HAP concentration < 0.005%, as determined by process modeling and mass balance. |
| Polymers Process | | |
| Recirculation Tank | Group 2 Continuous Process Vent | TRE > 350, as calculated using process information. |

| Emission Source with Associated Process Vent | Source Determination | Basis |
|---|---------------------------------|---|
| Recycle Tank Condenser | Not a “Continuous Process Vent” | Total HAP concentration < 0.005%, as determined by process modeling and mass balance. |
| Recovery Tank | Not a “Continuous Process Vent” | Total HAP concentration < 0.005%, as determined by process modeling and mass balance. |

There are no Group 1 continuous process vents at this facility. Further, there are no Group 2 process vents with a TRE less than or equal to 5.0. Therefore, there are no applicable requirements for the process vents in Table 1 of 40 CFR 63, Subpart FFFF and the requirements of 40 CFR 63.2455 are not applicable.

Storage Tanks. Group 1 storage tanks at an existing source have a capacity greater than or equal to 10,000 gallons and store a material that has a maximum true vapor pressure (MTVP) of total HAP greater than or equal to 1.0 psia. All MACT-affected tanks at this facility have a storage capacity of less than 10,000 gallons, and are therefore Group 2 storage tanks. There are no applicable requirements for Group 2 storage tanks.

Transfer Racks. There are not transfer racks or loading arms in organic liquid service in any of the Nafion® MCPUs. There are no transfer rack requirements applicable to this facility.

Equipment Leaks. In the Notification of Compliance Status, the facility indicated that they have agitators, pumps, valves, connectors, and pressure relief valves in light liquid/vapor service that are affected by the equipment leak requirements in 40 CFR 63, Subpart FFFF in each of the four affected MCPUs. A table summarizing the types of affected equipment is provided below:

| Type | Qty in Vapor Service | Qty in Light Liquid Service | Qty in Heavy Liquid Service | Total Quantity |
|------------------------|-----------------------------|------------------------------------|------------------------------------|-----------------------|
| Agitators | 1 | 0 | 0 | 1 |
| Pumps | 0 | 16 | 0 | 16 |
| Valves | 0 | 598 | 0 | 598 |
| Connectors | 0 | 2164 | 0 | 2164 |
| Pressure Relief Valves | 15 | 0 | 0 | 15 |

Equipment leak provisions for each of these types of fugitive emission sources have been added to the proposed permit.

Wastewater

The only Nafion® process area that produces wastewater is MCPU-4, the polymer manufacturing process. Wastewater generated from MCPU-4 contains methanol, a HAP listed on Table 9 of 40 CFR 63, Subpart FFFF. Because the concentration of methanol in the wastewater falls well below the Group 1 threshold of 30,000 ppmw (with concentrations no greater than 4,300 ppmw), the process wastewater is classified as Group 2. There are no control requirements for Group 2 wastewater. However, pursuant to 40 CFR 63.2485(a) and 40 CFR 63.147(b)(8), the facility must retain a record identifying the stream, HAP concentration, and flowrate.

Heat Exchangers

A heat exchanger system is defined in 40 CFR 63.101 as any cooling tower system or once-through cooling water system. The only use of cooling water in the Nafion® process is at MCPU-1, the HFPO process (**ID No. NS-A**). This MCPU includes two closed-loop cooling systems, which are not affected sources. It also includes two once-through systems that are affected sources, which contains four individual heat exchangers, is for cooling process reflux condensers. Because the process flues in

both MCPUs have HAP concentrations less than 5% HAP by weight, there are not requirements for the heat exchangers pursuant to 40 CFR 63.104(a)(6).

3. Revisions per Application No. 0900009.08E

a. Description of Process/Modification

DuPont added the existing HFPO Product Container Decontamination Process, in which product containers that are returned from customers are decontaminated by venting residual product to the atmosphere, to the permit.³ The residual product (hexafluoropropylene oxide) is a regulated VOC. Potential emissions from the decontamination process are estimated to be 100.3 tons VOC per year. The process does not emit any federally-regulated hazardous air pollutants (HAPs) or state-regulated toxic air pollutants (TAPs).

DuPont added the existing Vinyl Ethers Product Container Decontamination Processes, in which product containers that are returned from customers are decontaminated by venting residual products to the atmosphere, to the permit.⁴ The residual products (perfluoropropyl vinyl ether, ester vinyl ether, and perfluorinated sulfonyl vinyl ether) are regulated VOCs. Potential emissions from the decontamination processes (combined) are estimated to be 31.3 tons VOC per year.

b. 15A NCAC 2Q .0317 – Avoidance Conditions for 15A NCAC 2D .0530; Prevention of Significant Deterioration

Potential emissions from the HFPO Product Container Decontamination Process exceed 40 tpy of VOC. To avoid PSD permitting pursuant to 15A NCAC 2D .0530, DuPont is requesting an enforceable 40 tpy VOC emission limitation on the decontamination process pursuant to 15A NCAC 2Q .0317.

c. 15A NCAC 2D .1806: Control and Prohibition of Odorous Emissions (State-Enforceable Only)

This standard forbids the Permittee from operating these processes without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility's boundary. No new requirements have been added to the draft permit to demonstrate compliance with 15A NCAC 2D .1806.

D. Fluoroproducts polymer manufacturing development facility (ID No. FS-A) controlled by a wet scrubber (ID No. FCD-A1) and fabric filter (ID No. FCD-A2)

1. Applicable Regulatory Requirements:

- 15A NCAC 2D .0515
- 15A NCAC 2D .0521
- 15A NCAC 2D .1806 (State-Enforceable Only)
- 15A NCAC 2Q .0317 (PSD Avoidance)

2. Changes per the Title V Permit Renewal

**a. 15A NCAC 2D .0317; PSD Avoidance Condition (Section 2.1 D.4)
VOC emissions limited to less than 40 tpy**

This section of the permit was updated to specify required emission estimation methods for determining compliance with the emission limitation on a monthly basis.

³ The product is actually vented to a gaseous absorber (ID No. NCD-Hdr1), but because HFPO is not water soluble, it is assumed that no emission reduction occurs, and all vented HFPO is released to the atmosphere.

⁴ The products are actually vented to gaseous absorbers (ID Nos. NCD-Hdr1 and NCD-Hdr2), but because they are not water soluble, it is assumed that no emission reduction occurs, and all vented VOC is released to the atmosphere.

E. APFO manufacturing facility (ID No. AS-A) controlled by a wet scrubber (ID No. ACD-A1) and a building exhaust vent wet scrubber (ID No. ACD-A3) (voluntary use only)

1. Applicable Regulatory Requirements:
 - 15A NCAC 2D .1806 (State-Enforceable Only)
 - 15A NCAC 2D .1100 (State-Enforceable Only)
2. Changes per the Title V Permit Renewal

No changes were made to this section of the permit.

F. Wastewater Treatment Area consisting of an extended aeration biological wastewater treatment facility (ID No. WTS-A) and two indirect steam-heated rotary sludge dryers (ID Nos. WTS-B and WTS-C) controlled by a wet scrubber with mist eliminator (ID No. WTCD-1)

1. Applicable Regulatory Requirements:
 - 15A NCAC 2D .1806 (State-Enforceable Only)
2. Changes per the Title V Permit Renewal

No changes were made to this section of the permit.

G. Temporary Boiler (ID No. PS-Temp), Natural Gas/No. 2 fuel oil-fired (greater than 30.0 and less than 100.0 million Btu per hour maximum heat input)

1. Applicable Regulatory Requirements:
 - 15A NCAC 2D .0503
 - 15A NCAC 2D .0524 (ID No. PS-C, only)
 - 15A NCAC 2Q .0317 (PSD Avoidance)
2. Changes per the Title V Permit Renewal

No changes were made to this section of the permit.

H. SentryGlas® Manufacturing (ID No. SGS-A)

1. Applicable Regulatory Requirements:
 - 15A NCAC 2D .0521
 - 15A NCAC 2D .1806 (State-Enforceable Only)
2. Changes per the Title V Permit Renewal

No changes were made to this section of the permit.

I. Polyvinyl Fluoride Polymer Manufacturing Area

1. Applicable Regulatory Requirements:
 - 15A NCAC 2D .0515
 - 15A NCAC 2D .0521
 - 15A NCAC 2D .1806 (State-Enforceable Only)
 - 15A NCAC 2Q .0317 (PSD Avoidance)
2. Changes per the Title V Permit Renewal

No changes were made to this section of the permit.

V. Non-Applicable Regulations

A. 40 CFR 63, Subpart HHHHHH; Area Source Paint Stripping & Coating MACT

The Fayetteville Works paint operations (ID Nos. I-09 and I-10) are not subject to the Area Source Paint Stripping & Coating MACT in 40 CFR 63, Subpart HHHHHH.

The facility does not:

- Perform paint stripping using methylene chloride ("MeCl") for the removal of dried paint (including, but not limited to, paint, enamel, varnish, shellac, and lacquer) from wood, metal, plastic, and other substrates.
- Perform spray application of coatings to motor vehicles and mobile equipment including operations that are located in stationary structures at fixed locations, and mobile repair and refinishing operations that travel to the customer's location, except spray coating applications that meet the definition of facility maintenance in §63.11180.
- Perform spray application of coatings that contain any of the target HAPs⁵ (chromium, lead, manganese, nickel or cadmium) to a plastic and/or metal substrate on a part or product, except spray coating applications that meet the definition of facility maintenance or space vehicle in §63.11180.

VI. Compliance Assurance Monitoring

Pursuant to 15A NCAC 2D .0614, the provisions of the Compliance Assurance Monitoring (CAM) rule are applicable to emission units that meet all of the following criteria:

- Criteria #1: The unit is subject to a non-exempt emission limitation or standard AND uses a control device to achieve compliance with the limit or standard;
- Criteria #2: The unit has pre-control potential emissions that are equal to or greater than 100% of the amount (in tpy) required for a source to be classified as a major source (i.e., 100 tpy of any criteria pollutant or 10 tpy of any HAP, North Carolina); and,
- Criteria #3: The unit does not have a continuous compliance determination method (CCDM), as defined in 40 CFR 64.1, specified in the permit.

Exempt emission limitations are provided 15A NCAC 2D .0614(b)(1), and include NSPS/MACT standards proposed after Nov. 15, 1990, statopheric ozone protection and acid rain requirements, and trading program and emissions caps applicable under 15A NCAC 2Q.

As summarized in the following Table, the facility does not include any controlled emission sources with an uncontrolled PTE greater than Title V major source thresholds, and therefore is not subject to the CAM provisions in 15A NCAC 2D .0614.

Table – CAM Applicability Summary

| Emission Unit | Criteria #1: Control device reqd. to comply with a non-exempt limit? | Criteria #2: Pre-control PTE ≥100% of major source thresholds? | Criteria #3: CCDM as provided in 40 CFR 64.1? | CAM Source? |
|----------------------|---|---|--|--------------------|
| PS-A | No (Uncontrolled) | - | - | No |
| PS-B | No (Uncontrolled) | - | - | No |
| PS-C | No (Uncontrolled) | - | - | No |
| PS-Temp | No (Uncontrolled) | - | - | No |
| BS-1 | No (Uncontrolled) | - | - | No |
| BS-2 | No (Uncontrolled) | - | - | No |
| BS-A | No (Post-1990 MACT, Only) | - | - | No |

⁵ A review of MSDSs for the coatings did not identify any of the affected metals listed. However, MSDS information does not list compounds that are less than 1% by weight. Based on the best information available about the coatings used at the facility, NC DAQ has determined that the coatings are not affected under 40 CFR 63, Subpart HHHHHH.

| Emission Unit | Criteria #1: Control device reqd. to comply with a non-exempt limit? | Criteria #2: Pre-control PTE ≥100% of major source thresholds? | Criteria #3: CCDM as provided in 40 CFR 64.1? | CAM Source? |
|-------------------------|---|---|--|--------------------|
| BS-B1.1 through BS-B1.4 | No (Post-1990 MACT, Only) | - | - | No |
| BS-B2.1 through BS-B2.4 | No (Post-1990 MACT, Only) | - | - | No |
| BS-C | No (Post-1990 MACT, Only) | - | - | No |
| BS-E1 | No (Post-1990 MACT, Only) | - | - | No |
| BS-E2 | No (Post-1990 MACT, Only) | - | - | No |
| BS-E3 | No (Uncontrolled) | - | - | No |
| BS-E4 | No (Uncontrolled) | - | - | No |
| NS-A | No (Post-1990 MACT, Only) | - | - | No |
| NS-B | No (Post-1990 MACT, Only) | - | - | No |
| NS-C | No (Post-1990 MACT, Only) | - | - | No |
| NS-D | No (Post-1990 MACT, Only) | - | - | No |
| NS-E | No (Post-1990 MACT, Only) | - | - | No |
| NS-F | No (Post-1990 MACT, Only) | - | - | No |
| NS-G | No (Post-1990 MACT, Only) | - | - | No |
| NS-H | No (Uncontrolled) | - | - | No |
| NS-I | No (Uncontrolled) | - | - | No |
| NS-J | No (Uncontrolled) | - | - | No |
| NS-K | No (Uncontrolled) | - | - | No |
| NS-L | No (State TAP, Only) | - | - | No |
| NS-M | No (Uncontrolled) | - | - | No |
| NS-N | No (Uncontrolled) | - | - | No |
| NS-O | No (Uncontrolled) | - | - | No |
| NS-P | No (Uncontrolled) | - | - | No |
| SW-1 | No (Uncontrolled) | - | - | No |
| SW-2 | No (Uncontrolled) | - | - | No |
| FS-A | No (Odors and Avoidance Conditions, Only) | - | - | No |
| AS-A | No (Odors and State TAP, Only) | - | - | No |
| WTS-A | No (Uncontrolled) | - | - | No |
| WTS-B | No (Odors, Only) | - | - | No |
| WTS-C | No (Odors, Only) | - | - | No |
| SGS-A | No (Uncontrolled) | - | - | No |
| FS-B | No (Uncontrolled) | - | - | No |
| FS-C | No (Uncontrolled) | - | - | No |

Applicable Standard Notes:

- (1) PSD avoidance conditions, applicable pursuant to 15A NCAC 2Q .0317. PSD avoidance conditions are exempt pursuant to 15A NCAC 2D .0614(b)(E).
- (2) Miscellaneous Organic NESHAP (“MON”) requirements pursuant to 15A NCAC 2D .1111 and 40 CFR 63, Subpart FFFF. This standard was proposed after Nov. 15, 1990, and is exempt pursuant to 15A NCAC 2D .0614(b)(E).

VII. Permit History:

The following list provides a very brief summary of permit revisions for this facility:

| <u>Permit No.</u> | <u>Issuance Date</u> | <u>Description of Revision</u> |
|-------------------|----------------------|---|
| 03735T23 | July 2003 | Initial Title V Permit |
| 03735T24 | January 2004 | Administrative amendment to the permit related to the permit effective date. |
| 03735T25 | February 2004 | Modification to add a temporary No. 2 fuel oil-fired boiler (ID No. PS-Temp). |
| 03735T26 | May 2004 | Administrative amendment to the permit related to modify permit organization, thereby improving permit clarity. |
| 03735T27 | December 2004 | Modification to add a SentryGlas® Plus manufacturing process (ID No. SGS-A), change the description of the existing wastewater treatment plant, and revise various monitoring requirements for existing scrubbers. |
| 03735T28 | January 2006 | Administrative amendment to change the required annual compliance certification due date from January 30 to March 1. |
| 03735T29 | June 2006 | Modification to add a polyvinyl fluoride polymer manufacturing facility (ID No. FS-B) and an insignificant polyvinyl fluoride vacuuming system for housekeeping purposes (ID No. I-1). |
| 03735T30 | September 2006 | Replace an existing internal scrubber at the hexafluoropropylene epoxide (HFPO) process (ID No. NS-A) in the Nafion® Process Area (debottlenecking). |
| 03735T31 | October 2007 | Modification to authorize (1) the installation of a wet scrubber (ID No. ACD-A3) on the building exhaust vent at the ammonium perfluorooctanoate (APFO) manufacturing facility (ID No. AS-A) and (2) add a tetrafluoroethylene (TFE) / carbon dioxide (CO ₂) separation process (ID No. NS-M). |
| 03735T32 | January 2008 | “Part 2” Significant modification for the temporary rental boiler (ID No. PS-Temp) and the hexafluoropropylene oxide (HFPO) manufacturing facility (ID No. NS-A). Also authorize changes at the existing Butacite® Extruder Lines (ID Nos. BS-E1 and BS-E2). |
| 03735T33 | August 2008 | “Part 1” significant modification to construct and operate Polyvinyl Fluoride (PVF) Manufacturing Facility No. 2 (ID No. FS-C) and various insignificant activities. |
| 03735T34 | January 2009 | “Part 1” significant modification to construct and operate a new boiler (ID No. PS-C), allow natural gas firing in existing boilers, and permit various decontamination processes (ID Nos. NS-N, NS-O, and NS-P). |

VIII. Proposed Permit Review Summary

- Mr. Tien Nguyen (FRO) was provided a copy of the draft permit for review on November 13, 2009.
- Mr. Michael Johnson (DuPont) was provided a draft permit for review on November 13, 2009.
- Ms. Katy Forney and Ms. Gracy DeNois (U.S. EPA, Region IV) were provided a draft permit for review on **<ENTER DATE AND SUMMARY>**.

IX. Other Regulatory Considerations

- The application fee for Application No. 0900009.08B (\$867.00) was received on April 8, 2008.
- The application fee for Application No. 0900009.08E (\$867.00) was received on December 9, 2008.
- Reduction and Recycling Forms were received on April 8, 2008 and December 9, 2008.
- A Professional Engineers Seal is NOT required for this application.
- Zoning consistency determinations were received by the DAQ on April 8, 2008 and December 9, 2008.

X. Recommendations

The permit modification application for E.I. du Pont de Nemours & Co., LLC, located in Duart Township, 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.

Issue Permit No. 03735T35