

INITIAL TITLE V AIR PERMIT APPLICATION REVIEW

DRAFT

APPLICANT: E.I. du Pont de Nemours and Company, Inc.	SITE LOCATION: Kinston	COUNTY: Lenoir	
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REGIONAL CONTACT: Robert Bright	REGIONAL OFFICE: Washington	SIC CODE: 2824	
APPLICATION NUMBER: 540039A5.A	EXISTING PERMIT NUMBER: 03878R26	NEW PERMIT NUMBER: 03878T27	

I. Introduction

The U.S. Environmental Protection Agency (EPA) has given full approval to North Carolina's Title V operating permits program effective on October 1, 2001. The EPA interim approval of December 15, 1995 triggered the requirements for Title V facilities to submit permit applications to the Division of Air Quality. Title V facilities are required to obtain an operating permit which addresses all applicable regulations under the State Implementation Plan, Federal Implementation Plan, and other provisions of the Clean Air Act (CAA). The Title V Operating Permit will define all of the facility's obligations under the CAA.

This Initial Title V Air Permit application Review intends to convey all pertinent emissions data, rules, policies, and engineering assumptions used to construct the Title V operating permit. The primary source of information used to construct the permit is the above referenced air permit application.

II. Background Information

The Title V operating permit replaces an existing Air Quality Construction and Operation Permit No. 03878R26 which was issued on July 12, 2001 and is currently scheduled to expire on June 30, 2006.

Pursuant to 15A NCAC 2Q .0506, E.I. du Pont de Nemours and Company, Inc. submitted its initial Title V application to the Division of Air Quality on August 12, 1996 and subsequently updated on May 19, 1997. The facility was requested to provide additional information to incorporate MACT requirements for polymer manufacturing on November 15, 2002. The Permittee subsequently submitted process flow diagrams of affected equipment on May 13, 2003. The permit is required to go to public notice pursuant to 15A NCAC 2Q .0521.

III. Facility Description

The facility produces polyethylene terephthalate using the continuous terephthalic acid process (MACT Subpart JJJ affected sources). The facility also produces polypropylene using a continuous dimethyl terephthalate process (non affected sources for MACT Subpart JJJ).

IV. Statement of Compliance

The DAQ has reviewed the compliance status of this facility. The facility has not properly tested for compliance with 40 CFR Subpart JJJ as emissions from the upflow prepolymerizers and finisher agitators were not assessed to compute compliance with the 0.02 kg/Mg standard; no continuous monitoring has been performed for the secondary condensers on the upflow prepolymerizers, the secondary condensers on the finisher agitators, and the final condenser on the monomer flash column as required for control and recovery devices used to comply with the standard; monitoring of wastewater stripping column and control devices (process heaters) has not been conducted; and no continuous monitoring has been performed for esterification emission sources (i.e., vent seal tanks). The facility is apparently in compliance with all other applicable regulations and permit requirements. The applicant has

certified that the facility will be in compliance with all applicable requirements. The applicant has also certified that the facility will be in compliance with any applicable requirements taking effect during the term of the permit and will meet such requirements on a timely basis.

V. Summary of Emission Sources and Control Devices

The following table contains a summary of all permitted emission sources and associated air pollution control devices and appurtenances:

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control/Recovery Device Description
PET Esterification TPA1			
ES4091 MACT JJJ	No. 1 slurry mix tank	na	na
ES4092 MACT JJJ	No. 2 slurry mix tank	na	na
ES4093 MACT JJJ	slurry feed tank	na	na
ESTPA1 MACT JJJ	esterification reactor with ethylene glycol/water separation column	RDTPA1	Recovery Device reflux condenser
TPA1R2G MACT JJJ	ethylene glycol/water separation column bottoms (glycol) receiver; 12,000 gallons	na	na
ESI1A MACT JJJ	monomer/oligomer flash tank (located in the Industrial Area - listed here because it prepares monomer for polymerization and is counted towards esterification standard)	CDI1A	Control Device ethylene glycol spray condenser and receiver vent to 1053 hotwell via steam jets
ES4048 MACT JJJ	TPA1 vent seal tank	na	na
PET Polymerization I1			
ESI1B MACT JJJ	polymerization reactor	RDI1B	Recovery Device ethylene glycol spray condenser and receiver venting to 1053 hotwell via steam jets
ESI1C MACT JJJ	finisher	RDI1C	Recovery Device ethylene glycol spray condenser and receiver venting to 1053 hotwell via steam jets
ESI1D1 MACT JJJ	post finisher No. 1 venting to 1075 hotwell via steam jets	na	na
ESI1D2 MACT JJJ	post finisher No. 2 venting to 1076 hotwell via steam jets	na	na
ESI1SM	two spinning machines	na	na

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control/Recovery Device Description
PET Polymerization Y4			
Y4A1 MACT JJJ	up flow prepolymerizer with ethylene glycol jet condenser	RDY4A	Recovery Device ethylene glycol spray condenser venting to steam jet hotwell
Y4A2 MACT JJJ	primary jet condenser ethylene glycol receiver (aka-UFPP hotwell)	na	na
Y4A3 MACT JJJ	secondary spray condenser ethylene glycol receiver (aka-UFPP hotwell)	na	na
Y4B1 MACT JJJ	finisher with ethylene glycol jet condenser	RDY4B	Recovery Device ethylene glycol spray condenser venting to steam jet hotwell
Y4B2 MACT JJJ	primary jet condenser ethylene glycol receiver (aka-finisher hotwell)	na	na
Y4B3 MACT JJJ	secondary spray condenser ethylene glycol receiver (aka-finisher coldwell)	na	na
Y4SM	Y4 four spinning machines	na	na
PET Polymerization Y5			
Y5A1 MACT JJJ	up flow prepolymerizer with ethylene glycol jet condenser	RDY5A	Recovery Device ethylene glycol spray condenser venting to steam jet hotwell
Y5A2 MACT JJJ	primary jet condenser ethylene glycol receiver (aka-UFPP hotwell)	na	na
Y5A3 MACT JJJ	secondary spray condenser ethylene glycol receiver (aka-UFPP coldwell)	na	na
Y5B1 MACT JJJ	finisher with ethylene glycol jet condenser	RDY5B	Recovery Device ethylene glycol spray condenser venting to steam jet hotwell
Y5B2 MACT JJJ	primary jet condenser ethylene glycol receiver (aka-finisher hotwell)	na	na
Y5B3 MACT JJJ	secondary spray condenser ethylene glycol receiver (aka-finisher coldwell)	na	na
Y5SM	four spinning machines	na	na

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control/Recovery Device Description
PET Esterification TPA2			
ES4079 NSPS DDD MACT JJJ	No. 3 slurry mix tank	na	na
ES4080 NSPS DDD MACT JJJ	No. 4 slurry mix tank	na	na
ES4081 NSPS DDD MACT JJJ	slurry feed tank	na	na
ESTPA2 NSPS DDD MACT JJJ	esterification reactor with ethylene glycol/water separation column/reflux drum/bottoms receiver TPA2R2G	RDTPA2	Recovery Device reflux condenser
ES4060 NSPS DDD MACT JJJ	TPA2 vent seal tank	na	na
PET Polymerization Y6			
Y6A1 NSPS DDD MACT JJJ	up flow prepolymerizer with ethylene glycol jet condenser	RDY6A	Recovery Device ethylene glycol spray condenser venting to steam jet hotwell
Y6A2 NSPS DDD MACT JJJ	primary jet condenser ethylene glycol receiver (aka-UFPP hotwell)	na	na
Y6A3 NSPS DDD MACT JJJ	secondary spray condenser ethylene glycol receiver (AKA-UFPP coldwell)	na	na
Y6B1 NSPS DDD MACT JJJ	finisher with ethylene glycol jet condenser	RDY6B	Recovery Device ethylene glycol spray condenser venting to hotwell steam jet hotwell
Y6B2 NSPS DDD MACT JJJ	primary jet condenser ethylene glycol receiver (aka-finisher hotwell)	na	na
Y6B3 NSPS DDD MACT JJJ	secondary spray condenser ethylene glycol receiver (aka-finisher coldwell)	na	na
Y6SM	eight spinning machines	na	na

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control/Recovery Device Description
PET Polymerization Y7			
Y7A1 NSPS DDD MACT JJJ	up flow prepolymerizer with ethylene glycol jet condenser	RDY7A	Recovery Device ethylene glycol spray condenser venting to steam jet hotwell
Y7A2 NSPS DDD MACT JJJ	primary jet condenser ethylene glycol receiver (aka-UFPP hotwell)	na	na
Y7A3 NSPS DDD MACT JJJ	secondary spray condenser ethylene glycol receiver(aka UFPP coldwell)	na	na
Y7B1 NSPS DDD MACT JJJ	finisher with ethylene glycol jet condenser	RDY7B	Recovery Device ethylene glycol spray condenser venting to steam jet hotwell
Y7B2 NSPS DDD MACT JJJ	primary jet condenser ethylene glycol receiver (aka-finisher hotwell)	na	na
Y7B3 NSPS DDD MACT JJJ	secondary spray condenser ethylene glycol receiver (aka-finisher coldwell)	na	na
Y7SM	eight spinning machines	na	na
Materials Handling			
ES5014C	toner/ethylene glycol mix tank No. 1 with pneumatic transfer cyclone 5014	CD5014	fabric filter; 107.5 square feet of filter area (also controls toner scale No.1 and No. 2; ID Nos. ES5014A and ES5014B)
ES5014D	toner/ethylene glycol mix tank No. 2 with pneumatic transfer cyclone 5014		
ES5014A	toner scale No. 1 with pneumatic transfer cyclone 5014		
ES5014B	toner scale No. 2 with pneumatic transfer cyclone 5014		
ES5016	KSP triethylene glycol railcar loadout	na	na
ES5019	3GT/DTFY triethylene glycol railcar loadout	na	na
ES5018	titanium dioxide pneumatic transfer system	CD5018	fabric filter; 451 square feet of filter area
ES5029*	spent ethylene glycol storage tank	na	na
ES5030*	spent ethylene glycol storage tank	na	na
ES5031*	spent ethylene glycol storage tank	na	na
ES5032*	spent ethylene glycol storage tank	na	na

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control/Recovery Device Description
ES5033*	spent ethylene glycol storage tank	na	na
ES5034*	virgin/refined tri ethylene glycol storage tank	na	na
ES5008*	recycle ethylene glycol storage tank	na	na
ES5054*	recycle ethylene glycol storage tank	na	na
Polypropylene Terephthalate Production 3G2			
ES5060	DMT storage tank: 500,000 gal	CD5060	fabric filter; 177 square feet of filter area
ES2016	North recycle propanediol tank	na	na
ES2017	South recycle propanediol tank	na	na
ES2037	catalyzed propanediol feed tank		
ES2026	esterification reactor with propanediol/monomer return column [equipped with auxiliary reactor for extending residence time]	CD1087	methanol/water condenser
MCR3G2	methanol seal pot/condenser receiver	CD2026	methanol condenser
ES2023	TiO ₂ feed tank	na	na
FT3G2	flash tank	CDFT3G2 CDVSAC	diol spray condenser venting to vacuum system "after condenser" venting to hotwell I2025 via steam jets
ES2015	flash tank and prepolymerizer condenser receiver	na	na
PP3G2	prepolymerizer	CDPP3G2 CDVSAC	diol spray condenser venting to hotwell I2025 via steam jets vacuum system after condenser
F3G2	finisher	CDF3G2 CDVSAC	diol spray condenser venting to hotwell I2025 via steam jets vacuum system after condenser
PEP3G2	polymer extruder/pelletizer	na	na
PPD3G2	polypropylene terephthalate pellet dryer	na	na
ES2021	triethylene glycol receiver	na	na
ES5044	methanol fixed roof (with cooling coils) storage tank; 170,000 gallons	na	na

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control/Recovery Device Description
ES5045	methanol fixed roof storage tank; 170,000 gallons, venting to ES5044	na	na
ES5025	methanol tank; 30,000 gallons	na	na
ES5063	methanol truck loading rack	na	na
Polypropylene Terephthalate Production			3G1
MT3G1	exchanger mix tank	na	na
FT3G1	exchanger feed tank	na	na
ES3005	esterifier with reflux condenser	CD3005	methanol condenser
FT3G1	flash tank	CDFT3G1	diol spray condenser venting to hotwells ES3001/ES3006 via steam jets
ES3009	flash tank, finisher, prepolymerizer diol spray condenser receiver	na	na
PP3G1	prepolymerizer	CDPP3G1	diol spray condenser venting to hotwell ES3001/ES3006 via steam jets
ES3010	auxiliary flash tank, finisher, prepolymerizer diol spray condenser receiver	na	na
F3G1	finisher	CDF3G1	diol spray condenser venting to hotwell ES3001/ES3006 via steam jets
ES301308	KT104 mix tank	na	na
ES2038	phosphoric acid/propanediol feed tank	na	na
KT104	KT104 esterifier	na	na
ES3004	recycle glycol tank	na	na
Wastewater			
ES5046 MACT JJJ ww1	TPA1 wastewater retention tank for organic stripper column; 30,000 gallons	na	na
ES1053 MACT JJJ ww2	I1 PET hotwell	na	na
ES1075 MACT JJJ ww2	I1 PET hotwell	na	na
ES1076 MACT JJJ ww2	I1 PET hotwell	na	na

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control/Recovery Device Description
ES4016 MACT JJJ ww2	Y4 steam jet hotwell	na	na
ES4017 MACT JJJ ww2	Y5 steam jet hotwell	na	na
ES4036 MACT JJJ ww2	Y4/Y5 yarn jet water recycle tank; 12,000 gallons	na	na
ES4037 MACT JJJ ww2	Y4/Y5 yarn jet overflow tank; 9,520 gallons		
ES5026 MACT JJJ ww1	TPA2 wastewater retention tank for organic stripper column; 30,000 gallons	na	na
ES4057 NSPS DDD MACT JJJ ww2	Y6 and Y7 steam jet hotwell	na	na
ES2025	3G2 steam jet hotwell	na	na
ES3001	west 3G1 steam jet hotwell	na	na
ES3006	east 3G1 steam jet hotwell	na	na
ES4046 MACT JJJ ww1	TPA1 OSC feed tank	na	na
ES4103 MACT JJJ ww1	TPA 2 OSC feed tank	na	na
TPA1WW MACT JJJ ww1	wastewater treatment device organic air stripping column	CDOSC	Control Device Dowtherm vaporizers
TPA2WW MACT JJJ ww1	wastewater treatment device organic air stripping column		
ES6029 MACT JJJ ww2	wastewater treatment pond	na	na
Cooling Towers			
ES4011	North cooling tower for Y4/Y5	na	na
ES4012	East cooling tower for Y4/Y5	na	na
ES4013	West cooling tower for Y4/Y5	na	na
ES4055	No. 1 cooling tower for Y6/Y7	na	na
ES4056	No. 2 cooling tower for Y6/Y7	na	na
ES4066	No. 3 cooling tower for Y6/Y7	na	na
Utilities			

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control/Recovery Device Description
ES6022A	natural gas//No. 6 fuel oil/coal-fired Boiler No. 1; 208 million Btu per hour heat input	CD6022A CD6022B	multiclone; 160-six inch tubes venting to side stream fabric filter; 3,318 square feet of filter area
ES6022B	natural gas//No. 6 fuel oil/coal-fired Boiler No. 2; 208 million Btu per hour heat input	CD6022C CD6022D	multiclone; 1,080-three inch tubes venting to fabric filter; 47,104 square feet of filter area
ES6023	natural gas//No. 6 fuel oil-fired Boiler No. 3; 197 million Btu per hour heat input	na	na
ES6024	flyash ash silo and pneumatic transfer system with collection cyclone	CD6024	fabric filter
ES6006	No. 1 natural gas/No. 6 fuel oil-fired Dowtherm™ vaporizer; 20.7 million Btu per hour heat input	na	na
ES6007	No. 2 natural gas/No. 6 fuel oil-fired Dowtherm™ vaporizer; 20.7 million Btu per hour heat input	na	na
ES6008	No. 3 natural gas/No. 6 fuel oil-fired Dowtherm™ vaporizer; 12.9 million Btu per hour heat input	na	na
ES6009	No. 4 natural gas/No. 6 fuel oil-fired Dowtherm™ vaporizer; 15.7 million Btu per hour heat input	na	na
ES6010	No. 5 natural gas/No. 6 fuel oil-fired Dowtherm™ vaporizer; 20 million Btu per hour heat input	na	na
ES6011	No. 6 natural gas/No. 6 fuel oil-fired Dowtherm™ vaporizer; 20 million Btu per hour heat input	na	na
ES6012	No. 7 natural gas/No. 6 fuel oil-fired Dowtherm™ vaporizer; 20 million Btu per hour heat input	na	na
ES6031 NSPS Dc	No. 8 natural gas/No. 2 fuel oil/No. 6 fuel oil-fired Dowtherm™ vaporizer; 23.42 million Btu per hour heat input	na	na
ES6032 NSPS Dc	No. 9 natural gas/No. 2 fuel oil/No. 6 fuel oil-fired Dowtherm™ vaporizer; 23.42 million Btu per hour heat input	na	na
ES6034 NSPS Dc	No. 10 natural gas/No. 2 fuel oil/No. 6 fuel oil-fired Dowtherm™ vaporizer; 23.42 million Btu per hour heat input	na	na

- * These emission sources are insignificant for Title V purposes; however, they are permitted pursuant to state-enforceable only requirements.

VI. Emission Source-by-Source Evaluation

A. PET Esterification TPA1

- a No. 1 slurry mix tank (ID No. ES4091)
- a No. 2 slurry mix tank (ID No. ES4092)
- a slurry feed tank (ID No. ES4093)
- b esterification reactor with ethylene glycol/water separation column (ID No. ESTPA1) and reflux condenser (ID No. RDTPA1)
- a ethylene glycol/water separation column glycol receiver (ID No. TPA1R2G)
- b TPA1 vent seal tank (ID No. ES4048)
- b monomer/oligomer flash tank (ID No. ESI1A) with ethylene glycol spray condenser (CDI1A)

PET Esterification TPA2

- c No. 3 slurry mix tank (ID No. ES4079)
- c No. 4 slurry mix tank (ID No. ES4080)
- c slurry feed tank (ID No. ES4081)
- d esterification reactor with ethylene glycol/water separation column (ID No. ESTPA2) and reflux condenser (ID No. RDTPA2)
- d ethylene glycol/water separation column glycol receiver (ID No. TPA2R2G)
- d TPA2 vent seal tank (ID No. 4060)

1. Description

Ethylene glycol and terephthalic acid are mixed to form a paste which is fed to the esterification reactors under temperature and pressure. The esterification reactors create monomer and oligomer for polymerization in a later step. Water and HAP byproducts (acetaldehyde and 1,4 dioxane) are also created during the esterification reaction and are vented along with ethylene glycol vapors to a reflux column which acts similar to a distillation column. The ethylene glycol is condensed and returned to the reactor from the column bottoms receiver and water/HAP byproducts leaving the column reflux condenser are further condensed in a secondary condenser and sent to the organic stripping column.

The applicant has stated that the mixing tanks, feed tanks, and the secondary condenser (all affected sources with the exception of the monomer flash column) vent to the vent seal tank. The monomer flash column is another distillation process whereby the gases concentrated in the pressurized monomer/oligomer are released (like CO₂ in an opened soda) when the pressure is dropped (flashing). These emissions are vented to the steam jet vacuum system for the polymerizers. However, are considered prepolymerization preparation of the monomer/oligomer.

2. Applicable Regulatory Requirements

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

The following table provides a summary of limits and standards for the emission source(s) described above:

Regulated Pollutant	Limits/Standards	Applicable Regulation
Hazardous Air Pollutants ^{abcd}	organic HAP emissions from all of the sources listed above in the raw materials preparation sections for PET Esterification TPA1 and PET Esterification TPA2 shall be no greater than 0.04 Kg per MG of PET polymer produced	15A NCAC 2D .1111 National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins
Hazardous Air Pollutants ^{abcd}	See “Multiple Emission Sources” Section VII. A.1. General Recordkeeping and Reporting	15A NCAC 2D .1111 (40 CFR 63, Subpart JJJ) National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins
Hazardous Air Pollutants ^{abcd}	See “Multiple Emission Sources” Section VII. A.2. Maintenance Wastewater Requirements	15A NCAC 2D .1111 (40 CFR 63, Subpart JJJ) National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins
Hazardous Air Pollutants ^{abcd}	See “Multiple Emission Sources” Section VII. A.3. Heat exchanger Requirements	15A NCAC 2D .1111 (40 CFR 63, Subpart JJJ) National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins
Hazardous Air Pollutants ^{abcd}	See “Multiple Emission Sources” Section VII. A.4. Equipment Leak Provisions	15A NCAC 2D .1111 (40 CFR 63, Subpart JJJ) National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins
Hazardous Air Pollutants ^{abcd}	See “Multiple Emission Sources” Section VII. A.5. Startup, Shutdown, and Malfunction	15A NCAC 2D .1111 (40 CFR 63.6(e)(3)) National Emission Standards for Hazardous Air Pollutant Emissions: Operation and Maintenance Requirements
Volatile Organic Compounds ^{abcd}	See “Multiple Emission Sources” Section VII. B. Work Practice Standards	15A NCAC 2D .0958
Volatile Organic Compounds ^{cd}	See “Multiple Emission Sources” Section VII. C. PSD Avoidance Condition	15A NCAC 2Q .0317
Toxic Air Pollutants ^{bd}	See “Multiple Emission Sources” Section VII. F. Allowable Ambient levels “STATE ENFORCEABLE ONLY”	15A NCAC 2D .1100

^{abcd} a. **15A NCAC 2D .1111: NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANT EMISSIONS: GROUP IV POLYMERS AND RESINS - MATERIALS PREPARATION CONTINUOUS PROCESS VENTS**

- i. **Regulatory Analysis**

The Permittee shall limit organic HAP emissions from all process vents containing greater than 0.005 weight percent total organic HAP from continuous unit operations associated with the esterification vessels in the collection of raw material preparation sections, as listed above, to no greater than 0.04 kilogram organic HAP per megagram of PET produced from all associated thermoplastic polymer production units.
- ii. **Testing**

Emission testing shall be conducted by [180 days of permit issuance] to determine emissions from esterification units in TPA1 (ID No. ESTPA1) and TPA2 (ID Nos. ESTPA2) at the vent seal tank. Prior testing is acceptable provided the vent tank exhaust temperature was monitored during the test and an average temperature can be determined for the continuous monitoring maximum parametric value. Emissions from monomer/oligomer flash tank (ID No. ESI1A) shall also be tested and added to the esterification totals to demonstrate compliance. If testing of the monomer/oligomer flash tank separate from the polymerization vent stream is not feasible, its emissions contribution may be added to the sum of polymerization emissions for compliance demonstration. Emissions from other mix and feed tanks associated with esterification materials preparation may be determined using engineering evaluation and thermodynamic principles.
- iii. **Monitoring Requirements**

"Where a condenser is the final recovery device in the recovery system, a condenser exit (product side) temperature monitoring device equipped with a continuous recorder shall be used." The vent seal tanks (ID Nos. ES4048 and ES4060) for TPA1 and TPA2 receiving emissions from glycol/water separation columns (ID Nos. RDTPA1 and RDTPA2), affected slurry mix tanks (ID Nos. ES4091, ES4092, ES4079, and ES4080), feed tanks (ID Nos. ES4093 and ES4081) shall each be equipped with continuous temperature recording devices. The vent seal tank being the emission point for each of the final condensers employed by the esterification process

In addition, the ethylene glycol spray condenser on the monomer/oligomer flash tank (ID No. CD11A) shall be equipped with a continuous temperature recording device (regardless of whether its emissions are included in the total to demonstrate compliance the esterification or polymerization standard.

Continuous monitoring of at least four 15 minute values per hour will be used to compute a daily average temperature that must be below the maximum parametric value temperature established during testing.
- iv. **Recordkeeping Requirements**

The Permittee is required to maintain records of measured parametric values, excursions, monitor maintenance and calibration, equipment malfunctions, start up, shut downs, and other items as may be required in 40 CFR 63.1319.
- v. **Reporting Requirements**

The Permittee is required to report any excursions, equipment malfunctions, and other items as may be required in 40 CFR 63.1320.

B. PET Polymerization I1

- a polymerization reactor (ID No. ESI1B) with ethylene glycol spray condenser (ID No. RDI1B)
- a finisher (ID No. ESI1C) with ethylene glycol spray condenser (ID No. RDI1C)
- a post finisher No.1 (ID No. ESI1D1)
- a post finisher No. 2 (ID No. ESI1D2)

PET Polymerization Y4

- a upflow prepolymerizer with ethylene glycol jet condenser (ID No. Y4A1) and spray condenser (ID No. R DY4A)
- b jet condenser ethylene glycol receiver (ID No. Y4A2)
- b spray condenser ethylene glycol receiver (ID No. Y4A3)
- a finisher with ethylene glycol jet condenser (ID No. Y4B1) and spray condenser (ID No. RDY4B)
- b jet condenser ethylene glycol receiver (ID No. Y4B2)
- b spray condenser ethylene glycol receiver (ID No. Y4B3)

PET Polymerization Y5

- a upflow prepolymerizer with ethylene glycol jet condenser (ID No. Y5A1) and spray condenser (ID No. RDY5A)
- b jet condenser ethylene glycol receiver (ID No. Y5A2)
- b spray condenser ethylene glycol receiver (ID No. Y5A3)
- a finisher with ethylene glycol jet condenser (ID No. Y5B1) and spray condenser (ID No. RDY5B)
- b jet condenser ethylene glycol receiver (ID No. Y5B2)
- b spray condenser ethylene glycol receiver (ID No. Y5B3)

PET Polymerization Y6

- c upflow prepolymerizer with ethylene glycol jet condenser (ID No. Y6A1) and spray condenser (ID No. RDY6A)
- d jet condenser ethylene glycol receiver (ID No. Y6A2)
- d spray condenser ethylene glycol receiver (ID No. Y6A3)
- c finisher with ethylene glycol jet condenser (ID No. Y6B1) and spray condenser (ID No. RDY6B)
- d jet condenser ethylene glycol receiver (ID No. Y6B2)
- d spray condenser ethylene glycol receiver (ID No. Y6B3)

PET Polymerization Y7

- e upflow prepolymerizer with ethylene glycol jet condenser (ID No. Y7A1) and spray condenser (ID No. RDY7A)
- f jet condenser ethylene glycol receiver (ID No. Y7A2)
- f spray condenser ethylene glycol receiver (ID No. Y7A3)
- e finisher with ethylene glycol jet condenser (ID No. Y7B1) and spray condenser (ID No. RDY7B)
- f jet condenser ethylene glycol receiver (ID No. Y7B2)
- f spray condenser ethylene glycol receiver (ID No. Y7B3)

1. Description

The monomer/oligomer from esterification is polymerized in a two step process under temperature and vacuum. The upflow prepolymerizer initiates the reaction during which cross linking is increased and ethylene glycol liberated. The finisher concludes the polymerization reaction for this process. The vent stream from each polymerization reactor passes through a primary and secondary direct contact condenser which used cold ethylene glycol at the contacting medium. Non condensable emissions pass through the steam jet vacuum system and are vented to the steam jet hotwells along with steam jet condensate from direct contact condensers on the vacuum system. This hotwell water is circulated through the cooling tower and return to the steam jet vacuum system direct contact condensers.

2. Applicable Regulatory Requirements

The following table provides a summary of limits and standards for the emission source(s) described above:

Regulated Pollutant	Limits/Standards	Applicable Regulation
Hazardous Air Pollutants ^{abcdef}	organic HAP emissions from all of the sources listed above in the polymerization reaction sections, including ethylene glycol receiver equipment, for PET Polymerization I1, Y4, Y5, Y6, and Y7 shall be no greater than 0.02 Kg per Mg of PET polymer produced	15A NCAC 2D .1111 National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins
Hazardous Air Pollutants ^{abcdef}	See “Multiple Emission Sources” Section VII. A.1. General Recordkeeping and Reporting	15A NCAC 2D .1111 (40 CFR 63, Subpart JJJ) National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins
Hazardous Air Pollutants ^{abcdef}	See “Multiple Emission Sources” Section VII. A.2. Maintenance Wastewater Requirements	15A NCAC 2D .1111 (40 CFR 63, Subpart JJJ) National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins
Hazardous Air Pollutants ^{abcdef}	See “Multiple Emission Sources” Section VII. A.3. Heat exchanger Requirements	15A NCAC 2D .1111 (40 CFR 63, Subpart JJJ) National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins
Hazardous Air Pollutants ^{abcdef}	See “Multiple Emission Sources” Section VII. A.4. Equipment Leak Provisions	15A NCAC 2D .1111 (40 CFR 63, Subpart JJJ) National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins
Hazardous Air Pollutants ^{abcdef}	See “Multiple Emission Sources” Section VII. A.5. Startup, Shutdown, and Malfunction	15A NCAC 2D .1111 (40 CFR 63.6(e)(3)) National Emission Standards for Hazardous Air Pollutant Emissions: Operation and Maintenance Requirements
Volatile Organic Compounds ^{abcdef}	See “Multiple Emission Sources” Section VII. B. Work Practice Standards	15A NCAC 2D .0958
Volatile Organic Compounds ^{cd}	See “Multiple Emission Sources” Section VII. C. PSD Avoidance Condition	15A NCAC 2Q .0317
Volatile Organic Compounds ^{ef}	See “Multiple Emission Sources” Section VII. D. PSD Avoidance Condition	15A NCAC 2Q .0317
Toxic Air Pollutants ^{ace}	See “Multiple Emission Sources” Section VII. F. Allowable Ambient levels “STATE ENFORCEABLE ONLY”	15A NCAC 2D .1100

^{abcdef} **1. 15A NCAC 2D .1111: NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANT EMISSIONS: GROUP IV POLYMERS AND RESINS - POLYMERIZATION CONTINUOUS PROCESS VENTS**

- i. **Regulatory Analysis**

The Permittee shall limit organic HAP emissions from all process vents containing greater than 0.005 weight percent total organic HAP from continuous unit operations in the collection of polymerization reaction sections and ethylene glycol recovery sections, as listed above, to no greater than 0.02 kilogram organic HAP per megagram of PET product, as a whole, from all associated thermoplastic polymer production units.
- ii. **Testing**

Emission testing shall be conducted by [180 days of permit issuance] to determine emissions from polymerization units in I1 (ID Nos. I1B, I1C, I1D1, and I1D2); Y4 (ID Nos. Y4A1 and Y4B1); Y5 (ID Nos. Y5A1 and Y5B1); Y6 (ID Nos. Y6A1 and Y6B1); and Y7 (ID Nos. Y7A1 and Y7B1) after the final recovery/control device. Emissions from ethylene glycol receiver tanks (ID Nos. Y4A2, Y4A3, Y4B2, Y4B3, Y5A2, Y5A3, Y5B2, Y5B3, Y6A2, Y6A3, Y6B2, Y6B3, Y7A2, Y7A3, Y7B2, and Y7B3) associated with polymerization may be determined using engineering evaluation and thermodynamic principles. If testing of the monomer/oligomer flash tank separate from the polymerization vent stream is not feasible, its emissions contribution may be added to the sum of polymerization emissions for compliance demonstration.
- iii. **Monitoring Requirements**

"Where a condenser is the final recovery device in the recovery system, a condenser exit (product side) temperature monitoring device equipped with a continuous recorder shall be used." The spray condensers on the polymerizers/finishers (ID Nos. RD11B, RDI1C, RDY4A, RDY4B, RDY5A, RDY5B, RDY6A, RDY6B, RDY7A, and RDY7B) shall each be equipped with continuous temperature recording devices. Alternatively the Permittee shall submit a monitoring plan involving the installation of continuous vapor analyzers at the outlet of each associated hotwell [60 days of permit issuance].
- iv. **Recordkeeping Requirements**

The Permittee is required to maintain records of measured parametric values, excursions, monitor maintenance and calibration, equipment malfunctions, start up, shut downs, and other items as may be required in 40 CFR 63.1319.
- v. **Reporting Requirements**

The Permittee is required to report any excursions, equipment malfunctions, and other items as may be required in 40 CFR 63.1320.

- C. **PET Polymerization I1**
 - a two spinning machines (ID No. ES11SM)
- PET Polymerization Y4**
 - a four spinning machines (ID No. Y4SM)
- PET Polymerization Y5**
 - a four spinning machines (ID No. Y5SM)
- PET Polymerization Y6**
 - b eight spinning machines (ID No. Y6SM)
- PET Polymerization Y7**
 - c eight spinning machines (ID No. Y7SM)

1. Description
This is the process area where the polyester resins are melted and formed into fibers.
2. Applicable Regulatory Requirements

The following table provides a summary of limits and standards for the emission source(s) described above:

Regulated Pollutant	Limits/Standards	Applicable Regulation
Particulate Matter ^{abc}	particulate emissions shall not exceed the rate prescribed by the process weight equations: For process rates up to 30 tons per hour: $E = 4.10 \times P^{0.67}$ For process rates greater than 30 tons per hour: $E = 55.0 \times P^{0.11} - 40$ Where: E = allowable emission rate in pounds per hour, and P = process weight in tons per hour	15A NCAC 2D .0515
Visible ^{abc} Emissions	visible emissions shall not exceed 20 percent opacity from Y4SM, Y5SM, Y6SM, and Y7SM and 40 percent from ES11SM	15A NCAC 2D .0521
Volatile Organic Compounds ^{abc}	See "Multiple Emission Sources" Section VII. B. Work Practice Standards	15A NCAC 2D .0958
Volatile Organic Compounds ^b	See "Multiple Emission Sources" Section VII. C. PSD Avoidance Condition	15A NCAC 2D .0317
Volatile Organic Compounds ^c	See "Multiple Emission Sources" Section VII. D. PSD Avoidance Condition	15A NCAC 2Q .0317
Toxic Air Pollutants ^{abc}	See "Multiple Emission Sources" Section VII. F. Allowable Ambient levels "STATE ENFORCEABLE ONLY"	15A NCAC 2Q .1100

a. 15A NCAC 2D .0515: PARTICULATES FROM MISCELLANEOUS INDUSTRIAL PROCESSES

- i. Regulatory Analysis
These sources emit condensible organic compounds which may be considered particulate matter or volatile organic compound. No estimate or through put was provided. However, it is not anticipated that the spinning process will produce more particulate than the regulation generously allows. Testing may be required at DAQ's request.

- ii. **Monitoring Requirements**
The Permittee is required to maintain production records which specify the types of materials processed.
- iii. **Recordkeeping Requirements**
The Permittee is required to maintain production records which specify the types of materials processed.
- iv. **Reporting Requirements**
No reporting is required.

b. 15A NCAC 2D .0521: CONTROL OF VISIBLE EMISSIONS

- i. **Regulatory Analysis**
Visible emissions from the emission sources listed above shall not be more than 20 percent opacity when averaged over a six-minute period.
- ii. **Monitoring Requirements**
To assure compliance, every day the Permittee shall observe the emission points of the above listed sources during source operation for any visible emissions above normal. The Permittee shall establish "normal" for the source in the first 30 days following permit issuance. If an abnormal opacity is observed and not corrected by the end of the monitoring period or a Method 9 demonstration of compliance with the applicable opacity standard made by the end of the monitoring period, the source will be deemed in non compliance. Daily monitoring is required based on the "blue haze" that may be created by the heating of the polymer.
- iii. **Recordkeeping Requirements**
The results of the monitoring shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request.
- iv. **Reporting Requirements**
Semi annual reports are required.

D. Materials Handling

fabric filter (ID No. CD5014) on pneumatic transfer cyclone 5014 on:

- a toner scale No. 1 (ID No. ES5014A)
- a toner scale No. 2 (ID No. ES5014B)
- a toner/ethylene glycol mix tank 1 (ID No. ES5014C)
- a toner/ethylene glycol mix tank 1 (ID No. ES5014D)

- c KSP triethylene glycol loadout (ID No. ES5016)
- c 3GT/DTFY triethylene glycol railcar loadout (ID No. ES5019)
- a titanium dioxide pneumatic transfer system (ID No. 5018) with fabric filter (ID No. CD5018)
- c spent ethylene glycol storage tank (ID No. ES5029)
- c spent ethylene glycol storage tank (ID No. ES5030)
- c spent ethylene glycol storage tank (ID No. ES5031)
- c spent ethylene glycol storage tank (ID No. ES5032)
- c spent ethylene glycol storage tank (ID No. ES5033)
- c spent ethylene glycol storage tank (ID No. ES5034)
- c recycle ethylene glycol storage tank (ID No. ES5008)
- c recycle ethylene glycol storage tank (ID No. ES5054)
- b Y4 ethylene glycol recycle tank (ID No. ES4024)
- b Y4 glycol hold tank (ID No. Y4CP2G)
- b Y5 glycol hold tank (ID No. Y5CP2G)

- b Y6 glycol hold tank (ID No. Y6CP2G)
- b Y7 glycol hold tank (ID No. Y7CP2G)
- b Y6/Y7 recycle ethylene glycol tank (ID No. ES4095)

Polypropylene Terephthalate Production 3G2

- a DMT storage tank (ID No. ES5060) with fabric filter
- b north recycle propanediol tank (ID No. ES2016)
- b south recycle propanediol tank (ID No. ES2017)
- b catalyzed propanediol feed tank (ID No. ES2037)
- b esterification reactor with propanediol/monomer return column (ID No. ES2026) and methanol/water condenser (ID No. CD1087)
- b methanol seal pot/condenser receiver (ID No. MCR3G2) with methanol condenser (ID No. CD2026)
- b titanium dioxide feed tank (ID No. ES2023)
- b flash tank with diol spray condenser and vacuum system “after condenser”
- b flash tank and prepolymerizer condenser receiver (ID No. ES2015)
- b prepolymerizer (ID No. PP3G2) with diol spray condenser (ID No. CDPP3G2) and vacuum system “after condenser” (ID No. CDVSAC)
- b finisher (ID No. F3G2) with diol spray condenser (ID No. CDF3G2) and vacuum system “after condenser” (ID No. CDSVAC)
- b polymer extruder/pelletizer (ID No. PPD3G2)
- b polypropylene terephthalate pellet dryer (ID No. PPD3G2)
- b triethylene glycol receiver (ID No. ES2021)
- c methanol fixed roof with cooling coils storage tank (ID No. ES5044)
- c methanol fixed roof storage tank (ID No. ES5045) venting to coil cooled tank
- c methanol fixed roof tank (ID No. ES5025)
- c methanol truck loading rack (ID No. ES5063)

Polypropylene Terephthalate Production 3G1

- b exchanger mix tank (ID No. MT3G1)
- b exchanger feed tank (ID No. FT3G1)
- b esterifier with reflux condenser (ID No. ES3005) and methanol condenser (ID No. CD3005)
- b flash tank (ID No. FT3G1) with diol spray condenser (ID No. CDFT3G1)
- b flash tank, finisher, prepolymerizer diol spray condenser receiver (ID No. ES3009)
- b auxiliary flash tank, finisher, prepolymerizer diol spray condenser receiver (ID No. ES3010)
- b finisher (ID No. F3G1) with diol spray condenser (ID No. CDF3G1)
- b KT-104 mix tank (ID No. ES301308)
- b phosphoric acid/propanediol feed tank (ID No. ES2038)
- b KT-104 esterifier (ID No. KT104)
- b recycle glycol tank (ID No. ES3004)

1. Description

The materials handling area includes those sources used in monomer and polymer production that are not affected sources.

The 3G2 area produces polypropylene terephthalate from dimethylterephthalate and polypropylene glycol. During the esterification process, methanol and water are emitted and recovered. If the product was polyethylene terephthalate, these sources would be subject the MACT provisions of subpart JJJ. However, as an alternate raw material not covered by this regulation is used, this process is not regulated by the MACT.

The 3G1 area is similar to the 3G2 area except on a much smaller scale.

2. Applicable Regulatory Requirements

The following table provides a summary of limits and standards for the emission source(s) described above:

Regulated Pollutant	Limits/Standards	Applicable Regulation
Particulate Matter ^a	particulate emissions shall not exceed the rate prescribed by the process weight equations: For process rates up to 30 tons per hour: $E = 4.10 \times P^{0.67}$ For process rates greater than 30 tons per hour: $E = 55.0 \times P^{0.11} - 40$ Where: E = allowable emission rate in pounds per hour, and P = process weight in tons per hour	15A NCAC 2D .0515
Visible Emissions ^a	visible emissions shall not exceed 20 percent opacity from Y4SM, Y5SM, Y6SM, and Y7SM or 40 percent from IISM	15A NCAC 2D .0521
Volatile Organic Compounds ^{bc}	See “Multiple Emission Sources” Section VII. B. Work Practice Standards	15A NCAC 2D .0958
Toxic Air Pollutants ^c	See “Multiple Emission Sources” Section VII.F. Allowable Ambient levels “STATE ENFORCEABLE ONLY”	15A NCAC 2D .1100

a. 15A NCAC 2D .0515: PARTICULATES FROM MISCELLANEOUS INDUSTRIAL PROCESSES

- i. **Regulatory Analysis**
 The toner scale No. 1 (ID No. ES5014A), Toner scale No. 2 (ID No. ES5014B), toner/ethylene glycol mix tank 1 (ID No. ES5014C), toner/ethylene glycol mix tank 1 (ID No. ES5014D), and titanium dioxide pneumatic transfer system (ID No. 5018) are all controlled with by fabric filtration. These sources will easily meet the allowable emissions limits through use of the fabric filters
- ii. **Monitoring Requirements**
 Routine inspection and maintenance is required.
- iii. **Recordkeeping Requirements**
 Records of routine inspection and maintenance are required to be maintained on site.
- iv. **Reporting Requirements**
 Semi annual reports are required that summarize the maintenance and repair activity that was conducted

E. Wastewater

- a TPA1 wastewater feed tank (ID No. ES5046)
- b I1 PET hotwell (ID No. ES1053)
- b I1 PET hotwell (ID No. ES1075)
- b I1 PET hotwell (ID No. ES1076)
- b Y4 PET hotwell (ID No. ES4016)
- b Y5 PET hotwell (ID No. ES4017)
- c TPA2 wastewater feed tank (ID No. ES5026)
- d Y6 and Y7 PET hotwell (ID No. ES4057)
- e 3G2 steam jet hotwell (ID No. ES2025)
- e west 3G1 steam jet hotwell (ID No. ES3001)
- e east 3G1 steam jet hotwell (ID No. ES3006)
- a organic stripper column wastewater tank (ID No. ES4046)
- a organic air stripping column (ID No. TPA1WW) venting to Dowtherm vaporizers Nos. 4 through No. 10
- a organic air stripping column (ID No. TPA2WW) venting to Dowtherm vaporizers Nos. 4 through No. 10
- b wastewater treatment pond (ID No. ES6029)
- b Y4/Y5 yarn jet water recycle tank (ID No. ES4036)
- b Y4/Y5 yarn jet overflow tank (ID No. ES4037)

1. Description
All of these process areas have previously been described.
2. Applicable Regulatory Requirements

The following table provides a summary of limits and standards for the emission source(s) described above:

Regulated Pollutant	Limits/Standards	Applicable Regulation
Hazardous Air Pollutants ^{ac}	Group 1 wastewater	15A NCAC 2D .1111 National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins
Hazardous Air Pollutants ^{bd}	Group 2 wastewater	15A NCAC 2D .1111 National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins
Hazardous Air Pollutants ^{abcd}	See “Multiple Emission Sources” Section VII.A.1. General Recordkeeping and Reporting	15A NCAC 2D .1111 (40 CFR 63, Subpart JJJ) National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins
Hazardous Air Pollutants ^{abcd}	See “Multiple Emission Sources” Section VII.A.2. Maintenance Wastewater Requirements	15A NCAC 2D .1111 (40 CFR 63, Subpart JJJ) National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins

Regulated Pollutant	Limits/Standards	Applicable Regulation
Hazardous Air Pollutants ^{abcd}	See “Multiple Emission Sources” Section VII.A.5. Startup, Shutdown, and Malfunction	15A NCAC 2D .1111 (40 CFR 63.6(e)(3)) National Emission Standards for Hazardous Air Pollutant Emissions: Operation and Maintenance Requirements
Volatile Organic Compounds ^d	The ethylene glycol concentration of the water from steam jet vacuums used for the polymerizer reactors of Y6 and Y7 shall not exceed 0.35 percent by weight (14-day rolling average)	15A NCAC 2D .0524 40 CFR 60, Subpart DDD New Source Performance Standards for VOC from the Polymer Manufacturing Industry
Volatile Organic Compounds ^{abcde}	See “Multiple Emission Sources” Section VII.B. Work Practice Standards	15A NCAC 2D .0958
Volatile Organic Compounds ^c <small>(d for Y6)</small>	See “Multiple Emission Sources” Section VII.C. PSD Avoidance Condition	15A NCAC 2Q .0317
Volatile Organic Compounds <small>(d for Y7)</small>	See “Multiple Emission Sources” Section VII.D. PSD Avoidance Condition	15A NCAC 2Q .0317
Toxic Air Pollutants ^{abcd}	See “Multiple Emission Sources” Section VII.F. Allowable Ambient levels “STATE ENFORCEABLE ONLY”	15A NCAC 2D .1100

^aa. 15A NCAC 2D .1111: NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANT EMISSIONS: GROUP IV POLYMERS AND RESINS - GROUP 1 WASTEWATER

i. Regulatory Analysis

Wastewater is defined as waster which has a concentration of the HAPs acetaldehyde and 1, 4 dioxane (for PET production only) in excess of 1,000 ppmw at a flow greater than 10 liters per minute (2.64 gpm). The water from each esterifier reflux drum (the reflux drum is the overheads condenser hold tank for the ethylene glycol/water separator on the reactor) has sufficient concentration and flow rate to be considered a Group 1 wastewater. The point of determination where the water leaves the process has been determined to be each esterifier reflux drum. The Group 1 wastewater is transferred from this point to one of two organic stripping columns.

The organic air stripping columns were determined to be wastewater treatment devices that are required to remove acetaldehyde by 95 percent and 1, 4 dioxane by 37 percent according to table 9 of MACT subpart G requirements or reduce the mass flow rate of HAPs by 99 percent. The resulting column overheads are transferred by a closed vent system to a process heater which is considered a control device. The control device is required to have a minimum residence time of 0.5 seconds at 760 degrees C (this is also a compliance option that was selected for the facility).

The tankage, piping, valves, flanges, pumps, etc. that handle this wastewater from the esterifier reflux drum through are subject to the leak detection and repair requirements of 40 CFR 63.148 (subpart G requirements) but not MACT subpart H requirements because the wastewater HAP content does not exceed five percent by weight (i.e., not on organic HAP service). These

equipment are required to be covered or vented to a closed vent system and subsequently to control.

ii. Testing Requirements

The organic air stripping columns are required to test for acetaldehyde and 1, 4 dioxane removal efficiency. The Permittee is to establish a minimum air flow rate and a maximum wastewater flow rate through each respective column during the testing. During this testing the process heater combustion gas residence time and temperature must be verified.

iii. Monitoring Requirements

The Permittee is required to monitor wastewater flow to each organic stripping column such that it does not exceed the maximum permitted and the air flow rate to each column (velocity pressure) to ensure that it is not less than that required for adequate HAP removal. This is required on a daily basis.

The Permittee is required to continuously monitor each process heater firebox temperature to ensure that it does not fall below the minimum required temperature. The records are minimum 15 minute values to determine daily averages. It will be assumed that an engineering evaluation to provide a worst case residence time will show that monitoring of combustion air flow rate is not necessary.

iv. Recordkeeping Requirements

The Permittee is required to maintain records as follows:

- (A) A record that each waste management unit inspection required by the permit was performed.
- (B) A record that each inspection for control devices required by the permit was performed.
- (C) Records of air and wastewater flow rate.
- (D) Continuous records of the firebox temperature (or Dowtherm vapor) for each units receiving vapors for the closed vent system for the organic air stripping columns (ID Nos. TPA1WW and TPA2WW).
- (E) Records showing which Dowtherm vaporizer(s) is (are) receiving vapors from the closed vent system on each organic air stripping column (ID Nos. TPA1WW and TPA2WW).
- (F) Documentation of a decision to use a delay of repair due to unavailability of parts, the reason additional time was necessary (including a statement of why replacement parts were not kept on site and when the manufacturer promised delivery), and the date when repair was completed.
- (G) Record of any changes in the location at which the vent stream is introduced into the flame zone of a Dowtherm vaporizer.
- (F) Records of the daily average value of each continuously monitored Dowtherm vaporizer firebox (or Dowtherm vapor) temperature parameter for each operating day.

v. Reporting Requirements

Semi annual reports containing all instances of the following:

- (A) control equipment failure,
- (B) excursions of less than minimum air flow and maximum wastewater flow,
- (C) missing records during the calender month period,
- (D) all daily average firebox (or Dowtherm vapor) temperatures that are below 760 degrees C (1400 degrees F),
- (E) all operating days when insufficient monitoring data are collected, and
- (F) the duration of the periods when the minimum required monitoring data is not collected.

***b. 15A NCAC 2D .1111: NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANT EMISSIONS: LEAK INSPECTION PROVISIONS [40 CFR 63.148]**

- i. **Regulatory Analysis**

The Permittee is required to monitor closed vent systems venting VOC laden air from the organic air stripping column to a Dowtherm vaporizer and to individual drain systems defined as "the stationary system used to convey wastewater streams or residuals to a waste management unit or to discharge or disposal... includes hard-piping, all process drains and junction boxes, together with their associated sewer lines and other junction boxes, manholes, sumps, and lift stations, conveying wastewater streams or residuals."
- ii. **Monitoring Requirements**

The Permittee is required to conduct a leak inspection program with an OVA (Method 21) initially and conduct annual visual inspections for visible, audible, or olfactory indications of leaks thereafter of each closed vent system, each fixed roof, each cover, and each enclosure. In addition, for each vapor collection system or closed vent system that contains bypass lines that could divert a vent stream away from the control device and to the atmosphere, the Permittee shall secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure the valve is maintained in the closed position and the vent stream is not diverted through the bypass line.
- iii. **Recordkeeping and Reporting Requirements**

The Permittee shall record and report the following information.

 - (A) Identification of equipment determined to be unsafe or difficult to inspect along with reasons for why it is so and plans to eventually inspect these equipment.
 - (B) For each vapor collection system or closed vent system that contains bypass lines that could divert a vent stream away from the control device and to the atmosphere, the Permittee shall record whether the monthly visual inspection of the seals or closure mechanisms has been done, and shall record and report the occurrence of all periods when the seal mechanism is broken, the bypass line valve position has changed, or the key for a lock-and key type configuration has been checked out, and records of any carseal that has broken.
 - (C) For each inspection during which a leak is detected, a record of the information specified below in (1) through (8).
 - (1) The instrument identification numbers; operator name or initials; and identification of the equipment.
 - (2) The date the leak was detected and the date of the first attempt to repair the leak.
 - (3) Maximum instrument reading measured after the leak is successfully repaired or determined to be nonrepairable.
 - (4) "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.
 - (5) The name, initials, or other form of identification of the Permittee (or designee) whose decision it was that repair could not be effected without a shutdown.
 - (6) The expected date of successful repair of the leak if a leak is not repaired within 15 calendar days.
 - (7) Dates of shutdowns that occur while the equipment is unrepaired.
 - (8) The date of successful repair of the leak.
 - (D) For each inspection during which no leaks are detected, a record and statement that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.
 - (E) For each visual inspection conducted during which no leaks are detected, a record and statement that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.

^{bd}c. **15A NCAC 2D .1111: NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANT EMISSIONS: GROUP IV POLYMERS AND RESINS - GROUP 2 WASTEWATER**

- i. **Regulatory Analysis**
All wastewater streams that do not qualify as Group 1 wastewater streams are Group 2 wastewater streams.
- ii. **Monitoring Requirements**
No monitoring is required
- iii. **Recordkeeping Requirements**
All records pertaining to the points of determination (i.e., where the process water becomes wastewater), the analyses used to determine the HAP concentrations, and the flow weighted annual average concentration of acetaldehyde and 1,4 dioxane (ppmw).
- iv. **Reporting Requirements**
The Permittee is obligated to report if changes cause any Group 2 wastewater stream to become a Group 1 wastewater stream.

^dd. **15A NCAC 2D .0524: NEW SOURCE PERFORMANCE STANDARDS FOR VOC EMISSIONS FROM THE POLYMER MANUFACTURING INDUSTRY [40 CFR 60, Subpart DDD]**

- i. **Regulatory Analysis**
The steam jet hotwell for polymerization lines Y6 and Y7 are subject to new source performance standards for volatile organic compound emissions from the polymer manufacturing industry. The Permittee is required to maintain the ethylene glycol concentration in the hotwell water less than 0.35 percent by weight on a rolling 14 day average.
- ii. **Testing Requirements**
The Permittee is required to determine the ethylene glycol concentration in the hot well water daily.
- iii. **Monitoring Requirements**
The Permittee is required to monitor the daily ethylene glycol concentration in the hotwell for lines Y6 and Y7 and to determine the average 14-day concentration each day.
- iv. **Recordkeeping Requirements**
Records of the daily ethylene glycol concentration determinations, calculation of 14-day averages, plus any process changes are required.
- v. **Reporting Requirements**
Exceedances of the standard are required to be reported.

F. Cooling Towers

- a North cooling tower (ID No. ES4011)
- a East cooling tower (ID No. ES4012)
- a West cooling tower (ID No. ES4013)
- b No. 1 cooling tower (ID No. ES4055)
- c No. 2 cooling tower (ID No. ES4056)
- c No. 3 cooling tower (ID No. ES4066)

1. Description

The cooling towers reduce the temperature of water used to remove heat from processes directly or indirectly, and from condensate received from various plant processes. The water is cooled by evaporation and is returned to the plant for reuse.

2. Applicable Regulatory Requirements

The following table provides a summary of limits and standards for the emission source(s) described above:

Regulated Pollutant	Limits/Standards	Applicable Regulation
Hazardous Air Pollutants ^{abc}	Group 2 wastewater	15A NCAC 2D .1111 National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins
Hazardous Air Pollutants ^{abc}	See “Multiple Emission Sources” Section VII.A.1. General Recordkeeping and Reporting	15A NCAC 2D .1111 (40 CFR 63, Subpart JJJ) National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins
Volatile Organic Compounds ^{abc}	See “Multiple Emission Sources” Section VII.B. Work Practice Standards	15A NCAC 2D .0958
Volatile Organic Compounds ^{bc}	See “Multiple Emission Sources” Section VII.C. PSD Avoidance Condition	15A NCAC 2Q .0317
Volatile Organic Compounds ^{bc}	See “Multiple Emission Sources” Section VII.D. PSD Avoidance Condition	15A NCAC 2Q .0317
Toxic Air Pollutants ^{ab}	See “Multiple Emission Sources” Section VII.F. Allowable Ambient levels “STATE ENFORCEABLE ONLY”	15A NCAC 2D .1100

^{abc}**a. 15A NCAC 2D .1111: NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANT EMISSIONS: GROUP IV POLYMERS AND RESINS - GROUP 2 WASTEWATER**

- i. Regulatory Analysis
All wastewater streams that do not qualify as Group 1 wastewater streams are Group 2 wastewater streams.
- ii. Monitoring Requirements
No monitoring is required
- iii. Recordkeeping Requirements

All records pertaining to the points of determination (i.e., where the process water becomes wastewater), the analyses used to determine the HAP concentrations, and the flow weighted annual average concentration of acetaldehyde and 1,4 dioxane (ppmw).

iv. Reporting Requirements

The Permittee is obligated to report if changes cause any Group 2 wastewater stream to become a Group 1 wastewater stream.

G. Utilities

- a Boiler No. 1 (ID No. ES6022A) with multiclone (ID No. CD6022A) and side stream fabric filter (ID No. CD6022B)
- a Boiler No. 2 (ID No. ES6022B) with multiclone (ID No. CD6022C) and fabric filter (ID No. CD6022D)
- a Boiler No. (ID No. ES6023)
- b flyash silo (ID No. ES6024) with fabric filter (ID No. CD6024)
- a Dowtherm vaporizer No. 1 (ID No. ES6006)
- a Dowtherm vaporizer No. 2 (ID No. ES6007)
- a Dowtherm vaporizer No. 3 (ID No. ES6008)
- a Dowtherm vaporizer No. 4 (ID No. ES6009)
- a Dowtherm vaporizer No. 5 (ID No. ES6010)
- a Dowtherm vaporizer No. 6 (ID No. ES6011)
- a Dowtherm vaporizer No. 7 (ID No. ES6012)
- c Dowtherm vaporizer No. 8 (ID No. ES6031)
- c Dowtherm vaporizer No. 9 (ID No. ES6032)
- d Dowtherm vaporizer No. 10 (ID No. ES6034)

1. Description

These units provide process heat.

2. Applicable Regulatory Requirements

The following table provides a summary of limits and standards for the emission source(s) described above:

Regulated Pollutant	Limits/Standards	Applicable Regulation
Particulate Matter ^{acd}	<p>Particulate matter emissions shall not exceed 0.20 pounds per million Btu heat input for Boilers No. 1, No. 2; and No. 3 and Dowtherm heaters No. 1 through No. 7.</p> <p>Particulate matter emissions shall not exceed 0.19 pounds per million Btu heat input for Dowtherm Heaters No. 8, No. 9, and No. 10.</p>	15A NCAC .0503
Particulate Matter ^b	<p>particulate emissions shall not exceed the rate prescribed by the process weight equations: For process rates up to 30 tons per hour: $E = 4.10 \times P^{0.67}$ For process rates greater than 30 tons per hour: $E = 55.0 \times P^{0.11} - 40$ Where: E = allowable emission rate in pounds per hour, and P = process weight in tons per hour</p>	15A NCAC 2D .0515
Sulfur Dioxide ^{ac}	sulfur dioxide emissions shall not exceed 2.3 pounds per million Btu heat input	15A NCAC .0516

Regulated Pollutant	Limits/Standards	Applicable Regulation
Visible Emissions ^{abcd}	visible emissions shall not exceed 20 percent opacity for Dowtherm vaporizers No. 7 through No. 10 and 40 percent for Boilers No. 1, No. 2, No. 3, Dowtherm vaporizers No. 1 through No. 6, and the flyash silo	15A NCAC 2D .0521
Sulfur Dioxide ^{cd}	The sulfur content of the fuel oil combusted in Dowtherm heaters No. 8, No. 9, and No. 10 shall not exceed 0.5 percent by weight.	15A NCAC 2D .0524 (40 CFR 60, Subpart Dc) New Source Performance Standards for Commercial-Industrial-Institutional Steam Generating Units
Toxic Air Pollutants ^{acd}	See “Multiple Emission Sources” Section VII.F. Allowable Ambient levels “STATE ENFORCEABLE ONLY”	15A NCAC 2D .1100
Volatile Organic Compounds ^c	See “Multiple Emission Sources” Section VII.C. PSD Avoidance Condition	15A NCAC 2Q. 0317
Volatile Organic Compounds ^d	See “Multiple Emission Sources” Section VII.D. PSD Avoidance Condition	15A NCAC 2Q. 0317
Sulfur Dioxide and Nitrogen Oxides ^{cd}	See “Multiple Emission Sources” Section VII.E. PSD Avoidance Condition	15A NCAC 2Q. 0317

^{acd}**a. 15A NCAC 2D .0503: PARTICULATES FROM FUEL BURNING INDIRECT HEAT EXCHANGERS**

- i. **Regulatory Analysis**
Emissions of particulate matter from Boilers No. 1, No.2, and No. 3; and Dowtherm vaporizers No. 1 through No. 7 shall not exceed 0.20 pounds per million Btu heat input. Emissions of particulate matter from Dowtherm vaporizers No. 8, No. 9, and No. 10 shall not exceed 0.19 pounds per million Btu heat input.
- ii. **Testing**
The Permittee is required to demonstrate compliance with the emission limit above by testing the coal fired boiler No. 1 (ID No. ES6022A) for particulate matter and the results submitted one year after permit issuance. Testing was required because the unit employs a cyclone in parallel with a side stream fabric filter and the last test conducted to demonstrate compliance was in 1996 (i.e., greater than five years ago).
- iii. **Monitoring**
Inspection and maintenance is required for fabric filters and the cyclone as recommended by the manufacturer. As a minimum the Permittee is required to conduct an annual internal inspection of the multicyclone and baghouse structural integrity, the condition of the fabric filters; and a monthly external visual inspection of the system ductwork, multicyclone, and baghouse for leaks.
- iv. **Recordkeeping**
The Permittee is required to maintain the results of inspection and maintenance in a logbook on-site and made available to an authorized representative upon request. Records include: the date and time of each recorded action; the results of each inspection; a report of any maintenance performed on the multicyclone and fabric filter system; and any variance from manufacturer’s recommendations, if any, and corrections made.

- v. Reporting
Semi annual reports of any maintenance performed on the multicyclone and fabric filter system is required.

^bb. 15A NCAC 2D .0515: PARTICULATES FROM MISCELLANEOUS INDUSTRIAL PROCESSES

- i. Regulatory Analysis
Emissions of particulate matter from the fly ash silo shall not exceed an allowable emission rate as calculated by the equations in 15A NCAC 2D .0515.
- ii. Monitoring
Inspection and maintenance is required for fabric filter as recommended by the manufacturer. As a minimum the Permittee is required to conduct an annual inspection of the baghouse structural integrity, the condition of the fabric filters; and a monthly external visual inspection of the system ductwork and baghouse for leaks.
- iii. Recordkeeping
The Permittee is required to maintain the results of inspection and maintenance in a logbook on-site and made available to an authorized representative upon request. Records include: the date and time of each recorded action; the results of each inspection; a report of any maintenance performed on the fabric filter system; and any variance from manufacturer's recommendations, if any, and corrections made.
- iv. Reporting
Semi annual reports of any maintenance performed on the fabric filter system is required.

^ac. 15A NCAC 2D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES

- i. Regulatory Analysis
Emissions of sulfur dioxide from Boilers No. 1, No. 2, and No. 3, and Dowtherm Vaporizers No. 1 through No. 7 shall not exceed 2.3 pounds per million Btu heat input. The maximum sulfur content of any coal received and burned in the boiler shall not exceed 1.5 percent and the maximum sulfur content of any oil received and burned in the boilers and Dowtherm vaporizers shall not exceed 2.1 percent by weight in order to met this requirement.
- ii. Monitoring/Recordkeeping
No monitoring/recordkeeping is required for sulfur dioxide emissions from natural gas for these sources. The Permittee is required to monitor the maximum sulfur content of coal and oil.
- iii. Reporting
The Permittee shall submit a summary report of the coal supplier and fuel oil supplier certifications semi annually.

^{abcd}**d. 15A NCAC 2D .0521: CONTROL OF VISIBLE EMISSIONS**

- i. **Regulatory Analysis**
Visible emissions from the Dowtherm vaporizers No. 7 through No. 10 shall not be more than 20 percent opacity and boilers No. 1, No. 2, No. 3, Dowtherm Vaporizers No. 1 through No. 6, and the flyash silo shall not be more than 40 percent opacity
- ii. **Monitoring**
Daily monitoring of combustion sources is required when burning coal and No. 6 fuel oil. Monthly monitoring of the fly ash silo is required.
- iii. **Recordkeeping**
Records of the results of the monitoring are required to be maintained
- iv. **Reporting**
A summary report of the observations is required semi annually.

^{cd}**e. 15A NCAC 2D .0524: NSPS 40 CFR PART 60 SUBPART Dc**

- i. **Regulatory Analysis**
The maximum sulfur content of any fuel oil received and burned in the Dowtherm vaporizers No. 8, No. 9, and No. 10 shall not exceed 0.5 percent by weight.
- ii. **Monitoring**
The Permittee is required to prove fuel oil sulfur content with fuel supplier certification for distillate oil and sampling and analysis of the oil in the fuel tank after each new shipment of oil for residual fuel oils.
- iii. **Recordkeeping**
The Permittee must keep record of the fuel sulfur content determinations and maintain records of the amounts of each fuel fired during each day.
- iv. **Reporting**
The Permittee is required to submit a semi annual summary report of the sulfur content of the distillate or residual fuel oil fired.

VII. Multiple Emission Source Limits

A. A. Facility Wide - Affected Units Pursuant to 40 CFR 63, Subpart JJJ

The following table provides a summary of limits and standards for the emission source(s) describe above:

Regulated Pollutant	Limits/Standards	Applicable Regulation
Hazardous Air Pollutants	General Recordkeeping and Reporting	15A NCAC 2D .1111 (40 CFR 63, Subpart JJJ)
Hazardous Air Pollutants	Maintenance Wastewater Requirements	15A NCAC 2D .1111 (40 CFR 63, Subpart JJJ)
Hazardous Air Pollutants	Heat Exchangers	15A NCAC 2D .1111 (40 CFR 63, Subpart JJJ)
Hazardous Air Pollutants	Equipment Leak Provisions	15A NCAC 2D .1111 (40 CFR 63, Subpart JJJ)
Hazardous Air Pollutants	Startup, Shutdown, and Malfunction	15A NCAC 2D .1111 (40 CFR 63, Subpart JJJ)

1. 15A NCAC 2D .1111: NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANT EMISSIONS: GROUP IV POLYMERS AND RESINS GENERAL RECORDKEEPING AND REPORTING PROVISIONS

These provisions are verbatim of the requirements of 40 CFR 63.1335 as they apply to the affected sources at this facility.

2. 15A NCAC 2D .1111: NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANT EMISSIONS: GROUP IV POLYMERS AND RESINS MAINTENANCE WASTEWATER REQUIREMENTS

These provisions are verbatim of the requirements of 40 CFR 63.105 as modified by 40 CFR 63.1330(c) (i.e., HAPs include only acetaldehyde and 1,4 dioxane).

3. 15A NCAC 2D .1111: NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANT EMISSIONS: GROUP IV POLYMERS AND RESINS HEAT EXCHANGER REQUIREMENTS

These provisions are verbatim of the requirements of 40 CFR 63.104 as modified by 40 CFR 63.1328 (e.g., HAPs include only acetaldehyde and 1,4 dioxane).

4. 15A NCAC 2D .1111: NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANT EMISSIONS: GROUP IV POLYMERS AND RESINS EQUIPMENT LEAK PROVISIONS [40 CFR 63.1331(b)]

These provisions are verbatim of the requirements of 40 CFR 63.1331(b) which assumes that all affected sources are either in vacuum or heavy liquid service (i.e., exempt). This is based on the premise that there are no streams in HAP service that handle any HAP except ethylene glycol, a heavy liquid.

5. 15A NCAC 2D .1111: NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANT EMISSIONS: GROUP IV POLYMERS AND RESINS START UP, SHUT DOWN MALFUNCTION

These provisions are verbatim of the requirements of 40 CFR 63.1335(b).

B. Facility Wide - Volatile Organic Compound Emission Sources

The following table provides a summary of limits and standards for the emission source(s) describe above:

Regulated Pollutant	Limits/Standards	Applicable Regulation
Volatile Organic Compounds	Work Practice Standards	15A NCAC 2D .0958

1. 15A NCAC 2D .0958: WORK PRACTICES FOR SOURCES OF VOLATILE ORGANIC COMPOUNDS

- i. **Regulatory Analysis**
 All sources that use volatile organic compounds (VOC) whose emissions of VOC are greater than 15 pounds per day are required to employ specific work practice standards.
- ii. **Monitoring**
 Monthly visual inspection of all operations and processes utilizing volatile organic compounds is required to ensure that work practices are being employed.
- iii. **Recordkeeping**
 The results of the inspections shall be maintained in a logbook which shows the date and time of each inspection and the results of each inspection noting whether or not noncompliant conditions were observed.
- iv. **Reporting**
 Semi annual reports of observations is required.

C. Facility Wide- All Volatile Organic Compound Emissions from Sources Associated with Y6 PET Manufacture

The following table provides a summary of limits and standards for the emission source(s) describe above:

Regulated Pollutant	Limits/Standards	Applicable Regulation
Volatile Organic Compounds	PSD Avoidance Condition (<40 tpy)	15A NCAC 2Q .0317

1. LIMITATION TO AVOID 15A NCAC 2D .0530 "PREVENTION OF SIGNIFICANT DETERIORATION"

- i. **Regulatory Analysis**
 Volatile organic compound emissions from emission sources of polymerization line Y6, including emissions from TPA2 esterification sources and wastewater sources that are attributable to polymerization line Y6 production must be less than 40 tons per year, calculated as a rolling annual total to be calculated at the end of each month for the previous 12 months.
- ii. **Recordkeeping**
 The Permittee shall calculate monthly VOC emissions from esterification, polymerization, and wastewater for total production of PET derived from raw materials entering the TPA2 esterification process.
- iii. **Reporting**

Semi annual a summary report shall contain the rolling annual total of VOC's emitted for each of the three month periods of the quarter and the monthly VOC emissions for each of the 14 months used in the rolling totals (i.e., 12 previous months plus one for each additional rolling annual total during the quarter).

D. Facility Wide- All Volatile Organic Compound Emissions from Sources Associated with Y7 PET Manufacture

The following table provides a summary of limits and standards for the emission source(s) describe above:

Regulated Pollutant	Limits/Standards	Applicable Regulation
Volatile Organic Compounds	PSD Avoidance Condition (<40 tpy)	15A NCAC 2Q .0317

1. LIMITATION TO AVOID 15A NCAC 2D .0530 "PREVENTION OF SIGNIFICANT DETERIORATION"

- i. **Regulatory Analysis**
Volatile organic compound emissions from emission sources of polymerization line Y7, including emissions from TPA2 esterification sources and wastewater sources that are attributable to polymerization line Y7 production must be less than 40 tons per year, calculated as a rolling annual total to be calculated at the end of each month for the previous 12 months.
- ii. **Recordkeeping**
The Permittee shall calculate monthly VOC emissions from esterification, polymerization, and wastewater for total production of PET derived from raw materials entering the TPA2 esterification process.
- iii. **Reporting**
Semi annual a summary report shall contain the rolling annual total of VOC's emitted for each of the three month periods of the quarter and the monthly VOC emissions for each of the 14 months used in the rolling totals (i.e., 12 previous months plus one for each additional rolling annual total during the quarter).

E. Dowtherm Vaporizers Nos. 8, 9 and 10 (ID Nos ES6031, ES6032, and ES6034)

The following table provides a summary of limits and standards for the emission source(s) describe above:

Regulated Pollutant	Limits/Standards	Applicable Regulation
Sulfur dioxide and Nitrogen Oxides	PSD Avoidance Condition (<40 tpy each)	15A NCAC 2Q .0317

1. LIMITATION TO AVOID 15A NCAC 2D .0530 "PREVENTION OF SIGNIFICANT DETERIORATION"

- i. **Regulatory Analysis**
The Dowtherm vaporizers Nos. 8, 9, and 10 (ID Nos. ES-6031, ES-6032, and ES-6034) shall not emit in excess of 40 tons per year of nitrogen oxides and 40 tons per year of sulfur dioxide calculated as 12-consecutive month rolling totals.
- ii. **Recordkeeping**
The Permittee shall record the type and amount of fuel used in each unit and calculate monthly sulfur dioxide and nitrogen oxides emitted from Dowtherm vaporizer Nos. 8, 9, and 10 using current U.S.

EPA AP-42 emission factors. These calculations must be retained for review if so deemed by the DAQ.

iii. Reporting

The Permittee must submit a summary report containing the rolling annual total of sulfur dioxide and nitrogen oxides emitted for each of the three month periods of the quarter and the monthly sulfur dioxide and nitrogen dioxide emissions for each of the 14 months used in the rolling totals (i.e., 12 previous months plus one for each additional rolling annual total during the quarter).

STATE ONLY REQUIREMENTS

F. Facility Wide- Emission Sources of Toxic Air Pollutants

The following table provides a summary of limits and standards for the emission source(s) describe above:

Regulated Pollutant	Limits/Standards	Applicable Regulation
Toxic Air Pollutants	Allowable Ambient Levels	15A NCAC 2D .1100

STATE-ONLY REQUIREMENT:

1. **TOXIC AIR POLLUTANT EMISSIONS LIMITATION AND REQUIREMENT** - Pursuant to 15A NCAC 2D .1100 and in accordance with the approved application for an air toxic compliance demonstration, the following permit limit shall not be exceeded:

EMISSION SOURCE(S)	TOXIC AIR POLLUTANT(S)	EMISSION LIMIT(S)
I1 polymerizer (ID No. ESI1B) and I1 finisher (ID No. ESI1C) from vent 1053	acetaldehyde acetic acid 1,4 dioxane	0.0152 lb/hr 0.0073 lb/hr 0.0043 lb/hr
I1 spinning machines from vents 1058, 1060, and 1061	acetaldehyde ethylene glycol monomethyl ether formaldehyde	2.6594 lb/hr 0.1641 lb/hr 0.1005 lb/hr
I1 post finisher No. 1 (ID No. I1D1) from vent 1075	acetaldehyde acetic acid 1,4 dioxane	0.0114 lb/hr 0.0024 lb/hr 0.0011 lb/hr
I1 post finisher No. 2 (ID No. I1D2) from vent 1076	acetaldehyde acetic acid 1,4 dioxane	0.0836 lb/hr 0.0133 lb/hr 0.0071 lb/hr
Y4 and Y5 spinning machines (ID Nos. Y4SM and Y5SM) from vents 4003, 4004, 4005, 4006, 4007, 4008, 4009, 4010, 4025, 4038, 4041, 4042, 4043, and 4044	acetaldehyde ethylene glycol monomethyl ether formaldehyde	13.4615 lb/hr 5.6 lb/hr 0.4179 lb/hr
North East and West cooling towers (ID Nos. ES4011, ES4012, and ES4013) from vent 4011	acetaldehyde 1, 4 dioxane	226.6797 lb/hr 3.3880 lb/hr

EMISSION SOURCE(S)	TOXIC AIR POLLUTANT(S)	EMISSION LIMIT(S)
Y4 upflow prepolymerizer (ID No. Y4A1), Y4 finisher (ID No. Y4B1) and Y4 hotwell (ID No. ES4016) from vents 4016 and 4032	acetaldehyde acetic acid 1, 4 dioxane	0.7977 lb/hr 0.0181 lb/hr 0.0066 lb/hr
Y5 upflow prepolymerizer (ID No. Y5A1), Y5 finisher (ID No. Y5B1) and Y4 hotwell (ID No. ES4017) from vents 4017 and 4035	acetaldehyde acetic acid 1, 4 dioxane	0.7977 lb/hr 0.0133 lb/hr 0.0066 lb/hr
organic wastewater stripping column retention tank (ID No. ES4046) from vent 4046	acetaldehyde 1, 4 dioxane	0.0013 lb/hr 0.0002 lb/hr
TPA1 seal tank (ID No. ES4048) from vent 4048	acetaldehyde acetic acid 1, 4 dioxane	4.2550 lb/hr 0.0290 lb/hr 0.0024 lb/hr
Y6 and Y7 spinning machines (ID Nos. Y6SM and Y7SM) from vents 4052, 4053, 4054, 4067, 4068, and 4104	acetaldehyde ethylene glycol monomethyl ether formaldehyde	29.8863 lb/hr 5.6827 lb/hr 0.94 lb/hr
No. 1, No. 2, and No. 3 cooling towers (ID Nos. ES 4055, ES4056, and ES4066) from vent 4055	acetaldehyde 1, 4 dioxane	79.1479 lb/hr 1.4674 lb/hr
Y6 upflow prepolymerizer (ID No. Y6A1), Y6 finisher (ID No. Y6B1), Y7 upflow prepolymerizer (ID No. Y7A1), Y7 finisher (ID No. Y7B1), and Y6/Y7 hotwell (ID No. ES4057) from vents 4057, 4058, and 4065	acetaldehyde acetic acid 1, 4 dioxane	0.4153 lb/hr 0.5107 lb/hr 0.0302 lb/hr
TPA2 seal tank (ID No. ES4060) from vent 4060	acetaldehyde acetic acid benzene 1, 4 dioxane	8.6746 lb/hr 1.9836 lb/hr 0.0055 lb/hr 0.0084 lb/hr
recycle ethylene glycol tank (ID No. ES5008) from vent 5008	acetaldehyde acetic acid 1, 4 dioxane	0.2659 lb/hr 0.0010 lb/hr 0.0032 lb/hr
methanol tank (ID No. ES5025) from vent 5025	acetaldehyde 1, 4 dioxane	0.1520 lb/hr 0.0006 lb/hr
TPA2 organic stripping column feed tank (ID No. ES4103) from vent 5026	acetaldehyde	3.1280 lb/hr
spent ethylene glycol tank (ID No. ES5029) from vent 5029	acetaldehyde acetic acid 1, 4 dioxane	0.2659 lb/hr 0.0010 lb/hr 0.0003 lb/hr

EMISSION SOURCE(S)	TOXIC AIR POLLUTANT(S)	EMISSION LIMIT(S)
spent ethylene glycol tank (ID No. ES5030) from vent 5030	acetaldehyde acetic acid 1, 4 dioxane	0.2659 lb/hr 0.0010 lb/hr 0.0003 lb/hr
spent ethylene glycol tank (ID No. ES5031) from vent 5031	acetaldehyde acetic acid 1, 4 dioxane	0.2659 lb/hr 0.0010 lb/hr 0.0003 lb/hr
spent ethylene glycol tank (ID No. ES5032) from vent 5032	acetaldehyde acetic acid 1, 4 dioxane	0.2659 lb/hr 0.0010 lb/hr 0.0003 lb/hr
spent ethylene glycol tank (ID No. ES5033) from vent 5033	acetaldehyde acetic acid 1, 4 dioxane	0.2659 lb/hr 0.0010 lb/hr 0.0003 lb/hr
spent ethylene glycol tank (ID No. ES5034) from vent 5034	acetaldehyde acetic acid 1, 4 dioxane	0.2659 lb/hr 0.0010 lb/hr 0.0003 lb/hr
methanol tanks (ID Nos. ES5044 and ES5045) from vent 5044	acetaldehyde 1, 4 dioxane	0.0760 lb/hr 0.0002 lb/hr
TPA1 organic stripper column feed tank (ID No. ES5046) from vent 5046	acetaldehyde 1, 4 dioxane	5.4074 lb/hr 0.0002 lb/hr
recycled ethylene glycol tank (ID No. ES5054) from vent 5054	acetaldehyde acetic acid 1, 4 dioxane	0.2609 lb/hr 0.0010 lb/hr 0.0003 lb/hr
methanol truck loading rack (ID No. ES5063) from vent 5063	acetaldehyde 1, 4 dioxane	0.1292 lb/hr 0.0004 lb/hr
Dowtherm vaporizer No. 1 (ID No. ES6006) from vent 6006	ammonia benzene benzo(a)pyrene beryllium cadmium dichlorobenzene fluoride formaldehyde hexane isomers hydrogen chloride hydrogen fluoride manganese mercury methyl chloroform nickel toluene xylene	1.6146 lb/hr 0.0004 lb/hr 0.0022 lb/hr 0.00005 lb/hr 0.0006 lb/hr 364.1586 lb/hr 0.3275 lb/hr 0.0095 lb/hr 23.0607 lb/hr 6.0269 lb/hr 0.5843 lb/hr 0.0372 lb/hr 0.0055 lb/hr 256.2746 lb/hr 0.1454 lb/hr 7.7572 lb/hr 0.1682 lb/hr

EMISSION SOURCE(S)	TOXIC AIR POLLUTANT(S)	EMISSION LIMIT(S)
Dowtherm vaporizer No. 2 (ID No. ES6007) from vent 6007	ammonia benzene benzo(a)pyrene beryllium cadmium dichlorobenzene fluoride formaldehyde hexane isomers hydrogen chloride hydrogen fluoride manganese mercury methyl chloroform nickel toluene xylene	1.6146 lb/hr 0.0004 lb/hr 0.0022 lb/hr 0.00005 lb/hr 0.0006 lb/hr 364.1586 lb/hr 0.3275 lb/hr 0.0095 lb/hr 23.0607 lb/hr 6.0269 lb/hr 0.5843 lb/hr 0.0372 lb/hr 0.0055 lb/hr 256.2746 lb/hr 0.1454 lb/hr 7.7572 lb/hr 0.1682 lb/hr
Dowtherm vaporizer No. 3 (ID No. ES6008) from vent 6008	ammonia benzene benzo(a)pyrene beryllium cadmium dichlorobenzene fluoride formaldehyde hexane isomers hydrogen chloride hydrogen fluoride manganese mercury methyl chloroform nickel toluene xylene	1.0128 lb/hr 0.00016 lb/hr 0.0043 lb/hr 0.00003 lb/hr 0.0004 lb/hr 227.6 lb/hr 0.2015 lb/hr 0.0058 lb/hr 14.0927 lb/hr 3.6625 lb/hr 0.3603 lb/hr 0.023 lb/hr 0.0034 lb/hr 163.0838 lb/hr 0.0896 lb/hr 4.8340 lb/hr 0.1043 lb/hr

EMISSION SOURCE(S)	TOXIC AIR POLLUTANT(S)	EMISSION LIMIT(S)
Dowtherm vaporizer No. 4 (ID No. ES6009) from vent 6009	acetaldehyde ammonia benzene benzo(a)pyrene beryllium cadmium dichlorobenzene 1, 4 dioxane fluoride formaldehyde hexane isomers hydrogen chloride hydrogen fluoride manganese mercury methyl chloroform nickel toluene xylene	6.3318 lb/hr 1.2330 lb/hr 0.0002 lb/hr 0.0052 lb/hr 0.00004 lb/hr 0.0005 lb/hr 273.19 lb/hr 0.0863 lb/hr 0.2519 lb/hr 0.0071 lb/hr 17.2956 lb/hr 4.4507 lb/hr 0.448 lb/hr 0.0284 lb/hr 0.0042 lb/hr 194.1474 lb/hr 0.1090 lb/hr 5.8804 lb/hr 0.1276 lb/hr
Dowtherm vaporizer No. 5 (ID No. ES6010) from vent 6010	acetaldehyde ammonia benzene benzo(a)pyrene beryllium cadmium dichlorobenzene 1, 4 dioxane fluoride formaldehyde hexane isomers hydrogen chloride hydrogen fluoride manganese mercury methyl chloroform nickel toluene xylene	6.3318 lb/hr 1.6146 lb/hr 0.0002 lb/hr 0.0067 lb/hr 0.00005 lb/hr 0.0006 lb/hr 348.9854 lb/hr 0.0863 lb/hr 0.3149 lb/hr 0.009 lb/hr 22.4202 lb/hr 5.5633 lb/hr 0.5648 lb/hr 0.0362 lb/hr 0.0052 lb/hr 248.5087 lb/hr 0.1332 lb/hr 7.4956 lb/hr 0.1616 lb/hr

EMISSION SOURCE(S)	TOXIC AIR POLLUTANT(S)	EMISSION LIMIT(S)
Dowtherm vaporizer No. 6 (ID No. ES6011) from vent 6011	acetaldehyde ammonia benzene benzo(a)pyrene beryllium cadmium dichlorobenzene 1, 4 dioxane fluoride formaldehyde hexane isomers hydrogen chloride hydrogen fluoride manganese mercury methyl chloroform nickel toluene xylene	6.3318 lb/hr 1.6146 lb/hr 0.0002 lb/hr 0.0067 lb/hr 0.00005 lb/hr 0.0006 lb/hr 348.9854 lb/hr 0.0863 lb/hr 0.3149 lb/hr 0.009 lb/hr 22.4202 lb/hr 5.5633 lb/hr 0.5648 lb/hr 0.0362 lb/hr 0.0052 lb/hr 248.5087 lb/hr 0.1332 lb/hr 7.4956 lb/hr 0.1616 lb/hr
Dowtherm vaporizer No. 7 (ID No. ES6012) from vent 6012	acetaldehyde ammonia benzene benzo(a)pyrene beryllium cadmium dichlorobenzene 1, 4 dioxane fluoride formaldehyde hexane isomers hydrogen chloride hydrogen fluoride manganese mercury methyl chloroform nickel toluene xylene	6.3318 lb/hr 1.6146 lb/hr 0.0002 lb/hr 0.0067 lb/hr 0.00005 lb/hr 0.0006 lb/hr 348.9854 lb/hr 0.0863 lb/hr 0.3149 lb/hr 0.009 lb/hr 22.4202 lb/hr 5.5633 lb/hr 0.5648 lb/hr 0.0362 lb/hr 0.0052 lb/hr 248.5087 lb/hr 0.1332 lb/hr 7.4956 lb/hr 0.1616 lb/hr
ammonium hydroxide tank (ID No. ES6020) from vent 6020	ammonia	18.2012 lb/hr

EMISSION SOURCE(S)	TOXIC AIR POLLUTANT(S)	EMISSION LIMIT(S)
boilers No. 1 and No. 2 (ID Nos. ES 6022A and ES6022B) from vent 6022	acetaldehyde ammonia benzene benzo(a)pyrene benzylchloride beryllium cadmium carbon disulfide chlorobenzene chloroform dichlorobenzene bis(2-ethylhexyl)phthalate dimethyl sulfate ethylene dibromide ethylene dichloride fluoride formaldehyde hexane isomers hydrogen chloride hydrogen fluoride manganese mercury methyl chloroform methylene chloride methyl ethyl ketone nickel perchloroethylene phenol styrene toluene xylene	0.1094 lb/hr 32.5860 lb/hr 0.1657 lb/hr 0.0549 lb/hr 845.0454 lb/hr 0.0070 lb/hr 0.00525 lb/hr 785.8922 lb/hr 9,295.5 lb/hr 90.8424 lb/hr 6,949.3607 lb/hr 126.7568 lb/hr 12.6757 lb/hr 8.4504 lb/hr 80.2793 lb/hr 6.2542 lb/hr 0.1782 lb/hr 440.0760 lb/hr 117.757 lb/hr 22.1055 lb/hr 74.7973 lb/hr 0.0392 lb/hr 4,876.9830 lb/hr 507.0272 lb/hr 15,633.3393 lb/hr 0.0938 lb/hr 4,013.9655 lb/hr 1,605.5862 lb/hr 17,914.9618 lb/hr 414.0183 lb/hr 6.1577 lb/hr
boiler No. 3 (ID No. ES6023) from vent 6023	ammonia benzene benzo(a)pyrene beryllium cadmium fluoride formaldehyde hexane isomers hydrogen chloride hydrogen fluoride manganese mercury methyl chloroform nickel toluene xylene	16.1462 lb/hr 0.0024 lb/hr 0.0219 lb/hr 0.0005 lb/hr 0.0058 lb/hr 3.1491 lb/hr 0.09 lb/hr 217.796 lb/hr 60.2693 lb/hr 5.8429 lb/hr 0.3569 lb/hr 0.052 lb/hr 2,407.4279 lb/hr 1.3325 lb/hr 73.8181 lb/hr 1.5944 lb/hr
wastewater treatment pond (ID No. ES6029)	acetaldehyde ammonia 1, 4 dioxane	46.8556 lb/hr 2.2018 lb/hr 2.1580 lb/hr

EMISSION SOURCE(S)	TOXIC AIR POLLUTANT(S)	EMISSION LIMIT(S)
Dowtherm vaporizer No. 9 (ID No. ES6031) from vent 6031	acetaldehyde ammonia benzene benzo(a)pyrene beryllium cadmium 1, 4 dioxane fluoride formaldehyde hexane isomers hydrogen chloride hydrogen fluoride manganese mercury methyl chloroform nickel toluene xylene	6.3318 lb/hr 1.7614 lb/hr 0.0004 lb/hr 0.0026 lb/hr 0.0009 lb/hr 0.0007 lb/hr 0.0863 lb/hr 0.3905 lb/hr 0.0125 lb/hr 26.2636 lb/hr 6.4905 lb/hr 0.633 lb/hr 0.6355 lb/hr 0.0232 lb/hr 279.5723 lb/hr 0.1538 lb/hr 8.7717 lb/hr 0.1806 lb/hr
Dowtherm vaporizer No. 9 (ID No. ES6032) from vent 6032	acetaldehyde ammonia benzene benzo(a)pyrene beryllium cadmium 1, 4 dioxane fluoride formaldehyde hexane isomers hydrogen chloride hydrogen fluoride manganese mercury methyl chloroform nickel toluene xylene	6.3318 lb/hr 1.7614 lb/hr 0.0004 lb/hr 0.0026 lb/hr 0.0009 lb/hr 0.0007 lb/hr 0.0863 lb/hr 0.3905 lb/hr 0.0125 lb/hr 26.2636 lb/hr 6.4905 lb/hr 0.633 lb/hr 0.6355 lb/hr 0.0232 lb/hr 279.5723 lb/hr 0.1538 lb/hr 8.7717 lb/hr 0.1806 lb/hr

EMISSION SOURCE(S)	TOXIC AIR POLLUTANT(S)	EMISSION LIMIT(S)
Dowtherm vaporizer No. 10 (ID No. ES6034) from vent 6034	acetaldehyde	6.3318 lb/hr
	ammonia	1.7614 lb/hr
	benzene	0.0004 lb/hr
	benzo(a)pyrene	0.0026 lb/hr
	beryllium	0.0009 lb/hr
	cadmium	0.0007 lb/hr
	1, 4 dioxane	0.0863 lb/hr
	fluoride	0.3905 lb/hr
	formaldehyde	0.0125 lb/hr
	hexane isomers	26.2636 lb/hr
	hydrogen chloride	6.4905 lb/hr
	hydrogen fluoride	0.633 lb/hr
	manganese	0.6355 lb/hr
	mercury	0.0232 lb/hr
	methyl chloroform	279.5723 lb/hr
	nickel	0.1538 lb/hr
toluene	8.7717 lb/hr	
xylene	0.1806 lb/hr	

There are nonmonitoring, recordkeeping, or reporting requirements associated with these limits.

VIII. Permit Shield (including non-applicable requirements)

In accordance with 2Q .0512, the permit contains a provision stating that compliance with the terms, conditions, and limitations of the Title V permit shall be deemed in compliance with applicable requirements specifically identified in the permit, as of the date of permit issuance. If the permit does not expressly state that a permit shield exists then it shall be presumed not to provide such a shield.

IX. General Conditions

The "General Conditions" section of the Title V Operating Permits lists additional applicable rule requirements that the permittee must adhere to, as with any other permit condition. These requirements in general are common to all Title V facilities. The general conditions include provisions such as annual fee payment, permit renewal and expiration, transfer of ownership or operation, property rights, submission of documents, inspections and entry procedures, reopen for cause, and severability.

X. Insignificant Activities

The insignificant activities listed in the application have been reviewed and verified to the extent possible with the information provided in the application and through emissions calculation experience. Because an emission source or activity is insignificant does not mean that the emission source or activity is exempted from any applicable requirement or that the owner or operator of the source is exempted from demonstrating compliance with any applicable requirement. Insignificant activities were determined to be as follows:

1. 3G2 north propane diol recycle tank (I2037A)
2. 3G2 south propane diol recycle tank (I2037B)
3. 3G2 titanium dioxide feed tank (I2031)
4. 3G2 catalyzed propane diol feed tank (I2037C)
5. 3G1 phosphoric acid/propane diol feed tank (I2038)
6. No. 2 fuel oil tank; 6,000 gallons (I4002)
7. Y4/Y5 diethylene glycol hold tank; 8,500 gallons (I4039)
8. Y4/Y5 KP-33™ hold tank; 9,000 gallons (I4040)
9. two Y4/Y5 caustic tanks and Y6/Y7 caustic tank (I4045, I4069, I4074)
10. Y4/Y5 and Y6/Y7 sodium hypochlorite tanks (I4070, I4075)
11. Y4/Y5 and Y6/Y7 potassium phosphate tanks (I4072, I4076)

12. three virgin ethylene glycol storage tanks (I5001, I5002; 150,000 gallons each and I5005; 300,000 gallons)
13. two refined propane diol tanks (I5006, I5007; 65,000 gallons each)
14. industrial waste finish oil tank (I5009; 1,000 gallons)
15. ten DRL6™ tanks (I50101, I50102, I50103, I50111, I50112, I50113, I50151, I50152, I50201, I50202)
16. recycled polyethylene glycol tank (I5021)
17. polyethylene glycol tank (I5022)
18. Dowtherm™ tank (I5023)
19. liquid 363 tank (I5028)
20. two virgin/refined triethylene glycol tanks (I5038, I5040)
21. isobutyl stearate tank (I5036)
22. NOPCO P™ tank (I5037)
23. Flexol™ 460 tank (I5039)
24. dimethyl terephthalate day tank (I5041)
25. carbon black/ethylene glycol tank (I5043)
26. two ethylene glycol heating medium tanks (I5049, I5053)
27. recycled triethylene glycol tank (I5050)
28. DY19™ tank (I5051)
29. DY25™ tank (I5052)
30. two waste finish separation tanks (I5055, I5057)
31. Nalco 7739 tank (I5056)
32. five No. 6 fuel oil tanks (I6001 and I6002 at 3,500 gallons each; I6025 and I6026 at 12,000 gallons each; and I6027 at one million gallons)
33. two gasoline tanks; 550 gallons each (I6013, I6014)
34. kerosine tank ; 550 gallons (I6015)
35. four diesel fuel tanks (I6016 and I6017 at 500 gallons each; I6019 at 400 gallons; and I6021 at 550 gallons)
36. ammonium hydroxide tank (I6020)
37. Nalco 7134™ tank (I6028)
38. waste finish oil tank (I6030)
39. chemistry laboratory (ICL)
40. industrial research laboratory (IRL)
41. Y4/Y5 finisher seals virgin ethylene glycol feed tank - Y5 103' level; 5,000 gallons (I4021)
42. Y4/Y5 virgin ethylene glycol hold tank (I4030)
43. Y6/Y7 virgin ethylene glycol hold tank (I4204)
44. Y5 ethylene glycol spare tank (I4029)
45. virgin propanediol storage tank: (ID No. I5061; 500,000 gallons)
46. No. 2 fuel oil tank for vaporizers; 130,000 gallons (IN2FO)
47. two 500 gallon diesel tanks for fire pumps (IFP1, IFP2)
48. spent propanediol tank No. 6 (I5003)
49. virgin propanediol tank No. 5 (I5004)
50. spent propanediol storage tank No. 36 (ID No. I5047)
51. spent propanediol storage tank No. 37 (ID No. I5048)
52. titanium dioxide/ethylene glycol feed tank; polymerization additive fixture (ID No. I1070)
53. Y4 phosphoric acid/ethylene glycol feed tank; polymerization additive fixture (ID No. I4018)
54. Y4 phosphoric acid/ethylene glycol mix tank; polymerization additive fixture (ID No. I4082)
55. Y4 phosphoric acid/ethylene glycol feed tank; polymerization additive fixture (ID No. I4083)
56. Y4 titanium dioxide/ethylene glycol mix tank; polymerization additive fixture (ID No. I4084)
57. Y4 titanium dioxide/ethylene glycol feed tank; polymerization additive fixture (ID No. I4020)
58. Y5 titanium dioxide/ethylene glycol mix tank; polymerization additive fixture (ID No. I4085)
59. Y5 titanium dioxide/ethylene glycol feed tank; polymerization additive fixture (ID No. I4086)
60. Y6 titanium dioxide/ethylene glycol mix tank; polymerization additive fixture (ID No. IY6TDMT)
61. Y6 titanium dioxide/ethylene glycol feed tank; polymerization additive fixture (ID No. IY6TDFT)
62. Y7 titanium dioxide/ethylene glycol mix tank; polymerization additive fixture (ID No. IY7TDMT)
63. Y4/Y5 diethylene glycol/ethylene glycol feed tank; polymerization additive fixture (ID No. I4089)
64. Y6/Y76 diethylene glycol/ethylene glycol feed tank; polymerization additive fixture (ID No. I4098)
65. Y4/Y5 KP33™/ethylene glycol mix tank; polymerization additive fixture (ID No. I4087)
66. Y4/Y5 KP33™/ethylene glycol feed tank; polymerization additive fixture (ID No. I4088)

67. Y6/Y7 KP33™/ethylene glycol feed tank; polymerization additive fixture (ID No. IY6Y7FT)
68. Y4 KP21 feed tank; 400 gallons, polymerization additive fixture (ID No. I4084)
69. Y5 KP21 mix tank; 1,650 gallons, polymerization additive fixture (ID No. I4202)
70. Y5 KP21 feed tank; 168 gallons, polymerization additive fixture (ID No. I4203)
71. antimony feed tank; 6,750 gallons, polymerization additive fixture (ID No. I)
72. titanium dioxide feed tank; polymerization additive fixture (ID No. I)
73. Y4 antimony mix tank; polymerization additive fixture (ID No. I4027)
74. Y4 antimony feed tank; polymerization additive fixture (ID No. I4019)
75. Y4/Y5 yarn jet water recycle tank (ID No. I4036)
76. Y4/Y5 Yarn jet water overflow tank (ID No. I4037)
77. Y4/Y5 CP recycle ethylene glycol feed tank (ID No. I4024)
78. Y6/Y7 CP recycle ethylene glycol feed tank (ID No. I4095)
79. Y5 CP recycle ethylene glycol spare tank (ID No. I4029)
80. Y4/Y5/Y6 triethylene glycol receiver (ID No. I4023)

XI. Public Notice

Pursuant to 15A NCAC 2Q .0521, a notice of the Title V Operating Permit shall be placed in a newspaper of general circulation in the area where the facility is located. 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.

XII. Recommendations

The initial Title V application for E.I. du Pont de Nemours and Company, Inc. has been reviewed by the DAQ to determine compliance with all procedures and requirements under 15A NCAC 2Q .0500 and 40 CFR Part 70. The DAQ has made a preliminary determination that the facility is complying or will achieve compliance as specified in the proposed permit with all applicable requirements. Therefore, the DAQ is proposing to issue the Title V Operating Permit upon completion of the public comment period and the EPA review.