Louisville Metro Air Pollution Control District
701 West Ormsby Avenue, Suite 303
Louisville, Kentucky 40203-3137

xx Month 2016

Title V Statement of Basis

Owner/Source: E.I. du Pont de Nemours and Company

Plant Location: 4250 Camp Ground Road, Louisville, Kentucky 40216

Date Application Received: 02/06/2009 **Application Number:** 11197

Public Comment Date: xx/xx/2016

District Engineer: Shannon Hosey **Permit No:** 82-09-C (R1)

Plant ID: 1912 **SIC Code:** 2869 & 2819 **NAICS**: 325188 & 325199

Introduction:

This permit will be issued pursuant to: (1) Regulation 2.16, (2) Title 40 of the Code of Federal Regulations Part 70, and (3) Title V of the Clean Air Act Amendments of 1990. Its purpose is to identify and consolidate existing District and Federal air requirements and to provide methods of determining continued compliance with these requirements.

Jefferson County is classified as an attainment area for lead (Pb), nitrogen dioxide (NO_2), carbon monoxide (CO), 1 hr and 8 hr ozone (O_3), and particulate matter less than 10 microns (PM_{10}); and is a non-attainment area for the 1997 standard for particulate matter less than 2.5 microns ($PM_{2.5}$), unclassifiable for the 2012 standard for particulate matter less than 2.5 microns ($PM_{2.5}$) and partial non-attainment area for sulfur dioxide (SO_2).

Application Type/Permit Activity:

[ ] Initial Issuance
[X] Permit Revision
  [ ] Administrative
  [ ] Minor
  [X] Significant
[ ] Permit Renewal

Compliance Summary:

[X] Compliance certification signed
[ ] Source is out of compliance
[ ] Compliance schedule included
[X] Source is operating in compliance

I. Source Information

1. Product Description: E.I. du Pont de Nemours and Company, Inc. manufactures vinyl fluoride.

2. Process Description: Construction Permit 82-09-C is being reissued to remove the 100 gpm liquor flow limit and the pH range.

3. Site Determination: E.I. du Pont de Nemours and Company, Inc. split into two separate companies. The majority of the processes were retained by the Chemours Company FC, LLC and E.I. du Pont retained Emission Unit U6, VF Process. Both companies are in the same major industrial grouping. Chemours owns all of the property bounded by the current E.I. du Pont site and E.I. du Pont will lease the portion of the property where Emission Unit U6 is located. Chemours and E.I. du Pont are their own independent companies and do not share any common ownership or control. Each facility's operations will be conducted by its own employees, with its own equipment, under its own permits, and in compliance with its own corporate directions and policies. Each company is a separate source.

4. Emission Unit Summary:

Emission Unit	Equipment Description
U6 – VF Process	Vinyl fluoride production

5. Fugitive Sources: There are fugitive emissions of VOCs from the VF process.

6. Permit Revisions:

Revision No.	Permit No.	Issue Date	Public Notice Date	Change Type	Change Scope	Description
Initial	82-09-C	08/18/2009	-	Initial	Entire Permit	Initial Permit Issuance
R1	82-09-C (R1)	xx/xx/2016	xx/xx/2016	Significant Revision	Entire Permit	Removing the 100 gpm liquor flow limit and the pH range; Updating TAC language

7. Emission Summary:

Pollutant	District Calculated Actual Emissions (tpy) 2014 Data	Pollutant that triggered Major Source Status (based on PTE)
CO	1.48	No
NO_x	1.76	No
SO_2	0.01	No
PM_{10}	0.03	No
VOC	4.38	No
Total HAPs	1.81	No
Single HAP > 1 tpy Hydrogen Fluoride	1.78	No*

* Source is a major due to applicability of a major source MACT at the time of the compliance date for the NESHAP (40 CFR 63 Subpart FFFF).

8. Applicable Requirements:

[ ] PSD	[X] 40 CFR 60	[X] SIP	[X] 40 CFR 63
[ ] NSR	[ ] 40 CFR 61	[X] District-Origin	[ ] Other

9. Referenced Federal Regulations in Permit:

40 CFR 63 Subpart FFFF	National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing
40 CFR 63 Subpart SS	National Emission Standards for Closed Vent Systems, Control Devices, Recovery Devices and Routing to a Fuel Gas System or Process Heaters
40 CFR Subpart 68	Chemical Accident Prevention Provisions

II. Regulatory Analysis

1. Acid Rain Requirements: E. I. DuPont de Nemours & Co. is not subject to the Acid Rain Program.

2. Stratospheric Ozone Protection Requirements: Title VI of the CAAA regulates ozone depleting substances and requires a phase out of their use. This rule applies to any source that manufactures, sells, distributes, or otherwise uses any of the listed chemicals. E. I. DuPont de Nemours & Co. does not manufacture, sell, or

distribute any of the chemicals listed in Title VI of the CAAA. The source's use of listed chemicals is that in fire extinguishers, chillers, air conditioners and other HVAC equipment.

3. Prevention of Accidental Releases 112(r): E. I. DuPont de Nemours & Co. stores and processes vinyl fluoride in excess of the 10,000 pound threshold quantity and hydrogen fluoride (at greater than 50% concentration) in excess of the 1,000 pounds threshold quantity, and therefore, is required to comply with 40 CFR 68, *Chemical Accident Prevention Provisions*, Subpart G, *Risk Management Plan* and Regulation 5.15, *Chemical Accident Prevention Provisions*. A Plan was received on September 8, 2015.

4. Basis of Regulation Applicability

a. **Plant-wide**

Regulation 2.03, section 6.1 requires sufficient monitoring, record keeping, and reporting to assure ongoing compliance with the terms and conditions of the permit. The owner or operator shall maintain all the required records for a minimum of 5 years and make the records readily available to the District upon request.

Regulations 5.00 5.20, 5.21, and 5.23 (STAR Program) establishes requirements for environmental acceptability of toxic air contaminants (TACs) and the requirement to comply with all applicable emission standards.

b. **Applicable Regulations**

Regulation	Title	Type
2.03	Authorization to Construct or Operate; Demolition/Renovation Notices and Permit Requirements	SIP
2.16	Title V Operating Permits	SIP
5.00	Standards for Toxic Air Contaminants and Hazardous air Pollutants, Definitions (STAR)	Local
5.01	General Provisions (STAR)	Local
5.02	Adoption and Incorporation by Reference of National Emissions Standards for Hazardous Air Pollutants	Local
5.14	Hazardous Air Pollutants and Source Categories	Local
5.15	Chemical Accident Prevention Provisions	Local
5.20	Methodology for Determining Benchmark Ambient	Local

Regulation	Title	Type
	Concentration of a Toxic Air Contaminant (STAR)	
5.21	Environmental Acceptability for Toxic Air Contaminants (STAR)	Local
5.22	Procedures for Determining the Maximum Ambient Concentration of a Toxic Air Contaminant (STAR)	Local
5.23	Categories of Toxic Air Contaminants (STAR)	Local
6.24	Standard of Performance for Existing Sources Using Organic Materials	SIP
7.02	Adoption of Federal New Source Performance Standards	SIP
7.25	Standards of Performance for New Sources Using Volatile Organic Compounds	SIP
40 CFR 63 Subpart A	General Provisions	Federal
40 CFR 63 Subpart FFFF	National Emission Standards for Organic Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing	Federal
40 CFR 63 Subpart SS	National Emission Standards for Closed Vent Systems, Control Devices, Recovery Devices and Routing to a Fuel Gas System or Process	Federal
40 CFR 68	Chemical Accident Prevention Provisions	Federal

c. **Basis for Applicability**

Regulation	Basis for Applicability
2.03	Establishes the requirements for permits to construct and operate and demolition/renovation and permits.
2.16	Title V source
5.02	Adoption and Incorporation by Reference of National Emission Standards for Hazardous Air Pollutants
5.14	Hazardous Air Pollutants and Source Categories
5.15	Chemical Accident Prevention Provisions
5.21	Establishes the criteria for determining the environmental acceptability of emissions of toxic air contaminants.
6.24	Applies to any affected facility using any organic materials which was in being or had a construction permit issued by the District prior to the effective date of this regulation except when a specific regulation exists for the source.
7.02	Adoption of Federal New Source Performance Standards

Regulation	Basis for Applicability
7.25	Establishes the requirements for VOC emissions from new processes that commence construction after December 16, 1987
40 CFR 63 Subpart A	These standards regulate specific categories of stationary sources that emit (or have the potential to emit) one or more hazardous air pollutants.
40 CFR 63 Subpart FFFF	Establishes national emission standards for hazardous air pollutants (NESHAP) for miscellaneous organic chemical manufacturing. Notification of Compliance Status submitted April 17, 2009
40 CFR 63 Subpart SS	Applies when another subpart references the use of this subpart for such air emission control. Includes requirements for closed vent systems, control devices and routing of air emissions to a fuel gas system or process.
40 CFR 68	Chemical Accident Prevention Provisions

d. **Emission Unit U6 -** VF Process

i. **Equipment:**

Emission Point	Description	Installation Date	Applicable Regulation
Unit U6000 Emission Points			
CL-405	Distillation Column with Condenser (C-405) and Reboiler (BR-405)	2009	STAR, 5.15, 7.25, 40 CFR 63 Subpart FFFF
CL-406	Distillation Column with Condenser (C-406) and Reboiler (BR-406)	2009	
CL-500	Distillation Column with Condenser (C-500) and Reboiler (BR-500)	2003	STAR, 40 CFR 63 Subpart FFFF
CL-503	Distillation Column with Condenser (C-302) and Tar Concentrator (TR-302)	2003/1962	STAR, 40 CFR 63 Subpart FFFF
CO-410	Cooler	2008	STAR, 5.15, 7.25
CO-411	Cooler	2009	
F-416	Filter	2008	
F-419	Filter	2009	
H-405N	Heat Exchanger	2008	
H-405S	Heat Exchanger	2008	
H-406	Heat Exchanger	2008	
RE-301	Tank	1993	STAR, 40 CFR 63

Emission Point	Description	Installation Date	Applicable Regulation
			Subpart FFFF
RE-401	Reactor	1964	STAR, 5.15, 6.24, 40 CFR 63 Subpart FFFF
RE-402	Reactor	2008	STAR, 5.15, 7.25, 40 CFR 63 Subpart FFFF
S-402	Separator	2008	STAR, 5.15, 7.25
T-403	Tank	2009	
TR-303	Receiver	2009	NA
TR-304	Receiver	2009	NA
TS-401	Tank	1961	STAR, 40 CFR 63 Subpart FFFF
V-301	Reactor with Condenser to Vessel with Condenser (C-303)	1994/2006	
V-402	Vaporizer	2008	STAR, 5.15, 7.25
8275CP	Compressor	2009	
Unit U6001 Emission Points			
CL-407	Distillation Column with Condenser (C-407) and Reboiler (BR-407)	2009	STAR, 5.15, 7.25 40 CFR 63 Subpart FFFF
CO-413 a &b	Cooler	2009	
F-409	Filter	1994	
F-410	Filter	1994	
TR-402	Tank	1964	STAR, 5.15, 6.24
TR-403	Tank	1964	
TR-404	Tank	1964	
8850CP	Compressor	2003	STAR, 5.15, 7.25 40 CFR 63 Subpart FFFF
8880CP	Compressor	2009	
AB-400	Adsorbers	1962	STAR, 40 CFR 63 Subpart FFFF
AB-401	Adsorbers	1962	
Unit U6002 Emission Point			
C-408	VF Sphere Compressor Vent	2009	40 CFR 63 Subpart FFFF
Unit U6003 Emission Point			

Emission Point	Description	Installation Date	Applicable Regulation
NA	Pumps, connections, valves	N/A	STAR, 40 CFR 63 Subpart FFFF
NA	Pumps, connections, gas valves, liquid valves	N/A	

ii. **Standards/Operating Limits**

1) **VOC**

a) Regulation 7.25 requires BACT for affected facilities at sources with a potential to emit greater than 5 tpy. The BACT submitted for emission points S-402, V-402, H-406, H-405N, H-405S, RE-402, F-416, CO-410, F-419, 8275CP, CO-411, CL-405, T-403 and CL-406 demonstrated that emissions from these sources could be controlled to no more than 3029 pounds per year. This value is set as the maximum 12-month emission limit.

b) Regulation 7.25 establishes a plant-wide VOC limit of 5 tons per year for all affected facilities, unless Best Available Control Technology (BACT) level of control is utilized to reduce the VOC emissions.

c) Regulation 6.24 limits the pound per hour and pound per day emission of Class III Solvents. Class III Solvent means any organic material which is not classified as a Class I or a Class II solvent. The source cannot exceed the pound per day or pound per hour limits in Regulation 6.24 for Class III solvents.

2) **HAP**

a) 40 CFR 63, Subpart FFFF establishes HAP standards.

b) There are no process streams in the VF Miscellaneous organic Chemical manufacturing Process Unit (MCPU) that contain organic HAPs. Therefore, the Miscellaneous Organic NESHAP (MON) leak detection and repair (LDAR) monitoring requirements do not apply to the Vinyl Fluoride process.

c) The heat exchange systems used in the VF MCPU are all closed loop systems that use steam, water, or non-HAP brines (propylene glycol and salt solutions). Since there are no organic HAPs in the process fluids or the heat exchange systems, the heat exchange monitoring requirements do not apply.

d) Hydrogen fluoride (HF) is the only HAP contained in wastewater streams from the VF MCPU. It is an inorganic HAP and not listed in the applicable tables, therefore the wastewater streams do not meet the definition of MON wastewater and the requirements are not applicable.

3) **TAC**

a) Regulation 5.21 Section 4.2 lists alternative measures of demonstrating EA that will be incorporated into a permit. To meet EA goals, the owner or operator shall utilize the Main/Emergency Scrubber (SB-403) at all times that any of the process equipment is in operation.

b) Per Regulation 5.21, the potential uncontrolled Hydrogen Fluoride (Category 2 TAC) emissions are less than the *de minimis* rate of 7.6 pounds per hour. The potential controlled Hydrogen Fluoride emissions are less than the *de minimis* rate of 6,720 pounds per year. Therefore, in order to be environmentally acceptable the control device must be operated at all times.

c) The Main/Emergency Scrubber (SB-403) shall have a minimum control efficiency of 91.4% per the EA demonstration required by Regulation 5.21.

III. Other Requirements

1. Temporary Sources: The source did not request to operate any temporary facilities.

2. Short Term Activities: The source did not report any short term activities.

3. Emissions Trading: N/A

4. Operational Flexibility: The source did not request any operational flexibility

scenario.

5. Compliance History: There are no records of any violations of the terms of the present or prior construction or operating permits.

6. Calculation Methodology or Other Approved Method:

The emission calculations for the various pieces of equipment are derived from stack test results, AP-42 emission factors, EPA guidance documents, CEMs, mass balances and engineering judgment.

Equipment	Emission Point	Control Device	Emission Factor and Determination Method
VF Reactor and Refining Equipment	6000	SB-403	Purges through the K-Jet Vent (various vessels); Fluorination catalyst Purges, material from Analyzers and V-301 Reactor vent purging. Emissions VF Catalyst Fluorination Purge: Emissions = No. of catalyst purges [4950 lbs of HF used per purge] (evacuations/yr)*(49.51 lb HF emitted per purge) Emissions for each vessel during the maintenance of the K-Jet Vent: Emissions = (total volume ft3)(avg. density lb/ft^3)(pollutant mass fraction) = lb pollutant/evacuation VF Reactor Catalyst Shutdown Purge: Emission = (lb mol vented) *(pollutant mass fraction)
VF Tank Truck Loading	6001	N/A	VF density (vap))(volume of pipe vented/trailer)(#trailers)/(2000 lb/ton = $(0.2539\ lb/ft^3)(0.873\ ft^3)$(#trailers)/(2000 lb/ton) $1.1x10^{-4}$ * #trailers = tons VF vented
VF Loading Compressor Vent	6002	N/A	VF Sphere Venting: Total amount vented = (hours the valve is open)(standard vent rate)(% valve is open)
Fugitive Emissions	6003	N/A	Leaks from pumps, connections, and valves multiplied by an emission factor and the % uptime Fugitive Emissions = component count * # hr/year * DuPont factor
VF Salt Furnace (IA)	6004	N/A	AP-42 Section 1.4 Emission Factors (Natural Gas)