



*Commonwealth of Virginia*

*VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY*

PIEDMONT REGIONAL OFFICE  
4949-A Cox Road, Glen Allen, Virginia 23060  
(804) 527-5020  
[www.deq.virginia.gov](http://www.deq.virginia.gov)

Travis A. Voyles  
Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus  
Director  
(804) 698-4020

Jerome A. Brooks  
Regional Director

DRAFT, 2024

Mr. Andrew M. Girvin  
Plant Manager  
AdvanSix Resins and Chemicals LLC  
905 East Randolph Street  
Hopewell, Virginia 23860

Location: City of Hopewell  
Registration No.: 50232

Dear Mr. Girvin:

Attached is a renewal Title V permit to operate your facility pursuant to 9VAC5 Chapter 80 Article 1 of the Virginia Regulations for the Control and Abatement of Air Pollution. The attached permit will be in effect beginning DRAFT, 2024.

In the course of evaluating the application and arriving at a final decision to issue this permit, the Department of Environmental Quality (DEQ) deemed the application complete on August 18, 2023 and solicited written public comments by placing a newspaper advertisement in The Progress-Index on January 12, 2024. The thirty-day required comment period, provided for in 9VAC5-80-270 expired on February 12, 2024.

This permit contains legally enforceable conditions. Failure to comply may result in a Notice of Violation and/or civil charges. Please read all permit conditions carefully.

This permit approval to operate shall not relieve AdvanSix Resins and Chemicals LLC of the responsibility to comply with all other local, state, and federal permit regulations.

The Regulations as contained in Title 9 of the Virginia Administrative Code 5-170-200 provide that you may request a formal hearing from this case decision by filing a petition with the DEQ within 30 days after this case decision notice was mailed or delivered to you. Please consult the relevant regulations for additional requirements for such requests.

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have 30 days from the date you actually received this permit or the date on which it was mailed to you, whichever occurred first, within which to initiate an appeal of this decision by filing a Notice of Appeal with:

Director  
Department of Environmental Quality  
P. O. Box 1105  
Richmond, VA 23218

If this permit was delivered to you by mail, three days are added to the thirty-day period in which to file an appeal. Please refer to Part Two A of the Rules of the Supreme Court of Virginia for information on the required content of the Notice of Appeal and for additional requirements governing appeals from decisions of administrative agencies.

If you have any questions concerning this permit, please contact the regional office at (804) 527-5020.

Sincerely,

James E. Kyle, P.E.  
Air Permit Manager

JEK/clm/50232-106 AdvanSix Title V Renewal

Attachment: Permit

cc: Chief, Air Section (3ED21), U.S. EPA, Region III (electronic file submission)  
Manager/Inspector, Air Compliance (electronic file submission)



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Federal Operating Permit  
Article 1

This permit is based upon the requirements of Title V of the Federal Clean Air Act and Chapter 80, Article 1, and Chapter 140 of the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution. Until such time as this permit is reopened and revised, modified, revoked, terminated, or expires, the permittee is authorized to operate in accordance with the terms and conditions contained herein. This permit is issued under the authority of Title 10.1, Chapter 13, §10.1-1322 of the Air Pollution Control Law of Virginia. This permit is issued consistent with the Administrative Process Act, and 9VAC5-80-50 through 9VAC5-80-300, and 9VAC5-140-10 through 9VAC5-140-900 of the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution of the Commonwealth of Virginia.

Authorization to operate a Stationary Source of Air Pollution as described in this permit is hereby granted to:

Permittee Name:	AdvanSix Resins and Chemicals LLC
Facility Name:	AdvanSix Resins and Chemicals LLC
Facility Location:	Route 10 & Route 156; Hopewell, Virginia
Registration Number:	50232
Permit Number:	PRO50232

This permit includes the following programs:

**Federally Enforceable Requirements - Clean Air Act (Pages 4 through 200)**  
**Federally-Enforceable Requirements – NO<sub>x</sub> Budget Program Requirements (Pages 193 through 200)**  
**Compliance Assurance Monitoring (CAM) Plans – Attachments A-1 to A-6**

DRAFT, 2024

Effective Date

DRAFT minus 1, 2029

Expiration Date

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James E. Kyle, P.E.

Regional Air Permit Manager

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## Facility Information

### Permittee

AdvanSix Resins and Chemicals LLC  
905 East Randolph Street  
Hopewell, Virginia 23860

### Responsible Official

Mr. Andrew M. Girvin  
Plant Manager

### NO<sub>x</sub> Budget Authorized Account Representative

Mr. Andrew M. Girvin  
Plant Manager

### Facility

AdvanSix Resins and Chemicals LLC  
Intersection of Routes 10 and 156

### Contact Person

Mr. Thomas L Varner, Jr.  
Lead Environmental Engineer  
(804) 541-5632

**County-Plant Identification Number:** 51-670-0026

**Facility Description:** NAICS 325199, 325120, 325311 – The AdvanSix Resins and Chemicals LLC – Hopewell Facility is located on a 450-acre site between Route 10 and the James River at the East End of Hopewell. The site employs approximately 1100 people.

The facility includes nine major chemical process areas, a powerhouse, and a marine terminal for transfer of fuel and bulk materials. Caprolactam is the primary product which is sold to internal and external customers.

Other products include ammonium sulfate, cyclohexanol, cyclohexanone and oxime chemicals. Major raw materials used at the site include phenol, natural gas for the production of ammonia and sulfur for the production of oleum.

## Emission Units

Equipment to be operated consists of:

### Area 6:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Area 6	N/A	Area 6 Cyclohexanone and Cyclohexanol Production	47,371 Area 6 cyclohexanone units/hr; 480 Area 6 cyclohexanol units/hr	N/A	N/A	N/A	September 8, 2022
A6-Hydro (APT-2,4, 6,81,82)	FU-1 or FLS-61	Area 6 Continuous Cyclohexanone Hydrogenation Reactor System (with or without Cryogenics Recovery System operating)	17,520 Area 6 feed units/hr	Process heater combustion or non-assisted flare	FU-1 or FLS-61	VOC	September 8, 2022
A6-Hydro (APT-2,4, 6,81,82)	FU-1, FLS-61 Cold Box Vent	Area 6 Continuous Cyclohexanone Hydrogenation Reactor System (during Cryogenics Recovery System startup)  NOTE: During cryogenic startup, the exhaust of the carbon beds is routed to the cold box vent. The carbon bed depressurization is routed to FLS-61 and the carbon bed regeneration cycles are routed to either FU-1 or FLS-61.	17,520 Area 6 feed units/hr	Process heater combustion or non-assisted flare	FU-1 or FLS-61	VOC	September 8, 2022

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
CL-2	FLS-62	Cyclohexanone Distillation Column	2,482 Area 6 feed units/hr	Condenser Non-assisted flare	C-431 FLS-62	VOC	September 8, 2022
CL-9	FLS-62	Cyclohexanol (APT-1 System) Distillation Column	365 Area 6 feed units/hr	Non-assisted flare	FLS-62	VOC	September 8, 2022
CL-10	VE-27	Cyclohexanol (APT-1 System) Distillation Column	321 Area 6 feed units/hr	N/A	N/A	N/A	September 8, 2022
CL-17	FLS-62	Cyclohexanol Distillation Column	1,533 Area 6 feed units/hr	Non-assisted flare	FLS-62	VOC	September 8, 2022
CL-18	FLS-62	Cyclohexanone Distillation Column	2,920 Area 6 feed units/hr	Condenser Non-assisted flare	C-431 FLS-62	VOC	September 8, 2022
CL-25	C-190	Phenol Distillation Column	6,132 Area 6 feed units/hr	Condenser	C-190	VOC	September 8, 2022
CL-26	FLS-62	Cyclohexanone Distillation Column	10,872 Area 6 feed units/hr	Condenser Non-assisted flare	C-432 FLS-62	VOC	September 8, 2022
CL-36	C-434	Cyclohexanone Distillation Column	6,570 Area 6 feed units/hr	Condenser	C-434	VOC	September 8, 2022
CL-46	C-249	Phenol System Distillation Column	14,600 Area 6 feed units/hr	Condenser	C-249	VOC	September 8, 2022
CL-80	FLS-62	Cyclohexanol Distillation Column	3,650 Area 6 feed units/hr	Non-assisted flare	FLS-62	VOC	September 8, 2022
CL-64	VE-108	Cyclohexanone Distillation Column	3,504 Area 6 feed units/hr	N/A	N/A	N/A	September 8, 2022
CL-65	C-433	Cyclohexanone Distillation Column	6,570 Area 6 feed units/hr	Condenser	C-433	VOC	September 8, 2022
CL-65N	FLS-62	Cyclohexanone Distillation Column	6,570 Area 6 feed units/hr	Non-assisted flare	FLS-62	VOC	September 8, 2022
APT-66B APT-67B	C-225	Two Phenol Purification Vessels	18,396 Area 6 feed units/hr	Level Control Condenser	C-225	VOC	September 8, 2022
CT-48 CT-53 CT-55	FLS-62	Three Continuous Cyclohexanone Catalyst Centrifuges	11,096 Area 6 feed units/hr	Non-assisted flare	FLS-62	VOC	September 8, 2022

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
APT-1	FLS-61	Cyclohexanol Batch Reactor	5,554 Area 6 Cyclohexanol units/batch	Non-assisted flare	FLS-61	VOC	September 8, 2022
VA-15	VE-76ZC	CL-26 Catalyst Concentrator	717.5 Area 6 Vapor units/hr	N/A	N/A	N/A	September 8, 2022
VA-17	VE-107ZC	CL-36 Catalyst Concentrator	287.0 Area 6 Vapor units/hr	N/A	N/A	N/A	September 8, 2022
VT-003	VT-003	Area 6 Storage Tank	4,638 Area 6 storage units	Level Control	N/A	VOC	September 8, 2022
VT-004	VT-004	Area 6 Storage Tank	4,638 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
VT-005	VT-005	KA Oil Storage Tank (current operation)	4,638 Area 6 storage units	Liquid Pre-cooler Submerged Fill Pipe	N/A	VOC	September 8, 2022
VT-005	VT-005	Cyclohexanol Storage Tank (alternate operation)	4,638 Area 6 storage units	Submerged Fill Pipe	N/A	VOC	September 8, 2022
VT-007	C-437	CL-80 Feed Tank	10,230 Area 6 storage units	Condenser	C-437	VOC	September 8, 2022
VT-008	VT-008	Area 6 Storage Tank	10,230 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
VT-010	VT-010	Area 6 Storage Tank	1,535 Area 6 storage units	Submerged Fill Pipe	N/A	VOC	September 8, 2022
VT-021	VT-021	Area 6 Storage Tank	648 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
VT-029	VT-029	Crude Phenol Storage Tank	16,027 Area 6 storage units	Level Control	N/A	VOC	September 8, 2022
APT-17	VT-21 or VT-250	Area 6 Storage Tank	1,535 Area 6 storage units	Level Control	N/A	VOC	September 8, 2022
APT-44	VT-21 or VT-250	Area 6 Storage Tank	327 Area 6 storage units	Level Control	N/A	VOC	September 8, 2022
APT-46	VT-21 or VT-250	Area 6 Storage Tank	140 Area 6 storage units	Level Control	N/A	VOC	September 8, 2022

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
APT-83	VT-21 or VT-250	Area 6 Storage Tank	1,023 Area 6 storage units	Level Control	N/A	VOC	September 8, 2022
APT-106	VT-21 or VT-250	Area 6 Storage Tank	512 Area 6 storage units	Level Control	N/A	VOC	September 8, 2022
HT-09	HT-09	Area 6 Storage Tank	205 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
HT-26	HT-26	Area 6 Storage Tank	6,360 Area 6 storage units	Submerged Fill Pipe	N/A	VOC	September 8, 2022
HT-38	HT-38	Area 6 Storage Tank	119 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
HT-45	VT-21 or VT-250	Area 6 Storage Tank	597 Area 6 storage units	Level Control	N/A	VOC	September 8, 2022
HT-62	HT-62	Area 6 Storage Tank	1,705 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
HT-63	HT-63	Area 6 Storage Tank	409 Area 6 storage units	Level Control	N/A	VOC	September 8, 2022
HT-85	HT-85	Area 6 Storage Tank	2,728 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
HT-242	HT-242	Area 6 Storage Tank	3,274 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
SE-157	SE-157	Jet Condensate Phase Separator	2,592 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
SP-001	SP-001	Area 6 Storage Tank	94 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
VT-108	VT-108	Area 6 Storage Tank	4,638 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
VT-113	VT-113	Area 6 Storage Tank	341 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
VT-119	VT-119	Area 6 Storage Tank	324 Area 6 storage units	N/A	N/A	N/A	September 8, 2022

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
VT-176	VT-176	Crude Phenol Storage Tank	49,104 Area 6 storage units	Level Control	N/A	VOC	September 8, 2022
VT-180	VT-180	Area 6 Storage Tank	23,188 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
VT-183	VT-183	Area 6 Storage Tank	1,637 Area 6 storage units	Level Control	N/A	VOC	September 8, 2022
VT-184	VT-184	CL-64 Feed Tank	1,637 Area 6 storage units	Level Control	N/A	VOC	September 8, 2022
VT-188	VT-188	Area 6 Storage Tank	49,104 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
VT-197	VT-197	Area 6 Storage Tank	358 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
VT-205	VT-205	Nadone Storage Tank	49,104 Area 6 storage units	Submerged Fill Pipe	N/A	VOC	September 8, 2022
VT-210	C-225	Phenol Distillation Residue Storage Tank	4,007 Area 6 storage units	Submerged Fill Pipe/ Level Control and Condenser	C-225	VOC	September 8, 2022
VT-211	C-225	Area 6 Storage Tank	4,007 Area 6 storage units	Submerged Fill Pipe and Condenser	C-225	VOC	September 8, 2022
VT-212	C-225	Area 6 Storage Tank	6,684 Area 6 storage units	Condenser	C-225	VOC	September 8, 2022
VT-250	VT-250	Area 6 Storage Tank	1,961 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
VT-390	VT-390	Area 6 Storage Tank	16,027 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
VT-456	VT-456	Area 6 Storage Tank	136.4 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
VT-462	VT-462	Crude Phenol Storage Tank	349,184 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
VT-515	VT-515	Crude Phenol Storage Tank	349,184 Area 6 storage units	N/A	N/A	N/A	September 8, 2022

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
VT-680	VT-680	Area 6 Storage Tank	17,630 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
VT-681	VT-681	Area 6 Storage Tank	10,230 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
VT-693	VT-693	Area 6 Storage Tank	4,007 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
VT-697	VT-697	Area 6 Storage Tank	9,002 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
VT-752	VT-752	Area 6 Storage Tank	41 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
VT-836	VT-836	Area 6 Storage Tank	102 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
VT-863	VT-863	Area 6 Storage Tank	34 Area 6 storage units	N/A	N/A	N/A	September 8, 2022
VT-N2	C-XX2-A6	Cyclohexanone Storage Tank	716,100 Area 6 storage units	Condenser	C-XX2-A6	VOC	September 8, 2022
VT-N3	C-XX3-A6	Cyclohexanone Storage Tank	716,100 Area 6 storage units	Condenser	C-XX3-A6	VOC	September 8, 2022
VT-N4	C-XX4-A6	Phenol Storage Tank	682,000 Area 6 storage units	Condenser	C-XX4-A6	VOC	September 8, 2022
VT-N5	VT-N5	Nadone Storage Tank	49,104 Area 6 storage units	Liquid Pre-Cooler	N/A	VOC	September 8, 2022
RC-Naxol	RC-Nax	Naxol Rail Car Loading Rack	2,940 Area 6 loading units/hr	N/A	N/A	N/A	September 8, 2022
TT/ISO-Naxol	TT/ISO-Nax	Naxol Tanker Truck and ISO Container Loading Rack	632 Area 6 loading units/hr	N/A	N/A	N/A	September 8, 2022
Drum-Naxol	DR-Nax	Naxol Drum Loading Rack	294 Area 6 loading units/hr	Submerged Fill Pipe	N/A	VOC	September 8, 2022
Drum-Nadone	DR-Nad	Nadone Drum Loading Rack	294 Area 6 loading units/hr	Submerged Fill Pipe	N/A	VOC	September 8, 2022

<b>Emission Unit ID</b>	<b>Stack ID</b>	<b>Emission Unit Description</b>	<b>Size/Rated Capacity*</b>	<b>Pollution Control Device (PCD) Description</b>	<b>PCD ID</b>	<b>Pollutant Controlled</b>	<b>Applicable Permit Date</b>
TT/ISO-Nadone	TT/ISO-Nad	Nadone Tank Truck and ISO Container Loading Rack	1,396.5 Area 6 loading units/hr	Vapor Balance System	N/A	VOC	September 8, 2022
RC-Nadone	RC-Nad	Nadone Rail Car Loading Rack	4,165 Area 6 loading units/hr	Vapor Balance System	N/A	VOC	September 8, 2022
RC-ONE1	RC-ONE1	Distilled ONE Rail Car Loading Rack	5,880 Area 6 loading units/hr	Submerged Fill Pipe	N/A	VOC	September 8, 2022
RC-ONE2	RC-ONE2	KA Oil Rail Car Loading Rack	2,940 Area 6 loading units/hr	N/A	N/A	N/A	September 8, 2022
RC-ONE3	RC-ONE3	Crude ONE Rail Car Loading Rack	2,940 Area 6 loading units/hr	Submerged Fill Pipe	N/A	VOC	September 8, 2022
RC-ONE4	RC-ONE4	CT Cone Flush, Jet Condensate, Column Boil Out, and Crude KA Oil Rail Car Loading Rack	2,940 Area 6 loading units/hr	Submerged Fill Pipe on all, and Liquid Cooler on outlet of VT-007	N/A	VOC	September 8, 2022
TT Catalyst	APT-17	Hydrogenation Catalyst Tanker Truck Loading Rack	613 Area 6 loading units/hr	Vapor Balance System	N/A	VOC	September 8, 2022
RC-A6 Copr	HT-26	Area 6 Co-product Rail Car Loading Rack	588 Area 6 loading units/hr	Vapor Balance System	N/A	VOC	September 8, 2022
RX-KA1	FLS-61	KA Oil Process Reactor	613.2 Area 6 feed units/hr	Non-assisted flare	FLS-61	VOC	September 8, 2022
CL-KA1	FLS-62	KA Oil Distillation Column	5,548 Area 6 feed units/hr	Non-assisted flare	FLS-62	VOC	September 8, 2022
VT-KA1	C-KA1	KA Oil Storage Tank	17,391 Area 6 storage units	Condenser	C-KA1	VOC	September 8, 2022
VT-KA2	C-KA2	Storage Tank	5,660.6 Area 6 storage units	Condenser	C-KA2	VOC	September 8, 2022
HE-KA1	N/A	Hot Oil Heater	2.5 MMBtu/hr	N/A	N/A	N/A	September 8, 2022
TW-newA6	N/A	Area 6 Cooling Tower(s)	681.3 Area 6 cooling units/hr	N/A	N/A	N/A	September 8, 2022
TW-dist1A6	N/A	Area 6 Cooling Tower(s)	74.7 Area 6 cooling units/hr	N/A	N/A	N/A	September 8, 2022

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
TW-dist2A6	N/A	Area 6 Cooling Tower(s)	125.5 Area 6 cooling units/hr	N/A	N/A	N/A	September 8, 2022
TW-cryoA6	N/A	Area 6 Rental Cooling Tower	22.4 Area 6 cooling units/hr	N/A	N/A	N/A	September 8, 2022

**Area 9:**

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
CCM1	TW-22S	Catalyst Dissolution	8.84 Area 9 production units/hr	Emissions routed to Area 9 TW-22	TW-22	NOx	September 8, 2022
CCM2	TW-22S	Electric Forced-Air Catalyst Furnace	14.735 Area 9 production units/hr	Emissions routed to Area 9 TW-22	TW-22	NOx	September 8, 2022
CCM3	FN-174	Catalyst Crushing, Grinding, and Screening	252.6 Area 9 production units/hr	Baghouse	F-114	PM	September 8, 2022
Area 9	N/A	Area 9 Hydroxylamine Monoammonium Sulfate Production	46,498 Area 9 production units/hr	N/A	N/A	N/A	September 8, 2022
TW-2	TW-2S	A-Train Ammonium Nitrite (Nitrite) Tower	4,297 Area 9 production units/hr	Selective Catalytic Reduction (SCR), Venturi Scrubber, Mist Eliminator	CV-34 SE-328 SE-329	NOx PM PM	September 8, 2022
TW-8	TW-8S	B-Train Nitrite Tower	4,297 Area 9 production units/hr	SCR, Venturi Scrubber, Mist Eliminator	CV-31 SE-179 SE-324	NOx PM PM	September 8, 2022

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
TW-17	TW-17S	C-Train Nitrite Tower	4,297 Area 9 production units/hr	SCR, Venturi Scrubber, Mist Eliminator	CV-29 SE-322 SE-323	NOx PM PM	September 8, 2022
TW-22	TW-22S	D-Train Nitrite Tower	4,297 Area 9 production units/hr	NO Oxidizer Tank Venturi Scrubber	VT-883 SE-65	NOx PM	September 8, 2022
TW-32	TW-32S	E-Train Nitrite Tower	4,655 Area 9 production units/hr	SCR, NO Oxidizer Tank, Venturi Scrubber, Mist Eliminator	CV-36, VT-847, SE-116, SE-335	NOx NOx PM PM	September 8, 2022
TW-62	TW-62S	A-Train Hydroxylamine Diammonium Sulfonate (Disulfonate) Tower	18,252 Area 9 production units/hr	SCR, Packed Bed Scrubber, Mist Eliminator	CV-35 SE-45 SE-88	NOx SO <sub>2</sub> PM	September 8, 2022
TW-9	TW-9S	B-Train Disulfonate Tower	18,252 Area 9 production units/hr	SCR, Packed Bed Scrubber, Mist Eliminator	CV-32 SE-87 SE-89	NOx SO <sub>2</sub> PM	September 8, 2022
TW-18	TW-18S	C-Train Disulfonate Tower	18,252 Area 9 production units/hr	SCR, Packed Bed Scrubber, Mist Eliminator	CV-30 SE-19 SE-90	NOx SO <sub>2</sub> PM	September 8, 2022
TW-23	TW-23S	D-Train Disulfonate Tower	18,252 Area 9 production units/hr	NO Oxidizer Tank, Packed Bed Scrubber, Mist Eliminator	VT-883 SE-32 SE-91	NOx SO <sub>2</sub> PM	September 8, 2022
TW-33	TW-33S	E-Train Disulfonate Tower	19,392 Area 9 production units/hr <sup>2</sup>	SCR, NO Oxidizer Tank, Packed Bed Scrubber Mist Eliminator	CV-37 VT-847 SE-54 SE-101	NOx NOx SO <sub>2</sub> PM	September 8, 2022
Area 9 CT	Area 9 CT	Area 9 Modular Cooling Towers	5,200 Area 9 cooling units/min total	N/A	N/A	N/A	September 8, 2022

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Quench CT	Quench CT	Area 9 Quench Modular Cooling Towers	374.4 Area 9 cooling units/min total	N/A	N/A	N/A	September 8, 2022
TW-37	TW-37	Area 9 Cooling Tower	6,240 Area 9 cooling units/min	N/A	N/A	N/A	September 8, 2022
TW-newA9	TW-newA9	Area 9 Cooling Tower(s)	12,730 Area 9 cooling units/min	N/A	N/A	N/A	September 8, 2022

**Area 8/16:**

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Area 8/16	N/A	Area 8/16 Crude Caprolactam Production	48,415 Area 8 production units/hr	N/A	N/A	N/A	September 8, 2022
A8Rea	VT-664	Area 8 Cyclohexanone Oxime Rearrangement Reactor system (APT-8, APT-16, APT-32, SP-681, VT-96, VT-226, VT-404A, VT-664, VT-867)	48,415 Area 8 production units/hr	N/A	N/A	N/A	September 8, 2022
A8Tur	SE-325	A8 Turbogizer System (APT-128, VT-141, VT-243, VT-244, VT-817)	48,415 Area 8 production units/hr	Scrubber	SE-325	VOC	September 8, 2022
A8Tur-Sep	SE-325	A8 Turbogizer Separation System (APT-14, APT-26, VT-59, VT-59New, HT-66)	48,415 Area 8 production units/hr	Scrubber	SE-325	VOC	September 8, 2022
APT-30	APT-30	Spare Oxime Hold Tank	25,260 Area 8 production units/hr	N/A	N/A	N/A	September 8, 2022
TW-20	TW-20	Cyclohexanone/sulfate Stripping Column	314,335 Area 8 production units/hr	N/A	N/A	N/A	September 8, 2022
LacSep	FU-16	Lactam/Sulfate/Emulsion Separation (APT-9, APT-10, HT-58, HT-74, HT-99, VT-246)	296,754 Area 8 production units/hr	Area 8/16 Thermal Oxidizer**	FU-16**	VOC	September 8, 2022

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
LacExt	FU-16	Caprolactam Extraction and Separation (CL-14, CL-45, SE-125)	218,095 Area 8 production units/hr	Area 8/16 Thermal Oxidizer**	FU-16**	VOC	September 8, 2022
CL-15	FU-16	Toluene/Sulfate Stripping Column	184,903 Area 8 production units/hr	Area 8/16 Thermal Oxidizer**	FU-16**	VOC	September 8, 2022
CL-81	FU-16	Toluene/Sulfate Stripping Column	184,903 Area 8 production units/hr	Area 8/16 Thermal Oxidizer**	FU-16**	VOC	September 8, 2022
CL-28, 29	FU-16	Toluizer Head Tanks	296,754 Area 8 production units/hr	Area 8/16 Thermal Oxidizer**	FU-16**	VOC	September 8, 2022
CL-29new	FU-16	Toluizer Head Tank	296,754 Area 8 production units/hr	Area 8/16 Thermal Oxidizer**	FU-16**	VOC	September 8, 2022
CL-62	FU-16	Toluene/Lactam Distillation Column	111,851 Area 8 production units/hr	Area 8/16 Thermal Oxidizer**	FU-16**	VOC	September 8, 2022
CL-62new	FU-16	Toluene/Lactam Distillation Column	111,851 Area 8 production units/hr	Area 8/16 Thermal Oxidizer**	FU-16**	VOC	September 8, 2022
HT-52	SE-325	Cyclohexanone Storage Tank	1,194 Area 8 storage units	Scrubber	SE-325	VOC	September 8, 2022
HT-53	FU-16	Toluene/Water Separator	40,416 Area 8 production units/hr	Area 8/16 Thermal Oxidizer**	FU-16**	VOC	September 8, 2022
VT-221	FU-16	Toluene Storage Tank	752 Area 8 storage units	Area 8/16 Thermal Oxidizer**	FU-16**	VOC	September 8, 2022
VT-227	FU-16	Toluene Recovery Flash Tank	10,609 Area 8 production units/hr	Area 8/16 Thermal Oxidizer**	FU-16**	VOC	September 8, 2022
VT-245	FU-16	Toluene Storage Tank	1,083 Area 8 storage units	Area 8/16 Thermal Oxidizer**	FU-16**	VOC	September 8, 2022
VT-291	VT-291	Area 8/16 Storage Tank	8,225 Area 8 storage units	N/A	N/A	N/A	September 8, 2022
VT-343	VT-343	Area 8/16 Storage Tank	8,225 Area 8 storage units	N/A	N/A	N/A	September 8, 2022
VT-344	FU-16	CL-15 O/H Recovery Tank	36 Area 8 storage units	Area 8/16 Thermal Oxidizer**	FU-16**	VOC	September 8, 2022

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
VT-359	VT-359	Area 8/16 Storage Tank	24,064 Area 8 storage units	N/A	N/A	N/A	September 8, 2022
VT-365	VT-365	Area 8/16 Storage Tank	24,064 Area 8 storage units	N/A	N/A	N/A	September 8, 2022
VT-402, 668	VT-402	Lamella Separator	85,707 Area 8 production units/hr	N/A	N/A	N/A	September 8, 2022
VT-403	VT-403	Area 8/16 Storage Tank	36 Area 8 storage units	N/A	N/A	N/A	September 8, 2022
VT-857	VT-857	Area 8/16 Storage Tank	83 Area 8 storage units	N/A	N/A	N/A	September 8, 2022
C-361	FU-16	Toluene Vent Condenser	594 Area 8 production units/hr	Area 8/16 Thermal Oxidizer**	FU-16**	VOC	September 8, 2022
SolLdg	FU-16	Area 8 Solvent Purge Loadout	192 Area 8 storage units/hr	Area 8/16 Thermal Oxidizer**	FU-16**	VOC	September 8, 2022
EV-OX SE-OX1	EV-OX SE-OX1	Oxime Dryer and Separation Tank	45,384 Area 8 production units/hr	N/A	N/A	N/A	September 8, 2022
VT-OX1	VT-OX1	Oxime Dryer System Tank	655.4 Area 8 storage units	N/A	N/A	N/A	September 8, 2022
SE-OX2	SE-OX2	Oxime Dryer System Separation Tank	204.8 Area 8 storage units	N/A	N/A	N/A	September 8, 2022
TW-newA8	TW-newA8	Area 8/16 Cooling Tower(s)	10,522 Area 8 cooling units/min	N/A	N/A	N/A	September 8, 2022
Area 8 CT	Area 8 CT	Area 8 Modular Cooling Towers	2,740 Area 8 cooling units/min	N/A	N/A	N/A	September 8, 2022

\*Size/Rated Capacity is provided for informational purposes only, and is not an applicable requirement.

\*\*When FU-16 is bypassed, the exhaust gases are routed to a carbon bed to minimize emissions.

**Area 7:**

<b>Emission Unit ID</b>	<b>Stack ID</b>	<b>Emission Unit Description</b>	<b>Size/Rated Capacity*</b>	<b>Pollution Control Device (PCD) Description</b>	<b>PCD ID</b>	<b>Pollutant Controlled</b>	<b>Applicable Permit Date</b>
Area 7	N/A	Area 7 Purified Caprolactam Production	3,035 Area 7 production units/hr	N/A	N/A	N/A	September 8, 2022
A7Pur	C-323	Caprolactam Distillation and Crystallization	3,035 Area 7 production units/hr	Condenser	C-323	VOC	September 8, 2022
EV-8 EV-12	C-323	Two Caprolactam Strippers	3,035 Area 7 production units/hr	Condenser	C-323	VOC	September 8, 2022
EV-14 EV-15 EV-16	C-323	Three Caprolactam Dryers	3,035 Area 7 production units/hr	Condenser	C-323	VOC	September 8, 2022
EV-17 EV-18	C-323	Two Caprolactam Strippers	3,035 Area 7 production units/hr	Condenser	C-323	VOC	September 8, 2022
CL-70	C-323	Caprolactam Product Distillation Column	1,530 Area 7 production units/hr	Condenser	C-323	VOC	September 8, 2022
APT-22, 23, 24, 25, 39, 40, 41, 42	C-323	A/C/D-Train Crystallization/Purification Systems	3,035 Area 7 production units/hr	Condenser	C-323	VOC	September 8, 2022
CL-12	C-323	Washwater/wastewater concentrator	340 Area 7 production units/hr	Condenser	C-323	VOC	September 8, 2022
CL-21	C-323	Caprolactam Purification Column	3,485 Area 7 production units/hr	Condenser	C-323	VOC	September 8, 2022
A7Fil	FS-1 FS-2	Caprolactam Belt Filtration and Crystallization/Storage	3,035 Area 7 production units/hr	Fume Scrubbers (2)	FS-1; FS-2	PM	September 8, 2022
A7Fil	B7Fug	Building 7 Fugitive Emissions from Area 7 Filtration	3,035 Area 7 production units/hr	N/A	N/A	N/A	September 8, 2022
A7Fil	VP-6-14, VP-17-20	Thirteen Belt Filter Vacuum Pumps	3,035 Area 7 production units/hr	N/A	N/A	N/A	September 8, 2022
VA-19/ CL-39	Area 9	Depoly Vaporizer/Depoly Recovery Tower	136 Area 7 production units/hr	Area 9 Sulfur Burner	Variable	VOC/H <sub>2</sub> S	September 8, 2022

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
CO-151	CO-151	Depoly Conveyor	850 Area 7 production units/hr	Scrubber	SE-149	PM/H <sub>2</sub> S/VO C	September 8, 2022
HE-221	HE-221	Natural Gas-Fired Steam Superheater	4.24 MMBtu/hr	N/A	N/A	N/A	September 8, 2022
HE-305	HE-305	Natural Gas-Fired Steam Superheater	4.24 MMBtu/hr	N/A	N/A	N/A	September 8, 2022
HT-43	HT-43	Area 7 Storage Tank	450 Area 7 storage units	N/A	N/A	N/A	September 8, 2022
VT-36	C-323	Bottoms Concentrator	3,035 Area 7 production units/hr	Condenser	C-323	VOC	September 8, 2022
VT-40	VT-40	Area 7 Storage Tank	450 Area 7 storage units	N/A	N/A	N/A	September 8, 2022
VT-121	SE-149 or Area 9	Depoly and CRU Feed Storage	880 Area 7 storage units	Scrubber or Area 9 Sulfur Burner	SE-149 or Variable	VOC	September 8, 2022
VT-127	SE-149 or Area 9	Depoly and CRU Feed Storage	300 Area 7 storage units	Scrubber or Area 9 Sulfur burner	SE-149 or Variable	VOC	September 8, 2022
VT-220	C-323	Water Stripper	3,035 Area 7 production units/hr	Condenser	C-323	VOC	September 8, 2022
VT-297	VT-297	Area 7 Storage Tank	37,500 Area 7 storage units	N/A	N/A	N/A	September 8, 2022
VT-327	C-323	Caprolactam Dryer	3,035 Area 7 production units/hr	Condenser	C-323	VOC	September 8, 2022
VT-360	VT-360	Area 7 Storage Tank	37,500 Area 7 storage units	N/A	N/A	N/A	September 8, 2022
VT-903	VT-903	Area 7 Storage Tank	3,250 Area 7 storage units	N/A	N/A	N/A	September 8, 2022
VT-394	C-323	Washwater/wastewater Concentrator	153 Area 7 production units/hr	Condenser	C-323	VOC	September 8, 2022

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
VT-395	C-323	Caprolactam Stripper	1,600 Area 7 storage units	Condenser	C-323	VOC	September 8, 2022
VT-799	C-323	Caprolactam Stripper	1,600 Area 7 storage units	Condenser	C-323	VOC	September 8, 2022
Area 7 Storage	Misc. Storage Tanks	49 Miscellaneous Area 7 Organic Liquid Storage Tanks including: HT-04; HT-20; HT-28; HT-47; HT-61; PFR-01; SP-01; SP-734; VT-28, VT-37, VT-39; VT-46, VT-47; VT-55; VT-58; VT-62; VT-64; VT-114; VT-129; VT-137; VT-139; VT-142; VT-143; VT-152; VT-157; VT-158; VT-159; VT-160; VT-161; VT-162; VT-165; VT-192; VT-193; VT-196; VT-222; VT-224; VT-236; VT-325; VT-332; VT-341; VT-460; VT-490; VT-491; VT-813; VT-838; VT-854; VT-967; VT-968; and VT-969	62,953 Area 7 storage units max. capacity	N/A	N/A	N/A	September 8, 2022
A7Ldg	A7Ldg	Area 7 Caprolactam Loading Rack	43 Area 7 loading units/hr	N/A	N/A	N/A	September 8, 2022
A7W/W	A7W/W	Area 7 Washwater/Wastewater Loading Rack	36.0 Area 7 loading units/hr	N/A	N/A	N/A	September 8, 2022
Remelt	SC-61	Caprolactam Remelt facility	442 Area 7 production units/hr	Scrubber	SC-61	PM/VOC	September 8, 2022
EV-46	Area 9	Area 7 CRU Thin Film Evaporator	204 Area 7 production units/hr	Area 9 Sulfur Burner	Variable	VOC, H <sub>2</sub> S	September 8, 2022

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
VT-966	Area 9	Area 7 CRU Residue Recovery Tank	96 Area 7 storage units	Area 9 Sulfur Burner	Variable	VOC, H <sub>2</sub> S	September 8, 2022
FL-6/ CO-151	SE-149	CRU Residue Flaker/ Conveyor	153 Area 7 production units/hr	Scrubber	SE-149	PM/VOC/ H <sub>2</sub> S	September 8, 2022
BT-10	BT-10	Natural Gas-Fired Thermal Oil Heater	4.3 MMBtu/hr	N/A	N/A	N/A	September 8, 2022
HT-909	HT-909	Two Thermal Oil Storage Tanks	35 Area 7 storage units	N/A	N/A	N/A	September 8, 2022
HT-910	HT-910		10 Area 7 storage units				
FL-1	SC-61	Area 8 Flaker #1	281 Area 7 production units/hr	Scrubber	SC-61	PM/VOC	September 8, 2022
FL-5	SC-68	Area 8 Flaker #2	281 Area 7 production units/hr	Scrubber	SC-68	PM/VOC	September 8, 2022
FL-7	APCD- DS	Area 8 Flaker #3	306 Area 7 production units/hr	Scrubber	APCD-DS	PM/VOC	September 8, 2022
TW-71	TW-71	Area 7 Cooling Tower	6,525 Area 7 cooling units/min	N/A	N/A	N/A	September 8, 2022
TW-85	TW-85	Area 7 Cooling Tower	841 Area 7 cooling units/min	N/A	N/A	N/A	September 8, 2022
VT-996, VT-997	C-619	EP Lactam Flasher Process Columns	1,250 Area 7 production units/hr	N/A	N/A	N/A	September 8, 2022
HT-03	HT-03	EP Lactam Flasher Process Feed Tank	882 Area 7 storage units/hr	N/A	N/A	N/A	September 8, 2022
VT-995	VT-995	EP Lactam Flasher Process Condensate Tank	21 Area 7 storage units/hr	N/A	N/A	N/A	September 8, 2022
TW-97	TW-97	EP Lactam Flasher Process Cooling Tower	1,015 Area 7 cooling units/min	N/A	N/A	N/A	September 8, 2022

**Area 11:**

<b>Emission Unit ID</b>	<b>Stack ID</b>	<b>Emission Unit Description</b>	<b>Size/Rated Capacity*</b>	<b>Pollution Control Device (PCD) Description</b>	<b>PCD ID</b>	<b>Pollutant Controlled</b>	<b>Applicable Permit Date</b>
Area 11	N/A	Area 11 Ammonium Sulfate Production	18,900 Area 11 production units/hr	N/A	N/A	N/A	September 8, 2022
RD-3N	DC-7N	Ammonium Sulfate Dryer	4,200 Area 11 production units/hr	Scrubber	DC-7N	PM/VOC	September 8, 2022
RD-4	DC-11	Ammonium Sulfate Dryer	4,200 Area 11 production units/hr	Scrubber	DC-11	PM/VOC	September 8, 2022
RD-6	DC-12	Ammonium Sulfate Dryer	3,066 Area 11 production units/hr	Scrubber	DC-12	PM/VOC	September 8, 2022
RD-7	DC-29	Ammonium Sulfate Dryer	3,066 Area 11 production units/hr	Scrubber	DC-29	PM/VOC	September 8, 2022
RD-7N	DC-29	Ammonium Sulfate Dryer	4,200 Area 11 production units/hr	Scrubber	DC-29N	PM/VOC	September 8, 2022
EV-9 EV-28 EV-29	EV-9 EV-28 EV-29	Three First Effect Ammonium Sulfate Crystallizers	5,880 Area 11 production units/hr total	N/A	N/A	N/A	September 8, 2022
EV-30 EV-35	EV-30 EV-35	Two Second Effect Ammonium Sulfate Crystallizers	5,880 Area 11 production units/hr total	N/A	N/A	N/A	September 8, 2022
EV-19 EV-26 EV-27	C-55 C-270 C-150	Three Third Effect Ammonium Sulfate Crystallizers	5,460 Area 11 production units/hr total	Condenser Condenser Condenser	C-55 C-270 C-150	VOC VOC VOC	September 8, 2022
EV-New1		9 <sup>th</sup> Ammonium Sulfate Crystallizer	2,625 Area 11 production units/hr	N/A	N/A	N/A	September 8, 2022
Area 11 CT	Area 11 CT	Area 11 Modular Cooling Towers	30 Area 11 cooling units/min	N/A	N/A	N/A	September 8, 2022
A11CTF	DC-25	Ammonium Sulfate Centrifuges	15,666 Area 11 production units/hr	Scrubber	DC-25	PM/VOC	September 8, 2022
VT-796	VT-796	Ammonium Sulfate Coating	378.0 Area 11 production units (volume)/hr	N/A	N/A	N/A	September 8, 2022

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
VT-873	VT-873	Ammonium Sulfate Coating	315.0 Area 11 production units (volume)/hr	N/A	N/A	N/A	September 8, 2022
DC-21	DC-21	Process Area Buildings 12 and 12A - Ammonium Sulfate Screening and Storage Operations	141.8 Area 11 storage units/hr	Scrubber	DC-21	PM	September 8, 2022
DC-31	DC-31	Process Area Buildings 12 and 12A - Ammonium Sulfate Screening and Storage Operations	141.8 Area 11 storage units/hr	Fabric Filter	DC-31	PM	September 8, 2022
N/A	Fugitive	Process Area Buildings 12 and 12A - Ammonium Sulfate Screening and Storage Operations	141.8 Area 11 storage units/hr	N/A	N/A	N/A	September 8, 2022
DC-21B	DC-21B	Process Area Building 12B - Ammonium Sulfate Screening and Storage (Granular Ammonium Sulfate)	98.7 Area 11 storage units/hr	Scrubber	DC-21B	PM	September 8, 2022
N/A	Fugitive	Process Area Building 12B - Ammonium Sulfate Screening and Storage (Granular Ammonium Sulfate)	98.7 Area 11 storage units/hr	N/A	N/A	N/A	September 8, 2022
SC-65 SC-66 SC-67 SC-68N	DC-21	Four (4) Triple Deck Screens	6,300 Area 11 production units/hr each	Scrubber	DC-21	PM	September 8, 2022
CO-225	DC-21	Ammonium Sulfate Mid-Grade Conveyor	6,300 Area 11 production units/hr	Scrubber	DC-21	PM	September 8, 2022
BN-11	DC-21	Ammonium Sulfate Bulk Storage Bin/Loading Station	252 Area 11 storage units per hour	Scrubber	DC-21	PM	September 8, 2022

<b>Emission Unit ID</b>	<b>Stack ID</b>	<b>Emission Unit Description</b>	<b>Size/Rated Capacity*</b>	<b>Pollution Control Device (PCD) Description</b>	<b>PCD ID</b>	<b>Pollutant Controlled</b>	<b>Applicable Permit Date</b>
CO-226	DC-21	Ammonium Sulfate Bulk Storage Bin Conveyor	47.3 Area 11 storage units per hour	Scrubber	DC-21	PM	September 8, 2022
EL-25	DC-21	Ammonium Sulfate Bulk Storage Bin Conveyor	47.3 Area 11 storage units per hour	Scrubber	DC-21	PM	September 8, 2022
ASHL-R, ASHL-T, and ASHL-S/B combined	Fugitive	Ammonium Sulfate Handling and Loading Operation (Railcar/Ship/Barge/Truck)	441.0 Area 11 storage units per hour	Dustrol anti-caking agent and Enclosed Drop Loading Chute on Ship/Barges	N/A	PM	September 8, 2022
ASHL-R	Fugitive	Ammonium Sulfate Handling and Loading Operation (Railcar)	165.4 Area 11 storage units per hour	Dustrol anti-caking agent	N/A	PM	September 8, 2022
ASHL-T	Fugitive	Ammonium Sulfate Handling and Loading Operation (Truck) from Process Area Storage or Pier Storage	23.6 Area 11 storage units per hour	Dustrol anti-caking agent	N/A	PM	September 8, 2022
ASHL-S/B	Fugitive	Ammonium Sulfate Handling and Loading Operation (Ship/Barge)	252 Area 11 storage units per hour	Dustrol anti-caking agent and Enclosed Drop Loading Chute	N/A	PM	September 8, 2022
Bldg 12-40/41/42	Fugitive	Ammonium Sulfate Transfers from Process Area Storage (Buildings 12, 12A, or 12B) to Pier Storage (Buildings 40, 41, and 42)	28.8 Area 11 storage units per hour	Dustrol anti-caking agent	N/A	PM	September 8, 2022
Bldg 41/42-40	Fugitive	Ammonium Sulfate Transfers from Pier Building 41 or 42 to Pier Building 40	23.6 Area 11 storage units per hour	Dustrol anti-caking agent	N/A	PM	September 8, 2022
ASLB	Fugitive	Ammonium Sulfate Load Back Operation (from Pier Storage back to Process Area Storage)	23.6 Area 11 storage units per hour	Dustrol anti-caking agent	N/A	PM	September 8, 2022

**Sulfuric Acid Plant (SAP):**

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
SAP	SK-1	Sulfuric Acid Plant	12,012 sulfuric acid production units/hr	Sulfite Scrubber Mist Eliminator	TW-38 SE-105	SO <sub>2</sub> PM	September 8, 2022
VT-436	VT-436	Sulfur Storage Tank	1.5 SAP tank units	N/A	N/A	N/A	September 8, 2022
VT-437	CL-71	Return Acid or Oleum Storage Tank	6 SAP tank units	Scrubber Scrubber	CL-71 FS-3	SO <sub>2</sub> Sulfuric Acid Mist	September 8, 2022
VT-439	CL-71	Return Acid Storage Tank/ Acid Storage Tank	1.5 SAP tank units	Scrubber	CL-71	SO <sub>2</sub>	September 8, 2022
VT-440	VT-440	Acid Storage Tank	1.5 SAP tank units	N/A	N/A	N/A	September 8, 2022
VT-441	VT-441	Sulfur Storage Tank	60 SAP tank units	N/A	N/A	N/A	September 8, 2022
VT-442	VT-442	Sulfur Storage Tank	60 SAP tank units	N/A	N/A	N/A	September 8, 2022
VT-443	VT-443	Sulfur Storage Tank	3 SAP tank units	N/A	N/A	N/A	September 8, 2022
VT-518	SE-141	Oleum or alternate Return Acid Storage Tank	12 SAP tank units	Scrubber	SE-141	Sulfuric Acid Mist	September 8, 2022
VT-519	SE-141	Oleum or alternate Return Acid Storage Tank	12 SAP tank units	Scrubber	SE-141	Sulfuric Acid Mist	September 8, 2022
VT-438	CL-71	Oleum, Return Acid, or Acid Storage Tank	6 SAP tank units	Scrubber Scrubber	CL-71 FS-3	SO <sub>2</sub> Sulfuric Acid Mist	September 8, 2022
VT-746	CL-71	Oleum or Return Acid Storage Tank	24 SAP tank units	Scrubber Scrubber	CL-71 FS-3	SO <sub>2</sub> Sulfuric Acid Mist	September 8, 2022

<b>Emission Unit ID</b>	<b>Stack ID</b>	<b>Emission Unit Description</b>	<b>Size/Rated Capacity*</b>	<b>Pollution Control Device (PCD) Description</b>	<b>PCD ID</b>	<b>Pollutant Controlled</b>	<b>Applicable Permit Date</b>
VT-747	CL-71	Oleum or Return Acid Storage Tank	24 SAP tank units	Scrubber Scrubber	CL-71 FS-3	SO <sub>2</sub> Sulfuric Acid Mist	September 8, 2022
VT-391	SE-72	Oleum Storage Tank	4.4 SAP tank units	Scrubber	SE-72	Sulfuric Acid Mist	September 8, 2022
VT-392	SE-72	Oleum Storage Tank	4.4 SAP tank units	Scrubber	SE-72	Sulfuric Acid Mist	September 8, 2022
RC-Unload	CL-71	Oleum Unloading from Rail Cars (depressurization at SAP)	44.4 SAP depressurization units/hr	Scrubber	FS-3	Sulfuric Acid Mist	September 8, 2022
RC-Unload	SC-71	Oleum Unloading from Rail Cars (depressurization at Marine Ops)	44.4 SAP depressurization units/hr	Scrubber	SC-71	Sulfuric Acid Mist	September 8, 2022
Truck-Unload	SE-141	Oleum Unloading from Trucks (depressurization at Marine Ops)	10.2 SAP depressurization units/hr	Scrubber	SE-141	Sulfuric Acid Mist	September 8, 2022
Barge-Unload	N/A	Oleum Unloading from Barges (This is not an emissions unit, emissions from barge unloading are reflected in the emissions from VT-518 and VT-519)	N/A	N/A	N/A	N/A	September 8, 2022
Truck-Acid Unload	N/A	Sulfuric Acid Unloading from Trucks (This is not an emissions unit, emissions from sulfuric acid truck unloading are reflected in the emissions from VT-439 and VT-440)	N/A	N/A	N/A	N/A	September 8, 2022

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
RC-Acid Unload	N/A	Sulfuric Acid Unloading from Rail Cars (This is not an emissions unit, emissions from sulfuric acid rail car unloading are reflected in the emissions from VT-439 and VT-440)	N/A	N/A	N/A	N/A	September 8, 2022
LR-1	CL-71	Return Sulfuric Acid Truck Loading Rack	2,808 SAP loading units/hr	Scrubber	CL-71	SO <sub>2</sub>	September 8, 2022
LR-2	CL-71	Return Sulfuric Acid Rail Car Loading Rack	2,808 SAP loading units/hr	Scrubber	CL-71	SO <sub>2</sub>	September 8, 2022
LR-3	LR-3	Sulfuric Acid Truck Loading Rack	2,808 SAP loading units/hr	N/A	N/A	N/A	September 8, 2022
LR-4	LR-4	Sulfuric Acid Rail Car Loading Rack	2,808 SAP loading units/hr	N/A	N/A	N/A	September 8, 2022
LR-5	CL-71	Oleum Truck Loading Operation	2,808 SAP loading units/hr	Submerged Fill, Scrubber	FS-3	Sulfuric Acid Mist	September 8, 2022
LR-6	CL-71	Oleum Rail Car Loading Operation	2,808 SAP loading units/hr	Submerged Fill, Scrubber	FS-3	Sulfuric Acid Mist	September 8, 2022

***Kellogg/Girdler Ammonia/Synthetic Gas (Syngas) Plants:***

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
KAPCS-1	FU-1	Kellogg Ammonia Plant Combustion System (consisting of the primary reformer process heater (FU-1), tunnel burners (FU-2), auxiliary boiler (FU-3), and superheat burners (FU-XX))	8.6 syngas heat input units/hr	Combined Purge from Ammonia Synthesis Loop to Scrubber TW-65	GC-11/ TW-65	NO <sub>x</sub>	September 8, 2022
FU-5	FU-5	Ammonia Converter Start-up Heater	0.3 syngas heat input units/hr	N/A	N/A	N/A	September 8, 2022

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
FU-6 (existing)	FU-6	Girdler Primary Reformer (Existing Plant) <sup>1</sup>	0.6 syngas heat input units/hr	N/A	N/A	N/A	September 8, 2022
FU-6N	FU-6N	Girdler Primary Reformer (Expanded) <sup>1</sup>	1.4 syngas heat input units/hr	Low-NOx burners	TBD	NOx	September 8, 2022
FU-6/ FU-6B	FU-6	Modified Girdler Gas Synthesis Operation <sup>1</sup>	0.6 syngas heat input units/hr	N/A	N/A	N/A	September 8, 2022
	FU-6B		0.8 syngas heat input units/hr	Low-NOx burners	TBD	NOx	
VT-418	VT-418	CO <sub>2</sub> Strippers	139,339 CO <sub>2</sub> stripper units/hr	N/A	N/A	N/A	September 8, 2022
CD-1	CD-1	Kellogg Desulfurization Drum	746 Kellogg desulfurization units/hr	N/A	N/A	N/A	September 8, 2022
CD-3 CD-4	CD-4	Girdler Desulfurization Drums	10,514 Girdler desulfurization units/hr	N/A	N/A	N/A	September 8, 2022
CD-3B CD-4B	CD-4B	New Girdler Desulfurization Drums <sup>2</sup>	10,514 Girdler desulfurization units/hr	N/A	N/A	N/A	September 8, 2022
CLT-1	CLT-1	Kellogg Cooling Tower	11,880 syngas cooling units/min	N/A	N/A	N/A	September 8, 2022
VT-407 VT-426 VT-427	VT-407 VT-426 VT-427	Kellogg and Girdler Storage Vessels	5,103 syngas storage units	N/A	N/A	N/A	September 8, 2022
VT-882	VT-882	Kellogg Condensate Collection Vent	194 syngas storage units	N/A	N/A	N/A	September 8, 2022

<sup>1</sup>Only one of the configurations – Existing, Expanded, or Modified – will be in operation.

<sup>2</sup>New Girdler Desulfurization Drums CD-3B and CD-4B will be constructed only with the installation of the Modified Girdler Synthesis Gas Operation.

**Miscellaneous Operations:**

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
FLS-Misc.	FLS-Misc.	Flare	6.0 Flare Gas Heat Input Units/hr	N/A	FLS-Misc.	N/A	September 8, 2022

**Powerhouse Combustion Equipment:**

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
FU-17	S-102	Boiler-equipped with oxygen trim system, combusting natural gas with or without Area 6 residue, or #2 oil with or without Area 6 residue	275.2 MMBtu/hr	Low NOx Burners (LNB) with Flue Gas Recirculation (FGR)	N/A	NOx	April 24, 2020
				Fabric Filter*	DC-32	PM	N/A*
FU-18	SK-13	Boiler equipped with oxygen trim system, combusting natural gas	350 MMBtu/hr	LNB with FGR	N/A	NOx	April 24, 2020
FU-19	SK-14	Boiler equipped with oxygen trim system, combusting natural gas	350 MMBtu/hr	LNB with FGR	N/A	NOx	April 24, 2020
RB-1, RB-2, RB-3		Rental boilers combusting natural gas	≤ 90 MMBtu/hr each		N/A		April 24, 2020

\*The FU-17 boiler was originally constructed with a fabric filter which was necessary for CISWI compliance. Upon a change in the applicability of the rule by determining that Area 6 Residue is a non-hazardous secondary material under revised regulatory language, it was determined that CISWI no longer applies to combustion of Area 6 residue in the FU-17 boiler. However, the FU-17 boiler is subject to MACT Subpart DDDDD, and compliance with the emission limits of the MACT could potentially require the use of the fabric filter. Consequently, DC-32 is listed in the equipment table as a control device which is physically present, although it is not relied on or required at this time.

**Area 14 and the Oximes Plant, Area 14 Crude MEKO Manufacturing Process:**

<b>Emission Unit ID</b>	<b>Stack ID</b>	<b>Emission Unit Description</b>	<b>Size/Rated Capacity*</b>	<b>Pollution Control Device (PCD) Description</b>	<b>PCD ID</b>	<b>Pollutant Controlled</b>	<b>Applicable Permit Date</b>
VT-215/217 <sup>1</sup>	VT-215/217	Two MEK Storage Tanks	11,420 gallons each	Submerged Fill Pipe	N/A	VOC	April 23, 2021
VT-853 <sup>1</sup>	VT-853	MEKO primary reactor	3.1 tons/hr MEKO	N/A	N/A	N/A	April 23, 2021
APT-136 <sup>1</sup>	VT-853	MEKO secondary reactor	3.1 tons/hr MEKO	N/A	N/A	N/A	April 23, 2021
HT-55 <sup>1</sup>	HT-55	Crude MEKO/aq. Ammonium Sulfate Phase Separator	3,500 gallons	N/A	N/A	N/A	April 23, 2021
VT-154 <sup>1</sup>	VT-154	Aq. Ammonium Sulfate Storage Tank	500 gallons	N/A	N/A	N/A	April 23, 2021
CL-16 <sup>1</sup>	C-111	Aq. Ammonium Sulfate Stripping Column	48,000 lb/hr feed input	N/A	N/A	N/A	April 23, 2021
SE-170 <sup>1</sup>	SE-170	Crude MEKO/Water Phase Separator	250 gallons	N/A	N/A	N/A	April 23, 2021
VT-800 <sup>1</sup>	VT-800	Crude MEKO storage tank	1,480 gallons	N/A	N/A	N/A	April 23, 2021

<sup>1</sup>Equipment is used both for the Area 14 Crude MEKO Manufacturing Process and for the Area 14 Crude 2-PO Manufacturing Process

**Area 14 and the Oximes Plant, Area 14 Crude 2-PO Manufacturing Process:**

<b>Emission Unit ID</b>	<b>Stack ID</b>	<b>Emission Unit Description</b>	<b>Size/Rated Capacity*</b>	<b>Pollution Control Device (PCD) Description</b>	<b>PCD ID</b>	<b>Pollutant Controlled</b>	<b>Applicable Permit Date</b>
VT-215/217 <sup>1</sup>	VT-215/217	Two MPK Storage Tanks	11,420 gallons each	Submerged Fill Pipe	N/A	VOC	April 23, 2021
VT-853 <sup>1</sup>	VT-853	2-PO primary reactor	1.0 tons/hr 2-PO	N/A	N/A	N/A	April 23, 2021
APT-136 <sup>1</sup>	VT-853	2-PO secondary reactor	1.0 tons/hr 2-PO	N/A	N/A	N/A	April 23, 2021
HT-55 <sup>1</sup>	HT-55	Crude 2-PO/aq. Ammonium Sulfate Phase Separator	3,500 gallons	N/A	N/A	N/A	April 23, 2021
VT-154 <sup>1</sup>	VT-154	Aq. Ammonium Sulfate Storage Tank	500 gallons	N/A	N/A	N/A	April 23, 2021
CL-16 <sup>1</sup>	C-111	Aq. Ammonium Sulfate Stripping Column	16,000 lb/hr feed input	N/A	N/A	N/A	April 23, 2021
SE-170 <sup>1</sup>	SE-170	Crude 2-PO/Water Phase Separator	250 gallons	N/A	N/A	N/A	April 23, 2021

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
VT-800 <sup>1</sup>	VT-800	Crude 2-PO storage tank	1,480 gallons	N/A	N/A	N/A	April 23, 2021

<sup>1</sup>Equipment is used both for the Area 14 Crude MEKO Manufacturing Process and for the Area 14 Crude 2-PO Manufacturing Process

***Area 14 and the Oximes Plant, Oximes Plant Crude MEKO Manufacturing Process:***

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
APT-112 <sup>2</sup>	FU-14 (or IN-1)	First Stage MEKO Oximator	2,350 lb/hr Crude MEKO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
APT-113 <sup>2</sup>	FU-14 (or IN-1)	Second Stage MEKO Oximator	2,350 lb/hr Crude MEKO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
SE-74 <sup>2</sup>	FU-14 (or IN-1)	MEKO Phase Separator	2,350 lb/hr Crude MEKO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
VT-602 <sup>2</sup>	FU-14 (or IN-1)	Secondary MEKO Phase Separator	2,350 lb/hr Crude MEKO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
VT-788 <sup>2</sup>	FU-14 (or IN-1)	Ammonium Sulfate Solution Hold Tank	2,350 lb/hr Crude MEKO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
CL-51 <sup>2</sup>	FU-14 (or IN-1)	Ammonium Sulfate Stripping Column	2,350 lb/hr Crude MEKO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
SE-75 <sup>2</sup>	SE-75	CL-51 O/H Phase Separator	2,350 lb/hr Crude MEKO	N/A	N/A	N/A	April 23, 2021
VT-603 <sup>2,3</sup>	VT-603	Ammonium Sulfate Storage Tank	12,700 gallons	N/A	N/A	N/A	April 23, 2021
HT-181 <sup>3</sup>	HT-181	MEK Storage Tank	11,000 gallons	N/A	N/A	N/A	April 23, 2021

<sup>2</sup>Equipment is used for both the Oximes Plant Crude MEKO and Oximes Plant Crude 2-PO Manufacturing Processes

<sup>3</sup>Storage Tanks HT-181, HT-186, HT-191, and VT-603 are also used by the Multi-purpose Oximation Process

***Area 14 and the Oximes Plant, Oximes Plant Crude 2-PO Manufacturing Process:***

<b>Emission Unit ID</b>	<b>Stack ID</b>	<b>Emission Unit Description</b>	<b>Size/Rated Capacity*</b>	<b>Pollution Control Device (PCD) Description</b>	<b>PCD ID</b>	<b>Pollutant Controlled</b>	<b>Applicable Permit Date</b>
APT-112 <sup>2</sup>	FU-14 (or IN-1)	First Stage 2-PO Oximator	2,350 lb/hr Crude 2-PO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
APT-113 <sup>2</sup>	FU-14 (or IN-1)	Second Stage 2-PO Oximator	2,350 lb/hr Crude 2-PO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
SE-74 <sup>2</sup>	FU-14 (or IN-1)	2-PO Phase Separator	2,350 lb/hr Crude 2-PO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
VT-602 <sup>2</sup>	FU-14 (or IN-1)	Secondary 2-PO Phase Separator	2,350 lb/hr Crude 2-PO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
VT-788 <sup>2</sup>	FU-14 (or IN-1)	Ammonium Sulfate Solution Hold Tank	2,350 lb/hr Crude 2-PO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
CL-51 <sup>2</sup>	FU-14 (or IN-1)	Ammonium Sulfate Stripping Column	2,350 lb/hr Crude 2-PO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
SE-75 <sup>2</sup>	SE-75	CL-51 O/H Phase Separator	2,350 lb/hr Crude 2-PO	N/A	N/A	N/A	April 23, 2021
VT-603 <sup>2,3</sup>	VT-603	Ammonium Sulfate Storage Tank	12,700 gallons	N/A	N/A	N/A	April 23, 2021
HT-189	HT-189	MPK Storage Tank	34,000 gallons	N/A	N/A	N/A	April 23, 2021

***Area 14 and the Oximes Plant, Oximes Plant MEKO Purification Process:***

<b>Emission Unit ID</b>	<b>Stack ID</b>	<b>Emission Unit Description</b>	<b>Size/Rated Capacity*</b>	<b>Pollution Control Device (PCD) Description</b>	<b>PCD ID</b>	<b>Pollutant Controlled</b>	<b>Applicable Permit Date</b>
TW-75 <sup>4</sup>	FU-14 (or IN-1)	MEKO Lites Distillation Column	6,480 lb/hr light crude MEKO input	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
TW-76 <sup>4</sup>	FU-14 (or IN-1)	MEKO Product Distillation Column	5,600 lb/hr MEKO input	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
VT-851/852 <sup>4</sup>	FU-14 (or IN-1)	Two (2) MEKO Product Run Tanks	2,500 gallons each	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
HT-258 <sup>4</sup>	FU-14 (or IN-1)	MEKO Product Tower Reflux Tank	200 gallons	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
VT-728 <sup>4</sup>	FU-14 (or IN-1)	Crude MEKO Storage Tank	10,000 gallons	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
HT-200	FU-14 (or IN-1)	MEKO Separator Overflow Pot	1,000 gallons	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
HT-230	FU-14 (or IN-1)	Aq. MEKO Storage Tank	2,000 gallons	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
VT-779	VT-779	Catch Tank	3,400 gallons	N/A	N/A	N/A	April 23, 2021
VT-787	VT-787	MEKO Product Storage Tank	60,000 gallons	N/A	N/A	N/A	April 23, 2021
VT-788	FU-14 (or IN-1)	Aq. MEKO Storage Tank (when processing crude MEKO from Area 14)	6,000 gallons	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
VT-856 <sup>4</sup>	FU-14 (or IN-1)	MEKO Vacuum Seal Pot	50 gallons	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
RC-MEKO	RC-MEKO	Railcar loading operations	6,000 gallons/hr	N/A	N/A	N/A	April 23, 2021
TT/ISO-MEKO	TT/ISO-MEKO	Tank truck/ISO container loading operation	6,000 gallons/hr	N/A	N/A	N/A	April 23, 2021
Drum-MEKO	Drum-MEKO	Drums/totes loading operation	6,000 gallons/hr	N/A	N/A	N/A	April 23, 2021

<sup>4</sup>Equipment is used both for the Oximes Plant MEKO Purification Process and the Oximes Plant 2-PO Purification Process

***Area 14 and the Oximes Plant, Oximes Plant 2-PO Purification Process***

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
VT-728 <sup>4</sup>	FU-14 (or IN-1)	Crude 2-PO Feed Tank	2,000 lb/hr Purified 2-PO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
TW-75 <sup>4</sup>	FU-14 (or IN-1)	2-PO Lights Distillation Column	2,000 lb/hr Purified 2-PO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
TW-76 <sup>4</sup>	FU-14 (or IN-1)	2-PO Product Distillation Column	2,000 lb/hr Purified 2-PO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
VT-851/852 <sup>4</sup>	FU-14 (or IN-1)	Two (2) 2-PO Product Run Tanks	2,000 lb/hr Purified 2-PO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
HT-258 <sup>4</sup>	FU-14 (or IN-1)	2-PO Product Tower Reflux Tank	2,000 lb/hr Purified 2-PO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
VT-856 <sup>4</sup>	FU-14 (or IN-1)	2-PO Vacuum Seal Pot	2,000 lb/hr Purified 2-PO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
HT-186 <sup>3</sup>	HT-186	2-PO Product Storage Tank	34,000 gallons	N/A	N/A	N/A	April 23, 2021
HT-191 <sup>3</sup>	HT-191	2-PO Product Storage Tank	34,000 gallons	N/A	N/A	N/A	April 23, 2021
RC-2-PO	RC-2-PO	Railcar loading operations	6,000 gallons/hr	N/A	N/A	N/A	April 23, 2021
TT/ISO-2-PO	TT/ISO-2-PO	Tank truck/ISO containers loading operation	6,000 gallons/hr	N/A	N/A	N/A	April 23, 2021
Drum-2-PO	Drum-2-PO	Drums/totes loading operation	6,000 gallons/hr	N/A	N/A	N/A	April 23, 2021

<sup>3</sup>Storage Tanks HT-181, HT-186, HT-191, and VT-603 are also used by the Multi-purpose Oximation Process

<sup>4</sup>Equipment is used both for the Oximes Plant MEKO Purification Process and the Oximes Plant 2-PO Purification Process

**Area 14 and the Oximes Plant,**

***Oximes Plant Multi-Purpose Oximation Process – Acetaldehyde Oxime (AAO)/Methyl Isobutyl Ketoxime (MIBKO), Methyl Propyl Ketoxime (2-PO)***

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
HT-181	HT-181	Recycle Tank	11,000 gallons	N/A	N/A	N/A	April 23, 2021
VT-614	FU-14 (or IN-1)	First Stage Oximator	1,000 gallons	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
APT-117	FU-14 (or IN-1)	Second Stage Oximator	1,100 gallons	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
CL-54	FU-14 (or IN-1)	Aq. Ammonium Sulfate Stripping Column	3,000 lb/hr MIBKO/2-PO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
CL-55	FU-14 (or IN-1)	Lites Distillation Column	1,974 lb/hr of AAO or 1,256 lb/hr MIBKO/2-PO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
CL-56	FU-14 (or IN-1)	Product Distillation Column	1,974 lb/hr of AAO or 1,256 lb/hr MIBKO/2-PO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
SE-301 SE-302	FU-14 (or IN-1)	Two (2) Phase Separators	1,256 lb/hr MIBKO/2-PO each	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
C-516 C-517	FU-14 (or IN-1)	Two (2) Vacuum Systems with After-Condensers	1,256 lb/hr MIBKO/2-PO each	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
HT-187	N/A	Pressurized Acetaldehyde (AA)/Methyl Isobutyl Ketone (MIBK)/Methyl Propyl Ketone (MPK) Storage Tank/Methyl Ethyl Ketone (MEK) Storage Tank	34,000 gallons	N/A	N/A	N/A	April 23, 2021
VT-953	FU-14 (or IN-1)	Seal Pot	1,256 lb/hr MIBKO/2-PO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
MX-53	FU-14 (or IN-1)	Static Mixer	1,256 lb/hr MIBKO/2-PO	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
HA-103	FU-14 (or IN-1)	Reflux Drum	15 gallons	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
HA-104	FU-14 (or IN-1)	Reflux Drum	66 gallons	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
HA-112	FU-14 (or IN-1)	Aq. Ammonium Sulfate Reflux Drum	12 gallons	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
HA-113	FU-14 (or IN-1)	Aq. Ammonium Sulfate Product Drum	12 gallons	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
VT-603	VT-603	Aq. Ammonium Sulfate Storage Tank	12,700 gallons	N/A	N/A	N/A	April 23, 2021
VT-615	FU-14 (or IN-1)	CL-54 O/H Receiver Tank	500 gallons	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
VT-616	VT-616	Recycle Tank	12,700 gallons	N/A	N/A	N/A	April 23, 2021

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
VT-617/618	FU-14 (or IN-1)	Two Product Hold Tanks	2,500 gallons (each)	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
VT-621	FU-14 (or IN-1)	Aq. Sulfate Feed Tank/Recycle Tank	1,000 gallons	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
VT-757	VT-757	AAO Product Tank	125,000 gallons	N/A	N/A	N/A	April 23, 2021
HT-186	HT-186	Methyl Propyl Ketoxime (2-PO) Product Storage Tank	34,000 gallons	N/A	N/A	N/A	April 23, 2021
HT-191	HT-191	Methyl Propyl Ketoxime (2-PO) Product Storage Tank	34,000 gallons	N/A	N/A	N/A	April 23, 2021
TT-MPO RC-MPO	FU-14 (or IN-1)	AAO/MIBKO/2-PO tanker truck/ISO containers/rail car loading operation	3,600 gallons/hr	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
Drum-MPO	FU-14 (or IN-1)	AAO/MEKO/2-PO Drums/Totes Loading Operation	1,257 gallons/hr	Thermal Oxidizer	FU-14 (or IN-1)	VOC	April 23, 2021
N/A	N/A	Acetaldehyde (AA) /methyl isobutyl ketone (MIBK) /methyl propyl ketone (MPK) unloading and storage facility	54,500 gallons/hr	N/A	N/A	N/A	April 23, 2021

***Area 14 and the Oximes Plant, Shared Equipment***

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
TW-77	TW-77	Oximes Plant Cooling Tower	10,400 gallons/min	N/A	N/A	N/A	April 23, 2021

***Area 14 and the Oximes Plant, Oximes Plant – WVE Process***

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
VT-648	VT-648	Washwater Storage Tank	60,000 gallons	N/A	N/A	N/A	N/A
APT-130	APT-130	Batch Dewatering Tank	2,000 gallons	N/A	N/A	N/A	N/A

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
VT-830	VT-830	Product Tank	5,500 gallons	N/A	N/A	N/A	N/A
RC-TT	RC-TT	Railcar and Tanker Truck Loading	1,097 WWE Units/hr	N/A	N/A	N/A	N/A

**Miscellaneous Emission Units:**

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
FP-1	FP-1	Building 35 diesel fire pump #1	288 HP	N/A	N/A	N/A	N/A
FP-2	FP-2	Building 35 diesel fire pump #2	340 HP	N/A	N/A	N/A	N/A
FP-3	FP-3	Area 6 diesel fire pump	170 HP	N/A	N/A	N/A	N/A
FP-4	FP-4	Kellogg diesel fire pump (2016)	351 HP	N/A	N/A	N/A	N/A
GEN-2	GEN-2	Kellogg UPS diesel engine (emergency)	160 HP	N/A	N/A	N/A	N/A
GEN-3	GEN-3	South side diesel emergency generator	277 HP	N/A	N/A	N/A	N/A
GEN-4	GEN-4	Diesel generator for emergency wet well pumps	600 HP	N/A	N/A	N/A	N/A
PW-8	PW-8	(2) Safe-T-Kleen parts washers	<5 tons/yr VOC	N/A	N/A	N/A	N/A
PW-9	PW-9	(3) Safe-T-Kleen parts washers	<5 tons/yr VOC	N/A	N/A	N/A	N/A
PW-17	PW-17	(2) Safe-T-Kleen parts washers	<5 tons/yr VOC	N/A	N/A	N/A	N/A
PW-26	PW-26	(4) Safe-T-Kleen parts washers	<5 tons/yr VOC	N/A	N/A	N/A	N/A
PW-77	PW-77	(4) Safe-T-Kleen parts washers	<5 tons/yr VOC	N/A	N/A	N/A	N/A

\*The Size/Rated capacity is provided for informational purposes only, and is not an applicable requirement.

## Area 6 Cyclohexanone Production

### Limitations

#### Control Requirements

1. Except as noted below, volatile organic compound (VOC) emissions from the Area 6 continuous cyclohexanone hydrogenation reactor system (A6-Hydro) shall be controlled as follows:
  - a. When cryogenics recovery system (cryo) is operating:
    - i. VOC emissions from carbon bed depressurization shall be controlled by the non-assisted flare (FLS-61).
    - ii. VOC emissions from carbon bed regeneration shall be controlled by venting these emissions to:
      1. The Kellogg process heater for incineration, except when either GC-5 is down or the Kellogg process heater (FU-1) is not operating; or
      2. The non-assisted flare (FLS-61), when either GC-5 is down or the Kellogg process heater (FU-1) is not operating.
    - iii. VOC emissions not directed to cryo shall be controlled by either the Kellogg process heater (FU-1), or the non-assisted flare (FLS-61), or both.
  - b. When cryo is not operating (cryo down), VOC emissions shall be controlled by the Kellogg process heater (FU-1) or the non-assisted flare (FLS-61).
  - c. When cryo is starting up:
    - i. VOC emissions from carbon bed depressurization shall be controlled by the non-assisted flare (FLS-61).
    - ii. VOC emissions from carbon bed regeneration shall be controlled by venting these emissions to:
      1. The Kellogg process heater for incineration, except when either GC-5 is down or the Kellogg process heater (FU-1) is not operating; or
      2. The non-assisted flare (FLS-61), when either GC-5 is down or the Kellogg process heater (FU-1) is not operating.
    - iii. VOC emissions not directed to cryo shall be controlled by either the Kellogg process heater (FU-1), or the non-assisted flare (FLS-61), or both.

The TOC reduction efficiency of the Kellogg process heater (FU-1) as an incinerator or the non-assisted flare (FLS-61) shall be at least 98%.

NOTE: During cryogenics startup, the direct outlet of the carbon beds is routed to the cold box vent. (9VAC5-80-110 and Condition 24 of the 9/8/2022 NSR Permit)

2. VOC emissions from the cyclohexanol batch reactor (APT-1), and the KA Oil Reactor (RX-KA1) shall be controlled by a non-assisted flare (FLS-61). The TOC reduction efficiency of the flare shall be at least 98%. The flare shall be provided with adequate access for inspection and shall be in operation when either process is operating.  
(9VAC5-80-110 and Condition 25 of the 9/8/2022 NSR Permit)
  
3. VOC emissions from the continuous cyclohexanone catalyst centrifuges (CT-48, CT-53, CT-55), cyclohexanol distillation column CL-9, the combined vent from cyclohexanone distillation columns CL-2 and CL-18, cyclohexanol distillation column CL-17, cyclohexanone distillation column CL-26, cyclohexanol distillation column CL-80, cyclohexanone distillation column CL-65new, and the KA Oil distillation column (CL-KA1) shall be controlled by a non-assisted flare (FLS-62). The TOC reduction efficiency of the flare shall be at least 98%. The flare shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110, Condition #E.4 of the 3/26/1997 RACT Agreement, and Condition 26 of the 9/8/2022 NSR Permit)
  
4. VOC emissions from storage tank VT-005 shall be controlled by installation of a submerged fill pipe both when storing KA Oil (current operation) or cyclohexanol (alternate operation). VOC emissions from storage tank VT-005 (current operation only) shall be controlled by the use of a liquid pre-cooler (except during periods when VT-007 is pumping to rail cars). The rolling 12-month annual average temperature of the liquid entering VT-005 shall be maintained at 140 °F or less, calculated monthly as the average of each previous consecutive 12-month period. Storage tank VT-005 and the liquid pre-cooler shall be provided with adequate access for inspection.  
(9VAC5-80-110 and Condition 28 of the 9/8/2022 NSR Permit)
  
5. VOC emissions from storage tanks VT-003, APT-17, APT-44, APT-46, APT-66B, APT-67B, APT-83, APT-106, HT-45, HT-63, VT-029, VT-176, VT-183, VT-184, and VT-210 shall be controlled by tank level control. The storage tanks shall be provided with adequate access for inspection.  
(9VAC5-80-110 and Condition 29 of the 9/8/2022 NSR Permit)
  
6. VOC emissions from the following storage tanks shall be controlled as indicated in the table below:

<b>Operating Scenario</b>	<b>VT-188</b>	<b>VT-N2</b>	<b>VT-N3</b>	<b>VT-205</b>	<b>VT-N5</b>	<b>VT-390</b>
Current	None	N/A	N/A	Note 2	N/A	None
1	Note 1	N/A	N/A	Note 2	Pre-cooler, insulated	None
2	Note 1	Condenser	N/A	Note 2	Pre-cooler, insulated	None
3	Note 1	Condenser	Condenser	Note 2	Pre-cooler, insulated	None

Note 1: VT-188 controlled by tank painted white for Operating Scenarios 1-3

Note 2: VT-205 controlled by submerged fill pipe and tank painted white for all scenarios.

The requirements listed under the “current” operating scenario apply until or unless the permittee notifies the Piedmont Regional Office of a change in operating scenario in accordance with Condition 114.c.

Upon the initial notification of a change in operating scenario, the control requirements for the new scenario shall apply. Any subsequent change to the operating scenario shall be considered a change in the method of operation of the tanks and may require new or amended permit.  
(9VAC5-80-110 and Condition 30 of the 9/8/2022 NSR Permit)

7. VOC emissions from each cyclohexanone storage tank (VT-N2 and VT-N3) shall be controlled by a glycol/water refrigerated condenser (C-XX2-A6 and C-XX3-A6). The condensers shall reduce emissions by 90 percent by weight on an annual average basis, calculated monthly as the average of each previous consecutive 12-month period. The permittee shall operate and maintain each condenser at or below a daily average outlet vapor temperature of 60 °F unless the final engineering design basis for the condensers or the results observed during the stack tests required by Condition 113 indicates that a lower temperature is required to achieve 90 percent reduction on an annual average basis. Each glycol/water refrigerated condenser shall be provided with adequate access for inspection and shall be in operation when the process is operating. Upon the written approval of the Piedmont Regional Office, the permittee may choose to use an alternate control technology for the control of VOC emissions from VT-N2 and VT-N3. This approval shall be contingent upon adequate demonstration that the proposed alternate control technology will achieve a VOC reduction efficiency of equal to or greater than the glycol/water refrigerated condenser required by this condition. If approved, the alternate control technology shall be provided with adequate access for inspection and shall be in operation when the process (VT-N2 and/or VT-N3) is operating.  
(9VAC5-80-110 and Condition 31 of the 9/8/2022 NSR Permit)
8. VOC emissions from the Nadone storage tank (VT-N5) shall be controlled by a liquid pre-cooler. The rolling 12-month annual average temperature of the liquid entering VT-N5, calculated monthly as the average of each consecutive 12-month period, shall be maintained at 90 °F or less. Storage tank VT-N5 and the liquid pre-cooler shall be provided with adequate access for inspection.  
(9VAC5-80-110 and Condition 32 of the 9/8/2022 NSR Permit)
9. VOC emissions from the phenol storage tank (VT-N4) shall be controlled by a water-cooled condenser (C-XX4-A6) or an equivalent control technology approved by the Piedmont Regional Office. The permittee shall operate and maintain the condenser at or below a daily average outlet temperature of 120 °F. The condenser (or equivalent control technology) shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 33 of the 9/8/2022 NSR Permit)
10. Fugitive VOC emissions resulting from equipment leaks from components resulting from the construction of VT-N2, VT-N3, VT-N4, and VT-N5 shall be controlled through a Leak Detection and Repair (LDAR) program. The LDAR program shall be substantively equivalent to the LDAR requirements specified in 40 CFR 63, Subpart H.  
(9VAC5-80-110 and Condition 34 of the 9/8/2022 NSR Permit)
11. VOC emissions from the Nadone tank truck/ISO container loading rack (TT/ISO-Nadone) and the Nadone rail car loading rack (RC-Nadone) shall be controlled by a vapor balance system directed to either VT-205 or VT-N5 (the tank from which the liquid being pumped to loading rack TT/ISO-Nadone or RC-Nadone originates). TT/ISO-Nadone, RC-Nadone and the vapor balance system shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 35 of the 9/8/2022 NSR Permit)

12. VOC emissions from RC-ONE1, RC-ONE3, and RC-ONE4 shall be controlled by use of a submerged fill pipe. RC-ONE1, RC-ONE3, and RC-ONE4 shall be provided with adequate access for inspection.  
(9VAC5-80-110 and Condition 36 of the 9/8/2022 NSR Permit)
13. VOC emissions from RC-ONE4 (when used for filling rail cars from VT-007) shall be controlled by the use of a liquid cooler on the outlet of VT-007. The permittee shall operate and maintain the liquid cooler at or below an hourly average outlet temperature of 191 °F. The liquid cooler shall be provided with adequate access for inspection and shall be in operating when the rail cars are loaded from VT-007.  
(9VAC5-80-110 and Condition 37 of the 9/8/2022 NSR Permit)
14. VOC emissions from the CL-80 feed tank (VT-007) shall be controlled by a water-cooled product recovery condenser (C-437). The removal efficiency of the condenser shall be at least 98%. The permittee shall operate and maintain the condenser at or below a daily average outlet temperature of 132 °F. The condenser shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 38 of the 9/8/2022 NSR Permit)
15. VOC emissions from the cyclohexanone distillation columns (CL-2 and CL-18) shall be controlled by a common product recovery condenser (C-431). The removal efficiency of the condenser shall be at least 70%. The permittee shall operate and maintain the condenser at or below the daily average outlet vapor temperature that ensures continuous compliance with the requirements of this condition. The condenser shall be provided with adequate access for inspection.  
(9VAC5-80-110 and Condition 39 of the 9/8/2022 NSR Permit)
16. VOC emissions from the cyclohexanone distillation column (CL-26) shall be controlled by a product recovery condenser (C-432). The removal efficiency of the condenser shall be at least 70%. The permittee shall operate and maintain the condenser at or below the daily average outlet temperature that ensures continuous compliance with the requirements of this condition. The condenser shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 40 of the 9/8/2022 NSR Permit)
17. VOC emissions from the cyclohexanone distillation column (CL-36) shall be controlled by a product recovery condenser (C-434). The removal efficiency of the condenser shall be at least 70%. The permittee shall operate and maintain the condenser at or below the daily average outlet temperature that ensures continuous compliance with the requirements of this condition and the emission limit contained in Condition 62. The condenser shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 41 of the 9/8/2022 NSR Permit)
18. VOC emissions from the cyclohexanone distillation column (CL-65) shall be controlled by a product recovery condenser (C-433). The removal efficiency of the condenser shall be at least 70%. The permittee shall operate and maintain the condenser at or below the daily average outlet temperature that ensures continuous compliance with the requirements of this condition and the emission limit contained in Condition 64. The condenser shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 42 of the 9/8/2022 NSR Permit)
19. VOC emissions from the phenol purification reactors (APT-66B, APT-67B), the phenol distillation residue storage tank (VT-210) and Area 6 storage tanks (VT-211 and VT-212) shall be controlled by a common

product recovery condenser (C-225). VOC emissions from VT-210 shall also be minimized by operating VT-210 such that no flashing of organic liquids occurs. Operation of VT-210 with a submerged fill system and a level control system shall be considered sufficient to meet this requirement provided that the permittee maintains records demonstrating that these measures are sufficient to prevent flashing in accordance with Condition 112.aa, below. The permittee shall operate and maintain the condenser at or below a daily average outlet temperature of 140 °F. The condenser shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 43 of the 9/8/2022 NSR Permit)

20. VOC emissions from storage tank (VT-KA1) shall be controlled by a glycol/water refrigerated condenser (C-KA1). The permittee shall operate and maintain the condenser at or below a daily average outlet temperature of 60 °F. The glycol/water refrigerated condenser shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 44 of the 9/8/2022 NSR Permit)
21. VOC emissions from storage tank (VT-KA2) shall be controlled by a water condenser (C-KA2). The permittee shall operate and maintain the condenser at or below a daily average outlet temperature of 120 °F. The glycol/water refrigerated condenser shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 45 of the 9/8/2022 NSR Permit)
22. Fugitive VOC emissions resulting from equipment leaks from components associated with the KA Oil equipment shall be controlled through a Leak Detection and Repair (LDAR) program as specified in 40 CFR 60, Subpart VVa.  
(9VAC5-80-110 and Condition 46 of the 9/8/2022 NSR Permit)
23. Fugitive VOC emissions resulting from equipment leaks in those portions of Area 6 not already subject to fugitive emissions requirements from other applicable regulations shall be controlled through a Leak Detection and Repair (LDAR) program. The LDAR program shall be substantively equivalent to the LDAR requirements specified in 40 CFR 60, Subpart VV.  
(Condition #E.7 of the 3/26/1997 RACT Agreement and 9VAC5-80-110)
24. VOC emissions from storage tanks HT-242, HT-026, VT-005, VT-010, VT-029, VT-210, VT-211 and any railcars or tanker trucks used for the storage of Area 6 organics shall be controlled by a control method that will remove, destroy, or prevent the discharge into the atmosphere of at least 60% by weight of VOC emissions during the filling of such tank. The use of a submerged fill pipe or bottom filling shall be considered acceptable achievement of this standard.  
(9VAC5-40-3430 A and 9VAC5-40-3440 A and 9VAC5-80-110)
25. VOC emissions from storage tanks APT-17, VT-183 and VT-184 shall be controlled by a control method that will remove, destroy, or prevent the discharge into the atmosphere of at least 60% by weight of VOC emissions during the filling of such tank. The use of a level control system shall be considered acceptable achievement of this standard.  
(9VAC5-40-3430 A and 9VAC5-40-3440 A and 9VAC5-80-110)
26. Particulate matter emissions from the Area 6 Cooling Tower(s) (TW-newA6) and Area 6 Cooling Towers (TW-dist1A6 and TW-dist2A6) shall be controlled by limiting the total dissolved solids of the cooling water to 2,500 parts per million as an annual average (12-month rolling basis) and by the use of cooling

towers designed to limit cooling tower liquid drift to 0.001% or less. The Area 6 cooling towers shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 47 of the 9/8/2022 NSR Permit)

27. Particulate matter emissions from the Area 6 Rental Cooling Tower (TW-cryoA6) shall be controlled by limiting the total dissolved solids of the cooling water to 2,500 parts per million as an annual average (12-month rolling basis) and by the use of a cooling tower designed to limit cooling tower liquid drift to 0.01% or less. The Area 6 Rental Cooling Tower shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 48 of the 9/8/2022 NSR Permit)

### Operating Limitations

28. The approved fuel for the hot oil heater (HE-KA1) is natural gas. A change in fuels may require a new or amended permit.  
(9VAC5-80-110 and Condition 49 of the 9/8/2022 NSR Permit)
29. The total annual input of phenol to Area 6 cyclohexanone and cyclohexanol production shall not exceed 3,434,800 Area 6 phenol units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 50 of the 9/8/2022 NSR Permit)
30. The annual input of phenol to Area 6 cyclohexanone production (cyclohexanone, Nadone, and KA Oil) shall not exceed 3,416,000 Area 6 phenol units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 51 of the 9/8/2022 NSR Permit)
31. Crude phenol storage tank (VT-029) and crude phenol storage tank (VT-176) shall not operate simultaneously.  
(9VAC5-80-110 and Condition 52 of the 9/8/2022 NSR Permit)
32. The CL-26 Catalyst Concentrator (VA-15) and the CL-36 Catalyst Concentrator (VA-17) shall not operate simultaneously.  
(9VAC5-80-110 and Condition 53 of the 9/8/2022 NSR Permit)
33. The combined annual throughput from VA-15 and VA-17 to the overhead condenser shall not exceed 398,580 Area 6 vapor units per year, calculated monthly as the sum of each previous consecutive 12-month period using the following formula:
- $$\text{Combined Overhead Throughput} = \text{Overhead Throughput of VA-15 routed to C-244} + 2.25 \times \text{Overhead Throughput of VA-17 routed to C-159}$$
- (9VAC5-80-110 and Condition 54 of the 9/8/2022 NSR Permit)
34. The annual throughput of KA Oil to VT-005 shall not exceed 969 Area 6 tank units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 55 of the 9/8/2022 NSR Permit)

35. The annual throughput of cyclohexanol to VT-005 shall not exceed 731 Area 6 tank units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 56 of the 9/8/2022 NSR Permit)
36. The annual input of crude cyclohexanone to VT-180 shall not exceed 16,158 Area 6 tank units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 57 of the 9/8/2022 NSR Permit)
37. The annual input of crude cyclohexanone to CL-2 shall not exceed 63,439,920 Area 6 cyclohexanone units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 58 of the 9/8/2022 NSR Permit)
38. The annual input of crude cyclohexanol to CL-9 shall not exceed 4,774,200 Area 6 cyclohexanol units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 59 of the 9/8/2022 NSR Permit)
39. The annual input of crude cyclohexanol to CL-17 shall not exceed 20,051,640 Area 6 cyclohexanol units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 60 of the 9/8/2022 NSR Permit)
40. The annual input of crude cyclohexanone to CL-18 shall not exceed 67,171,680 Area 6 cyclohexanone units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 61 of the 9/8/2022 NSR Permit)
41. The annual input of crude cyclohexanone to CL-26 shall not exceed 277,872,984 Area 6 cyclohexanone units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 62 of the 9/8/2022 NSR Permit)
42. The annual input of crude cyclohexanone to CL-36 shall not exceed 167,929,200 Area 6 cyclohexanone units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 63 of the 9/8/2022 NSR Permit)
43. The annual input of crude cyclohexanone to CL-80 shall not exceed 93,294,000 Area 6 cyclohexanone units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 64 of the 9/8/2022 NSR Permit)
44. The annual input of purified phenol to CL-64 shall not exceed 733,760 Area 6 phenol units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 65 of the 9/8/2022 NSR Permit)
45. The annual input of crude cyclohexanone to CL-65 shall not exceed 167,929,200 Area 6 cyclohexanone units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 66 of the 9/8/2022 NSR Permit)
46. The annual input of crude cyclohexanone to CL-65new shall not exceed 167,929,200 Area 6 cyclohexanone units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 67 of the 9/8/2022 NSR Permit)

47. The combined annual input of cyclohexanone to VT-188, VT-N2, and VT-N3 shall not exceed 22,162 Area 6 tank units per year each, calculated monthly as the sum of each previous consecutive 12-month period. (9VAC5-80-110 and Condition 68 of the 9/8/2022 NSR Permit)
48. The annual input of cyclohexanone or Nadone (in Area 6 tank units per year, calculated monthly as the sum of each previous consecutive 12-month period) to storage tanks VT-188, VT-205, VT-390, VT-N2, VT-N3, and VT-N5 shall not exceed the limits listed in the following tables:

**Operating Scenario**

**Material in Each Tank**

-----	VT-188	VT-N2	VT-N3	VT-205	VT-N5	VT-390
Current	Cyclohexanone	N/A	N/A	Nadone	N/A	Nadone
1	Cyclohexanone	N/A	N/A	Nadone	Nadone	Nadone
2	Cyclohexanone	Cyclohexanone	N/A	Nadone	Nadone	Nadone
3	Cyclohexanone	Cyclohexanone	Cyclohexanone	Nadone	Nadone	Nadone

**Operating Scenario**

**Throughput per Tank (Area 6 Tank Units/Year)**

-----	VT-188	VT-N2	VT-N3	VT-205	VT-N5	VT-390
Current	22,162	N/A	N/A	5,382	N/A	123
1	22,162	N/A	N/A	Note 3	Note 3	123
2	Note 1	Note 1	N/A	Note 3	Note 3	123
3	Note 2	Note 2	Note 2	Note 3	Note 3	123

Note 1: Total annual input of cyclohexanone for storage tanks VT-188 and VT-N2 shall not exceed 22,162 Area 6 Tank Units in operating scenario 2.

Note 2: Total annual input of cyclohexanone for storage tanks VT-188, VT-N2, and VT-N3 shall not exceed 22,162 Area 6 Tank Units in operating scenario 3.

Note 3: Total annual input of Nadone for storage tanks VT-205 and VT-N5 shall not exceed 5,382 Area 6 Tank Units in operating scenarios 1, 2, or 3.

The throughput limits listed under the “current” scenario shall apply unless or until the permittee notifies the Piedmont Regional Office of a change in operating scenario in accordance with Condition 114.c. Any subsequent change to the operating scenario shall be considered a change in the method of operation of the tanks and may require new or amended permit.

(9VAC5-80-110 and Condition 69 of the 9/8/2022 NSR Permit)

49. The annual input of phenol to VT-N4 shall not exceed 22,834 Area 6 tank units per year, calculated monthly as the sum of each previous consecutive 12-month period. 12-months after startup of VT-N4, the annual input of phenol to VT-462 and VT-515 (combined) shall not exceed 15,222 Area 6 tank units per year, calculated monthly as the sum of each previous consecutive 12-month period. Should VT-N4 not be in service, then VT-462 and VT-515 (combined) shall not exceed 22,834 Area 6 tank units per year, calculated monthly as the sum of each previous consecutive 12-month period. (9VAC5-80-110 and Condition 70 of the 9/8/2022 NSR Permit)
50. Total ONE loaded to railcars (RC-Nadone, RC-ONE1, RC-ONE2, RC-ONE3, and RC-ONE4), tank trucks/ISO containers (TT/ISO-Nadone), or drums (Drum-Nadone) shall not exceed 16,578,000 Area 6

loading units per year, calculated monthly as the sum of each previous consecutive 12-month period. Individual ONE loading equipment throughputs shall not exceed the limits specified in the following table:

Equipment ID	Throughput Limit (Area 6 loading units/yr)
RC-Nadone and TT/ISO-Nadone (combined)	12,280,000
Drum-Nadone	614,000
RC-ONE1 (Distilled ONE)	2,456,000
RC-ONE2 (KA Oil)	1,842,000
RC-ONE3 (Crude ONE)	575,625
RC-ONE4 (CT Cone Flush, Jet Condensate, Column Boilout, and Crude KA Oil)	947,709

(9VAC5-80-110 and Condition 71 of the 9/8/2022 NSR Permit)

51. Total Naxol (OL) loaded to railcars (RC-Naxol), tanker trucks and ISO containers (TT/ISO-Naxol), and drums (Drum-Naxol) shall not exceed 1,473,600 Area 6 loading units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 72 of the 9/8/2022 NSR Permit)
52. The annual throughput of cyclohexanol to the KA Oil reactor shall not exceed 14,704,536 Area 6 cyclohexanol units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 73 of the 9/8/2022 NSR Permit)
53. The annual throughput of cyclohexanone to CL-KA1 shall not exceed 141,806,880 Area 6 cyclohexanone units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 74 of the 9/8/2022 NSR Permit)
54. The annual throughput of process liquids to VT-KA1 and VT-KA2 shall not exceed 6,309 Area 6 tank units per year, and 2,391 Area 6 tank units per year, respectively, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 75 of the 9/8/2022 NSR Permit)
55. The annual throughput of cooling water to the Area 6 Cooling Tower(s) (TW-new A6) shall not exceed 1,653,748 Area 6 cooling units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 76 of the 9/8/2022 NSR Permit)
56. The annual throughput of cooling water to the Area 6 Cooling Tower (TW-dist1 A6) shall not exceed 181,332 Area 6 cooling units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 77 of the 9/8/2022 NSR Permit)
57. The annual throughput of cooling water to the Area 6 Cooling Tower (TW-dist2 A6) shall not exceed 304,638 Area 6 cooling units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 78 of the 9/8/2022 NSR Permit)

58. The annual throughput of cooling water to the Area 6 Rental Cooling Tower (TW-cryoA6) shall not exceed 54,400 Area 6 cooling units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
 (9VAC5-80-110 and Condition 79 of the 9/8/2022 NSR Permit)
59. As of June 28, 2011, the crude cyclohexanol distillation column CL-63 shall be removed from operation and permanently shut down.  
 (9VAC5-80-110 and Condition 80 of the 9/8/2022 NSR Permit)

**Emission Limits**

60. Emissions from the operation of Area 6 cyclohexanone production (inclusive of all emission units specified in the Area 6 section of the Equipment List and the fugitive emissions limited by Conditions 79 and 83 shall not exceed the limits specified below:

Pollutant	Lb/hr	Tons/year
Volatile Organic Compounds	150.0	55.29

(9VAC5-80-110 and Condition 81 of the 9/8/2022 NSR Permit)

61. Emissions from the product recovery condenser from the operation of CL-25 shall not exceed the limits specified below:

Pollutant	Lb	Tons/year
Volatile Organic Compounds	6.8	0.02
	Every 30 Days*	

\*Compliance with the short-term limits shall be determined on a 30-day basis, calculated daily.  
 (9VAC5-80-110 and Condition 82 of the 9/8/2022 NSR Permit)

62. Emissions from the product recovery condenser from the operation of the CL-36 shall not exceed the limits specified below:

Pollutant	Lb	Tons/year
Volatile Organic Compounds	3,096	1.7
	Every 30 Days*	

\*The short-term limits shall be determined on a 30-day basis calculated daily.  
 (9VAC5-80-110 and Condition 83 of the 9/8/2022 NSR Permit)

63. Emissions from the product recovery condenser from the operation of CL-64 shall not exceed the limits specified below:

Pollutant	Lb	Tons/year
Volatile Organic Compounds	1,115	1.08
	Every 30 Days*	

\*The short-term limits shall be determined on a 30-day basis calculated daily.  
(9VAC5-80-110 and Condition 84 of the 9/8/2022 NSR Permit)

64. Emissions from the product recovery condenser from the operation of CL-65 shall not exceed the limits specified below:

Pollutant	Lb	Tons/year
Volatile Organic Compounds	2,087	4.27
	Every 30 Days*	

\*The short-term limits shall be determined on a 30-day basis calculated daily.  
(9VAC5-80-110 and Condition 85 of the 9/8/2022 NSR Permit)

65. Emissions from the combined operation of APT-66B, APT-67B, VT-210, VT-211 and VT-212 as exhausted through their common product recovery condenser, shall not exceed the limits specified below:

Pollutant	Lb/hr	Tons/year
Volatile Organic Compounds	13.9	2.27

(9VAC5-80-110 and Condition 86 of the 9/8/2022 NSR Permit)

66. Emissions from the direct outlet of A6-Hydro carbon beds (during cryogenics startup) shall not exceed the limits specified below:

Pollutant	Lb/hr	Tons/year
Volatile Organic Compounds	0.41	0.12

(9VAC5-80-110 and Condition 87 of the 9/8/2022 NSR Permit)

67. Emissions from the operation of the A6-Hydro, APT-1, and RX-KA1 as exhausted through the Area 6 non-assisted flare (FLS-61) shall not exceed the limits specified below:

Pollutant	Lb/hr	Tons/year
Nitrogen Oxides (as NO <sub>2</sub> )	9.0	9.51
Carbon Monoxide	46.7	38.84
Volatile Organic Compounds	4.7	5.75

(9VAC5-80-110 and Condition 88 of the 9/8/2022 NSR Permit)

68. Emissions from the operation of CT-48, CT-53, CT-55, CL-2/18, CL-9, CL-17, CL-26, CL-80, CL-65New, and CL-KA1 as exhausted through the Area 6 non-assisted flare (FLS-62) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Nitrogen Oxides (as NO <sub>2</sub> )	0.6	2.3
Carbon Monoxide	6.5	26.6
Volatile Organic Compounds	1.5	4.27

(9VAC5-80-110 and Condition 89 of the 9/8/2022 NSR Permit)

69. Emissions from the operation of the CL-80 feed tank (VT-007) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Volatile Organic Compounds	2.0	0.96

(9VAC5-80-110 and Condition 90 of the 9/8/2022 NSR Permit)

70. Emissions from the operation of the crude phenol storage tanks (VT-029 or VT-176) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Volatile Organic Compounds	2.5	0.20

(9VAC5-80-110 and Condition 91 of the 9/8/2022 NSR Permit)

71. Emissions from the operation of the catalyst concentrators (VA-15 or VA-17) shall not exceed the limit specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Volatile Organic Compounds	15.6	1.3

(9VAC5-80-110 and Condition 92 of the 9/8/2022 NSR Permit)

72. Emissions from the operation of the CL-64 Feed tank (VT-184) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Volatile Organic Compounds	57.7	N/A

(9VAC5-80-110 and Condition 93 of the 9/8/2022 NSR Permit)

73. Prior to the startup of VT-N4, combined emissions from the operation of the crude phenol storage tanks (VT-462, VT-515) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Volatile Organic Compounds	33.7	8.1

(9VAC5-80-110 and Condition 94 of the 9/8/2022 NSR Permit)

74. After startup of VT-N4, VOC emissions from the operation of the crude phenol storage tanks (VT-462, VT-515, and VT-N4) shall not exceed the limits specified below:

Storage Tank	Lb/hr	Tons/year
VT-462 or VT-515	33.7	
VT-N4	17.2	
VT-462, VT-515, and VT-N4 (combined)		8.5

(9VAC5-80-110 and Condition 95 of the 9/8/2022 NSR Permit)

75. Emissions from the operation of KA Oil/cyclohexanol storage tank (VT-005) shall not exceed the limits specified below:

Pollutant	Lb/hr	Tons/year
Volatile Organic Compounds	15.3	0.25

(9VAC5-80-110 and Condition 96 of the 9/8/2022 NSR Permit)

76. Emissions from the operation of cyclohexanone storage tank (VT-180) shall not exceed the limits specified below:

Pollutant	Lb/hr	Tons/year
Volatile Organic Compounds	11.7	3.6

(9VAC5-80-110 and Condition 97 of the 9/8/2022 NSR Permit)

77. VOC emissions from the operation of cyclohexanone and Nadone storage tanks shall not exceed the hourly limits (lb/hr) specified below:

Operating Scenario	VT-188	VT-N2	VT-N3	VT-205	VT-N5	VT-390
Current	19.0	N/A	N/A	5.4	N/A	5.4
1	19.0	N/A	N/A	5.4	4.7	5.4
2	19.0	2.0	N/A	5.4	4.7	5.4
3	19.0	2.0	2.0	5.4	4.7	5.4

The emission limits listed under the “current” operating scenario apply until or unless the permittee notifies of a change in operating scenario in accordance with Condition 114.c. Any subsequent change to the operating scenario shall be considered a change in the method of operation of the tanks and may require new or amended permit.

(9VAC5-80-110 and Condition 98 of the 9/8/2022 NSR Permit)

78. VOC emissions from the operation of cyclohexanone and Nadone storage tanks shall not exceed the annual emission limits (tons/yr) specified below:

<b>Operating Scenario</b>	<b>VT-188</b>	<b>VT-N2</b>	<b>VT-N3</b>	<b>VT-205</b>	<b>VT-N5</b>	<b>VT-390</b>
Current	4.96	N/A	N/A	1.95	N/A	0.32
1	4.22	N/A	N/A	Note 1	Note 1	0.32
2	Note 2	Note 2	N/A	Note 1	Note 1	0.32
3	Note 3	Note 3	Note 3	Note 1	Note 1	0.32

Note 1: Combined VOC emission limit for VT-205 and VT-N5 is 2.51 tons/yr for Operating Scenarios 1-3

Note 2: Combined VOC emission limit for VT-188 and VT-N2 is 4.49 tons/yr for Operating Scenario 2.

Note 3: Combined VOC emission limit for VT-188, VT-N2, and VT-N3 is 4.43 tons/yr for Operating Scenario 3.

The emission limits listed under the “current” operating scenario apply until or unless the permittee notifies of a change in operating scenario in accordance with Condition 114.c. Any subsequent change to the operating scenario shall be considered a change in the method of operation of the tanks and may require new or amended permit.

(9VAC5-80-110 and Condition 99 of the 9/8/2022 NSR Permit)

79. Fugitive emissions from equipment leaks from the operation of the storage tanks (VT-N2, VT-N3, VT-N4, and VT-N5) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Volatile Organic Compounds	0.1	0.4

Compliance with the requirements of this condition shall be determined as specified in Conditions 6 and 112.j.

(9VAC5-80-110 and Condition 100 of the 9/8/2022 NSR Permit)

80. Combined emissions from ONE transfer operations (RC-Nadone, RC-ONE1, RC-ONE2, RC-ONE3, RC-ONE4, TT/ISO-Nadone, and Drum-Nadone) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Volatile Organic Compounds	48.1	2.3

(9VAC5-80-110 and Condition 101 of the 9/8/2022 NSR Permit)

81. Combined emissions from Naxol (OL) transfer operations (RC-Naxol, TT/ISO-Naxol, and Drum-Naxol) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Volatile Organic Compounds	14.3	0.22

(9VAC5-80-110 and Condition 102 of the 9/8/2022 NSR Permit)

82. Combined emissions from the operation of the KA Oil process tanks (VT-KA1 and VT-KA2) shall not exceed the limits specified below:

Pollutant	Lb/hr	Tons/year
Volatile Organic Compounds	0.5	0.5

(9VAC5-80-110 and Condition 103 of the 9/8/2022 NSR Permit)

83. Fugitive emissions from equipment leaks from the operation of the KA Oil process shall not exceed the limits specified below:

Pollutant	Lb/hr	Tons/year
Volatile Organic Compounds	0.4	1.73

(9VAC5-80-110 and Condition 104 of the 9/8/2022 NSR Permit)

84. Combined emissions from the operation of the Area 6 cooling tower(s) (TW-newA6), Area 6 Cooling Towers (TW-dist1A6 and TW-dist2A6), and Area 6 Rental Cooling Tower (TW-cryoA6) shall not exceed the limits specified below:

Pollutant	Lb/hr	Tons/year
PM (filterable only)	0.46	2.03
PM <sub>10</sub>	0.07	0.30
PM <sub>2.5</sub>	0.07	0.30

(9VAC5-80-110 and Condition 105 of the 9/8/2022 NSR Permit)

**40 CFR 60 Subpart NNN/RRR Requirements**

85. The following Area 6 affected facilities subject to New Source Performance Standards (NSPS) Subparts NNN or RRR shall be operated in compliance with the requirements of either 40 CFR 60.702(a), 40 CFR 60.662(b)/40 CFR 60.702(b) or 60.662(c)/60.702(c) as specified below:
- a. VOC emissions from the A6-Hydro (APT-2, 4, 6, 81, 82) reactor system shall be controlled by reducing TOC (total organic compounds less methane and ethane) emissions by 98 weight percent, or to a TOC concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen, whichever is less stringent. Compliance with this requirement shall be achieved by venting the VOC emissions to the Kellogg process heater (FU-1) which is a >44-megawatt process heater or to the non-assisted flare (FLS-61) as specified in Condition 1 of this permit.
  - b. VOC emissions from the following equipment shall be controlled by the Area 6 flares as specified in Conditions 2-3 of this permit: RX-KA1, CL-2 and CL-18 (as exhausted through their common recovery device C-431), CL-9, CL-17, CL-26, CL-80, and CL-65new.
  - c. The following equipment shall be operated such that their vent streams shall each maintain a Total Resource Effectiveness (TRE) value of greater than 1.0 without the use of a VOC control device at all times: APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225), CL-10, CL-25, CL-36, CL-46, CL-64, CL-65, and CL-KA1.

- d. During startup of the cryogenics recovery system:
- i. Emissions from depressurizing the carbon beds shall be routed to the non-assisted flare (FLS-61),
  - ii. Emissions from the regenerating carbon beds shall be routed to the Kellogg process heater (FU-1), or to the non-assisted flare (FLS-61) if either GC-5 is down or the Kellogg process heater is not operating,
  - iii. Emissions from the exhaust of the carbon beds may be routed to the cold box vent. The carbon beds shall maintain a control efficiency of at least 98% or the vent stream shall maintain a Total Resource Effectiveness (TRE) value of greater than 1.0 without the use of a VOC control device at all times, and
  - iv. VOC emissions not directed to cryo shall be controlled by the Kellogg process heater (FU-1) or the non-assisted flare (FLS-61).

(9VAC5-80-110, 40 CFR 60 Subparts NNN and RRR, and Condition 27 of the 9/8/2022 NSR Permit)

86. The permittee shall perform an initial performance test and determine an initial process vent stream TRE (as defined in 40 CFR 60 Subparts NNN/RRR) value for CL-KA1 and RX-KA1. The Net Heating Value, the Emission Rate of VOC, and the TRE (as defined in 40 CFR 60 Subparts NNN/RRR) of the process vent streams for the above units, as applicable, shall be determined and calculated as defined in 40 CFR 60 Subparts NNN or RRR, as appropriate.  
(9VAC5-80-110, 40 CFR 60 Subparts NNN and RRR, and Condition 107 of the 9/8/2022 NSR Permit)
87. The permittee shall recalculate the TRE (as defined in 40 CFR 60 Subparts NNN/RRR) index value for APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225), CL-10, CL-25, CL-36, CL-46, CL-64, CL-65 and CL-KA1 whenever process changes are made. The TRE (as defined in 40 CFR 60 Subparts NNN/RRR) index value shall be recalculated based on test data or on best engineering estimates of the effects of the change on the recovery system.  
(9VAC5-80-110, 40 CFR 60 Subparts NNN and RRR, and Condition 108 of the 9/8/2022 NSR Permit)
88. Where the TRE (as defined in 40 CFR 60 Subparts NNN/RRR) value, calculated in accordance with Conditions 86 and 87, is less than or equal to 1.0, the source shall notify DEQ within a week of that determination and shall conduct a performance test consistent with the requirements of 40 CFR 60.664(g)(1) or 40 CFR 60.704(f)(1), as appropriate. This performance test shall be conducted as soon as possible but in no case later than 180 days after the process change prompting the recalculation.  
(9VAC5-80-110, 40 CFR 60 Subparts NNN and RRR, and Condition 109 of the 9/8/2022 NSR Permit)
89. Where the TRE (as defined in 40 CFR 60 Subparts NNN/RRR) value, calculated in accordance with Conditions 86 and 87, is less than or equal to 8.0 but greater than 1.0, the source shall conduct a performance test consistent with 40 CFR 60.664(g)(2) or 40 CFR 60.704(f)(2). This performance test must be conducted as soon as possible but in no case later than 180 days after the process change prompting the recalculation. All performance tests conducted in accordance with this condition shall be conducted within 180 days of the process change.  
(9VAC5-80-110, 40 CFR 60 Subparts NNN and RRR, and Condition 110 of the 9/8/2022 NSR Permit)
90. The permittee shall operate APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225), A6-Hydro (APT-2, 4, 6, 81, 82), CL-2, CL-18, CL-9, CL-10, CL-17,

CL-25, CL-26, CL-36, CL-46, CL-64, CL-65, CL-65new, CL-80, RX-KA1, and CL-KA1 in compliance with 40 CFR 60 Subparts NNN or RRR, as appropriate. In accordance with 40 CFR 63.110(d), for A6-Hydro (APT-2, 4, 6, 81, 82), CL-2, CL-18, CL-9, CL-17, CL-26 and CL-80, compliance with the requirements of Conditions 91-97 shall also be sufficient to demonstrate compliance with the requirements of this condition.  
(9VAC5-80-110, 40 CFR 63.110(d), and Condition 111 of the 9/8/2022 NSR Permit)

### HON Process Requirements

91. The following Area 6 affected facilities subject to 40 CFR 63 Subpart G shall be operated in compliance with the requirements of either 40 CFR 63.113(a)(1), 40 CFR 63.113(a)(2) or 40 CFR 63.113(e) as specified below:
- a. VOC emissions from the A6-Hydro (APT-2, 4, 6, 81, 82) reactor system (excluding cryogenics carbon bed depressurization cycles) shall be controlled by reducing TOC (total organic compounds less methane and ethane) emissions by 98 weight percent, or to a TOC concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen, whichever is less stringent. Compliance with this requirement shall be achieved by the venting the VOC emissions to the >44 MW Kellogg process heater (FU-1) and by introducing VOC emissions with the primary fuel or by venting the VOC emissions to the non-assisted flare (FLS-61).
  - b. VOC emissions from the following equipment shall be controlled by the Area 6 flares as specified in Conditions 2-3 of this permit: RX-KA1, CT-48, CT-53, CT-55, CL-2 and CL-18 (as exhausted through their common recovery device C-431), CL-9, CL-17, CL-26, CL-65new, and CL-80.
  - c. The following equipment shall be operated such that their vent streams shall each maintain a TRE (as defined in 40 CFR 63 Subpart G) value of greater than 4.0 without the use of a VOC control device at all times: APT-83, APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225), CL-10, CL-25, CL-36, CL-46, CL-64, CL-65, CL-KA1, HT-09, HT-38, HT-45, VA-15, VA-17, VT-119, VT-021, VT-210, VT-250 and VT-456.
- (9VAC5-80-110, 40 CFR 63.113(a)(1-2), 40 CFR 63.113(b), 40 CFR 63.113(e), and Condition 27 of the 9/8/2022 NSR Permit)
92. Organic HAP/VOC emissions from the CL-80 Feed Tank (VT-007) shall be controlled by a closed-vent system routed to a water-cooled product recovery condenser (C-437). The removal efficiency of the condenser shall be at least 95%. Compliance with Condition 14 shall also indicate compliance with this Condition.  
(9VAC5-80-110, 40 CFR 63.170, and 40 CFR 63.172(b))
93. The permittee shall perform an initial TRE (as defined in 40 CFR 63 Subpart G) determination for APT-83, APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225), CL-10, CL-25, CL-36, CL-46, CL-64, CL-65, HT-09, HT-38, HT-45, VA-15, VA-17, VT-119, VT-021, VT-210, VT-250, and VT-456. The Net Heating Value, the Emission Rate of Hazardous Air Pollutants, and the TRE (as defined in 40 CFR 63 Subpart G) of the process vent streams for the above units shall be determined and calculated as defined in 40 CFR 63 Subpart G.  
(9VAC5-80-110 and 40 CFR 63.115(d))

94. The permittee shall recalculate the TRE (as defined in 40 CFR 63 Subpart G) index value for APT-83, APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225), CL-10, CL-25, CL-36, CL-46, CL-64, CL-65, HT-09, HT-38, HT-45, VA-15, VA-17, VT-119, VT-021, VT-210, VT-250, and VT-456 whenever process changes are made. The TRE (as defined in 40 CFR 63 Subpart G) index value shall be recalculated based on test data or on best engineering estimates of the effects of the change on the recovery system.  
(9VAC5-80-110 and 40 CFR 63.115(e))
95. Where the TRE (as defined in 40 CFR 63 Subpart G) value, calculated in accordance with Condition 94 of this permit is less than or equal to 1.0, or less than or equal to 4.0 but greater than 1.0, the permittee shall comply with the appropriate provisions in 40 CFR 63.113.  
(9VAC5-80-110 and 40 CFR 63.115(e)(2))
96. The permittee shall develop and implement a written start-up, shutdown, and malfunction (SSM) plan as specified in 40 CFR 63.6(e)(3). This plan shall describe, in detail, procedures for operating and maintaining emissions units in Area 6 during periods of SSM and a program for corrective action for malfunctioning process and air pollution control equipment used to comply with 40 CFR 63 Subparts G and H.  
(9VAC5-80-110 and 40 CFR 63.6(e)(3))
97. Except where this permit is more restrictive than the applicable requirement, the permittee shall operate Area 6 in compliance with all requirements of 40 CFR 63 Subparts A, F, G and H.  
(9VAC5-80-110 and 40 CFR 63 Subparts A, F, G, H)

### Flare Requirements

98. The permittee shall design, maintain, and operate each non-assisted flare in accordance with the following requirements:
  - a. Each non-assisted flare shall be designed for and operated with no visible emissions, except for periods not to exceed a total of five (5) minutes during any two (2) consecutive hours. Test Method 22 in Appendix A of 40 CFR 60 shall be used to determine compliance with this visible emission requirement.  
(40 CFR 63.116(a), 40 CFR 63.11(b)(4) and 9VAC5-80-110)
  - b. Each non-assisted flare shall operate at all times with either:
    - i. A minimum net heating value of the gas to be combusted of 7.45 MJ/scm (200 Btu per standard cubic foot) of the gas, or
    - ii. Hydrogen content of 8.0 percent (by volume) or greater.

The net heating value and/or hydrogen content of the inlet to FLS-61 shall be continuously calculated through a combination of flow rates and stream composition and recorded as 3-hour block averages.

The net heating value and/or hydrogen content of the inlet to FLS-62 shall be determined annually. The net heating value shall be calculated using the equation in 40 CFR 60.18(f)(3).  
(9VAC5-80-110 and Condition 116 of the 9/8/2022 NSR Permit)

- c. When meeting the requirements of Condition 98.c.i., each Area 6 non-assisted flare (FLS-61, FLS-62) shall operate with an exit velocity less than the velocity calculated from the following equation:

$$\text{Log}_{10}(V_{\text{max}}) = (H_T + 28.8)/31.7$$

where:  $V_{\text{max}}$  = the maximum permitted velocity < 122 m/sec (400 ft/sec)  
 $H_T$  = the net heating value (Condition 98.c)

When meeting the requirements of Condition 98.c.ii., each Area 6 non-assisted flare (FLS-61, FLS-62) shall operate with an exit velocity less than the velocity,  $V_{\text{max}}$ , as determined by the following equation:

$$V_{\text{max}} = (X_{\text{H2}} - K_1) * K_2$$

where:  $V_{\text{max}}$  = the maximum permitted velocity < 37.2 m/sec (122 ft/sec)  
 $K_1$  = constant, 6.0 volume-percent hydrogen  
 $K_2$  = constant, 3.9 (m/sec)/volume-percent hydrogen  
 $X_{\text{H2}}$  = the volume percent of hydrogen, on a wet basis, as calculated by using ASTM Method D1946-77 (or the most recent version) or as calculated using direct instrumental measurement or mass balance data of individual streams

The actual velocity of flare FLS-61 shall be calculated continuously and recorded as a 3-hour block average. The actual velocity of flare FLS-62 shall be determined by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by Reference Methods 2, 2A, 2C, or 2D as appropriate; by the unobstructed (free) cross-sectional area of the flare tip.

(9VAC5-80-110, 40 CFR 63.116(a), 40 CFR 63.11(b)(7), and Conditions 116-117 of the 9/8/2022 NSR Permit)

## HON LDAR Requirements

99. The permittee shall operate Area 6 in compliance with the Leak Detection and Repair Requirements of 40 CFR 63 Subpart H. The provisions of this condition apply to pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, instrumentation systems, and control devices or closed vent systems required by 40 CFR Subpart H that are intended to operate in organic hazardous air pollutant service 300 hours or more during a calendar year.
- 63.162 – Standards: General
  - 63.163 – Standards: Pumps in light liquid service
  - 63.164 – Standards: Compressors
  - 63.165 – Standards: Pressure relief devices in gas/vapor service
  - 63.166 – Standards: Sampling Connection systems
  - 63.167 – Standards: Open-ended valves or lines
  - 63.168 – Standards: Valves in gas/vapor service and in light liquid service
  - 63.169 – Standards: Pumps, valves, connectors, and agitators in heavy liquid service; instrumentation systems; and pressure relief devices in liquid service
  - 63.171 – Standards: Delay of Repair
  - 63.173 – Standards: Agitators in gas/vapor service and in light liquid service

- k. 63.174 – Standards: Connectors in gas/vapor service and in light liquid service
- l. 63.180 – Test methods and procedures

(9VAC5-80-110 and 40 CFR 63 Subpart H)

### **MON Process Requirements**

100. The following Area 6 affected source subject to 40 CFR 63 Subpart FFFF shall be operated in compliance with the requirements of 40 CFR 63.2460:

- a. Organic HAP emissions from the cyclohexanol batch reactor (APT-1) shall be controlled by reducing TOC (total organic compounds less methane and ethane) emissions by 98 weight percent, or to a TOC concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen, whichever is less stringent. Compliance with this requirement shall be achieved by venting the organic HAP/VOC emissions to the non-assisted flare (FLS-61) as specified in Condition 2 of this permit.

(9VAC5-80-110 and 40 CFR 63.2460)

101. Except where the permit is more restrictive than the applicable requirement, the permittee shall operate Area 6 affected source in compliance with the requirements of 40 CFR 63 Subparts A and FFFF.

(9VAC5-80-110 and 40 CFR 63 Subpart FFFF)

### **MON LDAR Requirements**

102. The permit shall operate the Area 6 affected source subject to MON requirements in compliance with 40 CFR 63.2480 and the Leak Detection and Repair Requirements of 40 CFR 63 Subpart H or 40 CFR 63 Subpart UU. The provisions of this condition apply to pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, instrumentation systems, and closed vent systems and control devices used to meet the requirements of 40 CFR 63 Subpart FFFF. Equipment in vacuum service is excluded from the requirements of 40 CFR 63 Subpart FFFF.

(9VAC5-80-110 and 40 CFR 63.2480)

### **Monitoring**

103. The permittee shall conduct annual inspections on the storage tanks and level control systems subject to Condition 25 to ensure that the storage tanks and level control systems are maintained and operated in good working order. The permittee shall expeditiously take corrective action as necessary to address any malfunctioning equipment discovered in any inspection.

(9VAC5-80-110)

104. The permittee shall install a flow indicator that provides a record of vent stream flow from CL-65new to the flare (FLS-62) at least once every hour. The flow indicator shall be installed in the vent stream from each affected facility at a point closest to the flare and before being joined with any other vent stream.

(9VAC5-80-110 and Condition 112 of the 9/8/2022 NSR Permit)

105. The permittee shall install, calibrate, and maintain a monitoring device which continuously measures and permanently records the product side outlet temperature for the condensers of each of the following emission units: CL-26, CL-36, CL-64, CL-65, VT-007, APT-66B/67B and VT-210, VT-N2, VT-N3, VT-N4, VT-KA1, and VT-KA2. During all periods of operation, the devices shall continuously monitor and

record the product side outlet temperature for the condensers listed above. Data from the continuous temperature monitors for CL-26 and CL-65 shall be recorded as fifteen-minute readings and reduced to 3-hour rolling averages. A valid 3-hour average shall consist of no less than 90% valid readings. Data from the continuous temperature monitors for CL-36, CL-64, VT-007, APT-66B/67B and VT-210, VT-N2, VT-N3, VT-N4, VT-KA1, and VT-KA2 shall be recorded as fifteen-minute readings and reduced to daily rolling averages. A valid daily average shall consist of no less than 90% valid readings. The continuous temperature monitors shall be calibrated annually (as a minimum).  
(9VAC5-80-110, 40 CFR 63.172(e), Condition #E.19 of the 3/26/1997 RACT Agreement, and Condition 113 of the 9/8/2022 NSR Permit)

106. The permittee shall install, calibrate, and maintain a monitoring device which continuously measures and permanently records the liquid level in Area 6 storage tanks VT-003, APT-17, APT-44, APT-46, APT-66B, APT-67B, APT-83, APT-106, HT-45, HT-63, VT-029, VT-176, VT-183, VT-184, and VT-210.  
(9VAC5-80-110 and Condition 114 of the 9/8/2022 NSR Permit)
107. The permittee shall conduct annual inspections of the VT-007 closed-vent system and product recovery condenser C-437 as specified in 40 CFR 63.180(b). Any leaks detected shall be repaired as specified in 40 CFR 63.172(h).  
(9VAC5-80-110 and 40 CFR 63.172(f))
108. The Area 6 non-assisted flares (FLS-61, FLS-62) shall be equipped to maintain the pilot flame during all periods of operation. The pilot flame on each non-assisted flare shall be equipped with a heat sensing device to indicate the continuous presence of a flame. Additionally, each pilot flame shall be equipped with an alarm such that extinguishing of the flame can be recognized and corrected. During all periods of operation, to include startup and shutdown, the presence of the pilot flame shall be monitored and recorded. Data from the heat sensing device monitor shall be recorded as fifteen-minute readings. All continuous monitoring devices shall be maintained and calibrated in accordance with the manufacturer's specifications. The heat sensing device shall be inspected annually, and the results of the inspection recorded. If a monitor fails its inspection check, the data shall be invalid from the time of the failed inspection until corrective actions are taken and a successful re-inspection is completed.  
(9VAC5-80-110, 40 CFR 63.114(a)(2), and Condition 115 of the 9/8/2022 NSR Permit)
109. The permittee shall perform a weekly visible emissions observation of the Area 6 non-assisted flares (FLS-61, FLS-62) when operating, to determine compliance with the visible emissions limit in Condition 98.a. If such periodic evaluations indicate any visible emissions, the permittee shall take appropriate action, immediately, to return the flare(s) to normal operation such that no visible emissions exist. If such corrective action fails to eliminate visible emissions, the permittee shall conduct a visible emissions evaluation (VEE) utilizing EPA Method 22 (reference 40 CFR 60, Appendix A). If a Method 22 evaluation and/or corrective action becomes necessary, the permittee shall record the details of the incident in a logbook. The logbook shall be kept on site and available for inspection by the DEQ for the most recent five-year period. If visible emission observations during twelve consecutive weeks show no visible emissions for the flare(s), the permittee may reduce the monitoring frequency to once per month for that flare. Anytime the subsequent monthly visible emissions observations show visible emissions, or when requested by the DEQ, the monitoring frequency shall be increased to once per week for that flare.  
(9VAC5-80-110)
110. The permittee shall install, calibrate, maintain, and operate flow indicators that, at least once every 15 minutes, determine whether vent stream flow in any line that bypasses the Kellogg process heater (FU-1) non-assisted flare (FLS-61, FLS-62) is present. The flow indicators shall be installed at the entrance to any

bypass line that could divert the vent stream away from the control devices to the atmosphere. Equipment such as low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and pressure relief valves needed for safety purposes are not subject to this condition. (9VAC5-80-110, 40 CFR 63.114(d)(1), Condition #E.22 of the 3/26/1997 RACT Agreement, and Condition 118 of the 9/8/2022 NSR Permit)

111. In lieu of performing Condition 110, the permittee may secure the bypass line valves in a 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 per month to ensure that the valve is maintained in the closed position and the vent stream is not diverted through the bypass line. Unsealing or unlocking of the bypass line valves for the purpose of permitting use of the bypass lines shall be reported to the Piedmont Regional Office in a manner consistent with the requirements of 9VAC5-20-180. (9VAC5-80-110, 40 CFR 63.114(d)(2), and Condition 119 of the 9/8/2022 NSR Permit)

## Recordkeeping

112. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to:
- a. Flare records
    - i. The existence of the pilot flame for each flare, recorded hourly;
    - ii. The annual throughput of natural gas to Area 6 non-assisted flares (FLS-61, FLS-62), calculated monthly as the sum of each consecutive 12-month period.
    - iii. The number of times and the length of each occurrence where visible emissions are observed from either flare.
    - iv. The total hours, estimated production and length of time APT-1, the Naxol batch reactor is operational and is venting to the flare (FLS-61).
  - b. The total hours that A6-Hydro carbon beds are directly vented to the cold box during cryogenics startup, to demonstrate compliance with the emission limits of Condition 66.
  - c. The total hours that FLS-61 was used to control A-6 Hydro VOC emissions from regenerating the carbon beds as allowed by Condition 1.a.ii.2 and 1.c.ii.2.
  - d. The total hours that FLS-61 was used to control A-6 Hydro VOC emissions when not directed to cryo as allowed by Condition 1.a.iii and 1.c.iii.
  - e. The annual throughput, in the specified units, for the equipment identified in Conditions 33-58 of this permit, calculated monthly as the sum each consecutive 12-month period.
  - f. Records necessary to demonstrate compliance with the emissions limitations in Conditions 60-84 of this permit.

- g. Records demonstrating compliance with the Condition 10 LDAR requirements for VT-N2, VT-N3, VT-N4, and VT-N5.
- h. Leak detection and repair records as necessary to demonstrate compliance with Condition 23.
- i. Records demonstrating compliance with the emission limits of Condition 73 (prior to the construction of VT-N4) or Condition 74 (after the construction of VT-N4), including but not limited to phenol liquid temperature as an annual average.
- j. Records demonstrating compliance with the emission limits of Condition 79, including but not limited to the number of components, the type and service for each component and estimated component emission factors.
- k. Certification of submerged fill pipe for VT-205 and records of storage tank characteristics and emissions calculations to demonstrate compliance with Conditions 6, 77, and 78.
- l. Records demonstrating compliance with the emission limits of Condition 79, including but not limited to the number of components, the type and service for each component, and estimated component emission factors.
- m. Records demonstrating compliance with the LDAR requirements of Condition 22 and 40 CFR 60, Subpart VVa, and with the emission limits of Condition 83, including but not limited to the number of components, the type and service for each component, and estimated component emission factors.
- n. The maximum hourly throughput, in pounds per hour, for distillation columns CL-2, CL-9, CL-17, CL-18, CL-26, CL-36, CL-80, CL-64, CL-65, and CL-65new.
- o. 40 CFR 60 Subpart NNN/RRR records
  - i. For CL-10, CL-25, CL-36, CL-46, CL-64, CL-65, and CLKA1:
    - 1. Any changes in production capacity, feedstock type, or catalyst type, or any replacement, removal or addition of recovery equipment or a distillation unit;
    - 2. Any calculation or recalculation of the TRE (as defined in 40 CFR 60 Subpart NNN) index value performed pursuant to 40 CFR 60.664(f) or 40 CFR 60.664(g); and
    - 3. The results of the initial performance test and any subsequent performance tests performed pursuant to the methods and procedures required by 40 CFR 60.664(e).
  - ii. For APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225):
    - 1. Any changes in production capacity, feedstock type, or catalyst type, or any replacement, removal or addition of recovery equipment or reactors;
    - 2. Any recalculation of the TRE (as defined in 40 CFR 60 Subpart RRR) index value performed pursuant to 40 CFR 60.704(f);
    - 3. The results of the initial performance test and any subsequent performance tests performed pursuant to the methods and procedures required by 40 CFR 60.704(d); and
    - 4. The initial test for determining the TRE (as defined in 40 CFR 60 Subpart RRR) index and the results of the initial TRE (as defined in 40 CFR 60 Subpart RRR) index calculation.

- p. Process records (including HON process records)
- i. For APT-83, APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225), CL-10, CL-25, CL-36, CL-46, CL-64, CL-65, HT-09, HT-38, HT-45, VA-15, VA-17, VT-119, VT-021, VT-210, VT-250 and VT-456:
    - 1. All measurements, engineering assessments, and calculations performed to determine the TRE (as defined in 40 CFR 63 Subpart G) index value of each vent stream. Documentation of engineering assessments shall include all data, assumptions, and procedures used for the engineering assessments;
    - 2. Any process changes including changes in production capacity, feedstock type, or catalyst type, or any replacement, removal or addition of recovery equipment or reactors; and
    - 3. Any recalculation of the TRE (as defined in 40 CFR 63 Subpart G) index value performed pursuant to 40 CFR 63.115(e).  
(40 CFR 63.117(b) and 63.118(c))
  - ii. For the A6-Hydro (APT-2, 4, 6, 81, 82) reactor system:
    - 1. Any changes in the location at which the vent stream is introduced into the Kellogg primary reformer process heater (FU-1).
    - 2. Records of the monitoring required by Conditions 110 and 111.
    - 3. Records of heat content or hydrogen content analyses (as applicable), flow rate measurements, exit velocity determinations, and any other information necessary to determine compliance with Conditions 98.b and 98.c.  
(40 CFR 63.117(a)(4)(iii) and 63.118(a)(3-4))
  - iii. For CL-2 and CL-18 (as exhausted through their common recovery device C-431), CL-9, CL-17, CL-26, CL-65new, CL-80, and RX-KA1:
    - 1. The total hours and estimated emissions from Area-6 Hydro when the cryogenics unit is shutdown;
    - 2. Records of the design of each flare;
    - 3. Records of all visible emission observations and VEEs, heat content determinations or hydrogen content analyses (as applicable), flow rate calculations or measurements, exit velocity determinations and any other information necessary to determine compliance with Condition 98; and
    - 4. Records of the pilot flame monitoring data required by Condition 108 for each flare; including hourly records of whether the monitor was continuously operating and whether the pilot flame was continuously present during each hour and records of the times and durations of all periods when all pilot flames are absent or the monitors are not operating.
    - 5. A schematic diagram of the affected vent streams, collections systems, fuels systems, flares, and any bypass systems.
    - 6. Records of the monitoring required by Condition 98 for each flare.  
(40 CFR 63.117(a)(5), 63.118(a)(1-4), and Condition 122 of the 9/8/2022 NSR Permit)

- iv. For the condensers for CL-2/CL-18, CL-26, CL-36, CL-64, CL-65, APT-66B/67B, VT-210, VT-211, VT-212, VT-007, VT-N4, VT-KA1 and VT-KA2, the daily average outlet temperature for each condenser.  
(9VAC5-80-110 and Condition 113 of the 9/8/2022 NSR Permit)
- v. For the product recovery condensers for CL-26 and CL-65:
  - 1. The results of the annual continuous temperature monitoring device calibrations for each condenser.
  - 2. The 15 min readings and 3-hour rolling averages for the continuous temperature monitoring device for each condenser.
  - 3. All 3-hour periods of operation, calculated on a rolling average, in which the average outlet product side temperature is more than 5 degrees Fahrenheit above the maximum average product side temperature that demonstrated compliance during the most recent performance test.
  - 4. An explanation for each temperature excursion identified in Condition 112.p.v.3.  
(Conditions #E.18 and #E.19 of the 3/26/1997 RACT Agreement and Condition 113 of the 9/8/2022 NSR Permit)
- vi. For each Group 2 storage vessel (VT-176, VT-188, VT-29, VT-462, VT-515), records showing the dimensions of the storage vessel and an analysis showing the capacity of the storage vessel. These records shall be kept as long as the storage vessels retain Group 2 status and are in operation.  
(40 CFR 63.123(a))
- vii. Record and update annually the following information for each Group 2 Loading Rack (Nadone loading, Naxol loading):
  - 1. An analysis demonstrating the design and actual annual throughput of the transfer rack;
  - 2. An analysis documenting the weight-percent organic HAP in the liquid loaded. Examples of acceptable documentation include but are not limited to analyses of the material and engineering calculations; and
  - 3. An analysis documenting the annual rack weighted average HAP partial pressure of the transfer rack.  
(40 CFR 63.130(f))
- q. HON LDAR records
  - i. A list of the identification numbers for equipment subject to 40 CFR 63 Subpart H.  
(40 CFR 63.181(b)(1)(i))
  - ii. A schedule for monitoring connectors subject to the provisions of 40 CFR 63.174(a) of this subpart and valves subject to the provisions of 40 CFR 63.168(d).  
(40 CFR 63.181(b)(1)(ii))
  - iii. A list of identification numbers for compressors that the owner or operator elects to designate as operating with an instrument reading of less than 500 parts per million above background, under the provisions of 40 CFR 63.164(i).  
(40 CFR 63.181(b)(2)(ii))

- iv. Identification of surge control vessels and bottoms receivers equipped with a closed-vent system and control device in accordance with 40 CFR 63 Subpart H.  
(40 CFR 63.181(b)(2)(iii))
- v. A list of identification numbers for pressure relief devices subject to the provisions in 40 CFR 63.165(a).  
(40 CFR 63.181(b)(3)(i))
- vi. Identification of instrumentation systems subject to the provisions of this subpart. Individual components in an instrumentation system need not be identified.  
(40 CFR 63.181(b)(4))
- vii. For any leaks detected as specified in Condition 99, a weatherproof and readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment.  
(40 CFR 63.181(b)(10))
- viii. For visual inspections of equipment subject to the provisions of this subpart (e.g., 40 CFR 63.163(b)(3), 40 CFR 63.164(e)(4)(i)), the owner or operator shall document that the inspection was conducted and the date of the inspection.  
(40 CFR 63.181(c))
- ix. For each leak detected as specified in Condition 99, records required by 40 CFR 63.181(d), including:
  - 1. The instrument and the equipment identification number and the operator name, initials, or identification number;
  - 2. The date the leak was detected and the date of first attempt to repair the leak;
  - 3. The date of successful repair of the leak;
  - 4. Maximum instrument reading measured by Method 21 of 40 CFR part 60 Appendix A after it is successfully repaired or determined to be nonrepairable;
  - 5. "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak;
  - 6. Dates of process unit shutdowns that occur while the equipment is unrepaired.(40 CFR 63.181(d))
- x. The dates and results of each compliance test required for compressors subject to the provisions in 40 CFR 63.164(i) and the dates and results of the monitoring following a pressure release for each pressure relief device subject to the provisions in 40 CFR 63.165(a-b). The results shall include the background level measured during each compliance test and the maximum instrument reading measured at each piece of equipment during each compliance test.  
(40 CFR 63.181(f))
- xi. For the VT-007 closed-vent system and condenser:
  - 1. Detailed schematics, design specifications of the control device, and piping and instrumentation diagrams;
  - 2. The dates and descriptions of any changes in the design specifications;

3. A description of the parameter or parameters monitored, as required in 40 CFR 63.172(e), to ensure that control devices are operated and maintained in conformance with their design and an explanation of why that parameter (or parameters) was selected for the monitoring;
  4. Dates and durations when the closed-vent systems and condenser are not operated as designed as indicated by the monitored parameters;
  5. Dates and durations during which the monitoring system or monitoring device is inoperative;
  6. Dates and durations of start-ups and shutdowns of the condenser;
  7. Records of the annual inspections required by Condition 107 of this permit and 40 CFR 63.172(f); for each inspection during which no leaks were detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected; for each inspection during which leaks were detected, the information specified in 40 CFR 63.181(d) shall be recorded; and
  8. A schematic diagram of the affected vent streams, collections systems, fuels systems, flares, and any bypass systems.  
(40 CFR 63.181(g))
- xii. For each piece of equipment in heavy liquid service, the permittee shall retain information, data, and analyses used to determine that the piece of equipment is in heavy liquid service.  
(40 CFR 63.181(i)(1))
- xiii. Identification, either by list, location (area or group) of equipment in organic HAP service less than 300 hours per year.  
(40 CFR 63.181(j))
- r. MON LDAR records required by 40 CFR 63.2525 and either 40 CFR 63.181 (40 CFR Subpart H) or 40 CFR 63.1038 (40 CFR 63 Subpart UU).
  - s. Certification of submerged fill pipe (or bottom filling design) for each storage tank subject to Condition 24 and records of the inspections results and corrective actions required by the Condition 103.
  - t. Temperature records for liquids entering VT-005 (under “current operation” as a KA Oil storage tank), as required by Condition 4.
  - u. Records of the monitoring required by Condition 107 for the condenser C-437.
  - v. For VT-N2 and VT-N3, outlet vapor temperature records that demonstrate compliance with the VOC reduction efficiency required by Condition 7.
  - w. For VT-007, outlet vapor temperature records as required by Condition 13.
  - x. Written level control procedures and records demonstrating compliance with Condition 5 and records of tank level required by Condition 106.
  - y. Annual average cooling water total dissolved solids records and design cooling water liquid drift records for the Area 6 cooling towers (TW-newA6, TW-dist1A6, TW-dist2A6), and Area 6 Rental Cooling Tower (TW-cryoA6).
  - z. The shutdown date for cyclohexanol distillation column CL-63.

- aa. For VT-210, records demonstrating that tank has been designed to operate such that no flashing of organic liquids occurs. Operation of VT-210 with a submerged fill system and a level control system shall be considered sufficient to meet this requirement provided that the permittee maintains records demonstrating that these measures are sufficient to prevent flashing.
- bb. Maintenance, operations, inspections, and training.
  - i. Scheduled and unscheduled maintenance records for all process equipment and air pollution control equipment.
  - ii. Inventory of spare parts to minimize duration of air pollution control equipment breakdowns.
  - iii. Written operating procedures for all process equipment and air pollution control equipment.
  - iv. Operator training records.

These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years.  
(9VAC5-80-110 and Condition 122 of the 9/8/2022 NSR Permit)

## Testing

- 113. Initial performance tests for VOC from VT-N2, VT-N3, VT-N4, and VT-N5 shall be conducted using an appropriate EPA Reference Method, as approved by the Piedmont Regional Office, to determine compliance with the emission limits of Conditions 73, 76, and 77. The tests shall be performed, and demonstrate compliance, within 60 days after achieving the maximum production rate but in no event later than 180 days after start-up of each unit. Each test shall be conducted when the unit to be tested is being loaded at a minimum of 80% of its maximum rated capacity. Tests shall be conducted and reported, and data reduced as set forth in 9VAC5-50-30. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Piedmont Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit.  
(9VAC5-80-110 and Condition 106 of the 9/8/2022 NSR Permit)

## Reporting and Notification Requirements

- 114. The permittee shall furnish written notification to the Piedmont Regional Office of:
  - a. The actual date modification is commenced for APT-66B, APT-67B, A6-Hydro (APT-2, 4, 6, 81, 82), CL-2, CL-18, CL-9, CL-10, CL-17, CL-25, CL-26, CL-36, CL-46, and CL-80 within 10 days after such date.
  - b. The actual date construction is commenced for VT-N2, VT-N3, VT-N4, VT-N5, CL-KA1, RX-KA1, HE-KA1, VT-KA1, and VT-KA2 (each) within 15 days after such date.
  - c. The operating scenario specified in Conditions 6 and 48 under which VT-188, VT-205, VT-390, VT-N2, VT-N3, and VT-N-5 will operate, within 30 days prior to the startup of VT-N2, VT-N3, and/or VT-N5.
  - d. The actual date of start-up for VT-N2, VT-N3, VT-N4, VT-N5, CL-KA1, RX-KA1, HE-KA1, VT-KA1, and VT-KA2 (each) within 15 days after such date.

- e. The anticipated date of performance tests for VT-N2, VT-N3, VT-N4, VT-N5, CL-80, CL-17, and RX-KA1 (each) postmarked at least thirty (30) days prior to such date.
- f. The actual date of start-up for the modified APT-66B, APT-67B, A6-Hydro (APT-2, 4, 6, 81, 82), CL-2, CL-18, CL-9, CL-10, CL-17, CL-25, CL-26, CL-36, CL-46, and CL-80 within 15 days after such date. The notification for each unit shall include the specific provision of either 40 CFR 60.662 or 40 CFR 60.702 with which the permittee will comply. For A6-Hydro (APT-2, 4, 6, 81, 82), the notification shall also include a description of the location at which the vent stream is introduced into the Kellogg process heater.
- g. For APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225), any recalculation of the TRE (as defined in 40 CFR 60 Subpart NNN/RRR) index value as recorded under 40 CFR 60.705(g) reported semiannually in accordance 40 CFR 60.705(l).
- h. For CL-10, CL-25, CL-36, CL-46, CL-64 CL-65 and CL-KA1, any recalculation of the TRE (as defined in 40 CFR 60 Subpart NNN/RRR) index value as recorded under 40 CFR 60.665(h) reported semiannually in accordance 40 CFR 60.665(l).

Copies of written notifications required by subsections (b, d, and e) of this condition are to be sent to:

Chief, Air Section  
United States Environmental Protection Agency  
Region III, Enforcement & Compliance Assurance Division  
Air, RCRA and Toxics Branch (3ED21)  
Four Penn Center  
1600 John F. Kennedy Boulevard  
Philadelphia, PA 19103-2852

(9VAC5-80-110 and Condition 120 of the 9/8/2022 NSR Permit)

115. The permittee shall submit periodic reports containing the information specified in 40 CFR 60.487a(c) every six months, beginning 6 months after the initial startup date of the KA Oil Process. The initial semi-annual report shall include the information specified in 40 CFR 60.487a(b).  
(9VAC5-80-110 and Condition 121 of the 9/8/2022 NSR Permit)

### **HON Reporting Requirements**

116. The permittee shall submit the following reports to demonstrate compliance with this permit. The content of and format of such reports shall be arranged with the Piedmont Regional Office. These reports shall include, but are not limited to:
- a. Periodic Reports containing the information specified in 40 CFR 63.117-118 for process vents, the information specified in 40 CFR 63.122 for storage vessels, the information specified in 40 CFR 63.129-130 for transfer operations and the information specified in 40 CFR 63.182(d) for equipment leaks and repair. These reports shall be submitted semiannually, no later than 60 days after the end of each 6-month period. This information includes but is not limited to:

- i. For APT-83, APT-66B and APT-67B (as exhausted through their common recovery device, product recovery condenser C-225), CL-10, CL-25, CL-36, CL-46, CL-64, CL-65, HT-09, HT-38, HT-45, VA-15, VA-17, VT-119, VT-021, VT-210, VT-250 and VT-456, reports of any process changes;  
(40 CFR 63.152(c)(4)(i))
- ii. Where the TRE (as defined in 40 CFR 63 Subpart G) value, calculated in accordance with Condition 94 of this permit is less than or equal to 1.0, or less than or equal to 4.0 but greater than 1.0, the owner or operator shall notify DEQ within a week of that determination and submit a report within 180 days of the process change as specified in 40 CFR 63.118(g-h);  
(40 CFR 63.115(e)(2) and 9VAC5-80-110)
- iii. Reports of the times and durations of all periods recorded under Conditions 112.u, 112.p.ii.2 and 112.p.iii.6 when a gas stream is diverted to the atmosphere through a bypass;  
(40 CFR 63.118(f)(3))
- iv. Reports of the times and durations of all periods recorded under Condition 112.p.iii.4 in which all pilot flames of a flare were absent;  
(40 CFR 63.118(f)(5))
- v. The number of valves for which leaks were detected, the percent leakers, and the total number of valves monitored;  
(40 CFR 63.182(d)(2)(i))
- vi. The number of valves for which leaks were not repaired, identifying the number of those that are determined nonrepairable;  
(40 CFR 63.182(d)(2)(ii))
- vii. The number of pumps for which leaks were detected, the percent leakers, and the total number of pumps monitored;  
(40 CFR 63.182(d)(2)(iii))
- viii. The number of pumps for which leaks were not repaired;  
(40 CFR 63.182(d)(2)(iv))
- ix. The number of compressors for which leaks were detected;  
(40 CFR 63.182(d)(2)(v))
- x. The number of compressors for which leaks were not repaired;  
(40 CFR 63.182(d)(2)(vi))
- xi. The number of agitators for which leaks were detected;  
(40 CFR 63.182(d)(2)(vii))
- xii. The number of agitators for which leaks were not repaired;  
(40 CFR 63.182(d)(2)(viii))

- xiii. The number of connectors for which leaks were detected, the percent of connectors leaking, and the total number of connectors monitored;  
(40 CFR 63.182(d)(2)(ix))
  - xiv. The number of connectors for which leaks were not repaired, identifying the number of those that are determined nonrepairable;  
(40 CFR 63.182(d)(2)(xi))
  - xv. The facts that explain any delay of repairs and, where appropriate, why a process unit shutdown was technically infeasible; and  
(40 CFR 63.182(d)(2)(xiii))
  - xvi. The results of all monitoring to show compliance with 40 CFR 63.164(i), 40 CFR 63.165(a) and 40 CFR 63.172(f) conducted within the semiannual reporting period.  
(40 CFR 63.182(d)(2)(xiv))
- b. Start-up, Shutdown and Malfunction Reports containing the information specified in 40 CFR 63.10(d)(5)(i). These reports shall be submitted on the same schedule as the Periodic Reports referenced in paragraph (a) of this condition.

Copies of written notifications required by subsections (a-b) of this condition are to be sent to:

Chief, Air Section  
United States Environmental Protection Agency  
Region III, Enforcement & Compliance Assurance Division  
Air, RCRA and Toxics Branch (3ED21)  
Four Penn Center  
1600 John F. Kennedy Boulevard  
Philadelphia, PA 19103-2852

(9VAC5-80-110 and 40 CFR 63 Subparts G and H)

### **MON Notification and Reporting Requirements**

117. The permittee shall submit reports and notifications in accordance with 40 CFR 63.2515, 40 CFR 63.2520, and either 40 CFR 63.182 or 40 CFR 63.1039.  
(9VAC5-80-110 and 40 CFR 63 Subpart FFFF)

## **AREA 9 - HYDROXYLAMINE SULFATE PRODUCTION**

### **Limitations**

#### **Control Equipment Requirements**

118. Nitrogen oxide emissions from the ammonium nitrite tower (TW-2) and hydroxylamine diammonium sulfonate tower (TW-62) of “A” train shall each be controlled by an ammonia-injected selective catalytic reduction system (SCR). Except during periods of startup (as defined in Condition 149) or periods of malfunction, the SCR located on TW-2 and the SCR located on TW-62 shall each achieve a minimum NOx

removal efficiency of 95%. Each SCR shall be provided with adequate access for inspection and shall be in operation when the tower it controls is operating.

(9VAC5-80-110 and Condition 123 of the 9/8/2022 NSR Permit)

119. Sulfur dioxide emissions from the hydroxylamine diammonium sulfonate tower of "A" train (TW-62) shall be controlled by a packed bed scrubber (SE-45). The packed bed scrubber shall achieve a sulfur dioxide removal efficiency of at least 90%. The liquid flow to the scrubber shall be maintained at all times. The packed bed scrubber shall be provided with adequate access for inspection and shall be in operation when TW-62 is operating.

(9VAC5-80-110 and Condition 124 of the 9/8/2022 NSR Permit)

120. Particulate matter emissions from the ammonium nitrite tower of "A" train (TW-2) shall be controlled by a fixed throat Venturi scrubber (SE-328) and a mist eliminator (SE-329). The reduction efficiency of the scrubber shall be at least 90% for particulate matter and 90% for particulate matter (PM-10) emissions. The liquid flow to the scrubber shall be maintained at all times. The scrubber shall be provided with adequate access for inspection and shall be in operation when TW-2 is operating. The reduction efficiency of the mist eliminator shall be at least 98%. The permittee shall install, calibrate, and maintain a monitoring device which continuously measures and permanently records the total pressure drop across the mist eliminator. The mist eliminator shall be provided with adequate access for inspection and shall be in operation when TW-2 is operating.

(9VAC5-80-110 and Condition 125 of the 9/8/2022 NSR Permit)

121. Particulate matter emissions from the hydroxylamine diammonium sulfonate tower of "A" train (TW-62) shall be controlled by a mist eliminator (SE-88). The reduction efficiency of the mist eliminator shall be at least 98%. The permittee shall install, calibrate, and maintain a monitoring device which continuously measures and permanently records the total pressure drop across the mist eliminator. The mist eliminator shall be provided with adequate access for inspection and shall be in operation when TW-62 is operating.

(9VAC5-80-110 and Condition 126 of the 9/8/2022 NSR Permit)

122. Nitrogen oxide emissions from the ammonium nitrite tower (TW-8) and hydroxylamine diammonium sulfonate tower (TW-9) of "B" train shall each be controlled by an ammonia-injected selective catalytic reduction system (SCR). Except during periods of startup (as defined in Condition 149) or periods of malfunction, the SCR located on TW-8 and the SCR located on TW-9 shall each achieve a minimum NOx removal efficiency of 95%. Each SCR shall be provided with adequate access for inspection and shall be in operation when the tower it controls is operating.

(9VAC5-80-110 and Condition 127 of the 9/8/2022 NSR Permit)

123. Sulfur dioxide emissions from the hydroxylamine diammonium sulfonate tower of "B" train (TW-9) shall be controlled by a packed bed scrubber (SE-87). The packed bed scrubber shall achieve a sulfur dioxide removal efficiency of at least 90%. The packed bed scrubber shall be provided with adequate access for inspection and shall be in operation when TW-9 is operating.

(9VAC5-80-110 and Condition 128 of the 9/8/2022 NSR Permit)

124. Particulate matter emissions from the ammonium nitrite tower of "B" train (TW-8) shall be controlled by a fixed throat Venturi scrubber (SE-179) and a mist eliminator (SE-324). The reduction efficiency of the scrubber shall be at least 90% for particulate matter and 90% for particulate matter (PM-10) emissions. The liquid flow to the scrubber shall be maintained at all times. The scrubber shall be provided with adequate access for inspection and shall be in operation when TW-8 is operating. The reduction efficiency of the

mist eliminator shall be at least 98%. The mist eliminator shall be provided with adequate access for inspection and shall be in operation when TW-8 is operating.

(9VAC5-80-110 and Condition 129 of the 9/8/2022 NSR Permit)

125. Particulate matter emissions from the hydroxylamine diammonium sulfonate tower of "B" train (TW-9) shall be controlled by a mist eliminator (SE-89). The reduction efficiency of the mist eliminator shall be at least 98%. The mist eliminator shall be provided with adequate access for inspection and shall be in operation when TW-9 is operating.  
(9VAC5-80-110 and Condition 130 of the 9/8/2022 NSR Permit)
126. Nitrogen oxide emissions from the ammonium nitrite tower (TW-17) and hydroxylamine ammonium disulfonate tower (TW-18) of "C" train shall each be controlled by an ammonia-injected selective catalytic reduction system (SCR). Except during periods of startup (as defined in Condition 149) or periods of malfunction, the SCR located on TW-17 and the SCR located on TW-18 shall each achieve a minimum NO<sub>x</sub> removal efficiency of 95%. Each SCR shall be provided with adequate access for inspection and shall be in operation when the tower it controls is operating.  
(9VAC5-80-110 and Condition 131 of the 9/8/2022 NSR Permit)
127. Sulfur dioxide emissions from the hydroxylamine diammonium sulfonate tower of "C" train (TW-18) shall be controlled by a packed bed scrubber (SE-19). The reduction efficiency of the scrubber shall be at least 90%. The liquid flow to the scrubber shall be maintained at all times. The scrubber shall be provided with adequate access for inspection and shall be in operation when TW-18 is operating.  
(9VAC5-80-110 and Condition 132 of the 9/8/2022 NSR Permit)
128. Particulate matter emissions from the ammonium nitrite tower of "C" train (TW-17) shall be controlled by a fixed throat Venturi scrubber (SE-322) and a mist eliminator (SE-323). The reduction efficiency of the scrubber shall be at least 90% for particulate matter and 90% for particulate matter (PM-10) emissions. The liquid flow to the scrubber shall be maintained at all times. The scrubber shall be provided with adequate access for inspection and shall be in operation when TW-17 is operating. The reduction efficiency of the mist eliminator shall be at least 98%. The mist eliminator shall be provided with adequate access for inspection and shall be in operation when TW-17 is operating.  
(9VAC5-80-110 and Condition 133 of the 9/8/2022 NSR Permit)
129. Particulate matter emissions from the hydroxylamine diammonium sulfonate tower of "C" train (TW-18) shall be controlled by a mist eliminator (SE-90). The reduction efficiency of the mist eliminator shall be at least 98%. The mist eliminator shall be provided with adequate access for inspection and shall be in operation when TW-18 is operating.  
(9VAC5-80-110 and Condition 134 of the 9/8/2022 NSR Permit)
130. Nitrogen oxide emissions from the ammonium nitrite tower of "D" train (TW-22) shall be controlled by a NO oxidizer time tank (VT-883). The removal efficiency of the NO oxidizer time tank shall be at least 70%. The NO oxidizer time tank shall be provided with adequate access for inspection and shall be in operation when TW-22 is operating.  
(9VAC5-80-110 and Condition 135 of the 9/8/2022 NSR Permit)
131. Nitrogen oxide emissions from the hydroxylamine diammonium sulfonate tower of "D" train (TW-23) shall be controlled by a packed bed scrubber (SE-32). The nitrogen oxide removal efficiency of the scrubber

shall be, at a minimum, 50%. The liquid flow to the scrubber shall be maintained at all times. The scrubber shall be provided with adequate access for inspection and shall be in operation when TW-23 is operating. (9VAC5-80-110 and Condition 136 of the 9/8/2022 NSR Permit)

132. Sulfur dioxide emissions from the hydroxylamine diammonium sulfonate tower of “D” train (TW-23) shall be controlled by a packed bed scrubber (SE-32). The reduction efficiency of the scrubber shall be at least 90%. The scrubber shall be provided with adequate access for inspection and shall be in operation when TW-23 is operating. (9VAC5-80-110 and Condition 137 of the 9/8/2022 NSR Permit)
133. Particulate matter emissions from the ammonium nitrite tower of "D" train (TW-22) shall be controlled by a fixed throat Venturi scrubber (SE-65). The reduction efficiency of the scrubber shall be at least 90% for particulate matter and 90% for particulate matter (PM-10) emissions. The liquid flow to the scrubber shall be maintained at all times. The scrubber shall be provided with adequate access for inspection and shall be in operation when TW-22 is operating. (9VAC5-80-110 and Condition 138 of the 9/8/2022 NSR Permit)
134. Particulate matter emissions from the hydroxylamine diammonium sulfonate tower of “D” train (TW-23) shall be controlled by a mist eliminator (SE-91). The reduction efficiency of the mist eliminator shall be at least 98%. The mist eliminator shall be provided with adequate access for inspection and shall be in operation when TW-23 is operating. (9VAC5-80-110 and Condition 139 of the 9/8/2022 NSR Permit)
135. Nitrogen oxide emissions from the ammonium nitrite tower (TW-32) and hydroxylamine ammonium disulfonate tower (TW-33) of “E” train shall each be controlled by an ammonia-injected selective catalytic reduction system (SCR). Except during periods of startup (as defined in Condition 149) or periods of malfunction, the SCR located on TW-32 and the SCR located on TW-33 shall each achieve a minimum NO<sub>x</sub> removal efficiency of 95%. Each SCR shall be provided with adequate access for inspection and shall be in operation when the tower it controls is operating. (9VAC5-80-110 and Condition 140 of the 9/8/2022 NSR Permit)
136. Nitrogen oxide emissions from the ammonium nitrite tower of "E" train (TW-32) shall be controlled by a NO oxidizer time tank (VT-847). The removal efficiency of the NO oxidizer time tank shall be at least 70%. The NO oxidizer time tank shall be provided with adequate access for inspection and shall be in operation when TW-32 is operating. (9VAC5-80-110 and Condition 141 of the 9/8/2022 NSR Permit)
137. Nitrogen oxide emissions from the hydroxylamine diammonium sulfonate tower of "E" train (TW-33) shall be controlled by a packed bed scrubber (SE-54). The nitrogen oxide removal efficiency of the scrubber shall be, at a minimum, 50%. The liquid flow to the scrubber shall be maintained at all times. The scrubber shall be provided with adequate access for inspection and shall be in operation when TW-33 is operating. (9VAC5-80-110 and Condition 142 of the 9/8/2022 NSR Permit)
138. Nitrogen oxide emissions from Cobalt Catalyst Manufacturing (CCM1, CCM2) shall be controlled by venting to TW-22 in Area 9. (9VAC5-80-110 and Condition 143 of the 9/8/2022 NSR Permit)
139. Sulfur dioxide emissions from the hydroxylamine diammonium sulfonate tower of "E" train (TW-33) shall be controlled by a packed bed scrubber (SE-54). The sulfur dioxide removal efficiency of the scrubber

shall be, at a minimum, 90%. The liquid flow to the scrubber shall be maintained at all times. The scrubber shall be provided with adequate access for inspection and shall be in operation when TW-33 is operating. (9VAC5-80-110 and Condition 144 of the 9/8/2022 NSR Permit)

140. Particulate matter emissions from the ammonium nitrite tower of "E" train (TW-32) shall be controlled by a fixed throat Venturi scrubber (SE-116) and a mist eliminator (SE-335). The removal efficiency of the scrubber shall be at least 90%. The scrubber shall be provided with adequate access for inspection and shall be in operation when TW-32 is operating. The reduction efficiency of the mist eliminator shall be at least 98%. The mist eliminator shall be provided with adequate access for inspection and shall be in operation when TW-32 is operating. (9VAC5-80-110 and Condition 145 of the 9/8/2022 NSR Permit)
141. Particulate matter emissions from the hydroxylamine diammonium sulfonate tower of "E" train (TW-33) shall be controlled by a mist eliminator (SE-101). The removal efficiency of the mist eliminator shall be at least 98%. The mist eliminator shall be provided with adequate access for inspection and shall be in operation when TW-33 is operating. (9VAC5-80-110 and Condition 146 of the 9/8/2022 NSR Permit)
142. Particulate matter emissions from Cobalt Catalyst Manufacturing Crushing, Grinding and Screening (CCM3) shall be controlled by a fabric filter with control efficiency of 99.9%. (9VAC5-80-110 and Condition 147 of the 9/8/2022 NSR Permit)
143. Particulate matter emissions from the Area 9 Quench Modular Cooling Towers (Quench CT) and Area 9 Cooling Tower(s) (TW-newA9) shall be controlled by limiting the total dissolved solids of the cooling water to 2,500 parts per million as an annual average (12-month rolling basis) and by the use of cooling towers designed to limit cooling tower liquid drift to 0.001% or less. The Area 9 Quench Modular Cooling Towers and Area 9 Cooling Tower(s) shall be provided with adequate access for inspection. (9VAC5-80-110 and Condition 148 of the 9/8/2022 NSR Permit)

### **Throughput Limits**

144. The annual input of ammonia to Area 9 hydroxylamine monoammonium sulfate production (excluding the amount of ammonia used in the selective catalytic reduction units) shall not exceed 68,191,200 hydroxylamine sulfate units, calculated monthly as the sum of each previous consecutive 12-month period. (9VAC5-80-110 and Condition 149 of the 9/8/2022 NSR Permit)
145. The annual input of ammonia to Area 9 ammonium nitrite towers shall not exceed 20,829 ammonium nitrite units, calculated monthly as the sum of each previous consecutive 12-month period. (9VAC5-80-110 and Condition 150 of the 9/8/2022 NSR Permit)
146. The annual input of sulfur to Area 9 hydroxylamine monoammonium sulfate production shall not exceed 140,313.0 hydroxylamine diammonium sulfonate units, calculated monthly as the sum of each previous consecutive 12-month period. (9VAC5-80-110 and Condition 151 of the 9/8/2022 NSR Permit)
147. The annual input of ammonia to the ammonium nitrite towers and sulfur to hydroxylamine diammonium sulfonate towers shall not exceed the quantities of ammonium nitrite units and hydroxylamine diammonium

sulfonate units specified below, calculated monthly as the sum of each previous consecutive 12-month period.

Tower	Throughput
A: TW-2	5098.3
B: TW-8	5098.3
C: TW-17	5098.3
D: TW-22	5098.3
E: TW-32	5523.2
A: TW-62	33708.5
B: TW-9	33708.5
C: TW-18	33708.5
D: TW-23	33708.5
E: TW-33	35815.3

(9VAC5-80-110 and Condition 152 of the 9/8/2022 NSR Permit)

148. The annual production of cobalt catalyst from Area 9 Cobalt Catalyst Manufacturing process shall not exceed 10.3 Area 9 input units, calculated monthly as the sum of each previous consecutive 12-month period.

(9VAC5-80-110 and Condition 153 of the 9/8/2022 NSR Permit)

**Emission Limits**

149. Nitrogen oxide emissions from the operation of the ammonium nitrite and hydroxylamine diammonium sulfonate towers shall not exceed the limits specified below. Annual emissions shall be calculated monthly as the sum of each previous consecutive 12-month period.

Tower	Lb/hr	Tons/year
A: TW-2	47.0	117.0
B: TW-8	51.0	123.0
C: TW-17	54.0	102.0
D: TW-22	240.0	600.0
E: TW-32	13.0	33.0
A: TW-62	27.0	87.0
B: TW-9	27.0	84.0
C: TW-18	27.0	72.0
D: TW-23	300.0	600.0
E: TW-33	16.0	32.0

<sup>1</sup>In accordance with the United States Environmental Protection Agency Consent Decree dated July 18, 2013 and entered to resolve the Notices of Violation issued to the permittee on March 10, 2009 and August 21, 2010, hourly emission limits listed above for each tower in the “A” train, “B” train, “C” train, and “E” train processes do not apply during startup. The short-term emission limits during startup for these eight towers is 200 lb/hr per tower. Startup shall mean, with respect to any nitrite tower, the period of time beginning when the feed of ammonia to the ammonia oxidation system commences, and shall mean, with respect to any disulfonate tower, the permit of time when the feed

of sulfur to the sulfur burning system commences, and in either case, lasting for no more than 12 consecutive hours, during which the tower has an elevated rate of NOx emissions.  
 (9VAC5-80-110 and Condition 154 of the 9/8/2022 NSR Permit)

150. Particulate matter emissions from the operation of the ammonium nitrite and hydroxylamine diammonium sulfonate towers shall not exceed the limits specified below. Annual emissions shall be calculated monthly as the sum of each previous consecutive 12-month period.

Tower	Lb/hr	Tons/year
A: TW-2	1.0	4.0
B: TW-8	1.0	4.0
C: TW-17	1.0	4.0
D: TW-22	3.0	12.0
E: TW-32	1.0	4.3
A: TW-62	1.0	4.5
B: TW-9	1.0	4.5
C: TW-18	1.0	4.5
D: TW-23	1.0	4.5
E: TW-33	1.1	4.8

(9VAC5-80-110 and Condition 155 of the 9/8/2022 NSR Permit)

151. Particulate matter (PM-10) emissions from the operation of the ammonium nitrite and hydroxylamine diammonium sulfonate towers shall not exceed the limits specified below. Annual emissions shall be calculated monthly as the sum of each previous consecutive 12-month period.

Tower	Lb/hr	Tons/year
A: TW-2	2.0	8.0
B: TW-8	2.0	8.0
C: TW-17	2.0	8.0
D: TW-22	3.0	12.0
E: TW-32	2.0	8.7
A: TW-62	2.3	10.2
B: TW-9	2.3	10.2
C: TW-18	2.3	10.2
D: TW-23	2.4	10.5
E: TW-33	2.5	10.8

(9VAC5-80-110 and Condition 156 of the 9/8/2022 NSR Permit)

152. Particulate matter (PM-2.5) emissions from the operation of the ammonium nitrite and hydroxylamine diammonium sulfonate towers shall not exceed the limits specified below. Annual emissions shall be calculated monthly as the sum of each previous consecutive 12-month period.

Tower	Lb/hr	Tons/year
A: TW-2	1.7	7.0
B: TW-8	1.7	7.0
C: TW-17	1.7	7.0
D: TW-22	2.2	9.0
E: TW-32	1.7	7.6
A: TW-62	1.8	7.9
B: TW-9	1.8	7.9
C: TW-18	1.8	7.9
D: TW-23	1.9	8.3
E: TW-33	1.9	8.4

(9VAC5-80-110 and Condition 157 of the 9/8/2022 NSR Permit)

153. Sulfur dioxide emissions from the operation of the hydroxylamine diammonium sulfonate towers shall not exceed the limits specified below. Annual emissions shall be calculated monthly as the sum of each previous consecutive 12-month period.

Tower	Lb/hr	Tons/year
A: TW-62	2.2	8.8
B: TW-9	2.2	8.8
C: TW-18	2.2	8.8
D: TW-23	2.2	8.8
E: TW-33	2.3	9.4

(9VAC5-80-110 and Condition 158 of the 9/8/2022 NSR Permit)

154. Emissions from the operation of the Area 9 Cobalt Catalyst Manufacturing process (CCM3) shall not exceed the limits specified below:

Pollutant	Lb/hr	Tons/year
PM (filterable only)	0.5	0.03

(9VAC5-80-110 and Condition 159 of the 9/8/2022 NSR Permit)

155. Emissions from the operation of the Area 9 Cooling Tower(s) (TW-newA9) shall not exceed the limits specified below:

Pollutant	Lb/hr	Tons/year
PM (filterable only)	0.8	3.4
PM <sub>10</sub>	0.1	0.5
PM <sub>2.5</sub>	0.1	0.5

(9VAC5-80-110 and Condition 160 of the 9/8/2022 NSR Permit)

156. Combined emissions from the operation of the Area 9 modular cooling towers (Area 9 CT), the Area 9 quench modular cooling towers (Quench CT), and the Area 9 Cooling Tower (TW-37) shall not exceed the limits specified below:

Pollutant	Lb/hr	Tons/year
PM (filterable only)	2.3	9.7
PM <sub>10</sub>	0.4	1.5
PM <sub>2.5</sub>	0.4	1.5

(9VAC5-80-110 and Condition 161 of the 9/8/2022 NSR Permit)

**Monitoring**

157. Continuous emission monitoring systems (CEMS) for NOx monitoring, including continuous emission rate monitoring systems (CERMS), shall be installed on the inlet and outlet of the SCR systems required by Condition 118. The NOx CEMS and CERMS shall be installed, calibrated, certified, maintained, audited, and operated in accordance with the requirements of 40 CFR 60, including Appendices B and F. The NOx CEMS and CERMS shall have a minimum uptime of 95% on a rolling annual basis, updated quarterly. Data from the NOx CEMS and the CERMS shall be used to determine direct compliance with the control efficiency requirement of Condition 118 and the hourly emission limit in Condition 149 as a three (3) hour rolling average. All three (3) hour rolling averages must be reported quarterly in the excess emission report. The permittee may submit an initial alternate monitoring plan (AMP) for review and conditional approval to the Piedmont Regional Office. The initial AMP shall provide details of any proposal to calculate the inlet flow to the SCR systems required by Condition 118 by indirect measurement. As an alternative to the inlet flow monitoring requirements of this condition for the SCR systems required by Condition 118, the permittee may choose to calculate the inlet flow for these SCR systems using indirect measurements in accordance with the initial alternate monitoring plan (AMP) conditionally approved by the Piedmont Regional Office. If the permittee chooses to implement the monitoring requirements of the conditionally approved initial AMP, the permittee shall collect and record inlet flow data for the SCR systems required by Condition 118 in accordance with both methods (direct measurement as specified in this condition and calculation by indirect measurement as specified in the conditionally approved initial AMP) for the first 12-months of CERMS operation following the implementation of the initial AMP. Within 90 days of the end of this 12-month period, the permittee shall submit a final AMP, including a comparison of both sets of inlet flow data, to the Piedmont Regional Office for review and approval. Upon approval of any final AMP by the Piedmont Regional Office, the permittee shall comply with the SCR systems’ inlet flow monitoring requirements of the approved final AMP (as amended) in lieu of the SCR systems’ inlet flow monitoring requirements of Conditions 157-161.

(9VAC5-80-110 and Condition 162 of the 9/8/2022 NSR Permit)

158. Unless otherwise allowed by Condition 157, continuous emission monitoring systems (CEMS) for NOx monitoring, including continuous emission rate monitoring systems (CERMS), shall be installed on the inlet and outlet of the SCR systems required by Condition 122. The NOx CEMS and CERMS shall be installed, calibrated, certified, maintained, audited, and operated in accordance with the requirements of 40 CFR 60, including Appendices B and F. The NOx CEMS and CERMS shall have a minimum uptime of 95% on a rolling annual basis, updated quarterly. Data from the NOx CEMS and the CERMS shall be used to determine direct compliance with the control efficiency requirement of Condition 122 and the hourly emission limit in Condition 149 as a three (3) hour rolling average. All three (3) hour rolling averages must be reported quarterly in the excess emission report.

(9VAC5-80-110 and Condition 163 of the 9/8/2022 NSR Permit)

159. Unless otherwise allowed by Condition 157, continuous emission monitoring systems (CEMS) for NO<sub>x</sub> monitoring, including continuous emission rate monitoring systems (CERMS), shall be installed on the inlet and outlet of the SCR systems required by Condition 126. The NO<sub>x</sub> CEMS and CERMS shall be installed, calibrated, certified, maintained, audited, and operated in accordance with the requirements of 40 CFR 60, including Appendices B and F. The NO<sub>x</sub> CEMS and CERMS shall have a minimum uptime of 95% on a rolling annual basis, updated quarterly. Data from the NO<sub>x</sub> CEMS and the CERMS shall be used to determine direct compliance with the control efficiency requirement of Condition 126 and the hourly emission limit in Condition 149 as a three (3) hour rolling average. All three (3) hour rolling averages must be reported quarterly in the excess emission report.  
(9VAC5-80-110 and Condition 164 of the 9/8/2022 NSR Permit)
160. A continuous emission monitoring system (CEMS) for NO<sub>x</sub> monitoring, including a continuous emission rate monitoring system (CERMS), shall be installed on the “D” train ammonium nitrite and hydroxylamine diammonium sulfonate towers (TW-22 and TW-23). The NO<sub>x</sub> CEMS and CERMS shall be calibrated, maintained, audited, and operated in accordance with the requirements of 40 CFR 60, Appendices B and F. The NO<sub>x</sub> CEMS and CERMS shall have a minimum uptime of 95% on a rolling annual basis, updated quarterly. Data from the NO<sub>x</sub> CEMS and the CERMS shall be used to determine direct compliance with the hourly emission limits in Condition 149 on a three (3) hour rolling average. All three (3) hour rolling averages must be reported quarterly in the excess emission report.  
(9VAC5-80-110 and Condition 165 of the 9/8/2022 NSR Permit)
161. Unless otherwise allowed by Condition 157, continuous emission monitoring systems (CEMS) for NO<sub>x</sub> monitoring, including continuous emission rate monitoring systems (CERMS), shall be installed on the inlet and outlet of the SCR systems required by Condition 135. The NO<sub>x</sub> CEMS and CERMS shall be installed, calibrated, certified, maintained, audited, and operated in accordance with the requirements of 40 CFR 60, including Appendices B and F. The NO<sub>x</sub> CEMS and CERMS shall have a minimum uptime of 95% on a rolling annual basis, updated quarterly. Data from the NO<sub>x</sub> CEMS and the CERMS shall be used to determine direct compliance with the control efficiency requirement of Condition 135 and the hourly emission limit in Condition 149 as a three (3) hour rolling average. All three (3) hour rolling averages must be reported quarterly in the excess emission report.  
(9VAC5-80-110 and Condition 166 of the 9/8/2022 NSR Permit)
162. The permittee shall install and operate devices to continuously measure and permanently record the control device operating parameters described below. Each monitoring device shall be installed, maintained, calibrated, and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the specified control device is operating.
- a. A-Train
- i. Ammonium Nitrite Section (TW-2): The total pressure drop across and the scrubber liquid flow rate for the TW-2 Venturi scrubber (SE-328). The permittee shall establish and maintain the total pressure drop and the scrubber liquid flow rate for SE-328 necessary to demonstrate compliance with the requirements of Conditions 120 and 150-152.
  - ii. Hydroxylamine diammonium sulfonate section (TW-62): The total pressure drop across and the scrubber liquid flow rate for the TW-62 packed bed scrubber (SE-45) and the total pressure drop across the TW-62 mist eliminator (SE-88). The permittee shall establish and maintain the total pressure drop and the scrubber liquid flow rate for SE-45 and the total pressure drop across SE-8

necessary to demonstrate compliance with the requirements of Conditions 118, 119 and 150-153. The permittee shall submit the proposed operating parameters and ranges to the Piedmont Regional Office for review and approval within 60 days of reporting the results of the performance tests.

b. B-Train

- i. Ammonium Nitrite Section (TW-8): The total pressure drop across and the scrubber liquid flow rate for the TW-8 Venturi scrubber (SE-179). The permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for SE-179 necessary to demonstrate compliance with the requirements of Conditions 124 and 150-152.
- ii. Hydroxylamine diammonium sulfonate section (TW-9): the total pressure drop across and the scrubber liquid flow rate for the TW-9 packed bed scrubber (SE-87) and the total pressure drop across the TW-9 mist eliminator (SE-89). The permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for SE-87 and the total pressure drop across SE-89 necessary to demonstrate compliance with the requirements of Conditions 122, 125, and 150-153.

c. C-Train

- i. Ammonium Nitrite Section (TW-17): The total pressure drop across and the scrubber liquid flow rate for the TW-17 Venturi scrubber (SE-322). The permittee shall establish and maintain the total pressure drop and the scrubber liquid flow rate from SE-322 necessary to demonstrate compliance with the requirements of Conditions 128 and 150-152.
- ii. Hydroxylamine diammonium sulfonate tower (TW-18): The total pressure drop across and the scrubber liquid flow rate for the TW-18 packed bed scrubber (SE-19) and the total pressure drop across the TW-18 mist eliminator (SE-90). The permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for SE-19 and the total pressure drop across SE-90 necessary to demonstrate compliance with the requirements of Conditions 126, 129, and 150-153.

d. D-Train

- i. Ammonium Nitrite Section (TW-22): The total pressure drop across and the scrubber liquid flow rate for the TW-22 Venturi scrubber (SE-65) and the temperature and circulation rate for the TW-22 NO oxidizer time tank (VT-883). The permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for SE-65 and the temperature and circulation rate for VT-883 necessary to demonstrate compliance with the requirements of Conditions 130, 133, and 150-152.
- ii. Hydroxylamine diammonium sulfonate tower (TW-23): The total pressure drop across and the scrubber liquid flow rate for the TW-23 packed bed scrubber (SE-32) and the total pressure drop across the TW-23 mist eliminator (SE-91). The permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for SE-32 and the total pressure drop across SE-91 necessary to demonstrate compliance with the requirements of Conditions 131, 134, and 150-153.

## e. E-Train

- i. Ammonium Nitrite Section (TW-32): The total pressure drop across and the scrubber liquid flow rate for the TW-32 Venturi scrubber (SE-116) and the temperature and circulation rate for the TW-32 NO oxidizer time tank (VT-847). The permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for SE-116 and the temperature and circulation rate for VT-847 necessary to demonstrate compliance with the requirements of Conditions 136, 140 and 150-152.
  - ii. Hydroxylamine diammonium sulfonate tower (TW-33): The total pressure drop across and the scrubber liquid flow rate for the TW-33 packed bed scrubber (SE-54) and the total pressure drop across the TW-33 mist eliminator (SE-101). The permittee shall establish and maintain the total pressure drop across and the scrubber liquid flow rate for SE-54 and the total pressure drop across SE-101 necessary to demonstrate compliance with the requirements of Conditions 137, 139, 141 and 150-153.
- f. Unless alternate operating parameters and/or ranges have been approved by the Piedmont Regional Office, the permittee shall operate the emission units and control devices specified in paragraphs (a-e) of this condition in compliance with the operating parameters and ranges established in accordance with paragraphs (a-e) of this condition.

(9VAC5-80-110 and Condition 167 of the 9/8/2022 NSR Permit)

163. The permittee shall implement its approved Preventative Maintenance and Operation Plan (PMO Plan), as may be updated in accordance with this condition, at all times, including periods of startup, shutdown and malfunction of its process units, control devices, CEMS, and CMSs. The PMO Plan shall consist of a compilation of the permittee's procedures for good air pollution control practices and minimizing emissions. The PMO Plan shall have as its goals the elimination of process and control device malfunctions of the low temperature SCRs, scrubbers, NO<sub>x</sub> Abatement Technology, CEMS and CMSs in Area 9. The PMO Plan shall include, but not be limited to, startup and shutdown procedures, emergency procedures, and schedules for preventative maintenance and maintenance turnarounds that coincide with scheduled turnarounds of major process units. The PMO shall ensure that the permittee is prepared to correct malfunctions as soon as practicable to minimize emissions. To ensure that malfunctions are minimized, the PMO shall include a procedure for conducting "Root Cause Analysis" for malfunctioning process, air pollution control and monitoring equipment that would result in NO<sub>x</sub> emissions from Area 9 in excess of allowable limits for more than one hour. The PMO Plan shall include a procedure for conducting a Root Cause Analysis for any particular component of a CEMS or CMS which component exhibits three (3) or more unscheduled failures resulting in down time greater than one (1) hour each in any calendar quarter. This Root Cause Analysis shall set forth all significant contributing causes to the excess emissions and shall provide analysis of the measures available to reduce the likelihood of a recurrence. If more than one alternative exists to address the Root Cause, the analysis shall discuss the alternatives, the probable effectiveness, and the cost of the alternatives. The analysis shall evaluate possible design, operation, and maintenance changes. The permittee shall review its PMO annually and update its PMO, as necessary, to incorporate, at a minimum, the results of any Root Cause Analysis. The permittee shall maintain the original PMO Plan and all subsequent revisions at the Facility for a period of five (5) years and have them available for review by the Agencies.

(9VAC5-80-110 and Paragraph #28 of the July 18, 2013 Consent Decree)

## Recordkeeping

164. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to the following:
- a. Control requirements: Control device operating parameters specified in Condition 162.
  - b. Throughput limitations:
    - i. Annual throughputs of sulfur or ammonia for the equipment specified in Conditions 144-147;
    - ii. The maximum hourly production rate of ammonium nitrite for each ammonium nitrite tower for "A" through "E" trains in Area 9, recorded monthly; and
    - iii. The maximum hourly production rate of hydroxylamine diammonium sulfonate for each hydroxylamine diammonium sulfonate tower in "A" through "E" trains in Area 9, recorded monthly.
    - iv. Annual production of cobalt catalyst.
  - c. CEMS data, production rates and other data necessary to determine compliance with the emission limits in Conditions 149-153.
  - d. Results of all performance tests and performance evaluations.
  - e. Continuous monitoring system calibrations and calibration checks, percent operating time, and excess emissions.
  - f. Annual average cooling water total dissolved solids records and design cooling water liquid drift records for the Area 9 cooling towers (TW-newA9), the Area 9 modular cooling towers (Area 9 CT), Area 9 cooling tower (TW-37), and the Area 9 quench modular cooling tower (Quench CT).
  - g. Records of all periods of startups, shutdowns, malfunctions, non-operation, bypasses of control devices and repairs for each process unit, control device, and monitoring system addressed in the PMO Plan required by Condition 163. Such records shall include the times and duration of each event, a brief description of the event, the cause or likely cause of the event, and any actions taken to minimize excess emissions during the event, and whether the event and the actions of AdvanSix were consistent with the PMO Plan required by Condition 163. In addition, such records shall also include a record of the calibration checks and low- and high-level adjustments for each control device and monitoring system.
  - h. Maintenance, operations, and training
    - i. Scheduled and unscheduled maintenance records for all process equipment and air pollution control equipment;
    - ii. Inventory of spare parts to minimize durations of air pollution control equipment breakdowns;

- iii. Written operating procedures for all process equipment and air pollution control equipment; and
- iv. Operator training records.

These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years.  
(Conditions 21 and 169 of the 9/8/2022 NSR Permit, Paragraph #30 of the July 18, 2013 Consent Decree and 9VAC5-80-110)

## Reporting

165. The permittee shall submit excess emission reports for each CEMS/CERMS required by Conditions 157-161 that has commenced operation to the Piedmont Regional Office within 30 days after the end of each calendar quarter. Each quarterly excess emission report shall contain, at a minimum, the dates included in the calendar quarter and the following (additional details of the quarterly reports are to be arranged with the Piedmont Regional Office):
- a. The three (3) hour rolling averages of NO<sub>x</sub> emissions, in lb/hr.
  - b. The results of daily calibration drift tests.
  - c. Periods of time when the monitor was not functioning, reasons why, and corrective actions taken.
  - d. Results of quarterly accuracy assessment.
  - e. Periods of excess emissions with reasons, or a statement that no excess emissions occurred.
  - f. Identification of times when NO<sub>x</sub> concentration exceeded full span of CEMS.
  - g. For the 12-month period following implementation of any approved initial AMP for the CEMS/CERMS required by Condition 157 only, a comparison (between the two methods specified in Condition 157) of the SCR systems' inlet flow data for the calendar quarter. This portion of the report shall be copied to U.S. EPA Region III at the following address:

Chief, Air Section  
United States Environmental Protection Agency  
Region III, Enforcement & Compliance Assurance Division  
Air, RCRA and Toxics Branch (3ED21)  
Four Penn Center  
1600 John F. Kennedy Boulevard  
Philadelphia, PA 19103-2852

At a minimum, all three-hour averages shall be available on site at all times and shall be accessible for inspection by DEQ and shall be current for the most recent five (5) years.  
(9VAC5-80-110 and Conditions 168 and 169 of the 9/8/2022 NSR Permit)

## AREA 8/16 - CRUDE CAPROLACTAM PRODUCTION

### Limitations

#### Control Equipment Requirements

166. Except as allowed by Condition 194 (MON requirements), VOC emissions from VT-221, A-Toluizer (CL-29), B-Toluizer (CL-28), C-Toluizer (CL-29new), CL-81, CL-62new, C-361, CL-15, CL-62 shall be controlled by a thermal oxidizer. The TOC reduction efficiency of the oxidizer shall be at least 98% or to a TOC concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen, whichever is less stringent. The thermal oxidizer shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110, Condition #E.4 of the 3/26/1997 RACT Agreement, and Condition 170 of the 9/8/2022 NSR Permit)
167. VOC emissions from the organic liquid storage tank VT-221 shall be controlled by a control method that will remove, destroy, or prevent the discharge into the atmosphere of at least 60% by weight of VOC emissions during the filling of such tank. Control of VOC emissions from VT-221 as specified in Condition 166 shall be considered acceptable achievement of this standard.  
(9VAC5-80-110, 9VAC5-40-3430 A, and 9VAC5-40-3440 A)
168. Fugitive VOC emissions resulting from equipment leaks in those portions of Area 8/16 not already subject to fugitive emissions requirements from other applicable regulations shall be controlled through a Leak Detection and Repair (LDAR) program. The LDAR program shall be substantively equivalent to the LDAR requirements specified in 40 CFR 60, Subpart VV.  
(9VAC5-80-110 and Condition #E.7 of the 3/26/1997 RACT Agreement)
169. VOC emissions from the Area 8 turbogizer system (APT-128, VT-141, VT-243, VT-244, VT-817), the Area 8 turbogizer separation system (APT-14, APT-26, VT-59, VT-59new, HT-66), and HT-52 shall be controlled by a scrubber (SE-325). The TOC reduction efficiency of the scrubber shall be at least 98%. The scrubber shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 171 of the 9/8/2022 NSR Permit)
170. Particulate matter emissions from the Area 8/16 Cooling Tower(s) (TW-newA8) shall be controlled by limiting the total dissolved solids of the cooling water to 2,500 parts per million as an annual average (12-month rolling basis) and limiting each cooling tower liquid drift to 0.001% or less. TW-newA8 shall be provided with adequate access for inspection.  
(9VAC5-80-110 and Condition 172 of the 9/8/2022 NSR Permit)
171. Particulate matter emissions from the Area 8 Modular Cooling Tower(s) (Area 8 CT) shall be controlled by limiting the total dissolved solids of the cooling water to 2,500 parts per million as an annual average (12-month rolling basis) and limiting each cooling tower liquid drift to 0.001% or less. Area 8 CT shall be provided with adequate access for inspection.  
(9VAC5-80-110 and Condition 173 of the 9/8/2022 NSR Permit)

## Operating Limitations

172. The annual input of cyclohexanone oxime to the Oxime Dryer System (VT-OX1, EV-OX/SE-OX1, and SE-OX2) shall not exceed 102,460 rearranger oxime units, calculated monthly as the sum of each consecutive 12-month period.  
(9VAC5-80-110 and Condition 174 of the 9/8/2022 NSR Permit)
173. The annual heat input to FU-16 shall not exceed 48,637 MMBtu/yr, calculated monthly as the sum of each consecutive 12-month period.  
(9VAC5-80-1180 and Condition 175 of the 9/8/2022 NSR Permit)
174. The Area 8/16 Cooling Tower(s) (TW-newA8) shall process no more than 60,549 Area 8 cooling units per year, calculated monthly as the sum of each consecutive 12-month period.  
(9VAC5-80-1180 and Condition 176 of the 9/8/2022 NSR Permit)
175. The Area 8 Modular Cooling Tower (Area 8 CT) shall process no more than 15,768 Area 8 cooling units per year, calculated monthly as the sum of each consecutive 12-month period.  
(9VAC5-80-1180 and Condition 177 of the 9/8/2022 NSR Permit)
176. The annual production of crude caprolactam from the Area 8 cyclohexanone oxime rearrangement reactor system (APT-8, APT-16, APT-32, SP-681, VT-96, VT-226, VT-404A, VT-664, and VT-867) shall not exceed 159,885 rearranger production units, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 178 of the 9/8/2022 NSR Permit)
177. The combined annual input of oleum to the Area 8 cyclohexanone oxime rearrangement reactor system (APT-8, APT-16, APT-32, SP-681, VT-96, VT-226, VT-404A, VT-664, and VT-867) shall not exceed 209,367.5 rearranger oleum units, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 179 of the 9/8/2022 NSR Permit)
178. The combined annual input of cyclohexanone oxime to the Area 8 cyclohexanone oxime rearrangement reactor system (APT-8, APT-16, APT-32, SP-681, VT-96, VT-226, VT-404A, VT-664, and VT-867) shall not exceed 92,767.5 rearranger oxime units, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 180 of the 9/8/2022 NSR Permit)
179. The combined annual input of mixed aqueous and organic feed to the toluene/sulfate stripping column system (CL-15 and CL-81 operating in series) shall not exceed 540,320 toluene/sulfate stripping column units, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 181 of the 9/8/2022 NSR Permit)
180. The annual input of mixed toluene/caprolactam feed to the toluene/caprolactam distillation column (CL-62) shall not exceed 147,610 toluene/caprolactam distillation column units, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 182 of the 9/8/2022 NSR Permit)

- 181. The annual input of mixed toluene/caprolactam feed to the toluene/caprolactam distillation column (CL-62new) shall not exceed 147,610 toluene/caprolactam distillation column units, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 183 of the 9/8/2022 NSR Permit)
- 182. The annual input of Area 6 cyclohexanone to Area 8/16 Crude Caprolactam Production shall not exceed 108,916,000 Area 8/16 input units, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 184 of the 9/8/2022 NSR Permit)
- 183. As of June 28, 2011, the caprolactam extraction column CL-41 shall be removed from operation and permanently shut down.  
(9VAC5-80-110 and Condition 185 of the 9/8/2022 NSR Permit)

**Emission Limits**

- 184. Emissions from the operation of the Area 8 cyclohexanone oxime rearrangement reactor system (APT-8, APT-16, APT-32, SP-681, VT-96, VT-226, VT-404A, VT-664, VT-867) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Volatile Organic Compounds	8.4	0.2

(9VAC5-80-110 and Condition 186 of the 9/8/2022 NSR Permit)

- 185. Emissions from the combined operation of the Area 8 Turbogizer System (APT-128, VT-141, VT-243, VT-244, VT-817), the Area 8 turbogizer separation system (APT-14, APT-26, VT-59, VT-59new, HT-66) and HT-52, as exhausted through scrubber SE-325, shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Volatile Organic Compounds	0.8	0.4

(9VAC5-80-110 and Condition 187 of the 9/8/2022 NSR Permit)

- 186. Emissions from the operation of the Area 8/16 thermal oxidizer shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	0.2	0.1
PM <sub>10</sub>	0.5	0.2
PM <sub>2.5</sub>	0.5	0.2
Nitrogen Oxides (as NO <sub>2</sub> )	7.0	2.4
Carbon Monoxide	87.8	30.5
Volatile Organic Compounds	8.6	4.8

(9VAC5-80-110 and Condition 188 of the 9/8/2022 NSR Permit)

187. Emissions from the operation of the Oxime Dryer System (EV-OX/SE-OX1, VT-OX1, and SE-OX2) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Volatile Organic Compounds	4.6	0.64

(9VAC5-80-110 and Condition 189 of the 9/8/2022 NSR Permit)

188. Emissions from the operation of Area 8/16 Crude Caprolactam Production (inclusive of all emission units specified in the Area 8/16 section of the equipment list in the Introduction of this permit and the emissions limited by Condition 186, but not including VT-OX1, EV-OX/SE-OX1, and SE-OX2) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Volatile Organic Compounds	25.1	13.5

(9VAC5-80-110 and Condition 190 of the 9/8/2022 NSR Permit)

189. Emissions from the operation of the Area 8/16 Cooling Tower(s) (TW-newA8) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	0.48	2.10
PM <sub>10</sub>	0.07	0.32
PM <sub>2.5</sub>	0.07	0.32

(9VAC5-80-110 and Condition 191 of the 9/8/2022 NSR Permit)

190. Emissions from the operation of the Area 8 Modular Cooling Tower (Area 8 CT) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	0.13	0.55
PM <sub>10</sub>	0.02	0.08
PM <sub>2.5</sub>	0.02	0.08

(9VAC5-80-110 and Condition 192 of the 9/8/2022 NSR Permit)

191. No owner or other person shall cause or permit to be discharged into the atmosphere from any affected facility any visible emissions which exhibit greater than 20% opacity, except for one six-minute period in any one hour of not more than 30% opacity. Failure to meet the requirements of this section because of the presence of water vapor shall not be a violation of this section.

(9VAC5-50-80 and 9VAC5-80-110)

#### **40 CFR 60 Subpart NNN/RRR Requirements**

192. The Area 8 cyclohexanone oxime rearrangement reactor system shall be operated such that the vent stream flow rate from the process is less than 0.011 scm/min in accordance with the requirements of 40 CFR 60.700(c)(4).  
(9VAC5-80-110, 40 CFR 60.700(c)(4), and Condition 193 of the 9/8/2022 NSR Permit)
193. The following Area 8/16 affected facilities subject to 40 CFR 60 Subpart NNN shall be operated in compliance with the requirements of 40 CFR 60.662(a) as specified below:
- a. As specified in Condition 166, VOC emissions from the CL-15, CL-81, CL-62 and CL-62New shall be controlled by reducing TOC (total organic compounds less methane and ethane) emissions by 98 weight percent, or to a TOC concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen, whichever is less stringent.
- (9VAC5-80-110 and 40 CFR 60.662(a))

#### **MON Process Requirements**

194. The following Area 8/16 affected sources subject to 40 CFR 63 Subpart FFFF shall be operated in compliance with the requirements of 40 CFR 63.2455, 40 CFR 63.2470, and 40 CFR 63.2475:
- a. Organic HAP emissions from CL-15, CL-28, CL-29, CL-29new, CL-62, CL-62new, CL-81, LacExt, LacSep, VT-221, VT-245, and SolLdg shall be controlled by reducing TOC (total organic compounds less methane and ethane) emissions by 98 weight percent, or to a TOC concentration of 20 ppmv, whichever is less stringent. Compliance with this requirement shall be achieved by either venting the organic HAP emissions to the thermal oxidizer (FU-16) or to a non-regenerative carbon adsorption system (CB-1, CB-2, CB-3, and CB-4).
- (9VAC5-80-110, 40 CFR 63.2455, 40 CFR 63.2470, and 40 CFR 63.2475)
195. Except where the permit is more restrictive than the applicable requirement, the permittee shall operate Area 8/16 affected sources in compliance with the requirements of 40 CFR 63 Subparts A and FFFF.  
(9VAC5-80-110 and 40 CFR 63.Subpart FFFF)

#### **MON LDAR and Monitoring Requirements**

196. The permit shall operate the Area 16 equipment subject to MON requirements in compliance with 40 CFR 63.2480 and the Leak Detection and Repair Requirements of 40 CFR 63 Subpart H or 40 CFR 63 Subpart UU. The provisions of this condition apply to pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, instrumentation systems, and closed vent systems and control devices used to meet the requirements of 40 CFR 63 Subpart FFFF. Equipment in vacuum service is excluded from the requirements of 40 CFR 63 Subpart FFFF.  
(9VAC5-80-110 and 40 CFR 63.2480)

## Monitoring

197. The Area 8/16 thermal oxidizer (FU-16) shall be observed visually at least once each operating month for at least a brief time period to determine if there are any visible emissions (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on the emissions unit. Each emissions unit observed having any visible emissions shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.  
(9VAC5-80-110)
198. The permittee shall establish the retention time of the combustion gas in the Area 8/16 thermal oxidizer (FU-16) during the initial testing that achieves the destruction efficiency of 98% on a mass basis. This retention time shall not be lower than 0.5 seconds.  
(9VAC5-80-110 and Condition 198 of the 9/8/2022 NSR Permit)
199. During all periods of operation, to include startup and shutdown, the thermal oxidizer firebox chamber temperatures shall be continuously monitored and recorded. Data from the continuous temperature monitor shall be recorded as fifteen-minute readings and reduced to 3-hour averages on a rolling basis. A valid 3-hour average shall consist of no less than 90% valid readings. All continuous monitoring devices shall be maintained and calibrated in accordance with the manufacturer's specifications. The continuous temperature monitors shall be calibrated annually, and the results of the calibrations recorded. If a monitor fails its calibration check (i.e., calibration error exceeds manufacturer's specifications), the temperature data shall be invalid from the time of the failed calibration check until corrective actions are taken, and a successful recalibration is completed.  
(9VAC5-80-110, 40 CFR 60.663(a)(1)(i), and Condition 200 of the 9/8/2022 NSR Permit)
200. The Area 8/16 thermal oxidizer (FU-16) shall operate at a minimum temperature determined during performance testing. All 3-hour periods of operation calculated on a rolling average, in which the average combustion temperature was more than 50 degrees Fahrenheit below the minimum average combustion temperature during the most recent performance test that demonstrated compliance, shall be recorded for each day and an explanation provided for the reduction in temperature. This information shall be maintained at the facility for the most recent five years.  
(9VAC5-80-110 and Condition 199 of the 9/8/2022 NSR Permit)
201. The permittee shall install, calibrate, maintain, and operate a flow indicator that, at least once every 15 minutes, determines whether vent stream flow in any line that bypasses the Area 8/16 thermal oxidizer (FU-16) is present. The flow indicator shall be installed at the entrance to any bypass line that could divert the vent stream away from the control device to the atmosphere. Equipment such as low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and pressure relief valves needed for safety purposes are not subject to this condition. The permittee shall maintain hourly records of whether the flow indicator was operating and whether flow was detected at any time within the hour, as well as records of times and durations of all periods when the vent stream is diverted from the control device or the monitor is not operating.  
(9VAC5-80-110, 40 CFR 63.114(d)(1), 40 CFR 60.663(a), and Condition 201 of the 9/8/2022 NSR Permit)
202. In lieu of performing Condition 201, the permittee may secure the bypass line valves in the non-diverting 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 per month to ensure that the valve is maintained in the closed

position and the vent stream is not diverted through the bypass line. Unsealing or unlocking of the bypass line valves for the purpose of permitting use of the bypass lines shall be reported to the Piedmont Regional Office in a manner consistent with the requirements of Section 9VAC5-20-180 of the Regulations. (9VAC5-80-110,40 CFR 63.114(d)(2), and Condition 202 of the 9/8/2022 NSR Permit)

## Recordkeeping

203. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to the following:
- a. Throughput limitations:
    - i. The annual input of cyclohexanone oxime to the Oxime Dryer System;
    - ii. The annual production of crude caprolactam from the Area 8 cyclohexanone oxime rearrangement reactor system, calculated monthly as the sum of each previous consecutive 12-month period as well as the hourly production rate of crude caprolactam;
    - iii. The combined annual input of oleum and the combined annual input of cyclohexanone oxime to the Area 8 cyclohexanone oxime rearrangement reactor system, calculated monthly as the sum of each previous consecutive 12-month period;
    - iv. The annual input of Area 6 cyclohexanone to Area 8/16 crude caprolactam production, calculated monthly as the sum of each previous consecutive 12-month period;
    - v. The annual throughput of mixed feed for the equipment specified in Conditions 179-181;
    - vi. The annual throughput of natural gas to the Area 8/16 thermal oxidizer, calculated monthly as the sum of each consecutive 12-month period;
  - b. Thermal Oxidizer 40 CFR 60 Subpart NNN records:
    - i. The firebox chamber temperature of the thermal oxidizer maintained as a 3-hour rolling average;
    - ii. All three-hour periods of operation, calculated on a rolling average, where the average combustion temperature is more than 50 degrees Fahrenheit below the minimum average combustion temperature demonstrated during the most recent performance test that demonstrated compliance with Condition 166 and an explanation for each such reduction in temperature; (40 CFR 60.665(c)(1) and Condition 199 of the 9/8/2022 NSR Permit)
    - iii. The total number of times and the length of each occurrence where the thermal oxidizer by-pass line was used; and

- iv. For CL-15, CL-81, CL-62 and CL-62New during each initial performance test:
  - 1. Records of the average firebox temperature of the thermal oxidizer, measured at least every 15 minutes and averaged over the same time period of the performance test; and
  - 2. Records of the percent reduction of TOC achieved by the thermal oxidizer, or the concentration of TOC (ppmv, by compound) at the outlet of the thermal oxidizer on a dry basis corrected to 3 percent oxygen.  
(40 CFR 60.665(b))
- v. For each flow indicator required by Condition 201, the permittee shall maintain hourly records of whether the flow indicator was operating and whether flow was detected at any time within the hour as well as records of the times and durations of all periods when the vent stream is diverted from the control device or the monitor is not operating.  
(60.665(d) and Condition 201 of the 9/8/2022 NSR Permit)
- c. 40 CFR 60 Subpart RRR records:
  - i. Any changes in the Area 8 cyclohexanone oxime rearrangement reactor system affecting production capacity, feedstock type, or catalyst type, or of any replacement, removal or addition of recovery equipment or reactors;
  - ii. Any performance testing performed on the Area 8 cyclohexanone oxime rearrangement reactor system consistent with 40 CFR 60.704(I)(5); and
  - iii. A record of the initial test for determining the emissions flow rate of the Area 8 cyclohexanone oxime rearrangement reactor system and the results of the initial flow rate calculation.
- d. MON Recordkeeping
  - i. Records required by 40 CFR 63.2525.
  - ii. LDAR records in accordance with 40 CFR 63.2480 and 40 CFR 63.1038.
- e. The results of the monthly visible emission surveys required by Condition 197 and details of any corrective action taken as a result of these inspections.
- f. Emission factors and any other information necessary to demonstrate compliance with the emission limits of Conditions 184-190.
- g. Annual average cooling water total dissolved solids records and design cooling water liquid drift records for the Area 8/16 cooling towers (TW-newA8) and Area 8 Modular Cooling Tower (Area 8 CT).
- h. The shutdown date for caprolactam extraction column CL-41.
- i. Any records required by the alternate control technology approval allowed by Condition 166 and 194.
- j. Maintenance, operations, and training

- i. Scheduled and unscheduled maintenance records for all process equipment and air pollution control equipment;
- ii. Inventory of spare parts to minimize durations of air pollution control equipment breakdowns;
- iii. Written operating procedures for all process equipment and air pollution control equipment; and
- iv. Operator training records.

These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years.

(9VAC5-80-110, 40 CFR 60.663(a) and 60.665, 40 CFR 60.705(h) and 60.705(o), 40 CFR 63.1038, 40 CFR 63.2480, 40 CFR 63.2525, and Conditions 199 and 205 of the 9/8/2022 NSR Permit)

## Testing

204. Initial performance tests for VOC from CL-15 and CL-81 shall be conducted using an appropriate EPA Reference Method, approved by the Piedmont Regional Office, to determine that a VOC destruction efficiency of at least 98% on a mass basis consistent with Condition 166 or that a VOC emissions concentration of 20 ppmv, on a dry basis, corrected to 3 percent oxygen is being achieved by the thermal oxidation unit. The tests shall be performed, and demonstrate compliance, within 60 days after achieving the maximum production rate but in no event later than 180 days after start-up of the permitted facility. During the tests, the permittee shall be required to operate all process equipment, exhausted to this unit, at a minimum of 80% of their maximum rated capacity. Tests shall be conducted and reported, and data reduced as set forth in 9VAC5-50-30 and 9VAC5-60-30 of the SAPCB Regulations, and the test methods and procedures contained in each applicable section or subpart listed in 9VAC5-50-410 and 9VAC5-60-70. The details of the tests are to be arranged with the Piedmont Regional Office. One copy of the test results shall be submitted to the Piedmont Regional Office within 45 days after test completion. (9VAC5-80-110 and Condition 194 of the 9/8/2022 NSR Permit)
205. Initial performance tests for VOC from CL-62 shall be conducted using an appropriate EPA Reference Method, approved by the Piedmont Regional Office, to determine that a VOC destruction efficiency of at least 98% on a mass basis consistent with Condition 166 or that a VOC emissions concentration of 20 ppmv, on a dry basis, corrected to 3 percent oxygen is being achieved by the thermal oxidation unit. The tests shall be performed, and demonstrate compliance, within 60 days after achieving the maximum production rate but in no event later than 180 days after start-up of the permitted facility. During the tests, the permittee shall be required to operate all process equipment, exhausted to this unit, at a minimum of 80% of their maximum rated capacity. Tests shall be conducted and reported, and data reduced as set forth in Sections 9VAC5-50-30 and 9VAC5-60-30 of the SAPCB Regulations, and the test methods and procedures contained in each applicable section or subpart listed in Sections 9VAC5-50-410 and 9VAC5-60-70. The details of the tests are to be arranged with the Piedmont Regional Office. One copy of the test results shall be submitted to the Piedmont Regional Office within 45 days after test completion. (9VAC5-80-110 and Condition 195 of the 9/8/2022 NSR Permit)
206. Initial performance tests for VOC from CL-62new shall be conducted using an appropriate EPA Reference Method, approved by the Piedmont Regional Office, to determine that a VOC destruction efficiency of at least 98% on a mass basis consistent with Condition 166 or that a VOC emissions concentration of 20 ppmv, on a dry basis, corrected to 3 percent oxygen is being achieved by the thermal oxidation unit. The tests shall be performed, and demonstrate compliance, within 60 days after achieving the maximum

production rate but in no event later than 180 days after start-up of the permitted facility. During the tests, the permittee shall be required to operate all process equipment, exhausted to this unit, at a minimum of 80% of their maximum rated capacity. Tests shall be conducted and reported, and data reduced as set forth in Sections 9VAC5-50-30 and 9VAC5-60-30 of the SAPCB Regulations, and the test methods and procedures contained in each applicable section or subpart listed in Sections 9VAC5-50-410 and 9VAC5-60-70. The details of the tests are to be arranged with the Piedmont Regional Office. One copy of the test results shall be submitted to the Piedmont Regional Office within 45 days after test completion. (9VAC5-80-110 and Condition 196 of the 9/8/2022 NSR Permit)

207. In lieu of performing the initial performance tests described in Conditions 204-206 above, the permittee may apply to the Administrator to waive the requirement for performance testing. In this waiver request, the permittee must demonstrate by means other than these initial performance tests that the affected columns, CL-15, CL-81, CL-62 and CL-62new, are in compliance with 40 CFR 60.662(a). The waiver request shall be submitted to:

Chief, Air Section  
United States Environmental Protection Agency  
Region III, Enforcement & Compliance Assurance Division  
Air, RCRA and Toxics Branch (3ED21)  
Four Penn Center  
1600 John F. Kennedy Boulevard  
Philadelphia, PA 19103-2852

within 60 days of achieving maximum rate but in no circumstances later than 180 days after initial start-up. Copies of the waiver request are to be sent to the Piedmont Regional Office. (9VAC5-80-110 and Condition 197 of the 9/8/2022 NSR Permit)

## Reporting and Notification Requirements

208. The permittee shall furnish written notification to the Piedmont Regional Office of any change in equipment or process operation that increases the design production capacity of the Area 8 cyclohexanone oxime rearrangement reactor system above the low flow exemption level in 40 CFR 60.700(c)(3), reported semiannually in accordance with 40 CFR 60.705(l), for the Area 8 cyclohexanone oxime rearrangement reactor system activities. Also, the permittee shall furnish written notification to the Piedmont Regional Office of any temperature exceedances as defined on Condition 200 and any vent stream diversions as defined in Condition 201, reported semiannually in accordance with 40 CFR 60.665(l), for CL-15, CL-81, CL-62 and CL-62New. Copies of written notifications are to be sent to:

Chief, Air Section  
United States Environmental Protection Agency  
Region III, Enforcement & Compliance Assurance Division  
Air, RCRA and Toxics Branch (3ED21)  
Four Penn Center  
1600 John F. Kennedy Boulevard  
Philadelphia, PA 19103-2852

These must be reported as soon as possible after the change and no later than 180 days after the change. The source shall perform testing as defined in 40 CFR 60.705(l)(5). (9VAC5-80-110, 40 CFR 60.665(l) and 60.705(l), and Condition 203 of the 9/8/2022 NSR Permit)

209. The permittee shall furnish written notification to the Piedmont Regional Office of:
- The actual date on which modification of the Area 8 cyclohexanone oxime rearrangement reactor system, CL-15, CL-62 and CL-62new commenced within 10 days after such date.
  - The actual start-up date of the modified Area 8 cyclohexanone oxime rearrangement reactor system, CL-15, CL-62 and CL-62new within 10 days after such date.
  - The anticipated date of performance tests of the modified CL-15, CL-62 and CL-62new postmarked at least thirty (30) days prior to such date.
  - The actual date on which construction of the Oxime Dryer System commenced within 10 days after such date.
  - The actual start-up date of the Oxime Dryer System within 10 days after such date.

(9VAC5-80-110 and Condition 204 of the 9/8/2022 NSR Permit)

210. The permittee shall report the results of any 40 CFR Part 60 Appendix A Method 9 opacity test performed as a result of Condition 197. If the test indicates the facility is out of compliance with the standard contained in Condition 191, the source shall also report the length of time associated with any exceedance of the standard and the corrective actions taken to correct the exceedance. This report shall be sent to the Piedmont Regional Office within seven days of the applicable test unless otherwise noted in Condition 628. (9VAC5-80-110)

### **MON Notification and Reporting Requirements**

211. The permittee shall submit reports and notifications in accordance with 40 CFR 63.2515, 40 CFR 63.2520, and 40 CFR 63.1039.  
(9VAC5-80-110 and 40 CFR 63 Subpart FFFF)

## **FAREA 7 - CAPROLACTAM PURIFICATION**

### **Limitations**

#### **Control Equipment Requirements**

212. Except as specified in Condition 213, Volatile Organic Compound emissions from C-train crystallizers APT-22 and APT-23, D-train crystallizers APT-24 and APT-25, A-train crystallizers APT-39-42, wash water concentrator CL-12, crude caprolactam concentrator CL-21, caprolactam product distillation column CL-70, caprolactam strippers EV-8 and EV-12, caprolactam dryers EV-14-16, caprolactam strippers EV-17 and EV-18, bottoms concentrator VT-36, water stripper VT-220, caprolactam dryer VT-327, wash water concentrator VT-394, and caprolactam strippers VT-395 and VT-799 shall be vented to the Area 7 barometric condenser (C-323). The barometric condenser shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 206 of the 9/8/2022 NSR Permit)
213. Condenser C-323 may be bypassed for a duration of no more than 24 hours per year to allow for planned maintenance of the control device as described in the application dated May 12, 2022 (revised August 11, 2022). The permittee shall furnish notification to the Piedmont Regional Office of the intention to shut

down or bypass, or both, air pollution control equipment for necessary scheduled maintenance at least 24 hours prior to the shutdown. Then notification shall include, but is not limited to, the following information:

- a. Identification of the specific process to be taken out of service, as well as its location, and registration number;
- b. The expected length of time that the air pollution control equipment will be out of service;
- c. The nature and quantity of emissions of air pollutants likely to occur during the shutdown period;
- d. Measures that will be taken to minimize the length of the shutdown or to negate the effect of the outage.

(9VAC5-80-110 and Condition 207 of the 9/8/2022 NSR Permit)

214. Particulate emissions from the caprolactam remelt facility and the Area 8 flaker #1 (FL-1) shall be vented to a fume scrubber (SC-61). Particulate emissions from the Area 8 flaker #2 (FL-5) shall be vented to a fume scrubber (SC-68). The scrubbers shall maintain a reduction efficiency of 90%. The scrubbers shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 208 of the 9/8/2022 NSR Permit)
215. VOC and hydrogen sulfide emissions from the Area 7 CRU thin film evaporator (EV-46) and the Area 7 CRU residue recovery tank (VT-966) shall be controlled by venting the emissions through a closed vent system (as defined in 40 CFR 63 Subpart FFFF) to the Area 9 sulfur burners. The Area 9 sulfur burners shall reduce emissions of VOC and hydrogen sulfide by at least 98% by weight. The Area 9 sulfur burners shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 209 of the 9/8/2022 NSR Permit)
216. Particulate matter, VOC, and hydrogen sulfide emissions from the Area 7 CRU residue flaker (FL-6) or conveyor (CO-151) shall be controlled by venting the emissions to a fume scrubber (SE-149). The fume scrubber shall reduce emissions of particulate matter and VOC by at least 90% by weight. The fume scrubber shall reduce emissions of hydrogen sulfide by at least 50% by weight. The fume scrubber shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 210 of the 9/8/2022 NSR Permit)
217. VOC and hydrogen sulfide emissions from VA-19/CL-39 shall be controlled by venting the emissions to the Area 9 sulfur burners. The vent system shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 211 of the 9/8/2022 NSR Permit)
218. VOC emissions from VT-121 and VT-127 shall be controlled by either the Area 9 sulfur burners or a fume scrubber (SE-149). The Area 9 sulfur burners shall reduce emissions by at least 98% by weight. The fume scrubber shall reduce VOC emissions by at least 90% by weight. The vent system for the sulfur burners shall be provided with adequate access for inspection. The fume scrubber (SE-149) shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 212 of the 9/8/2022 NSR Permit)

219. Particulate matter, VOC, and hydrogen sulfide emissions from the depoly conveyor (CO-151) shall be controlled by venting the emissions to a fume scrubber (SE-149). The fume scrubber shall reduce emissions of particulate matter and VOC by at least 90% by weight. The fume scrubber shall reduce emissions of hydrogen sulfide by at least 50% by weight. The fume scrubber shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 213 of the 9/8/2022 NSR Permit)
220. Particulate matter and VOC emissions from the Area 8 flaker #3 (FL-7) shall be controlled by a water scrubber (APCD-DS). The scrubber shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 214 of the 9/8/2022 NSR Permit)
221. Particulate matter emissions from the EP Lactam Flasher Process Cooling Tower (TW-97) shall be controlled by limiting the total dissolved solids of the cooling water to 2,500 parts per million as an annual average (12-month rolling basis) and limiting each cooling tower's liquid drift to 0.001% or less. TW-97 shall be provided with adequate access for inspection.  
(9VAC5-80-110 and Condition 215 of the 9/8/2022 NSR Permit)

#### **40 CFR 60 Subpart NNN Requirements**

222. The Area 7 barometric condenser (C-323) affected facility shall be operated such that the vent stream shall maintain a Total Resource Effectiveness (TRE) value of greater than 1.0 at all times without the use of VOC emission control equipment. The Area 7 barometric condenser (C-323) affected facility shall consist of the following: C-train crystallizers APT-22 and APT-23, D-train crystallizers APT-24 and APT-25, A-train crystallizers APT-39-42, wash water concentrator CL-12, crude caprolactam concentrator CL-21, caprolactam product distillation column CL-70, caprolactam strippers EV-8 and EV-12, caprolactam dryers EV-14-16, caprolactam strippers EV-17 and EV-18, bottoms concentrator VT-36, water stripper VT-220, caprolactam dryer VT-327, wash water concentrator VT-394, and caprolactam strippers VT-395 and VT-799.  
(9VAC5-80-110, 40 CFR 60.662(c), and Condition 232 of the 9/8/2022 NSR Permit)
223. The permittee shall operate the Area 7 barometric condenser (C-323) affected facility (as specified in Condition 222) consistent with 40 CFR 60 New Source Performance Standard, Subpart NNN, Standards of Performance for Volatile Organic Compound Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations.  
(9VAC5-80-110, 40 CFR 60 Subpart NNN, and Condition 253 of the 9/8/2022 NSR Permit)
224. Except where this permit is more restrictive than the applicable requirement, the permittee shall design, construct, and operate the Area 7 CRU thin film evaporator (EV-46) and the Area 7 CRU residue recovery tank (VT-966) in compliance with all requirements of 40 CFR 60 Subpart NNN.  
(9VAC5-80-110, 40 CFR 60 Subpart NNN, and Condition 254 of the 9/8/2022 NSR Permit)

## Operating Limitations

225. The annual input of Area 8/16 crude caprolactam, washwater, regenerated and remelted caprolactam to Area 7 Purified Caprolactam Production shall not exceed 5,793,000 Area 7 production units, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 216 of the 9/8/2022 NSR Permit)
226. The annual input of Area 8/16 crude caprolactam to Area 7 Purified Caprolactam Production shall not exceed 5,130,000 Area 7 production units, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 217 of the 9/8/2022 NSR Permit)
227. The combined annual input of caprolactam to the caprolactam remelt facility and the Area 8 flaker #1 shall not exceed 960,000 Area 7 production units, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 218 of the 9/8/2022 NSR Permit)
228. The annual input of purified caprolactam to CL-70 shall not exceed 4,730,000 Area 7 production units, calculated monthly as the sum of the previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 219 of the 9/8/2022 NSR Permit)
229. The annual input of combined regenerated caprolactam and washwater caprolactam to VT-394 and CL-12 shall not exceed 360,400 Area 7 regen/washwater units, calculated monthly as the sum of the previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 220 of the 9/8/2022 NSR Permit)
230. The annual throughput of caprolactam/residue feed to the depoly vaporizer (VA-19) and the depoly recovery tower (CL-39) shall not exceed 420,480 Area 7 production units, calculated monthly as the sum of the previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 221 of the 9/8/2022 NSR Permit)
231. The annual throughput of depoly residue feed to the depoly conveyor (CO-151) shall not exceed 138,000 Area 7 production units, calculated monthly as the sum of the previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 222 of the 9/8/2022 NSR Permit)
232. The annual input of caprolactam/residue feed to the Area 7 CRU thin film evaporator (EV-46) shall not exceed 630,720 Area 7 production units, calculated monthly as the sum of the previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 223 of the 9/8/2022 NSR Permit)
233. The annual input of Area 7 CRU residue feed to the Area 7 CRU residue flaker (FL-6) or conveyor (CO-151) shall not exceed 160,581 Area 7 production units, calculated monthly as the sum of the previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 224 of the 9/8/2022 NSR Permit)
234. The Area 7 depoly process (VA-19/CL-39 and CO-151) shall not operate simultaneously with the Area 7 CRU process (EV-46/VT-966 and FL-6/CO-151).  
(9VAC5-80-110 and Condition 225 of the 9/8/2022 NSR Permit)

- 235. The annual input of purified liquid caprolactam to the Area 8 Flakers #1-2 (FL-1 and FL-5) shall not exceed 6,150 flaker input units each, calculated monthly as the sum of each previous consecutive 12-month period. (9VAC5-80-110 and Condition 226 of the 9/8/2022 NSR Permit)
- 236. The Area 8 flaker #3 (FL-7) shall process no more than 9,225 Flaker Input Units per year, calculated monthly as the sum of each consecutive 12-month period. (9VAC5-80-110 and Condition 227 of the 9/8/2022 NSR Permit)
- 237. As of June 28, 2011, the purge tower CL-22 shall be removed from operation and permanently shut down. (9VAC5-80-110 and Condition 228 of the 9/8/2022 NSR Permit)
- 238. The permittee shall not operate the Area 7 crude coolers (C-616) and (C-253) simultaneously, except for the amount of time necessary to switch from one running unit to the other running unit. (9VAC5-80-110 and Condition 229 of the 9/8/2022 NSR Permit)
- 239. The EP Lactam Flasher Process (VT-996/VT-997, HT-03, and VT-995) shall process no more than 3,863,160 Area 7 production units per year, calculated monthly as the sum of each consecutive 12-month period. (9VAC5-80-110 and Condition 230 of the 9/8/2022 NSR Permit)
- 240. The Area 7 Cooling Tower(s) (TW-97) shall process no more than 18,396 Area 7 cooling units per year, calculated monthly as the sum of each consecutive 12-month period. (9VAC5-80-110 and Condition 231 of the 9/8/2022 NSR Permit)

**Emission Limitations**

- 241. Emissions from the operation of the C-train crystallizers APT-22 and APT-23, D-train crystallizers APT-24 and APT-25, A-train crystallizers APT-39 through 42, wash water concentrator CL-12, crude caprolactam concentrator CL-21, caprolactam product distillation column CL-70, caprolactam strippers EV-8 and EV-12, caprolactam dryers EV-14 through 16, caprolactam strippers EV-17 and EV-18, bottoms concentrator VT-36, water stripper VT-220, caprolactam dryer VT-327, wash water concentrator VT-394, and caprolactam strippers VT-395 and VT-799 shall not exceed the limits specified below:

Pollutant	Lb/hr	Tons/year
Volatile Organic Compounds	0.3	-
Volatile Organic Compounds (during maintenance of C-323 as allowed by Condition 213)	0.9	-
Volatile Organic Compounds (annual total, including maintenance)	-	0.5

(9VAC5-80-110 and Condition 233 of the 9/8/2022 NSR Permit)

- 242. Emissions from the combined operation of the caprolactam remelt facility and Area 8 flaker #1, as exhausted through fume scrubber SC-61, shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	0.2	0.5
PM <sub>10</sub>	0.1	0.3
Volatile Organic Compounds	0.2	0.5

(9VAC5-80-110 and Condition 234 of the 9/8/2022 NSR Permit)

243. Emissions from the operation of the Area 8 flaker #2 (FL-5), as exhausted through fume scrubber SC-68, shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	0.1	0.3
PM <sub>10</sub>	0.1	0.2
PM <sub>2.5</sub>	0.1	0.2
Volatile Organic Compounds	0.1	0.3

(9VAC5-80-110 and Condition 235 of the 9/8/2022 NSR Permit)

244. Emissions from the operation of the depoly vaporizer (VA-19) and the depoly recovery tower (CL-39), as exhausted through the Area 9 sulfur burners shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Volatile Organic Compounds	0.03	0.18
Hydrogen Sulfide	0.21	0.92

(9VAC5-80-110 and Condition 236 of the 9/8/2022 NSR Permit)

245. Emissions from the operation of the depoly conveyor (CO-151) that are captured and exhausted through the fume scrubber SE-149 shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	3.2	0.7
PM <sub>10</sub>	12.9	3.0
PM <sub>2.5</sub>	12.9	3.0
Volatile Organic Compounds	9.7	2.2
Hydrogen Sulfide	0.3	0.1

(9VAC5-80-110 and Condition 237 of the 9/8/2022 NSR Permit)

246. Total emissions (including emissions that are captured and exhausted through fume scrubber SE-149 and uncaptured emissions) from the operation of the depoly conveyor (CO-151) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	4.9	1.1
PM <sub>10</sub>	19.7	4.5
PM <sub>2.5</sub>	19.7	4.5
Volatile Organic Compounds	14.8	3.4
Hydrogen Sulfide	0.3	0.1

(9VAC5-80-110 and Condition 238 of the 9/8/2022 NSR Permit)

247. Emissions from the operation of the Area 7 CRU thin film evaporator (EV-46) and the Area 7 CRU residue recovery tank (VT-966), as exhausted through the Area 9 disulfonate towers (sulfur burners), shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Volatile Organic Compounds	0.01	0.06
Hydrogen Sulfide	0.2	0.95

(9VAC5-80-110 and Condition 239 of the 9/8/2022 NSR Permit)

248. Emissions from the operation of the Area 7 CRU residue flaker (FL-6) or conveyor (CO-151), that are exhausted through fume scrubber SE-149, shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	0.5	0.7
PM <sub>10</sub>	1.9	2.8
PM <sub>2.5</sub>	1.9	2.8
Volatile Organic Compounds	1.4	2.1
Hydrogen Sulfide	0.1	0.1

(9VAC5-80-110 and Condition 240 of the 9/8/2022 NSR Permit)

249. Total emissions (including emissions that are captured and exhausted through fume scrubber SE-149 and uncaptured emissions) from the operation of the Area 7 CRU residue flaker (FL-6) or conveyor (CO-151) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	0.7	1.1
PM <sub>10</sub>	2.9	4.3
PM <sub>2.5</sub>	2.9	4.3
Volatile Organic Compounds	2.2	3.2
Hydrogen Sulfide	0.1	0.1

(9VAC5-80-110 and Condition 241 of the 9/8/2022 NSR Permit)

250. Total emissions from the combined operation of the Area 7 depoly process (VT-121/VT-127, VA-19/CL-39, and CO-151) and depoly fuel burning equipment (HE-221/HE-305) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	4.9	1.2
PM <sub>10</sub>	19.7	4.7
PM <sub>2.5</sub>	19.7	4.7
Sulfur Dioxide	0.01	0.06
Nitrogen Oxides (as NO <sub>2</sub> )	0.4	1.9
Carbon Monoxide	0.4	1.6
Volatile Organic Compounds	14.9	3.7
Hydrogen Sulfide	0.5	1.0

(9VAC5-80-110 and Condition 242 of the 9/8/2022 NSR Permit)

251. Total emissions from the combined operation of the Area 7 CRU process equipment (VT-121/VT-127, EV-46/VT-966, and FL-6/CO-151) and CRU fuel burning equipment (BT-10) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	0.7	1.1
PM <sub>10</sub>	2.9	4.4
PM <sub>2.5</sub>	2.9	4.4
Sulfur Dioxide	0.01	0.06
Nitrogen Oxides (as NO <sub>2</sub> )	0.4	1.9
Carbon Monoxide	0.4	1.6
Volatile Organic Compounds	2.3	3.4
Hydrogen Sulfide	0.3	1.0

(9VAC5-80-110 and Condition 243 of the 9/8/2022 NSR Permit)

252. Emissions from the operation of the Area 7 cooling tower TW-71 shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	0.56	2.47
PM <sub>10</sub>	0.08	0.37
PM <sub>2.5</sub>	0.08	0.37

(9VAC5-80-110 and Condition 244 of the 9/8/2022 NSR Permit)

253. Emissions from the operation of the Area 8 flaker #3 (FL-7), as exhausted from the water scrubber (APCD-DS), shall not exceed the limitations specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	0.4	1.7
PM <sub>10</sub>	0.4	1.7
PM <sub>2.5</sub>	0.4	1.7
Volatile Organic Compounds	0.2	0.8

(9VAC5-80-110 and Condition 245 of the 9/8/2022 NSR Permit)

254. Emissions from the operation of Area 7 Purified Caprolactam Production (inclusive of all emission units specified in the Area 7 section of the equipment list in the Introduction of this permit, except for VT-996/VT-997, HT-03, VT-995, and TW-97) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Tons/year</b>
PM (filterable only)	12.8
PM <sub>10</sub>	13.6
PM <sub>2.5</sub>	13.6
Nitrogen Oxides (as NO <sub>2</sub> )	1.9
Carbon Monoxide	1.6
Volatile Organic Compounds	51.4

(9VAC5-80-110 and Condition 246 of the 9/8/2022 NSR Permit)

255. Emissions from the operation of the EP Lactam Flasher Process (VT-996/VT-997, HT-03, and VT-995) shall not exceed the limitations specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Volatile Organic Compounds	0.3	0.35

(9VAC5-80-110 and Condition 247 of the 9/8/2022 NSR Permit)

256. Emissions from the operation of the EP Lactam Flasher Process Cooling Tower (TW-97) shall not exceed the limitations specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	0.1	0.4
PM <sub>10</sub>	0.1	0.1
PM <sub>2.5</sub>	0.1	0.1

(9VAC5-80-110 and Condition 248 of the 9/8/2022 NSR Permit)

257. Visible emissions from the Area 8 flaker #3 (FL-7) shall not exceed 10 percent opacity as determined by the EPA Method 9 (reference 40 CFR 60 Appendix A).

(9VAC5-80-110 and Condition 249 of the 9/8/2022 NSR Permit)

258. No owner or other person shall cause or permit to be discharged into the atmosphere from any affected facility any visible emissions which exhibit greater than 20% opacity, except for one six-minute period in

any one hour of not more than 30% opacity. Failure to meet the requirements of this section because of the presence of water vapor shall not be a violation of this section.  
(9VAC5-50-80 and 9VAC5-80-110)

### **MON Process Requirements**

259. The following Area 7 affected sources subject to 40 CFR 63 Subpart FFFF shall be operated in compliance with the requirements of 40 CFR 63.2455, 40 CFR 63.2470, and 40 CFR 63.2485:

- a. Group 2 Continuous Processes: CL-12, CL-21, CL-39, CO-151, EV-46/VT-966, and FL-6
- b. Group 2 Storage Tanks: VT-121, VT-127, VT-157, VT-158, VT-968, VT-969, and VT-985
- c. Group 2 Wastewater Tanks and Wastewater Streams: VT-854, VT-666, VT-838, VT-897, PFR-01, VT-162, VT-143, VT-165, and HT-894

(9VAC5-80-110 and 40 CFR 63 Subparts A and FFFF)

260. Except where this permit is more restrictive than the applicable requirement, the permittee shall operate Area 7 affected sources in compliance with the requirements of 40 CFR 63 Subparts A and FFFF.  
(9VAC5-80-110 and 40 CFR 63 Subparts A and FFFF)

### **Monitoring**

261. The Area 7 caprolactam remelt facility, the Area 8 flakers #1-3 and the Area 7 CRU flaker shall be observed visually at least once each operating month for at least a brief time period to determine which emissions units have any visible emissions (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on the emissions unit. Each emissions unit observed having any visible emissions shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.  
(9VAC5-80-110)

262. The permittee shall recalculate the TRE index value for the Area 7 barometric condenser affected facility whenever a process change is made to one of the units included in the affected facility (as specified in Condition 222). The TRE index value shall be recalculated based on test data or on best engineering estimates of the effects of the change on the affected facility.  
(9VAC5-80-110, 40 CFR 60.664(g), and Condition 250 of the 9/8/2022 NSR Permit)

263. Where the TRE value, calculated in accordance with Condition 262, is less than or equal to 1.0, the permittee shall notify DEQ within a week of that determination and shall conduct a performance test consistent with the requirements of the 40 CFR 60.664(f)(1). This performance test shall be conducted as soon as possible but in no case later than 180 days after the process change prompting the recalculation.  
(9VAC5-80-110, 40 CFR 60.664(g)(1), and Condition 251 of the 9/8/2022 NSR Permit)

264. Where the TRE value, calculated in accordance with Condition 262, is less than or equal to 8.0 but greater than 1.0, the permittee shall conduct a performance test consistent with 40 CFR Part 60.664(d)(2). This

performance test must be conducted as soon as possible but in no case later than 180 days after the process change prompting the recalculation.

(9VAC5-80-110, 40 CFR 60.664(g)(2), and Condition 252 of the 9/8/2022 NSR Permit)

265. During all periods of operation, the Area 7 fume scrubber (SE-149) liquid flow rate shall be continuously monitored and recorded. The caustic/neutralizing agent injection rate shall be continuously monitored and recorded by one or more of the following methods: pump stroke rate, flow measurement or pH. Data from the continuous monitors shall be recorded as fifteen-minute readings and reduced to 3-hour averages on a rolling basis. A valid 3-hour average shall consist of no less than 90% valid readings. The continuous monitoring devices shall be maintained and calibrated in accordance with the manufacturer's specifications (at least annually), and the results of the calibrations recorded.  
(9VAC5-80-110 and Condition 255 of the 9/8/2022 NSR Permit)

266. The Area 7 fume scrubber (SE-149) shall be operated at a minimum scrubber liquid flow rate and a minimum caustic/neutralizing agent injection rate (monitored in accordance with Condition 265) as determined during the initial performance test (or a subsequent test approved by the Piedmont Regional Office) of the Area 7 CRU residue flaker (FL-6). At the discretion of the Piedmont Regional Office, these minimum performance test rates may be supplemented by manufacturer's specifications or engineering evaluations. All 3-hour periods of operation calculated on a rolling average, in which the scrubber liquid flow rate or the caustic/neutralizing agent injection rate is below the minimum value established in accordance with this condition, shall be recorded for each day and an explanation provided for the deviation. The permittee shall also implement corrective action as necessary to return the scrubber to proper operation.  
(9VAC5-80-110 and Condition 256 of the 9/8/2022 NSR Permit)

267. The Area 8 flaker #3 (FL-7) water scrubber (APCD-DS) shall be equipped with a scrubber liquid (water) flow meter. The flow meter shall be installed, maintained, calibrated, and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. The flow meter shall be provided with adequate access for inspection and shall be in operation when the water scrubber is operating.  
(9VAC5-80-110 and Condition 257 of the 9/8/2022 NSR Permit)

268. The Area 8 flakers shall be equipped with control system monitoring devices to measure the control system operating parameters as specified below:

- Area 8 flaker #1 (FL-1): Differential Pressure
- Area 8 flaker #2 (FL-5): Differential Pressure
- Area 8 flaker #3 (FL-7): Differential Pressure and Scrubber Liquid Flow (\*)

The monitoring devices shall be installed, maintained, calibrated, and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. The monitoring devices shall be provided with access for inspection and shall be in operation when the respective control systems are operating.

(\*) If the NSR Permit is amended to remove scrubber liquid flow as a required monitoring parameter, the scrubber liquid flow requirement of this condition shall be deemed void.

(9VAC5-80-110)

269. The Area 8 flaker control systems (SC-61, SC-68, and APCD-DS) shall be operated such that, at all times of required operation, the operating parameters required to be monitored by Condition 268 are within the range specified by the manufacturer's minimum recommendations or at a rate otherwise approved by the Piedmont Regional Office. To ensure good performance, the control system monitoring devices specified in Condition 268 shall be observed by the permittee with a frequency of not less than once per operating shift. The permittee shall keep a log of the observations required by this condition and any related corrective actions.  
(9VAC5-80-110)
270. The Area 8 flaker #3 (FL-7) water scrubber shall be operated such that, at all times of required operation, the scrubber liquid (water) flow rate is equal to or greater than the manufacturer's minimum recommendation or a rate otherwise approved by the Piedmont Regional Office. To ensure good performance, the scrubber liquid flow meter shall be observed by the permittee with a frequency of not less than once per operating shift. The permittee shall keep a log of the observations required by this condition and any related corrective actions.  
(9VAC5-80-110 and Condition 258 of the 9/8/2022 NSR Permit)

## Recordkeeping

271. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to:
- a. Throughput limitations:
    - i. The annual throughput of caprolactam to the Area 7 crystallizers/purification systems, calculated monthly as the sum of each consecutive 12-month period.
    - ii. The annual throughput of washwater/wastewater to the Area 7 washwater System, calculated monthly as the sum of each consecutive 12-month period.
    - iii. The annual throughput of caprolactam to the Area 7 caprolactam product distillation column (CL-70), calculated monthly as the sum of each consecutive 12-month period.
    - iv. The annual throughput of caprolactam to the Area 7 A-train crystallizers (APT-39, 41, 42), calculated monthly as the sum of each consecutive 12-month period.
    - v. The annual throughput of caprolactam/residue feed to depoly vaporizer (VA-19) and the depoly recovery tower (CL-39), calculated monthly as the sum of each consecutive 12-month period.
    - vi. The annual throughput of depoly residue feed to the depoly conveyor (CO-151).
    - vii. The annual throughput of caprolactam/residue feed to the Area 7 CRU thin film evaporator (EV-46), calculated monthly as the sum of each consecutive 12-month period.
    - viii. The annual throughput of CRU residue feed to the Area 7 CRU residue flaker (FL-6) or conveyor (CO-151), calculated monthly as the sum of each consecutive 12-month period.

- ix. The combined annual throughput of caprolactam to the Area 7 remelt facility and Area 8 flaker #1, calculated monthly as the sum of each consecutive 12-month period.
  - x. The annual throughput of caprolactam to the Area 8 flakers #1-2, each calculated monthly as the sum of each consecutive 12-month period.
  - xi. Monthly and annual production of flaked caprolactam from the Area 8 flaker #3, annual throughput shall be calculated monthly as the sum of each consecutive 12-month period.
- b. Operating records for the depoly and CRU systems sufficient to demonstrate compliance with Condition 234.
  - c. The annual emissions of VOC from the Area 7 barometric condenser (C-323), calculated monthly as the sum of each consecutive 12-month period.
  - d. The number of hours per year that the Area 7 barometric condenser (C-323) is bypassed for planned maintenance, calculated monthly as the sum of each consecutive 12-month period, and the associated notifications.
  - e. The initial test for determining the VOC emissions from the Area 7 barometric condenser (C-323) and the results of the test.
  - f. The initial test for determining the TRE index value of the Area 7 barometric condenser (C-323) affected facility (as specified in Condition 222) and the results of the initial TRE index value calculation.
  - g. Any process change to the Area 7 barometric condenser (C-323) affected facility (as specified in Condition 222) which prompts recalculation of the TRE.
  - h. Any recalculation of the TRE index value for the Area 7 barometric condenser (C-323) affected facility (as specified in Condition 222) performed pursuant to 40 CFR 60.664(d).
  - i. Records of any performance test performed as a result of recalculation of the TRE value for the Area 7 barometric condenser (C-323) affected facility (as specified in Condition 222).
  - j. MON records required by 40 CFR 63.2525.
  - k. The results of the monthly visible emission surveys required by Condition 261 and details of any corrective action taken as a result of these inspections.
  - l. Records of the initial or subsequent performance tests required by Condition 266.
  - m. Records of the monitoring data, calibration checks, deviations, and corrective actions required by Conditions 265-270.
  - n. Records of the initial or subsequent performance tests required by Condition 266.
  - o. The shutdown date for purge tower CL-22.

- p. Annual average cooling water total dissolved solids records and design cooling water liquid drift records for the Area 7 cooling tower TW-71.
- q. Scheduled and unscheduled maintenance records for all process equipment and air pollution control equipment.
- r. Inventory of spare parts to minimize durations of air pollution control equipment breakdowns.
- s. Written operating procedures for all process equipment and air pollution control equipment.
- t. Operator training records.

These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years.  
(9VAC5-80-110, 40 CFR 60.665(h), and Condition 263 of the 9/8/2022 NSR Permit)

### **Reporting and Notification Requirements**

272. The permittee shall furnish written notification to the Piedmont Regional Office of any recalculation of the TRE index value, reported semiannually in accordance with 40 CFR 60.665(h), for the Area 7 barometric condenser affected facility (as specified in Condition 222). Copies of written notifications are to be sent to:

Chief, Air Section  
United States Environmental Protection Agency  
Region III, Enforcement & Compliance Assurance Division  
Air, RCRA and Toxics Branch (3ED21)  
Four Penn Center  
1600 John F. Kennedy Boulevard  
Philadelphia, PA 19103-2852

(9VAC5-80-110, 40 CFR 60.665(l)(7), and Condition 259 of the 9/8/2022 NSR Permit)

273. Where the TRE value, calculated in accordance with Condition 262, is less than or equal to 1.0, the permittee shall notify the Piedmont Regional Office, within a week of that determination.  
(9VAC5-80-110, 40 CFR 60.664(g)(1), and Condition 251 of the 9/8/2022 NSR Permit)

274. The permittee shall furnish written notification to the Piedmont Regional Office of:

- a. The actual date on which modification of the crystallizers/purification systems (APT-22, 23, 24, and 25) commenced within 10 days after such date.
- b. The actual start-up date of the crystallizers/purification systems (APT-22, 23, 24, and 25) within 10 days after such date.
- c. The anticipated date of performance tests of the crystallizers/purification systems (APT-22, 23, 24, and 25) postmarked at least 30 days prior to such date.

Copies of written notifications are to be sent to:

Chief, Air Section  
United States Environmental Protection Agency  
Region III, Enforcement & Compliance Assurance Division  
Air, RCRA and Toxics Branch (3ED21)  
Four Penn Center  
1600 John F. Kennedy Boulevard  
Philadelphia, PA 19103-2852

(9VAC5-80-110, 40 CFR 60.7 and 60.8, and Conditions 260 of the 9/8/2022 NSR Permit)

275. The permittee shall furnish written notification to the Piedmont Regional Office of:
- a. The actual date on which modification of the washwater/wastewater concentrators (CL-12 and VT-394) commenced within 10 days after such date.
  - b. The actual start-up date of the washwater/wastewater concentrators (CL-12 and VT-394) within 10 days after such date.
  - c. The anticipated date of performance tests of the washwater/wastewater concentrators (CL-12 and VT-394) postmarked at least 30 days prior to such date.

Copies of written notifications are to be sent to:

Chief, Air Section  
United States Environmental Protection Agency  
Region III, Enforcement & Compliance Assurance Division  
Air, RCRA and Toxics Branch (3ED21)  
Four Penn Center  
1600 John F. Kennedy Boulevard  
Philadelphia, PA 19103-2852

(9VAC5-80-110, 40 CFR 60.7 and 60.8, and Condition 261 of the 9/8/2022 NSR Permit)

276. The permittee shall furnish written notification to the Piedmont Regional Office of:
- a. The actual date on which modification of the Area 7 barometric condenser (C-323) commenced within 10 days after such date.
  - b. The actual start-up date of the Area 7 barometric condenser (C-323) within 10 days after such date.
  - c. The anticipated date of performance tests of the Area 7 barometric condenser (C-323) postmarked at least 30 days prior to such date.

Copies of written notifications are to be sent to:

Chief, Air Section  
United States Environmental Protection Agency  
Region III, Enforcement & Compliance Assurance Division  
Air, RCRA and Toxics Branch (3ED21)  
Four Penn Center  
1600 John F. Kennedy Boulevard  
Philadelphia, PA 19103-2852

(9VAC5-80-110, 40 CFR 60.7 and 60.8, and Condition 262 of the 9/8/2022 NSR Permit)

277. The permittee shall report the results of any 40 CFR Part 60 Appendix A Method 9 opacity test performed as a result of Condition 261. If the test indicates the facility is out of compliance with an applicable standard contained in Conditions 257 or 258, the source shall also report the length of time associated with any exceedance of the standard and the corrective actions taken to correct the exceedance. This report shall be sent to the Piedmont Regional Office within seven days of the applicable test unless otherwise noted in Condition 628.  
(9VAC5-80-110)

#### **MON Notification and Reporting Requirements**

278. The permittee shall submit reports and notifications in accordance with 40 CFR 63.2515, 40 CFR 63.2520, and 40 CFR 63.1039.  
(9VAC5-80-110 and 40 CFR 63 Subpart FFFF)

#### **40 CFR 63 Subpart DDDDD (Boiler MACT) Requirements**

279. The permittee shall operate HE-221, HE-305, and BT-10 in compliance with all applicable requirements of 40 CFR 63 (MACT) Subparts A and DDDDD. These units are considered New Gas 1 units for the purposes of the MACT.  
(9VAC5-80-110 and 40 CFR 63.7499(l))
280. The permittee shall at all times, operate and maintain the Area 7 units (HE-221, HE-305, BT-10), including associated air pollution equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.  
(9VAC5-80-110 and 40 CFR 63.7500(a)(3))
281. The permittee shall conduct a tune-up of the Area 7 units (HE-221, HE-305, BT-10) once every five years in accordance with 40 CFR 63.7540(a)(10) and Table 3 to Subpart DDDDD of Part 63 to demonstrate continuous compliance. Subsequent tune-ups shall be conducted no later than 61 months from the previous tune-up. If the unit is not operating on the required date for a tune-up, then the tune-up must be conducted within 30 calendar days of re-startup. The tune-ups required shall consist of the following:
- a. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (permittee may delay the burner inspection until the next scheduled unit shutdown). At units where entry into a piece of process equipment or a storage vessel is required to complete the tune-up

inspections, inspections are required only during planned entries into the storage vessel or process equipment;

- b. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer’s specifications, if available;
- c. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (the inspection may be delayed until the next scheduled unit shutdown);
- d. Optimize total emissions of CO. This optimization should be consistent with the manufacturer’s specifications, if available, and with any NOx requirement to which the unit is subject;
- e. Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made); and
- f. Maintain on-site and submit, if requested by the Administrator, a report containing the information in §63.7540(a)(10)(vi)(A) through (C).

(9VAC5-80-110, 40 CFR 63.7500(a)(1), §63.7505(a), §63.7515(d), §63.7540(a)(10)(i through vi), §63.7540(a)(12), and Table 3 to Subpart DDDDD of Part 63, Item 1)

- 282. The permittee shall comply with the applicable General Provisions as specified in Table 10 to Subpart DDDDD of Part 63.  
(40 CFR 63.7565 and 9VAC5-80-110)

## **AREA 11 - AMMONIUM SULFATE PRODUCTION**

### **Limitations**

#### **Control Equipment Requirements**

- 283. Particulate matter emissions from the rotary dryer, RD-3N, shall be controlled by a wet scrubber (DC-7N). The liquid flow to the scrubber shall be maintained at all times. The permittee shall install, calibrate, and maintain a monitoring device which measures and permanently records the total pressure drop across the wet scrubber. The wet scrubber shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 264 of the 9/8/2022 NSR Permit)
- 284. Particulate matter emissions from the rotary dryer, RD-4, shall be controlled by a wet scrubber/mist eliminator (DC-11). The liquid flow to the scrubber shall be maintained at all times. The permittee shall install, calibrate, and maintain a monitoring device which continuously measures and permanently records the total pressure drop across the mechanical scrubber/mist eliminator. The scrubber shall maintain a minimum control efficiency of 99%. The scrubber/mist eliminator shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 265 of the 9/8/2022 NSR Permit)

285. Particulate matter emissions from the rotary dryer, RD-6, shall be controlled by a mechanical scrubber/mist eliminator (DC-12). The liquid flow to the scrubber shall be maintained at all times. The permittee shall install, calibrate, and maintain a monitoring device which continuously measures and permanently records the total pressure drop across the mechanical scrubber/mist eliminator. The scrubber shall maintain a minimum control efficiency of 99%. The scrubber/ mist eliminator shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 266 of the 9/8/2022 NSR Permit)
286. Particulate matter emissions from the rotary dryer, RD-7, shall be controlled by a wet scrubber (DC-29). The permittee shall maintain a device which measures the total pressure drop across the wet scrubber. The wet scrubber shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 267 of the 9/8/2022 NSR Permit)
287. Particulate matter emissions from the rotary dryer, RD-7N, shall be controlled by a wet scrubber (DC-29N). The liquid flow to the scrubber shall be maintained at all times. The permittee shall maintain a device which measures the total pressure drop across the wet scrubber. The wet scrubber shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 268 of the 9/8/2022 NSR Permit)
288. Sulfur dioxide emissions from rotary dryers RD-3N and RD-7N shall be controlled by the use of natural gas fuel.  
(9VAC5-80-110 and Condition 269 of the 9/8/2022 NSR Permit)
289. Particulate matter emissions from the Area 11 centrifuges shall be controlled by a wet cyclone scrubber (DC-25). The liquid flow to the scrubber shall be maintained at all times. The permittee shall install, calibrate, and maintain a monitoring device which continuously measures and permanently records the total pressure drop across the cyclone scrubber. The scrubber shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 270 of the 9/8/2022 NSR Permit)
290. Particulate matter emissions from the Process Area Buildings 12 and 12A ammonium sulfate screening and storage operations, including but not limited to, the four (4) triple deck screens (SC-65, SC-66, SC-67, SC-68N), the mid-grade conveyor (CO-225), the ammonium sulfate bulk storage bin/loading station (BN-11), the bulk storage bin conveyor (CO-226), and the bulk storage bin elevator (EL-25) shall be controlled by a wet scrubber (DC-21). The liquid flow to the scrubber shall be maintained at all times. The permittee shall install, calibrate, and maintain a monitoring device which continuously measures the total pressure drop across the wet scrubber. The wet scrubber shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 271 of the 9/8/2022 NSR Permit)
291. Fugitive dust from Process Area Buildings 12 and 12A ammonium sulfate storage shall be controlled by a baghouse (DC-31). The baghouse shall have a particulate matter removal efficiency of at least 99%. The baghouse shall be provided with adequate access for inspection. DC-31 may be retired, upon approval by the DEQ, if it can be demonstrated that its continued use has no effect on the control of particulate matter emissions from Buildings 12 and 12A.  
(9VAC5-80-110 and Condition 272 of the 9/8/2022 NSR Permit)

292. Particulate matter emissions from the Process Area Building 12B ammonium sulfate screening and storage operation shall be controlled by a wet scrubber (DC-21B). The liquid flow to the scrubber shall be maintained at all times. The permittee shall install, calibrate, and maintain a monitoring device which continuously measures the total pressure drop across the wet scrubber. The wet scrubber shall be provided with adequate access for inspection and shall be in operation when the process is operating. (9VAC5-80-110 and Condition 273 of the 9/8/2022 NSR Permit)
293. Fugitive particulate matter emissions from the ammonium sulfate handling and loading operation (ASHL) and (ASLB) shall be controlled by the application of Dustrol anti-caking agent (or equivalent) at all times, except for periods of maintenance, malfunction, and product quality adjustment, however, this downtime period shall not exceed 10% of the ammonium sulfate handling and loading operation's operating schedule. The Dustrol anti-caking agent (or equivalent) shall have an overall particulate matter emission reduction efficiency of at least 50%. The Dustrol anti-caking agent (or equivalent) application system shall be provided with adequate access for inspection and shall be in operation when the process is operating. (9VAC5-80-110 and Condition 274 of the 9/8/2022 NSR Permit)
294. Particulate matter emissions from the ammonium sulfate handling and loading operation ASHL-S/B (ship/barge loading) shall be controlled by an enclosed drop loading chute (or equivalent as approved by the Piedmont Regional Office). The enclosed drop loading chute (or equivalent as approved by the Piedmont Regional Office) shall have an overall particulate matter emission reduction efficiency of at least 90% for ship/barge loading. The enclosed drop loading chute (or equivalent as approved by the Piedmont Regional Office) shall be provided with adequate access for inspection and shall be in operation when the process is operating. Compliance with this condition shall be determined as specified in Conditions 338 and 350. (9VAC5-80-110 and Condition 275 of the 9/8/2022 NSR Permit)
295. Particulate matter emissions from all Area 11 modular cooling towers shall be controlled by limiting the total dissolved solids of the cooling water to 2,500 parts per million as an annual average (12-month rolling basis) and limiting each cooling tower's liquid drift to 0.001% or less. The Area 11 modular cooling towers shall be provided with adequate access for inspection. (9VAC5-80-110 and Condition 276 of the 9/8/2022 NSR Permit)

### **Throughput Limits**

296. The annual input of aqueous ammonium sulfate solution from Area 8/16 Crude Caprolactam Production and other sources to Area 11 Ammonium Sulfate Production shall not exceed 35,340 Area 11 production units (as ammonium sulfate product), calculated monthly as the sum of each previous consecutive 12-month period. (9VAC5-80-110 and Condition 277 of the 9/8/2022 NSR Permit)
297. The annual input of ammonium sulfate to RD-3N shall not exceed 16,302 Area 11 production units, calculated monthly as the sum of each previous consecutive 12-month period. (9VAC5-80-110 and Condition 278 of the 9/8/2022 NSR Permit)
298. The annual input of ammonium sulfate to RD-4 shall not exceed 16,302 Area 11 production units, calculated monthly as the sum of each previous consecutive 12-month period. (9VAC5-80-110 and Condition 279 of the 9/8/2022 NSR Permit)

299. The annual input of ammonium sulfate to RD-6 shall not exceed 11,913 Area 11 production units, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 280 of the 9/8/2022 NSR Permit)
300. The annual input of ammonium sulfate to RD-7 shall not exceed 11,913 Area 11 production units, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 281 of the 9/8/2022 NSR Permit)
301. The annual input of ammonium sulfate to RD-7N shall not exceed 16,302 Area 11 production units, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 282 of the 9/8/2022 NSR Permit)
302. The annual throughput of natural gas to RD-3N shall not exceed 65.7 MMscf/year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 283 of the 9/8/2022 NSR Permit)
303. The combined annual throughput of natural gas to RD-3N, RD-4, RD-6, RD-7, and RD-7N shall not exceed 278.8 MMscf/year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 284 of the 9/8/2022 NSR Permit)
304. The annual input of ammonium sulfate (all grades) to the Process Area Buildings 12 and 12A ammonium sulfate screening operations and storage operations shall not exceed 42,145 Area 11 production units and 45,656.2 Area 11 production units, respectively, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 285 of the 9/8/2022 NSR Permit)
305. The annual input of granular ammonium sulfate to the Process Area Building 12B ammonium sulfate screening and storage shall not exceed 35,402 Area 11 production units, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 286 of the 9/8/2022 NSR Permit)
306. The annual throughput of ammonium sulfate to rail car, truck, and ship/barge (ASHL-R, ASHL-T, and ASHL-S/B), combined, calculated monthly as the sum of each previous consecutive 12-month period, shall not exceed:
- |                |                               |
|----------------|-------------------------------|
| All grades     | 265,966 Area 11 loading units |
| Standard grade | 137,176 Area 11 loading units |
- (9VAC5-80-110 and Condition 287 of the 9/8/2022 NSR Permit)
307. The annual throughput of ammonium sulfate to the ship/barge section of the ammonium sulfate handling and loading operation (ASHL-S/B), calculated monthly as the sum of each previous consecutive 12-month period, shall not exceed:

All grades 166,066 Area 11 loading units

Standard grade 103,426 Area 11 loading units

(9VAC5-80-110 and Condition 288 of the 9/8/2022 NSR Permit)

308. The annual throughput of ammonium sulfate transferred from process area storage buildings 12/12A/12B to pier storage buildings 40/41/42 (Bldg 12-40/41/42), calculated monthly as the sum of each consecutive 12-month period, shall not exceed:

All grades 179,566 Area 11 loading units

Standard grade 108,151 Area 11 loading units

(9VAC5-80-110 and Condition 289 of the 9/8/2022 NSR Permit)

309. The annual throughput of ammonium sulfate transferred from pier building 41 or 42 to pier building 40 (Bldg 41/42-40), calculated monthly as the sum of each previous consecutive 12-month period, shall not exceed:

All grades 33,513 Area 11 loading units

Standard grade 21,743 Area 11 loading units

(9VAC5-80-110 and Condition 290 of the 9/8/2022 NSR Permit)

310. The annual throughput of ammonium sulfate transferred from pier storage buildings 40, 41, and 42 to process area storage buildings 12, 12A, and 12B (ASLB), calculated monthly as the sum of each consecutive 12-month period, shall not exceed:

All grades 7,425 Area 11 loading units

Standard grade 2,025 Area 11 loading units

(9VAC5-80-110 and Condition 291 of the 9/8/2022 NSR Permit)

**Emission Limitations**

311. Emissions from the operation of the Area 11 ammonium sulfate dryer designated RD-3N shall not exceed 0.3 pounds of particulate matter per ton of ammonium sulfate produced.  
(9VAC5-80-110, 40 CFR 60.422, and Condition 292 of the 9/8/2022 NSR Permit)

312. Emissions from the operation of the Area 11 ammonium sulfate dryer designated RD-4 shall not exceed 0.3 pounds of particulate matter per ton of ammonium sulfate produced.  
(9VAC5-80-110, 40 CFR 60.422, and Condition 293 of the 9/8/2022 NSR Permit)

313. Emissions from the operation of the Area 11 ammonium sulfate dryer designated RD-6 shall not exceed 0.3 pounds of particulate matter per ton of ammonium sulfate produced.  
 (9VAC5-80-110, 40 CFR 60.422, and Condition 294 of the 9/8/2022 NSR Permit)
314. Emissions from the operation of the Area 11 ammonium sulfate dryer designated RD-7N shall not exceed 0.3 pounds of particulate matter per ton of ammonium sulfate produced.  
 (9VAC5-80-110, 40 CFR 60.422, and Condition 295 of the 9/8/2022 NSR Permit)
315. Emissions from the operation of the Area 11 ammonium sulfate dryer designated RD-3N shall not individually exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	3.8	16.3
PM <sub>10</sub>	5.2	22.3
PM <sub>2.5</sub>	2.7	11.6
Nitrogen Oxides (as NO <sub>2</sub> )	0.5	1.0
Carbon Monoxide	3.0	6.6
Volatile Organic Compounds	4.8	20.4

(9VAC5-80-110 and Condition 296 of the 9/8/2022 NSR Permit)

316. Emissions from the operation of the Area 11 ammonium sulfate dryer designated RD-4 shall not individually exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	3.8	16.3
PM <sub>10</sub>	5.2	22.3
PM <sub>2.5</sub>	2.7	11.6
Nitrogen Oxides (as NO <sub>2</sub> )	1.1	4.8
Carbon Monoxide	0.92	4.1
Volatile Organic Compounds	4.8	20.4

(9VAC5-80-110 and Condition 297 of the 9/8/2022 NSR Permit)

317. Emissions from the operation of the Area 11 ammonium sulfate dryer designated RD-6 shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	2.8	11.9
PM <sub>10</sub>	3.8	16.3
PM <sub>2.5</sub>	2.0	8.5
Nitrogen Oxides (as NO <sub>2</sub> )	0.44	1.9
Carbon Monoxide	0.37	1.7
Volatile Organic Compounds	3.5	14.9

(9VAC5-80-110 and Condition 298 of the 9/8/2022 NSR Permit)

318. Emissions from the operation of the Area 11 ammonium sulfate dryer designated RD-7 shall not individually exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	2.8	11.9
PM <sub>10</sub>	3.8	16.3
PM <sub>2.5</sub>	2.0	8.5
Nitrogen Oxides (as NO <sub>2</sub> )	0.8	3.5
Carbon Monoxide	0.67	3.0
Volatile Organic Compounds	3.5	14.9

(9VAC5-80-110 and Condition 299 of the 9/8/2022 NSR Permit)

319. Emissions from the operation of the Area 11 ammonium sulfate dryer designated RD-7N shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	3.8	16.3
PM <sub>10</sub>	5.2	22.3
PM <sub>2.5</sub>	2.7	11.6
Nitrogen Oxides (as NO <sub>2</sub> )	0.5	2.0
Carbon Monoxide	4.4	19.1
Volatile Organic Compounds	4.84	20.4

(9VAC5-80-110 and Condition 300 of the 9/8/2022 NSR Permit)

320. Regardless of the emission limits imposed by Conditions 315-318 of this permit, total emissions from the operation of the Area 11 ammonium sulfate dryers designated RD-3N, RD-4, RD-6, and RD-7 (or RD-7N) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Tons/year</b>
PM (filterable only)	42.2
PM <sub>10</sub>	57.7
PM <sub>2.5</sub>	30.0
Nitrogen Oxides (as NO <sub>2</sub> )	11.4
Carbon Monoxide	29.1
Volatile Organic Compounds	44.3

(9VAC5-80-110 and Condition 301 of the 9/8/2022 NSR Permit)

321. Emissions from the operation of the Process Area Building 12 and 12A ammonium sulfate screening and storage operation, as exhausted through DC-21, shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	4.2	10.3
PM <sub>10</sub>	4.2	10.3
PM <sub>2.5</sub>	1.4	3.3

(9VAC5-80-110 and Condition 302 of the 9/8/2022 NSR Permit)

322. Emissions from the operation of the Process Area Building 12 and 12A ammonium sulfate storage, as exhausted through DC-31, shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	1.0	2.8
PM <sub>10</sub>	1.0	2.8
PM <sub>2.5</sub>	1.0	2.8

(9VAC5-80-110 and Condition 303 of the 9/8/2022 NSR Permit)

323. Fugitive emissions from the operation of the Process Area Buildings 12 and 12A ammonium sulfate screening and storage operation shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	4.6	8.9
PM <sub>10</sub>	2.3	4.4
PM <sub>2.5</sub>	2.3	4.4

(9VAC5-80-110 and Condition 304 of the 9/8/2022 NSR Permit)

324. Emissions from the operation of the Process Area Building 12B granular ammonium sulfate screening and storage operation, as exhausted through DC-21B, shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	1.0	3.1
PM <sub>10</sub>	1.0	3.1
PM <sub>2.5</sub>	0.33	0.98

(9VAC5-80-110 and Condition 305 of the 9/8/2022 NSR Permit)

325. Fugitive emissions from the operation of the Process Area Building 12B granular ammonium sulfate screening and storage operation shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	0.79	2.4
PM <sub>10</sub>	0.47	1.4
PM <sub>2.5</sub>	0.47	1.4

(9VAC5-80-110 and Condition 306 of the 9/8/2022 NSR Permit)

326. Fugitive emissions from the operation of all ammonium sulfate handling and loading operations (ASHL-R, ASHL-T, ASHL-S/B, Bldg 12-40/41/42, Bldg 41/42-40, and ASLB, combined) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	89.67	86.92
PM <sub>10</sub>	44.84	43.46
PM <sub>2.5</sub>	13.45	13.04

(9VAC5-80-110 and Condition 307 of the 9/8/2022 NSR Permit)

327. Emissions from the operation of the Area 11 centrifuges (A11CTF), as exhausted through DC-25, shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	0.4	1.3
PM <sub>10</sub>	1.0	2.9
PM <sub>2.5</sub>	0.8	2.4
Volatile Organic Compounds	3.1	7.64

(9VAC5-80-110 and Condition 308 of the 9/8/2022 NSR Permit)

328. Emissions from the operation of all Area 11 modular cooling towers shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	0.2	0.8
PM <sub>10</sub>	0.1	0.2
PM <sub>2.5</sub>	0.1	0.2

(9VAC5-80-110 and Condition 309 of the 9/8/2022 NSR Permit)

329. Emissions from the operation of Area 11 Ammonium Sulfate Production (inclusive of all emission units specified in the Area 11 section of the equipment list in the Introduction of this permit) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Tons/year</b>
Volatile Organic Compounds	56.73

(9VAC5-80-110 and Condition 310 of the 9/8/2022 NSR Permit)

330. Visible Emissions from the Area 11 ammonium sulfate dryer designated RD-3N shall not exceed 15 percent opacity as determined by EPA Method 9 (reference 40 CFR Part 60, Appendix A).  
(9VAC5-80-110, 40 CFR 60.422, and Condition 313 of the 9/8/2022 NSR Permit)

331. Visible Emissions from the Area 11 ammonium sulfate dryer RD-4 shall not exceed 15 percent opacity as determined by EPA Method 9 (reference 40 CFR Part 60 Appendix A).  
(9VAC5-80-110, 40 CFR 60.422, and Condition 311 of the 9/8/2022 NSR Permit)

332. Visible Emissions from the Area 11 ammonium sulfate dryer RD-6 shall not exceed 15 percent opacity as determined by EPA Method 9 (reference 40 CFR Part 60 Appendix A).  
(9VAC5-80-110, 40 CFR 60.422, and Condition 312 of the 9/8/2022 NSR Permit)

333. Visible Emissions from the Area 11 ammonium sulfate dryer designated RD-7N shall not exceed 15 percent opacity as determined by EPA Method 9 (reference 40 CFR Part 60, Appendix A).  
(9VAC5-80-110, 40 CFR 60.422, and Condition 314 of the 9/8/2022 NSR Permit)
334. Visible emissions from the operation of DC-21 shall not exceed 20 percent opacity except for one six-minute period in any one hour of not more than 60 percent opacity as determined by EPA Method 9 (reference 40 CFR 60 Appendix A).  
(9VAC5-80-110 and Condition 315 of the 9/8/2022 NSR Permit)
335. Visible emissions from the operation of DC-21B shall not exceed 20 percent opacity except for one six-minute period in any one hour of not more than 30 percent opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A).  
(9VAC5-80-110 and Condition 316 of the 9/8/2022 NSR Permit)
336. Visible emissions from the operation of DC-31 shall not exceed 20 percent opacity except for one six-minute period in any one hour of not more than 30 percent opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A).  
(9VAC5-80-110 and Condition 317 of the 9/8/2022 NSR Permit)
337. Visible emissions from the operation of the Area 11 centrifuges (A11CTF), as exhausted through DC-25, shall not exceed 20 percent opacity except for one six-minute period in any one hour of not more than 30 percent opacity as determined by EPA Method 9 (reference 40 CFR 60 Appendix A).  
(9VAC5-80-110 and Condition 318 of the 9/8/2022 NSR Permit)
338. Visible emissions from the operation of the ammonium sulfate handling and loading operation (ship/barge loading) shall not exceed 10 percent opacity as determined by EPA Method 9 (reference 40 CFR 60 Appendix A).  
(9VAC5-80-110 and Condition 319 of the 9/8/2022 NSR Permit)
339. Excluding the equipment referenced in Conditions 330-338, no owner or other person shall cause or permit to be discharged into the atmosphere from any affected facility any visible emissions which exhibit greater than 20% opacity, except for one six-minute period in any one hour of not more than 30% opacity. Failure to meet the requirements of this section because of the presence of water vapor shall not be a violation of this condition.  
(9VAC5-50-80 and 9VAC5-80-110)

## Monitoring

340. The permittee shall install, calibrate, and maintain monitoring devices which continuously measure and permanently record the scrubber liquid flow rate for the wet scrubber and the total pressure drop across the scrubber/mist eliminator (DC-7N) controlling emissions from the rotary dryer, RD-3N. The permittee shall maintain the total pressure drop and the scrubber liquid flow rate for DC-7N necessary to demonstrate compliance with the requirements of Condition 283. The devices shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110, 40 CFR 60.423(b), and Condition 264 of the 9/8/2022 NSR Permit )

341. The permittee shall install, calibrate, and maintain monitoring devices which continuously measure and permanently record the scrubber liquid flow rate for the wet scrubber and the total pressure drop across the scrubber/mist eliminator (DC-11) controlling emissions from the rotary dryer, RD-4. The permittee shall maintain the total pressure drop and the scrubber liquid flow rate for DC-11 necessary to demonstrate compliance with the requirements of Condition 284. The devices shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110, 40 CFR 60.423(b) and Condition 265 of the 9/8/2022 NSR Permit)
342. The permittee shall install, calibrate, and maintain monitoring devices which continuously measure and permanently record the scrubber liquid flow rate and the total pressure drop across the mechanical scrubber/mist eliminator (DC-12) controlling emissions from the rotary dryer, RD-6. The permittee shall maintain the total pressure drop and the scrubber liquid flow rate for DC-12 necessary to demonstrate compliance with the requirements of Condition 285. The devices shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110, 40 CFR 60.423(b) and Condition 266 of the 9/8/2022 NSR Permit)
343. The permittee shall install, calibrate, and maintain monitoring devices which measure the scrubber liquid flow rate and the total pressure drop across the wet scrubber (DC-29) controlling emissions from the rotary dryer, RD-7. The devices shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 267 of the 9/8/2022 NSR Permit)
344. The permittee shall install, calibrate, and maintain monitoring devices which continuously measure and permanently record the scrubber liquid flow rate and the total pressure drop across the Mechanical scrubber/mist eliminator (DC-29N) controlling emissions from the rotary dryer, RD-7N. The permittee shall maintain the total pressure drop and the scrubber liquid flow rate for DC-12 necessary to demonstrate compliance with the requirements of Condition 287. The devices shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110, 40 CFR 60.423(b) and Condition 268 of the 9/8/2022 NSR Permit)
345. The permittee shall install, calibrate, and maintain monitoring devices which continuously measure and permanently record the scrubber liquid flow rate and the total pressure drop across the wet cyclone scrubber (DC-25) controlling emissions from the Area 11 centrifuges (A11CTF). The devices shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 270 of the 9/8/2022 NSR Permit)
346. The permittee shall install, calibrate, and maintain monitoring devices which continuously measure and permanently record the scrubber liquid flow rate and the total pressure drop across the wet scrubber (DC-21B) controlling emissions from Process Area Building 12B. The devices shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 273 of the 9/8/2022 NSR Permit)
347. The permittee shall install, calibrate, maintain, and operate a flow monitoring device or weight scale that can be used to determine the mass flow rate of the ammonium sulfate production from the dryer process. The monitoring device shall have an accuracy of plus or minus five percent (+5%) over its range. The device shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110, 40 CFR 60.423(a), and Condition 323 of the 9/8/2022 NSR Permit)

348. The permittee shall install, calibrate and maintain monitoring devices which continuously measure the scrubber liquid flow rate and the total pressure drop across the wet scrubber (DC-21) controlling emissions from Process Area Buildings 12 and 12A ammonium sulfate screening and storage operations, including but not limited to the four (4) triple deck screens(SC-65, SC-66, SC-67, 68N), the mid-grade conveyor (CO-225), the ammonium sulfate bulk storage bin/loading station (BN-11), the bulk storage bin conveyor (CO-226), and the bulk storage bin elevator (EL-25). The device shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 271 of the 9/8/2022 NSR Permit)
349. The permittee shall maintain a device to continuously measure and record the differential pressure across the baghouse (DC-31) controlling fugitive dust from Process Area Buildings 12 and 12A ammonium sulfate storage. The device shall be provided with adequate access for inspection and shall be in operation when the process is operating. If DEQ approves the retirement of the baghouse, this condition is void.  
(9VAC5-80-110)
350. The permittee shall maintain a log of each ammonium sulfate handling and loading operation (ship/barge loading) loading event including verification that the enclosed drop loading chute (or equivalent) is installed and in good condition prior to each loading event.  
(9VAC5-80-110 and Condition 325 of the 9/8/2022 NSR Permit)
351. The permittee shall visually observe the ammonium sulfate handling and loading operation (ship/barge loading) at least once each operating week for at least a brief time period to determine compliance with the visible emission standard of Condition 338 (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on the emissions unit. Each observation indicating visible emissions in excess of the Condition 338 visible emission standards shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded. After 12 months of operation, the permittee may reduce the frequency of the visible emission observations to once per operating month if compliance has been regularly demonstrated and if approved by the Piedmont Regional Office.  
(9VAC5-80-110 and Condition 324 of the 9/8/2022 NSR Permit)
352. The stacks of the Ammonium Sulfate dryers RD-3N, RD-4, RD-6 and RD-7 (or RD-7N) and emission points DC-21, DC-21B, DC-25, and DC-31 shall be observed visually at least once each operating month for at least a brief time period to determine which emissions units have normal visible emissions (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on the emissions unit. Each emissions unit observed having above normal visible emissions shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.  
(9VAC5-80-110)

## **Recordkeeping**

353. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to:

- a. The annual production of standard, granular and total ammonium sulfate, calculated monthly as the sum of each previous consecutive 12-month period.
- b. The maximum hourly production capacity of ammonium sulfate through each ammonium sulfate dryer.
- c. The annual throughput of ammonium sulfate for each operation subject a throughput limit in Conditions 296-310 (standard and total), calculated monthly as the sum of each previous consecutive 12-month period.
- d. The combined annual natural gas usage, in thousands of standard cubic feet, by the ammonium sulfate dryers (RD-3N, RD-4, RD-6, RD-7, and RD-7N), calculated monthly as the sum of each previous consecutive 12-month period.
- e. The annual natural gas usage per dryer, in millions of standard cubic feet, by ammonium sulfate dryers RD-3N and RD-7N, calculated monthly as the sum of each previous consecutive 12-month period.
- f. Emission factors and any other information necessary to demonstrate compliance with the emission limits of Conditions 315-329.
- g. Copies of all initial performance tests performed on RD-3N, RD-4, RD-6, RD-7N, DC-25, and DC-31. Copies of all Visible Emissions Evaluations performed on each of these units, and copies of all Visible Emissions Evaluations performed on DC-21B.
- h. The annual percentage of time that the Dustrol (or equivalent) anti-caking agent application system was in operation, calculated monthly as the sum of each previous consecutive 12-month period.
- i. Annual average cooling water total dissolved solids records and design cooling water liquid drift records for the Area 11 modular cooling towers.
- j. The results of the monthly visible emission surveys required by Condition 352 and details of any corrective action taken as a result of these inspections.
- k. Records of the visible emission observations, visible emission evaluations and corrective actions required by Condition 351.
- l. Records of each ammonium sulfate handling and loading operation (ship/barge loading) ASHL-S/B loading event and enclosed drop loading chute (or equivalent) inspections required by Condition 350.
- m. Scheduled and unscheduled maintenance records for all process equipment and air pollution control equipment.
- n. Inventory of spare parts to minimize durations of air pollution control equipment breakdowns.
- o. Written operating procedures for all process equipment and air pollution control equipment.
- p. Operator training records.

These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years.

(9VAC5-80-110 and Condition 327 of the 9/8/2022 NSR Permit)

## Testing

354. Initial performance tests shall be conducted for particulate matter from RD-7N/DC-29N to determine compliance with the emission standard contained in Condition 319. The tests shall be performed within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. Tests shall be conducted and set forth in 9VAC5-50-30, and the test methods and procedures in each applicable subpart listed in 9VAC5-50-410. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Piedmont Regional Office within 60 days after the test and shall conform to the test report format enclosed with this permit. (9VAC5-80-110 and Condition 320 of the 9/8/2022 NSR Permit)
355. Concurrently with the initial performance tests, Visible Emissions Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall also be conducted by the permittee on the following equipment: RD-7N/DC-29N. Each test shall consist of 30 sets of 24 consecutive observations (at 15 second intervals) to yield a six-minute average. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. The evaluation shall be performed, within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. Should conditions prevent concurrent opacity observations, the Piedmont Regional Office shall be notified in writing, within seven days, and visible emissions testing shall be rescheduled within 30 days. Rescheduled testing shall be conducted under the same conditions (as possible) as the initial performance tests. One copy of the test result shall be submitted to the Piedmont Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit. (9VAC5-80-110 and Condition 321 of the 9/8/2022 NSR Permit)
356. Visible Emissions Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall also be conducted by the permittee on the following equipment: DC-21B. Each test shall consist of 30 sets of 24 consecutive observations (at 15 second intervals) to yield a six-minute average. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. The evaluation shall be performed, within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. One copy of the test result shall be submitted to the Piedmont Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit. (9VAC5-80-110 and Condition 322 of the 9/8/2022 NSR Permit)

## Reporting and Notification Requirements

357. The permittee shall report the results of any 40 CFR Part 60 Appendix A Method 9 opacity test performed as a result of Conditions 351 or 352. If the test indicates the facility is out of compliance with any standard contained in Conditions 331-339, the source shall also report the length of time associated with any exceedance of the standard and the corrective actions taken to correct the exceedance. This report shall be

sent to the Piedmont Regional Office within seven days of the applicable test unless otherwise noted in Condition 628.  
(9VAC5-80-110)

358. The permittee shall furnish written notification to the Piedmont Regional Office of:
- a. The anticipated date that the operation of the ammonium sulfate dryer RD-7 will transition to the operation of the ammonium sulfate dryer RD-7N, postmarked at least 30 days prior to such date or as arranged with the Piedmont Regional Office.
  - b. The date the operation of the ammonium sulfate dryer RD-7 has transitioned to the operation of the ammonium sulfate dryer RD-7N, within 10 days after transitioning.
  - c. The anticipated date for conducting performance tests required by Conditions 355 and 356, at least 30 days prior to such date.
  - d. The actual date on which construction began of EV-New1, Building 12B, and DC-21B, within 10 days of such date.
  - e. The anticipated start-up date of EV-New1, Building 12B, and DC-21B postmarked not more than 60 days nor less than 30 days prior to such date.
  - f. The anticipated date of visible emissions evaluations of DC-21B, postmarked at least 30 days prior to such date.

(9VAC5-80-110 and Condition 326 of the 9/8/2022 NSR Permit)

## **SULFURIC ACID PLANT (SAP)**

### **Limitations**

#### **Control Equipment Requirements**

359. Sulfur dioxide emissions from the SAP shall be controlled by the sulfite scrubber (TW-38). The permittee shall operate the sulfite scrubber in a manner consistent with the emission limits in Condition 380. The scrubber shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 328 of the 9/8/2022 NSR Permit)
360. Particulate matter emissions from the SAP shall be controlled by the mist eliminator (SE-105). The mist eliminator shall be equipped with a device to monitor the differential pressure through the mist eliminator when the sulfur burn rate is greater than or equal to 160 tons per day. The mist eliminator shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 329 of the 9/8/2022 NSR Permit)

361. Sulfur dioxide emissions from return acid storage tanks (VT-437, VT-438, VT-439, VT-746, and VT-747) shall be controlled by a scrubber (CL-71). CL-71 shall be equipped with a device to continuously monitor its scrubber liquid flow rate. CL-71 shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
 (9VAC5-80-110 and Condition 330 of the 9/8/2022 NSR Permit)

362. Sulfuric acid mist emissions from the oleum storage tanks shall be controlled by acid scrubbers, as follows:

Emission Unit ID	Pollution Control Device ID
VT-518	SE-141
VT-519	SE-141
VT-437	FS-3
VT-438	FS-3
VT-746	FS-3
VT-747	FS-3
VT-391	SE-72
VT-392	SE-72

Each scrubber shall be equipped with a device or devices to continuously monitor its scrubber liquid flow. The scrubbers specified in the above table shall be provided with adequate access for inspection and shall be in operation while the process is operating.  
 (9VAC5-80-110 and Condition 331 of the 9/8/2022 NSR Permit)

363. Sulfuric acid mist emissions from depressurizing rail cars and trucks after unloading oleum shall be controlled by scrubbers as follows:

Emission Unit ID	Pollution Control Device ID
RC-Unload (Depressurization at SAP location)	FS-3
RC-Unload (Depressurization at Marine Ops location)	SC-71
Truck-Unload (Depressurization at Marine Ops location)	SE-141

Each scrubber shall be equipped with a device to continuously monitor its scrubber liquid flow. The scrubbers specified in the above table shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
 (9VAC5-80-110 and Condition 332 of the 9/8/2022 NSR Permit)

364. Sulfur dioxide emissions from the return sulfuric acid tank truck loading (LR-1) and return sulfuric acid rail car loading (LR-2) shall be controlled by a scrubber (CL-71). The scrubber shall be equipped with a device to continuously monitor the scrubber liquid flow rate. The scrubber shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
 (9VAC5-80-110 and Condition 333 of the 9/8/2022 NSR Permit)

365. Sulfuric acid mist emissions from oleum truck loading (LR-5) and oleum rail car loading (LR-6) shall be controlled by submerged fill and a scrubber (FS-3). The scrubber shall be equipped with a device to continuously monitor its scrubber liquid flow. The scrubber shall be provided with adequate access for inspection and shall be in operation when the process is in operation.  
 (9VAC5-80-110 and Condition 334 of the 9/8/2022 NSR Permit)

## Throughput Limits

366. The annual input of sulfur to the Sulfuric Acid Plant (SAP) shall not exceed 1,600.0 sulfuric acid production input units, calculated monthly as the sum of each previous consecutive 12-month period. (9VAC5-80-110 and Condition 335 of the 9/8/2022 NSR Permit)
367. The combined annual throughput of return acid to storage tanks (VT-437, VT-438, VT-439, VT-746, and VT-747) shall not exceed 150,000 SAP tank units, calculated monthly as the sum of each previous consecutive 12-month period. (9VAC5-80-110 and Condition 336 of the 9/8/2022 NSR Permit)
368. The combined annual throughput of return acid to storage tanks (VT-518 and VT-519) during periods when VT-437, VT-438, VT-439, VT-746, and VT-747 storage capacity is insufficient shall not exceed 16,670 SAP tank units, calculated monthly as the sum of each previous consecutive 12-month period. (9VAC5-80-110 and Condition 337 of the 9/8/2022 NSR Permit)
369. The combined annual throughput of oleum to storage tanks (VT-518 and VT-519) shall not exceed 120,870 SAP tank units, calculated monthly as the sum of each previous consecutive 12-month period. (9VAC5-80-110 and Condition 338 of the 9/8/2022 NSR Permit)
370. The combined annual throughput of oleum to storage tanks (VT-437, VT-438, VT-746, and VT-747) shall not exceed 625,782 SAP tank units, calculated monthly as the sum of each previous consecutive 12-month period. (9VAC5-80-110 and Condition 339 of the 9/8/2022 NSR Permit)
371. The combined annual throughput of oleum to storage tanks (VT-391 and VT-392) shall not exceed 483,481 SAP tank units, calculated monthly as the sum of each previous consecutive 12-month period. (9VAC5-80-110 and Condition 340 of the 9/8/2022 NSR Permit)
372. The combined annual depressurization exhaust volume from venting rail cars after unloading oleum from rail cars (RC-Unload) and from venting trucks after unloading oleum from trucks (Truck-Unload) shall not exceed 40,792.2 SAP depressurization units, calculated monthly as the sum of each previous consecutive 12-month period. (9VAC5-80-110 and Condition 341 of the 9/8/2022 NSR Permit)
373. The combined annual throughput of return sulfuric acid to tank truck loading (LR-1) and rail car loading (LR-2) shall not exceed 327,600 SAP loading units, calculated monthly as the sum of each previous consecutive 12-month period. (9VAC5-80-110 and Condition 342 of the 9/8/2022 NSR Permit)
374. The combined annual throughput of sulfuric acid to tank truck loading (LR-3) and rail car loading (LR-4) shall not exceed 4,586,400 SAP loading units, calculated monthly as the sum of each previous consecutive 12-month period. (9VAC5-80-110 and Condition 343 of the 9/8/2022 NSR Permit)

375. The combined annual throughput of oleum to truck loading (LR-5) and oleum to rail car loading (LR-6) shall not exceed 936,000 SAP loading units, calculated monthly as the sum of each previous consecutive 12-month period.  
 (9VAC5-80-110 and Condition 344 of the 9/8/2022 NSR Permit)

**Emission Limitations**

376. The emission rate of sulfur dioxide from the operation of the SAP shall not exceed a mass emission rate of 4 pounds per ton of 100% sulfuric acid produced, calculated as a rolling 3-hour average.  
 (9VAC5-80-110, 40 CFR 60.82, and Condition 345 of the 9/8/2022 NSR Permit)

377. The emission rate of sulfur dioxide from the operation of the SAP shall not exceed a mass emission rate of 2.0 pounds per ton of 100% sulfuric acid produced. Compliance with this Condition shall be determined by the CEMS required by Condition 391 as a rolling 12-month average.  
 (9VAC5-80-110 and Condition 346 of the 9/8/2022 NSR Permit)

378. The emission rate of sulfuric acid mist from the SAP shall not exceed 0.15 pounds per ton of 100% sulfuric acid produced.  
 (9VAC5-80-110, 40 CFR 60.83(a)(1), and Condition 347 of the 9/8/2022 NSR Permit)

379. Visible Emissions from the SAP shall not exceed 10 percent opacity as determined by EPA Method 9. (Reference: 40 CFR, Part 60, Appendix A)  
 (9VAC5-80-110, 40 CFR 60.83(a)(2), and Condition 348 of the 9/8/2022 NSR Permit)

380. Visible emissions from each sulfur storage tank (VT-436, VT-441, VT-442 and VT-443) shall not exceed 10 percent opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A).  
 (9VAC5-80-110 and Condition 349 of the 9/8/2022 NSR Permit)

381. Emissions from the operation of the SAP (Stack ID #SK-1) shall not exceed the limits specified below:

Pollutant	Lb/hr	Tons/year
PM (filterable only)	2.2	8.2
PM <sub>10</sub>	7.2	30.1
PM <sub>2.5</sub>	7.2	30.1
Sulfuric Acid Mist	2.2	8.2
Sulfur Dioxide	264.0	200.0

(9VAC5-80-110 and Condition 350 of the 9/8/2022 NSR Permit)

382. Hourly sulfur dioxide emissions from the operation of the return sulfuric acid storage tanks, as exhausted through CL-71, shall not exceed the limits specified below:

Emission Unit ID	Hourly Emissions
VT-437 (Return Acid Storage)	0.86 lb/hr
VT-438 (Return Acid Storage)	0.86 lb/hr
VT-439 (Return Acid Storage)	0.86 lb/hr
VT-746 (Return Acid Storage)	0.86 lb/hr
VT-747 (Return Acid Storage)	0.86 lb/hr

(9VAC5-80-110 and Condition 351 of the 9/8/2022 NSR Permit)

383. Combined annual emissions from the operation of the return sulfuric acid storage tanks (VT-437, VT-438, VT-439, VT-746, VT-747), as exhausted through CL-71, shall not exceed the limits specified below:

Pollutant	Tons/year
Sulfur Dioxide	1.8

(9VAC5-80-110 and Condition 352 of the 9/8/2022 NSR Permit)

384. Combined emissions from the operation of storage tanks VT-518 and VT-519 in alternate return acid service shall not exceed the limits specified below:

Pollutant	Lb/hr	Tons/year
Sulfur Dioxide	8.56	1.98

(9VAC5-80-110 and Condition 353 of the 9/8/2022 NSR Permit)

385. Hourly sulfuric acid mist emissions from the operation of the return sulfuric acid storage tanks, sulfuric acid storage tanks, and oleum storage tanks shall not exceed the limits specified below:

Emission Unit ID	Hourly Emissions
VT-437 (Return Acid Storage)	0.00004 lb/hr
VT-438 (Return Acid Storage)	0.00004 lb/hr
VT-439 (Return Acid Storage)	0.00004 lb/hr
VT-746 (Return Acid Storage)	0.00004 lb/hr
VT-747 (Return Acid Storage)	0.00004 lb/hr
VT-440 (Sulfuric Acid Storage)	0.00003 lb/hr
VT-439 (Sulfuric Acid Storage)	0.00003 lb/hr
VT-438 (Sulfuric Acid Storage)	0.00003 lb/hr
VT-518 (Oleum Storage)	0.32 lb/hr
VT-519 (Oleum Storage)	0.32 lb/hr
VT-437 (Oleum Storage)	0.51 lb/hr
VT-438 (Oleum Storage)	0.51 lb/hr
VT-746 (Oleum Storage)	0.51 lb/hr
VT-747 (Oleum Storage)	0.51 lb/hr
VT-391 (Oleum Storage)	0.02 lb/hr
VT-392 (Oleum Storage)	0.02 lb/hr

(9VAC5-80-110 and Condition 354 of the 9/8/2022 NSR Permit)

386. Combined annual emissions from the operation of the return sulfuric acid storage tanks sulfuric acid storage tanks, and oleum storage tanks (VT-437, VT-439, VT-440, VT-518, VT-519, VT-438, VT-746, VT-747, VT-391, and VT-392) shall not exceed the limit specified below:

Pollutant	Tons/year
Sulfuric Acid Mist	1.2

(9VAC5-80-110 and Condition 355 of the 9/8/2022 NSR Permit)

387. Sulfuric acid mist emissions from depressurizing rail cars and trucks after unloading oleum shall not exceed the limits specified below:

Emission Units	Lb/hr	Tons/year
Rail Cars (SAP location)	0.03	
Rail Cars (Marine Ops Location)	0.03	
Trucks	0.01	
<b>Total</b>		0.033

(9VAC5-80-110 and Condition 356 of the 9/8/2022 NSR Permit)

388. Emissions from the operation of return sulfuric acid tank truck loading (LR-1) and return sulfuric acid rail car loading (LR-2) shall not exceed the limits specified below:

Pollutant	Lb/hr	Tons/year
Sulfur Dioxide	2.5 (each)	0.145 (total)

(9VAC5-80-110 and Condition 357 of the 9/8/2022 NSR Permit)

389. Emissions from the operation of oleum tank truck loading (LR-5) and oleum rail car loading (LR-6) shall not exceed the limits specified below:

Pollutant	Lb/hr	Tons/year
Sulfuric Acid Mist	0.32 (each)	0.053 (total)

(9VAC5-80-110 and Condition 358 of the 9/8/2022 NSR Permit)

### Monitoring

390. The permittee shall visually observe the SAP (Stack ID #SK-1) and each sulfur storage tank (VT-436, VT-441, VT-442 and VT-443) at least once each operating month for at least a brief time period to determine compliance with the visible emission standards of Conditions 379-380 (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on an emissions unit. Each observation indicating visible emissions in excess of a visible emission standard shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible

emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.

(9VAC5-80-110 and Condition 359 of the 9/8/2022 NSR Permit)

391. The permittee shall install, calibrate, maintain, and operate a continuous emission monitoring and recording system (CEMS) for the purpose of continuously monitoring sulfur dioxide emissions from the SAP (Stack ID #SK-1). The sulfur dioxide CEMS shall meet the requirements of 40 CFR 60.84(a) and 40 CFR 60 Appendix F and shall have a minimum uptime of 95% on a rolling annual basis, updated quarterly. The permittee shall establish a conversion factor for the purpose of converting the monitoring data into the units required by Condition 376. The conversion factor shall be determined, as a minimum, three times daily in accordance with the procedures of 40 CFR 60.84(b).  
(9VAC5-80-110, 40 CFR 60.84, and Condition 360 of the 9/8/2022 NSR Permit)

392. The mist eliminator (SE-105) used to control particulate matter emissions from the SAP shall be equipped with a device to continuously monitor and record the differential pressure through the mist eliminator when the sulfur burn rate is greater than or equal to 160 tons per day. Data from the continuous monitor shall be recorded as fifteen-minute readings and reduced to 3-hour averages on a rolling basis. A valid 3-hour average shall consist of no less than 90% valid readings. The continuous monitoring device shall be maintained and calibrated in accordance with the manufacturer's specifications (at least annually), and the results of the calibrations recorded. The mist eliminator shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 362 of the 9/8/2022 NSR Permit)

393. When the sulfur burn rate is greater than or equal to 160 tons per day, the mist eliminator (SE-105) shall operate at a minimum differential pressure as determined during the initial performance test (or a subsequent test approved by the Piedmont Regional Office). At the discretion of the Piedmont Regional Office, the minimum performance test rate may be supplemented by manufacturer's specifications or engineering evaluations. All 3-hour periods of operation calculated on a rolling average, in which the mist eliminator differential pressure is below the minimum value established in accordance with this condition, shall be recorded for each day and an explanation provided for the deviation. The permittee shall also implement corrective action as necessary to return the mist eliminator to proper operation.  
(9VAC5-80-110 and Condition 363 of the 9/8/2022 NSR Permit)

## Recordkeeping

394. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to:
- a. The annual input of sulfur to the SAP, calculated monthly as the sum of each previous consecutive 12-month period.
  - b. The annual production of sulfuric acid from the SAP, calculated monthly as the sum of each previous consecutive 12-month period.
  - c. The combined annual throughput of return acid to the storage tanks (VT-437, VT-438, VT-439, VT-746, and VT-747), calculated monthly as the sum of each previous consecutive 12-month period.

- d. The combined annual throughput of return acid to storage tanks (VT-518 and VT-519) during periods when available storage capacity in tanks VT-437, VT-438, VT-439, VT-746, and VT-747) is insufficient, calculated monthly as the sum of each previous consecutive 12-month period.
- e. The combined annual throughput of oleum to storage tanks (VT-518 and VT-519), calculated monthly as the sum of each previous consecutive 12-month period.
- f. The combined annual throughput of oleum to storage tanks (VT-437, VT-438, VT-746, and VT-747), calculated monthly as the sum of each previous consecutive 12-month period.
- g. The combined annual throughput of oleum to storage tanks (VT-391 and VT-392), calculated monthly as the sum of each previous consecutive 12-month period.
- h. The combined annual depressurization exhaust from venting rail cars after unloading oleum from rail cars (RC-Unload) and from venting trucks after unloading oleum from trucks (Truck-Unload), calculated monthly as the sum of each previous consecutive 12-month period.
- i. The combined annual throughput of return sulfuric acid to tank truck loading (LR-1) and rail car loading (LR-2), calculated monthly as the sum of each previous consecutive 12-month period.
- j. The combined annual throughput of sulfuric acid to tank truck loading (LR-3) and rail car loading (LR-4), calculated monthly as the sum of each previous consecutive 12-month period.
- k. The combined annual throughput of oleum to truck loading (LR-5) and rail car loading (LR-6), calculated monthly as the sum of each previous consecutive 12-month period.
- l. Records of scrubber liquid flow as required by Conditions 362, 363, and 365.
- m. Records of scrubber liquid flow rate as required by Conditions 361 and 364.
- n. Records of all conversion factors required by Condition 391 and the values from which they were computed.
- o. Emission factors, CEMS data and any other information necessary to demonstrate compliance with the emission limits of Conditions 381-389.
- p. The results of all initial performance tests and visible emission evaluations.
- q. Records of the monitoring data, calibration checks, deviations and corrective actions required by Conditions 391-393.
- r. Records of the visible emission observations, visible emission evaluations and corrective actions required by Condition 390.

These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years.

(9VAC5-80-110, 40 CFR 60.84(c), and Condition 364 of the 9/8/2022 NSR Permit)

## Reporting

395. The permittee shall submit excess emission reports for the CEMS required by Condition 391 to the Piedmont Regional Office within 30 days after the end of each calendar quarter. The periods of excess emissions are defined as any 3-hour period (or arithmetic average of three consecutive one-hour periods) where the integrated average sulfur dioxide emissions exceed the standard defined in Condition 376. Each quarterly excess emission report shall contain, at a minimum, the dates included in the calendar quarter and the following (additional details of the quarterly reports are to be arranged with the Piedmont Regional Office):
- A statement of the specific times when the 3-hour rolling average exceed the standard for SO<sub>2</sub>, the actual average at the time of the exceedance and the cause for the excess emissions.
  - A log of the CEMS downtime containing the date the monitor is unavailable, the beginning and ending times of the monitor downtime, a description of the problem, cause of the problem and the necessary corrective action to bring the monitor back into service.
  - The date and results of the last Relative Accuracy Test Audit or Cylinder Gas Audit.
  - A log of CEMS performance.
  - The number of hours the SAP plant operated during the quarter.

At a minimum, all one-hour averages shall be available on site at all times and shall be accessible for inspection by DEQ and shall be current for the most recent five (5) years.  
(9VAC5-80-110 and Condition 361 of the 9/8/2022 NSR Permit)

396. The permittee shall report the results of any 40 CFR Part 60 Appendix A Method 9 opacity test performed as a result of Condition 390. If the test indicates the facility is out of compliance with a standard contained in Conditions 379 or 380, the source shall also report the length of time associated with any exceedance of the standard and the corrective actions taken to correct the exceedance. This report shall be sent to the Piedmont Regional Office within seven days of the applicable test unless otherwise noted in Condition 628.  
(9VAC5-80-110)

## KELLOGG AMMONIA PLANT

### Limitations

### Control Equipment Requirements

397. Nitrogen oxide emissions from the Kellogg Ammonia Plant Combustion System (KAPCS-1) shall be controlled by operation of compressor GC-11 such that the combined purge stream from the ammonia synthesis loop is routed to the ammonia scrubber (TW-65) prior to combustion in the primary reformer process heater (FU-1). The combined purge flow to TW-65 shall be maintained at all times, except during start-up, shutdown, or malfunction. GC-11 shall be equipped with a device to continuously measure the pressure of the purge stream at the inlet of the compressor. The compressor shall be provided with adequate access for inspection and shall be in operation when the process is operating.  
(9VAC5-80-110 and Condition 365 of the 9/8/2022 NSR Permit)

398. The Kellogg primary reformer process heater (FU-1) shall be operated at all times with compressor GC-11 operating except during periods of start-up, shutdown, or malfunction. During periods of start-up, shutdown and malfunction, the permittee shall maintain records of the number of hours that FU-1 is in service and compressor GC-11 is not operating. The source shall report malfunctions in a manner consistent with Condition 629 of this permit.  
(9VAC5-80-110 and Condition 366 of the 9/8/2022 NSR Permit)
399. Particulate matter emissions from the Kellogg Cooling Tower (CLT-1) shall be controlled by limiting the total dissolved solids of the cooling water to 2,500 parts per million as an annual average (12-month rolling basis) and limiting each tower's liquid drift to 0.001% or less. CLT-1 shall be provided with adequate access for inspection.  
(9VAC5-80-110 and Condition 367 of the 9/8/2022 NSR Permit)

### **Operating Limitations**

400. The annual input of natural gas and Area-6 recovered gas as fuel to the Kellogg Ammonia Plant Combustion System (KAPCS-1) shall not exceed 812,520 Kellogg gas input units (based on 1000 BTU per standard cubic feet), calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 368 of the 9/8/2022 NSR Permit)
401. The annual input of natural gas as fuel to the ammonia converter startup heater (FU-5) shall not exceed 3,695 Kellogg heat input units (based on 1000 BTU per standard cubic feet), in order to define this unit as a limited use process heater under 40 CFR 63, Subpart DDDDD, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 369 of the 9/8/2022 NSR Permit)
402. The annual input of natural gas as a reactant for use in the ammonia production process at the M. W. Kellogg Ammonia Plant shall not exceed 1,162,000 Kellogg gas input units (based on 1000 BTU per standard cubic feet), calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 370 of the 9/8/2022 NSR Permit)
403. The annual emission rate of vented gas from VT-418, the carbon dioxide vent from the carbon dioxide scrubber towers in the Kellogg Ammonia Plant shall not exceed 100,575 Kellogg gas units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 371 of the 9/8/2022 NSR Permit)
404. The Kellogg desulfurization drum (CD-1) shall not exceed 0.27 Kellogg Desulfurization Units per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 372 of the 9/8/2022 NSR Permit)

### **Emission Limitations**

405. Emissions from the operation of the Kellogg Ammonia Plant Combustion System (KAPCS-1) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	1.78	6.95
PM <sub>10</sub>	7.14	27.82
PM <sub>2.5</sub>	7.14	27.82
Sulfur Dioxide	2.82	10.98
Nitrogen Oxides (as NO <sub>2</sub> )	517.0	552.6
Carbon Monoxide	37.56	146.4
Volatile Organic Compounds	1.3	5.2

(9VAC5-80-110 and Condition 373 of the 9/8/2022 NSR Permit)

406. Emissions from the operation of the Kellogg primary reformer cooling tower (CLT-1) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	0.75	3.29
PM <sub>10</sub>	0.11	0.49
PM <sub>2.5</sub>	0.11	0.49

(9VAC5-80-110 and Condition 374 of the 9/8/2022 NSR Permit)

407. Emissions from the operation of the carbon dioxide vent from the carbon dioxide stripper (VT-418) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Carbon Monoxide	29.6	99.0
Volatile Organic Compounds	23.3	41.1

(9VAC5-80-110 and Condition 375 of the 9/8/2022 NSR Permit)

408. Emissions from the operation of the Kellogg desulfurization drum (CD-1) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Carbon Monoxide	6600.0	3.07
Volatile Organic Compounds	3450.0	1.38

(9VAC5-80-110 and Condition 376 of the 9/8/2022 NSR Permit)

409. Emissions from the operation of the Kellogg condensate collection vent (VT-882) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Volatile Organic Compounds	0.30	0.01

(9VAC5-80-110 and Condition 377 of the 9/8/2022 NSR Permit)

410. No owner or other person shall cause or permit to be discharged into the atmosphere from any affected facility any visible emissions which exhibit greater than 20% opacity, except for one six-minute period in

any one hour of not more than 30% opacity. Failure to meet the requirements of this section because of the presence of water vapor shall not be a violation of this section.

(9VAC5-50-80 and 9VAC5-80-110)

## Monitoring

411. The Kellogg Ammonia Plant Combustion System (KAPCS-1) shall be observed visually at least once each operating month for at least a brief time period to determine which emissions units have normal visible emissions (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on the emissions unit. Each emissions unit observed having above normal visible emissions shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.  
(9VAC5-80-110)

412. The Kellogg purge gas compressor (GC-11) shall be equipped with a device to continuously measure the pressure of the purge stream at the inlet to the compressor.  
(9VAC5-80-110 and Condition 365 of the 9/8/2022 NSR Permit)

## Recordkeeping

413. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to:
- a. The annual production of ammonia from the Kellogg Ammonia Production Plant, calculated monthly as the sum of each previous consecutive 12-month period.
  - b. The maximum hourly production rate of ammonia from the Kellogg Ammonia Production Plant.
  - c. The annual input of natural gas as fuel to the ammonia converter startup heater (FU-5), calculated monthly as the sum of each previous consecutive 12-month period.
  - d. Annual average cooling water total dissolved solids records and design cooling water liquid drift records for the Kellogg Cooling Tower (CLT-1).
  - e. The date of any emissions from CD-1 and the number of hours these emissions occurred.
  - f. The annual total natural gas and Area 6 recovered gas usage, by the Kellogg Ammonia Production Plant as both reactant and fuel, calculated monthly as the sum of each previous consecutive 12-month period.
  - g. The annual total heat input to the Kellogg Ammonia Production Plant from all fuel, calculated monthly as the sum of each previous consecutive 12-month period.
  - h. The annual emission of NO<sub>x</sub> from the Kellogg Ammonia Plant Combustion System (KAPCS-1), calculated monthly as the sum of each previous consecutive 12-month period.

- i. Emission factors and any other information necessary to demonstrate compliance with the emission limits of Conditions 405-409.
- j. Records of the number of hours that FU-1 is in service and GC-11 is not operating during periods of start-up, shutdown, and malfunction.
- k. The results of the monthly visible emission surveys required by Condition 411 and details of any corrective action taken as a result of these inspections.
- l. Scheduled and unscheduled maintenance records for all process equipment and air pollution control equipment.
- m. Inventory of spare parts to minimize duration of air pollution control equipment breakdowns.
- n. Written operating procedures for all process equipment and air pollution control equipment.
- o. Operator training records.
- p. The annual throughput of vented gas from VT-418, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.

These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years.

(9VAC5-80-110 and Condition 379 of the 9/8/2022 NSR Permit)

### **Reporting and Notification Requirements**

414. The permittee shall furnish written notification to the Piedmont Regional Office of:

- a. The actual date on which construction of the forced draft fan (101BJ) and induced draft fan (101BJR) of the primary reformer commenced within 10 days after such date.
- b. The actual start-up date of the forced draft fan (101BJ) and induced draft fan (101BJR) of the primary reformer within 10 days after such date.

(9VAC5-80-110 and Condition 378 of the 9/8/2022 NSR Permit)

415. The permittee shall report the results of any 40 CFR Part 60 Appendix A Method 9 opacity test performed as a result of Condition 411. If the test indicates the facility is out of compliance with the standard contained in Condition 410, the source shall also report the length of time associated with any exceedance of the standard and the corrective actions taken to correct the exceedance. This report shall be sent to the Piedmont Regional Office within seven days of the applicable test unless otherwise noted in Condition 628. (9VAC5-80-110)

#### 40 CFR 63 Subpart DDDDD (Boiler MACT) Requirements

416. The permittee shall operate KAPCS-1 and FU-5 in compliance with all applicable requirements of 40 CFR 63 (MACT) Subparts A and DDDDD. These units are considered Gas 1 units (without oxygen trim systems) for the purposes of the MACT. FU-5 is a limited-use process heater.  
(9VAC5-80-110 and 40 CFR 63.7499(l)&(o))
417. The permittee shall at all times, operate and maintain the Kellogg Ammonia Plant Combustion System (FU-1, FU-2, FU-3, and FU-XX) and the ammonia converter startup heater (FU-5), including associated air pollution equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.  
(9VAC5-80-110 and 40 CFR 63.7500(a)(3))
418. The permittee shall conduct an annual tune-up of the boilers (FU-1, FU-2, FU-3, and FU-XX) in accordance with 40 CFR 63.7540(a)(10) and Table 3 to Subpart DDDDD of Part 63 to demonstrate continuous compliance. Subsequent tune-ups shall be conducted no later than 13 months from the previous tune-up. If the unit is not operating on the required date for a tune-up, then the tune-up must be conducted within 30 calendar days of re-startup.  
(9VAC5-80-110 and Table 3 to Subpart DDDDD of Part 63)
419. The permittee shall conduct a tune-up of the ammonia converter startup heater (FU-5) once every five years in accordance with 40 CFR 63.7540(a)(10) and Table 3 to Subpart DDDDD of Part 63 to demonstrate continuous compliance. Subsequent tune-ups shall be conducted no later than 61 months from the previous tune-up. If the unit is not operating on the required date for a tune-up, then the tune-up must be conducted within 30 calendar days of re-startup.  
(9VAC5-80-110 and Table 3 of Subpart DDDDD of Part 63)
420. The tune-ups required by Conditions 417 and 418 shall consist of the following:
- a. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (permittee may delay the burner inspection until the next scheduled unit shutdown). At units where entry into a piece of process equipment or a storage vessel is required to complete the tune-up inspections, inspections are required only during planned entries into the storage vessel or process equipment;
  - b. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available;
  - c. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (the inspection may be delayed until the next scheduled unit shutdown);
  - d. Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any NO<sub>x</sub> requirement to which the unit is subject;

- e. Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made); and
- f. Maintain on-site and submit, if requested by the Administrator, a report containing the information in §63.7540(a)(10)(vi)(A) through (C).

(9VAC5-80-110, 40 CFR 63.7500(a)(1), §63.7505(a), §63.7515(d), §63.7540(a)(10)(i through vi), §63.7540(a)(12), and Table 3 to Subpart DDDDD of Part 63, Items 1 and 3)

- 421. The permittee shall comply with the applicable General Provisions as specified in Table 10 to Subpart DDDDD of Part 63.  
(40 CFR 63.7565 and 9VAC5-80-110)

## **GIRDLER SYNTHESIS GAS PRODUCTION PLANT**

### **Limitations**

#### **Control Equipment Requirements**

- 422. Nitrogen Oxide emissions from FU-6N or FU-6B shall be controlled by the use of low-NO<sub>x</sub> burners. The low NO<sub>x</sub> burners shall be installed and operated in accordance with manufacturer's specifications.  
(9VAC5-80-110 and Condition 380 of the 9/8/2022 NSR Permit)
- 423. VOC emissions from the natural gas desulfurization drums (CD-3 and CD-4 **OR** CD-3B and CD-4B) shall be controlled by the use of non-regenerative adsorbent or an equivalent technology. The desulfurization drums shall be provided with adequate access for inspection.  
(9VAC5-80-110 and Condition #E.6 of the 3/26/1997 RACT Agreement)

#### **Throughput Limits**

- 424. The annual input of natural gas as fuel to the Girdler Synthesis Gas Plant (FU-6) shall not exceed 318,313.8 Girdler gas input units (@1000 BTU/standard cubic foot), calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 381 of the 9/8/2022 NSR Permit)
- 425. The annual input of natural gas as fuel to the expanded Girdler Synthesis Gas Plant (FU-6N) shall not exceed 595,350 Girdler gas input units (@1000 BTU/standard cubic foot) per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 382 of the 9/8/2022 NSR Permit)
- 426. The annual input of natural gas as fuel to the new (second) Girdler Synthesis Gas Plant (FU-6B) shall not exceed 421,950.9 Girdler gas input units (@1000 BTU/standard cubic foot) per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 383 of the 9/8/2022 NSR Permit)

- 427. The combined annual input of natural gas as fuel to the modified Girdler Synthesis Gas Operation (FU-6 and FU-6B) shall not exceed 595,350 Girdler gas input units (@1000 BTU/standard cubic foot) per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 384 of the 9/8/2022 NSR Permit)
- 428. The annual input of natural gas as a reactant for use in the synthesis gas production process at the Girdler Synthesis Gas Plant shall not exceed 676,053 Girdler gas input units (@1000 BTU/standard cubic foot), calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 385 of the 9/8/2022 NSR Permit)
- 429. The annual input of natural gas as a reactant for use in the synthesis gas production process at the expanded Girdler Synthesis Gas Plant (FU-6N) or the modified Girdler Synthesis Gas Operation (FU-6 and FU-6B) shall not exceed 1,190,700 Girdler gas input units, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 386 of the 9/8/2022 NSR Permit)
- 430. The Girdler desulfurization drums (CD-3, 4) shall not exceed 1.11 Girdler desulfurization units per year (combined), calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 387 of the 9/8/2022 NSR Permit)
- 431. The new Girdler desulfurization drums (CD-3B, 4B) shall not exceed 1.11 Girdler desulfurization units per year (combined), calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 388 of the 9/8/2022 NSR Permit)

**Emission Limitations**

- 432. Emissions from the operation of the Girdler primary reformer (FU-6) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	0.2	0.7
PM <sub>10</sub>	0.7	2.7
PM <sub>2.5</sub>	0.7	2.7
Sulfur Dioxide	0.3	1.1
Nitrogen Oxides (as NO <sub>2</sub> )	19.4	81.2
Carbon Monoxide	3.0	12.6
Volatile Organic Compounds	0.3	1.0

(9VAC5-80-110 and Condition 389 of the 9/8/2022 NSR Permit)

- 433. Emissions from the operation of the expanded Girdler primary reformer (FU-6N) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/MMBtu</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)		0.4	1.3
PM <sub>10</sub>		1.5	5.1
PM <sub>2.5</sub>		1.5	5.1
Sulfur Dioxide		0.6	2.1
Nitrogen Oxides (as NO <sub>2</sub> )	0.04	8.0	27.0
Carbon Monoxide		7.0	23.6
Volatile Organic Compounds		0.6	1.9

(9VAC5-80-110 and Condition 390 of the 9/8/2022 NSR Permit)

434. Emissions from the operation of the new Girdler primary reformer (FU-6B) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/MMBtu</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)		0.3	0.9
PM <sub>10</sub>		0.9	3.6
PM <sub>2.5</sub>		0.9	3.6
Sulfur Dioxide		0.4	1.4
Nitrogen Oxides (as NO <sub>2</sub> )	0.04	4.6	19.1
Carbon Monoxide		4.0	16.7
Volatile Organic Compounds		0.4	1.3

(9VAC5-80-110 and Condition 391 of the 9/8/2022 NSR Permit)

435. Total emissions from the operation of the modified Girdler Synthesis Gas Operation (FU-6 and FU-6B) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	0.4	1.3
PM <sub>10</sub>	1.5	5.1
PM <sub>2.5</sub>	1.5	5.1
Sulfur Dioxide	0.6	2.1
Nitrogen Oxides (as NO <sub>2</sub> )	23.9	93.8
Carbon Monoxide	7.0	23.6
Volatile Organic Compounds	0.6	1.9

(9VAC5-80-110 and Condition 392 of the 9/8/2022 NSR Permit)

436. Emissions from the operation of the Girdler desulfurization drums (CD-3, 4) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Carbon Monoxide	2,580.0	2.3
Volatile Organic Compounds	1,350	1.1

(9VAC5-80-110 and Condition 393 of the 9/8/2022 NSR Permit)

437. Emissions from the operation of the new Girdler desulfurization drums (CD-3B, 4B) shall not exceed the limits specified below:

Pollutant	Lb/hr	Tons/year
Carbon Monoxide	2,580.0	2.3
Volatile Organic Compounds	1,350	1.1

(9VAC5-80-110 and Condition 394 of the 9/8/2022 NSR Permit)

438. No owner or other person shall cause or permit to be discharged into the atmosphere from any affected facility any visible emissions which exhibit greater than 20% opacity, except for one six-minute period in any one hour of not more than 30% opacity. Failure to meet the requirements of this section because of the presence of water vapor shall not be a violation of this section.  
(9VAC5-50-80 and 9VAC5-80-110)

### Monitoring

439. The Girdler Primary Reformer FU-6 shall be observed visually at least once each operating month for at least a brief time period to determine which emissions units have normal visible emissions (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on the emissions unit. Each emissions unit observed having above normal visible emissions shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.  
(9VAC5-80-110)

### Recordkeeping

440. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to:
- a. The annual production of synthesis gas from the Girdler Synthesis Gas Plant (FU-6), the Expanded Girdler Synthesis Plant (FU-6N), or the Modified Girdler Synthesis Gas Operation (FU-6 and FU-6B), calculated monthly as the sum of each previous consecutive 12-month period.
  - b. The maximum hourly production rate of synthesis gas from either the Girdler Synthesis Gas Plant (FU-6), the Expanded Girdler Synthesis Plant (FU-6N), or the Modified Girdler Synthesis Gas Operation (FU-6 and FU-6B).
  - c. For CD-3 and CD-4, the adsorbent replacement dates and periods of usage.
  - d. The monthly and annual natural gas usage, in thousands of standard cubic feet, by the Girdler Synthesis Gas Plant (FU-6), the Expanded Girdler Synthesis Gas Plant (FU-6N), or the Modified Girdler Synthesis Gas Operation (FU-6 and FU-6B), as both reactant and fuel. The annual usage shall be calculated monthly as the sum of each previous consecutive 12-month period.
  - e. The annual emissions of each pollutant listed in Conditions 432-436 from FU-6, CD-3 and CD-4, calculated monthly as the sum of each previous consecutive 12-month period.

- f. Emission factors and any other information necessary to demonstrate compliance with the emission limits of Conditions 432-436.
- g. The results of the monthly visible emission surveys required by Condition 439 and details of any corrective action taken as a result of these inspections.

These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years.

(9VAC5-80-110 and Condition 397 of the 9/8/2022 NSR Permit)

## Testing

441. Initial performance tests shall be conducted for nitrogen oxides for the expanded Girdler primary reformer (FU-6N) or the new Girdler primary reformer (FU-6B), using EPA Reference Methods or equivalent methods approved by the Piedmont Regional Office, to determine compliance with the NOx emission limits in Conditions 433 and/or 434. Unless otherwise indicated by the Piedmont Regional Office, the tests shall be performed, and demonstrate compliance, within 180 days from the date of this permit. Tests shall be conducted and reported, and data reduced as set forth in Sections 9VAC5-50-30. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Piedmont Regional Office within 45 days after test completion and shall conform to the test report format enclosed with this permit.  
(9VAC5-80-110 and Condition 395 of the 9/8/2022 NSR Permit)

## Reporting and Notification Requirements

442. The permittee shall report the results of any 40 CFR Part 60 Appendix A Method 9 opacity test performed as a result of Condition 439. If the test indicates the facility is out of compliance with the standard contained in Condition 438, the source shall also report the length of time associated with any exceedance of the standard and the corrective actions taken to correct the exceedance. This report shall be sent to the Piedmont Regional Office within seven days of the applicable test unless otherwise noted in Condition 628.  
(9VAC5-80-110)
443. The permittee shall furnish written notification to the Piedmont Regional Office of:
- a. The anticipated date that the operation of the Girdler primary reformer (FU-6) transitioned to either the operation of the expanded Girdler primary reformer (FU-6N) or the modified Girdler primary reformer (FU-6 and FU-6B), postmarked at least 30 days prior to such date or as arranged with the Piedmont Regional Office.
  - b. The date the operation of FU-6 has transitioned to the operation of either the expanded Girdler primary reformer (FU-6N) or the modified Girdler primary reformer (FU-6 and FU-6B), within 10 days after transitioning.
  - c. The anticipated date for conducting performance tests required by Condition 441, at least 30 days prior to such date.

(9VAC5-80-110 and Condition 396 of the 9/8/2022 NSR Permit)

#### 40 CFR 63 Subpart DDDDD (Boiler MACT) Requirements

444. The permittee shall operate FU-6 or FU-6 and FU-6B (expanded Girdler) or FU-6N (new Girdler) in compliance with all applicable requirements of 40 CFR 63 (MACT) Subparts A and DDDDD. This unit is considered a Gas 1 units (without oxygen trim system) for the purposes of the MACT. (9VAC5-80-110 and 40 CFR 63.7499(l))
445. The permittee shall at all times, operate and maintain the Girdler heater (FU-6), including associated air pollution equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. (9VAC5-80-110 and 40 CFR 63.7500(a)(3))
446. The permittee shall conduct an annual tune-up of the Girdler heater (FU-6) in accordance with 40 CFR 63.7540(a)(10) and Table 3 to Subpart DDDDD of Part 63 to demonstrate continuous compliance. Subsequent tune-ups shall be conducted no later than 13 months from the previous tune-up. If the unit is not operating on the required date for a tune-up, then the tune-up must be conducted within 30 calendar days of re-startup. The tune-ups shall consist of the following:
- a. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (permittee may delay the burner inspection until the next scheduled unit shutdown). At units where entry into a piece of process equipment or a storage vessel is required to complete the tune-up inspections, inspections are required only during planned entries into the storage vessel or process equipment;
  - b. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer’s specifications, if available;
  - c. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (the inspection may be delayed until the next scheduled unit shutdown);
  - d. Optimize total emissions of CO. This optimization should be consistent with the manufacturer’s specifications, if available, and with any NOx requirement to which the unit is subject;
  - e. Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made); and
  - f. Maintain on-site and submit, if requested by the Administrator, a report containing the information in §63.7540(a)(10)(vi)(A) through (C).

(9VAC5-80-110, 40 CFR 63.7500(a)(1), §63.7505(a), §63.7515(d), §63.7540(a)(10)(i through vi), §63.7540(a)(12), and Table 3 to Subpart DDDDD of Part 63, Item 1)

447. The permittee shall comply with the applicable General Provisions as specified in Table 10 to Subpart DDDDD of Part 63.  
(40 CFR 63.7565 and 9VAC5-80-110)

## MISCELLANEOUS OPERATIONS

### Operating Limitations

448. The approved fuel for use in the flare (FLS-Misc) is natural gas.  
(9VAC5-80-110 and Condition 398 of the 9/8/2022 NSR Permit)
449. The annual input of natural gas as fuel to the flare (FLS-Misc) shall not exceed 4,667 flare gas heat input units (@ 1000 Btu/scf) per year, calculated monthly as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 399 of the 9/8/2022 NSR Permit)
450. The annual input of vapor to the flare (FLS-Misc) shall not exceed 30,000 tank venting units per year, calculated as the sum of each previous consecutive 12-month period.  
(9VAC5-80-110 and Condition 400 of the 9/8/2022 NSR Permit)

### Emission Limitations

451. Emissions from the operation of the flare (FLS-Misc) shall not exceed the limits specified below:

Pollutant	Lb/hr	Tons/year
PM (filterable only)	0.04	0.01
PM <sub>10</sub>	0.15	0.04
PM <sub>2.5</sub>	0.15	0.04
Sulfur Dioxide	0.06	0.02
Nitrogen Oxides (as NO <sub>2</sub> )	84.80	21.25
Carbon Monoxide	1.68	0.44
Volatile Organic Compounds	0.11	0.03

(9VAC5-80-110 and Condition 401 of the 9/8/2022 NSR Permit)

452. Visible emissions from the flare (FLS-Misc) shall not exceed 20% opacity, except for one six-minute period in any one hour of not more than 30% opacity. Test Method 22 in Appendix A of 40 CFR 60 shall be used to determine compliance with this visible emission requirement.  
(9VAC5-80-110 and 9VAC5-50-80)

### Monitoring

453. The permittee shall perform a monthly visual observation of the flare (FLS-Misc) for compliance with the opacity limit in Condition 452. If such periodic observations indicate any visible emissions, the permittee shall take appropriate action immediately to return the unit to normal operation such that no visible emissions exist. If such corrective action fails to eliminate visible emissions, the permittee shall conduct a visible emission evaluation (VEE) utilizing EPA Method 22 (reference 40 CFR 60, Appendix A). If a Method 22 evaluation and/or corrective action becomes necessary, the permittee shall record the details of the incident in a logbook. The logbook shall be kept on site and available for inspection by the DEQ for the

most recent five-year period. Anytime the monthly visible emissions observations show visible emissions, or when requested by the DEQ, the monitoring frequency shall be increased to once per week. Upon four consecutive weekly observations with no detectable visible emissions, the monitoring frequency will revert back to monthly.

(9VAC5-80-110)

## Recordkeeping

454. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to:

- a. The annual throughput of natural gas to the flare (FLS-MISC), calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.
- b. The annual input of vapor to the flare, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.
- c. Results of all visible emission evaluations.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.

(9VAC5-80-110 and Condition 403 of the 9/8/2022 NSR Permit)

## Reporting and Notification Requirements

455. The permittee shall furnish written notification to the Piedmont Regional Office of:

- a. The actual date on which construction of the Miscellaneous Operations commenced within 30 days of such date.
- b. The actual startup date of the flare (FLS-MISC) within 15 days of such date.

(9VAC5-80-110 and Condition 402 of the 9/8/2022 NSR Permit)

456. The permittee shall report the results of any 40 CFR Part 60 Appendix A Method 22 test performed as a result of Condition 453. If the test indicates the facility is out of compliance with the standard contained in Condition 452, the source shall also report the length of time associated with any exceedance of the standard and the corrective actions taken to correct the exceedance. This report shall be sent to the Piedmont Regional Office within seven days of the applicable test unless otherwise noted in Condition 628.  
(9VAC5-80-110)

## POWERHOUSE (FU-17, FU-18, FU-19, RB-1, RB-2, RB-3)

### Limitations

#### Control Requirements

457. Nitrogen Oxide (NO<sub>x</sub>) emissions from the FU-18 and FU-19 boilers shall be controlled by low NO<sub>x</sub> burners (LNB) with flue gas recirculation (FGR) to achieve an emission level for NO<sub>x</sub> of 0.036 lb/MMBtu when burning natural gas (30-day rolling average). The LNB shall be installed and operated in accordance with manufacturer’s specifications.  
 (9VAC5-80-110 and Condition 1 of the 4/24/2020 NSR Permit)
458. NO<sub>x</sub> emissions from the FU-17 boiler shall be controlled by LNB with FGR. The LNB shall be installed and operated in accordance with manufacturer’s specifications.  
 (9VAC5-80-110 and Condition 2 of the 4/24/2020 NSR Permit)
459. The following emission standards shall apply to NO<sub>x</sub> from the FU-17 boiler.
- a. When the FU-17 boiler is operating on a single fuel-firing scenario in the table below for at least 30 consecutive operating days, the FU-17 boiler shall achieve the corresponding emission limit on a 30-day rolling average, as follows:

<b>Fuel-firing scenario</b>	<b>NO<sub>x</sub> emission limit</b>	<b>Basis</b>
Natural gas	0.036 lb/MMBtu	9VAC5-50-260
Natural gas with Area 6 residue	0.188 lb/MMBtu	9VAC5-50-260
No. 2 oil	0.172 lb/MMBtu	9VAC5-50-260
No. 2 oil with Area 6 residue	0.20 lb/MMBtu	9VAC5-50-410

- b. When combusting a combination of natural gas, No. 2 oil, and Area 6 residue, NO<sub>x</sub> emissions from the FU-17 boiler shall not exceed the lesser of 0.20 lb/MMBtu or the value derived from the following formula on a 30-day rolling average basis:

where:

- A = Heat input from natural gas alone, in MMBtu, over the 30-day period
- B = Heat input from natural gas fired with Area 6 residue, in MMBtu, over the 30-day period
- C = Heat input from No. 2 oil alone, in MMBtu, over the 30-day period
- D = Heat input from No. 2 oil fired with Area 6 residue, in MMBtu, over the 30-day Period

and the NO<sub>x</sub> emission limit factors are:

- 0.036 lb/MMBtu for natural gas
- 0.188 lb/MMBtu for natural gas fired with Area 6 residue
- 0.172 lb/MMBtu for No. 2 oil
- 0.299 lb/MMBtu for No. 2 oil fired with Area 6 residue

These standards apply at all times, including periods of start-up, shutdown, and malfunction.

A new 30-day rolling average shall be calculated for each steam generating unit operating day as the average of all the hourly NO<sub>x</sub> emission data for the previous 30 steam generating unit operating days. (9VAC5-80-110, 40 CFR 60.44b(a), 60.44b(h), 40 CFR 60.44b(i), 40 CFR 60.46b(a), 40 CFR 60.46b(e)(3), and Condition 3 of the 4/24/2020 NSR Permit)

460. NO<sub>x</sub> emissions from the rental boilers (RB-1, RB-2, RB-3) shall be controlled by LNB with flue gas recirculation to achieve a NO<sub>x</sub> level of 0.036 lb/MMBtu when burning natural gas (30-day average). The LNB shall be installed and operated in accordance with manufacturer's specifications. In the event that the permittee is unable to obtain rental boilers equipped with LNB with flue gas recirculation, the rental boilers without LNB shall achieve a NO<sub>x</sub> emission level of no more than 0.1 lb/MMBtu (30-day average). (9VAC5-80-110 and Condition 4 of the 4/24/2020 NSR Permit)
461. PM-10, PM-2.5, CO, and VOC emissions from the boilers (FU-17, FU-18, FU-19, RB-1, RB-2, RB-3) shall be controlled by good combustion practices, operator training, and proper emission unit design, construction, and maintenance. Boiler operators shall be trained in the proper operation of all such equipment. Training shall consist of a review and familiarization of the manufacturer's operating instructions, at a minimum. The permittee shall maintain records of the required training including a statement of time, place and nature of training provided. The permittee shall have available good written operating procedures and a maintenance schedule for the boiler. These procedures shall be based on the manufacturer's recommendations and/or best engineering practices, at a minimum. All records required by this condition shall be kept on site and made available for inspection by the DEQ. (9VAC5-80-110 and Condition 5 of the 4/24/2020 NSR Permit)
462. Sulfur Dioxide (SO<sub>2</sub>) emissions from the FU-17 boiler shall be controlled by the use of low-sulfur fuels such as pipeline quality natural gas and distillate oil with a sulfur content of no more than 0.021% (by weight) per shipment. (9VAC5-80-110 and Condition 6 of the 4/24/2020 NSR Permit)

### **Operating Limitations**

463. The approved fuel for the FU-18 and FU-19 boilers and rental boilers (RB-1, RB-2, RB-3) is natural gas. A change in the fuel shall be considered a change in the method of operation of the boilers and may require a new or amended permit. However, if a change in the fuel is not subject to new source review permitting requirements, this condition should not be construed to prohibit such a change. (9VAC5-80-110 and Condition 7 of the 4/24/2020 NSR Permit)
464. The approved fuels for the FU-17 boiler are natural gas, either alone or combined with Area 6 residue, or #2 distillate fuel oil, either alone or combined with Area 6 residue, or for flush oil. This condition provides for the combustion of Area 6 residue only to the extent that Area 6 residue is non-hazardous secondary material when combusted in FU-17 and the permittee maintains records as required in Condition 490.1. A change in

the fuel shall be considered a change in the operation of the FU-17 boiler and may require a new or amended permit. However, if a change in the fuel is not subject to new source review permitting requirements, this condition should not be construed to prohibit such a change.  
(9VAC5-80-110 and Condition 8 of the 4/24/2020 NSR Permit)

465. The FU-18 and FU-19 boilers each shall consume no more than  $3.01 \times 10^9$  cubic feet of natural gas per year, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.  
(9VAC5-80-110 and Condition 9 of the 4/24/2020 NSR Permit)

466. The FU-17 boiler shall consume no more than the following quantities of fuels:

- 2,400 million cubic feet of natural gas per year;
- 4,250 thousand gallons of distillate oil per year;
- 360 gallons per hour and 1,800 thousand gallons per year of Area 6 residue.
- The total heat input from all fuels to FU-17 shall not exceed 275.2 MMBtu/hr.

Annual fuel throughput shall be calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.  
(9VAC5-80-110 and Condition 10 of the 4/24/2020 NSR Permit)

467. The rental boilers (RB-1, RB-2, RB-3) equipped with LNB shall consume no more than  $2.32 \times 10^9$  cubic feet of natural gas per year, calculated monthly as the sum of each consecutive 12-month period. Fuel consumption by rental boilers (RB-1, RB-2, RB-3) without LNB (as allowed in Condition 460) shall not exceed  $5.8 \times 10^8$  cubic feet of natural gas per year, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.  
(9VAC5-80-110 and Condition 11 of the 4/24/2020 NSR Permit)

468. The quantities of natural gas, distillate oil, and Area 6 residue for all of the boilers (FU-17, FU-18, FU-19, and RB-1, RB-2, and RB-3) combined, shall not exceed values that will allow the following equation to hold true:

$$(X) \times (1,020 \text{ Btu/ft}^3) + (Y) \times (140,000 \text{ Btu/gal}) + (Z) \times (144,000 \text{ Btu/gal}) \leq 6.13 \times 10^{12} \text{ Btu/yr}$$

where X = Number of cubic feet of natural gas burned in a year by all boilers (FU-17, FU-18, FU-19, RB-1, RB-2, and RB-3), calculated monthly as the sum of each consecutive 12-month period.  
Y = Number of gallons of distillate fuel oil burned in a year by the FU-17 boiler, calculated monthly as the sum of each consecutive 12-month period.  
Z = Number of gallons of Area 6 residue burned in a year by the FU-17 boiler, calculated monthly as the sum of each consecutive 12-month period.

Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months. (9VAC5-80-110 and Condition 12 of the 4/24/2020 NSR Permit)

469. The fuels burned in the FU-17 boiler shall meet the specifications below:

Distillate Oil which meets the ASTM D396 specification for Grades 1 or 2 fuel oil and:  
Maximum sulfur content per shipment: 0.021% (by weight)

Area 6 residue is defined as a non-hazardous secondary material from the Area 6 cyclohexanone production process having combustion and emission characteristics similar to that of residual oil, except that Area 6 residue shall have an annual average sulfur content of 0.21% (by weight).  
(9VAC5-80-110 and Condition 13 of the 4/24/2020 NSR Permit)

470. The permittee shall obtain a certification from the fuel supplier with each shipment of distillate oil. Each fuel supplier certification shall include the following:

- a. The name of the fuel supplier;
- b. The date on which the distillate oil was received;
- c. The quantity of distillate oil delivered in the shipment;
- d. A statement that the distillate oil complies with the American Society for Testing and Materials specifications ASTM D396 for Grades 1 or 2 fuel oil, or other DEQ approved fuel specifications;
- e. The sulfur content of the distillate oil;
- f. Fuel sampling and analysis, independent of that used for certification, as may be periodically required or conducted by DEQ.

Exceedance of these specifications may be considered credible evidence of the exceedance of emission limits.

(9VAC5-80-110 and Condition 14 of the 4/24/2020 NSR Permit)

471. Except where this permit is more restrictive than the applicable requirement, the boilers (FU-17, FU-18, FU-19) shall be operated in compliance with the requirements of 40 CFR 60 Subpart Db; the rental boilers (RB-1, RB-2, RB-3) shall be operated in compliance with the requirements of 40 CFR 60 Subpart Dc; and all boilers (FU-17, FU-18, FU-19, RB-1, RB-2, RB-3) shall be operated in compliance with the requirements of 40 CFR 63 Subpart DDDDD (New or Reconstructed Boilers and Process Heaters).  
(9VAC5-80-110, Condition 15 of the 4/24/2020 NSR Permit, 40 CFR 60 Subparts Db and Dc, 40 CFR 63 Subpart DDDDD)

### **Emission Limitations**

472. Emissions from the operation of each of the natural gas boilers (FU-18 and FU-19) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	0.7	3.1
PM <sub>10</sub>	1.8	7.7
PM <sub>2.5</sub>	1.8	7.7
Sulfur Dioxide	0.2	1.0
Nitrogen Oxides (as NO <sub>2</sub> )	12.6	55.2
Carbon Monoxide	13.0	56.7
Volatile Organic Compounds	1.4	6.2

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Conditions 457, 463, 465, and 468.

(9VAC5-80-110 and Condition 16 of the 4/24/2020 NSR Permit)

473. Emissions from the FU-17 boiler shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/MMBtu</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)		5.5	11.4
PM <sub>10</sub>		6.8	18.6
PM <sub>2.5</sub>		5.8	17.2
Sulfur Dioxide		18.3	40.7
Nitrogen Oxides (as NO <sub>2</sub> )	0.2*	81.9*	187.8
Carbon Monoxide		15.6	58.1
Volatile Organic Compounds		1.8	6.1

\*Determined on a 30-day rolling average basis.

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Conditions 458, 462-469, 481, and 492.

(9VAC5-80-110, 40 CFR 60.44b, and Condition 17 of the 4/24/2020 NSR Permit)

474. Emissions from the operation of the rental boilers (RB-1, RB-2, RB-3) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr each with LNB</b>	<b>Lb/hr each without LNB</b>	<b>Tons/year combined with LNB*</b>	<b>Tons/year combined without LNB*</b>
PM (filterable only)	0.2	0.2	2.4	2.3
PM <sub>10</sub>	0.9	0.7	11.9	11.1
PM <sub>2.5</sub>	0.8	0.7	10.7	10.2
Sulfur Dioxide	0.1	0.1	0.7	0.7
Nitrogen Oxides (as NO <sub>2</sub> )	3.2	8.8	42.6	60.7
Carbon Monoxide	3.3	7.4	43.8	57.0
Volatile Organic Compounds	0.4	0.5	4.8	5.2

\*Annual emissions reflect approximately 2,160 hrs of operation for each boiler without LNB and 6,600 hrs with LNB.

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Conditions 460, 463, 467, and 468.

(9VAC5-80-110 and Condition 18 of the 4/24/2020 NSR Permit)

475. Regardless of Conditions 472, 473, and 474, total annual emissions from the FU-17, FU-18, FU-19, and RB-1, RB-2 and RB-3 boilers shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Tons/year</b>
PM (filterable only)	15.1
PM <sub>10</sub>	33.8
PM <sub>2.5</sub>	31.3
Sulfur Dioxide	41.8
Nitrogen Oxides (as NO <sub>2</sub> )	272.9
Carbon Monoxide	140.1
Volatile Organic Compounds	14.0

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Condition 468.

(9VAC5-80-110 and Condition 19 of the 4/24/2020 NSR Permit)

476. Visible emissions from the FU-18 and FU-19 boilers and rental boilers (RB-1, RB-2, RB-3) shall not exceed 10 percent opacity as determined by the EPA Method 9 (reference 40 CFR 60, Appendix A). This condition applies at all times.  
(9VAC5-80-110 and Condition 20 of the 4/24/2020 NSR Permit)
477. Visible emissions from the FU-17 boiler shall not exceed 10 percent opacity as determined by EPA Method 9 (reference 40 CFR 60 Appendix A).  
(9VAC5-80-110 and Condition 21 of the 4/24/2020 NSR Permit)
478. The boilers (FU-17, FU-18, FU-19) shall be constructed so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods. This includes constructing the facility/equipment such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and providing a stack or duct that is free from cyclonic flow. Sampling ports shall be provided when requested at the appropriate locations and safe sampling platforms and access shall be provided.  
(9VAC5-80-110 and Condition 24 of the 4/24/2020 NSR Permit)

### **Monitoring**

479. The permittee shall conduct the following monitoring to determine compliance with the Area 6 residue sulfur content requirements.

- a. Once per week that the boiler FU-17 fires Area 6 residue, the permittee shall collect and analyze an Area 6 residue sample for sulfur content in an as-fired condition from the boiler, in accordance with ASTM-D1552-08, to determine compliance with Condition 469.
- b. After the collection of 4 months of monitoring data in accordance with this condition, the permittee may propose a reduction in the frequency of the Area 6 residue sulfur monitoring to the Piedmont Regional Office. Upon written approval by the Piedmont Regional Office, the permittee may reduce the frequency of the Area 6 residue sulfur monitoring accordingly.

(9VAC5-80-110)

480. The permittee shall install a continuous emission monitoring system (CEMS) meeting the design specifications of 40 CFR Part 60 Appendix B, to measure and record the emissions of nitrogen oxides (measured as NO<sub>2</sub>) and oxygen (or carbon dioxide) from the FU-18 and FU-19 boiler stacks as lb/MMBtu and lb/hr. Data from the CEMS shall be reduced to 30-day rolling averages per the procedures in 40 CFR Part 60, Subpart Db, and shall be used to determine compliance with the emission standards (in lb/MMBtu and lb/hr) on a 30-day rolling average as specified in Conditions 459.a, 459.b, and 473. The NO<sub>x</sub> CEMS shall be installed, calibrated, maintained, audited, and operated in accordance with the requirements of 40 CFR 60.13, 40 CFR 60 Subpart Db and 40 CFR 60 Appendices B and F.  
(9VAC5-80-110, 40 CFR 60.13(a), 40 CFR 60.48b(b)(1), and Condition 27 of the 4/24/2020 NSR Permit)
481. The permittee shall install a continuous emission monitoring system (CEMS) meeting the design specifications of 40 CFR Part 60 Appendix B, to measure and record the emissions of nitrogen oxides (measured as NO<sub>2</sub>) and oxygen (or carbon dioxide) from the FU-17 boiler stack as lb/MMBtu and lb/hr. Data from the CEMS shall be reduced to 30-day rolling averages per the procedures in 40 CFR Part 60, Subpart Db, and shall be used to determine compliance with the emission standards (in lb/MMBtu and lb/hr) on a 30-day rolling average as specified in Conditions 459.a, 459.b, and 473. The NO<sub>x</sub> CEMS shall be installed, calibrated, maintained, audited, and operated in accordance with the requirements of 40 CFR 60.13, 40 CFR 60 Subpart Db and 40 CFR 60 Appendices B and F.  
(9VAC5-80-110, 40 CFR 60.13(a), 40 CFR 60.48b(b)(1), and Condition 28 of the 4/24/2020 NSR Permit)
482. Performance evaluations of the continuous emission monitoring system (CEMS) shall be conducted in accordance with 40 CFR Part 60, Appendix B, and shall take place prior to the performance tests under 9VAC5-50-30 or within 30 days thereafter. One copy of the performance evaluations report shall be submitted to the Piedmont Regional Office within 45 days of the evaluation. The CEMS shall be installed and operational prior to conducting initial performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device. A 30-day notification, prior to the demonstration of continuous monitoring system's performance, and subsequent notifications shall be submitted to the Piedmont Regional Office.  
(9VAC5-80-110, 40 CFR 60.13(b), and Condition 30 of the 4/24/2020 NSR Permit)
483. If a NO<sub>x</sub> emission rate CEMS has been installed to meet the requirements of 40 CFR Part 75, that CEMS may be used to meet the requirements of 40 CFR 60, Subpart Db, except that the reporting and recordkeeping requirements of 40 CFR 60.49b shall also be met. Data reported to meet the requirements of §60.49b shall not include data substituted using the missing data procedures in subpart D of 40 CFR Part 75, nor shall the data have been adjusted according to the procedures of 40 CFR Part 75.  
(9VAC5-80-110 and 40 CFR 60.48b(b)(2))

484. The CEMS required by Condition 480 and 481 shall be operated and data recorded during all periods of operation of the affected facility except for CEMS breakdowns and repairs. Data shall be recorded during calibration checks, and zero and span adjustments.  
(9VAC5-80-110 and 40 CFR 60.48b(c))
485. The 1-hr average NOx emission rates measured by the NOx monitors required by Condition 480 and 481 shall be expressed in lb/MMBtu heat input and shall be used to calculate the average emission rate. These 1-hour averages shall be computed from four or more data points equally spaced over each one-hour period. Data recorded during periods of continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this Condition.  
(9VAC5-80-110, 40 CFR 60.48b(d), and 40 CFR 60.13(h)(2))
486. The NOx monitoring systems for the boilers (FU-17, FU-18, FU-19) shall meet a minimum data availability of 90 percent of boiler operating hours on a 12-month rolling average. Each NOx monitoring system shall also meet the quality assurance requirements of 40 CFR 60.13 and 40 CFR Part 60, Appendix B and F.  
(9VAC5-80-110, 40 CFR 60.13, 40 CFR 60.48b(e), and Condition 29 of the 4/24/2020 NSR Permit)
487. The span value for the NOx CEMS shall be 500 ppm. Alternatively, if a NOx CEMS has been installed to meet the requirements of 40 CFR Part 75, the span values for that NOx CEMS must be determined according to Appendix A of 40 CFR Part 75, Section 2.1.2.  
(9VAC5-80-110, 40 CFR 60.48b(b)(2), and 40 CFR 60.48b(e)(2)(i))
488. When NOx emission data are not obtained because of CEMS breakdowns, repairs, calibration checks and zero and span adjustments, emission data shall be obtained by using standby monitoring systems, Method 7 of 40 CFR 60, Appendix A, Method 7A of 40 CFR 60, Appendix A, or other approved reference methods to provide emission data for a minimum of 75 percent of the operating hours in each steam generating unit operating day, in at least 22 out of 30 successive steam generating unit operating days.  
(9VAC5-80-110 and 40 CFR 60.48b(f))
489. The permittee shall visually observe the FU-17, FU-18, and F-19 boiler stacks at least once each operating week for at least a brief time period to determine compliance with the visible emission standard of Conditions 476 and 477 (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on an emissions unit. Each observation indicating visible emissions in excess of a visible emission standard shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.  
(9VAC5-80-110)

### **Recordkeeping Requirements**

490. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to:
- a. Hourly consumption of Area 6 residue in the FU-17 boiler, in gallons.
  - b. The daily, monthly, and annual consumption of natural gas, distillate oil, and Area 6 residue in the FU-17 boiler and the daily, monthly, and annual consumption of natural gas in the FU-18 and FU-19 boilers. Annual throughput shall be calculated monthly as the sum of each consecutive 12-month

period. Compliance for the 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.

- c. All documentation for the rental boilers (RB-1, RB-2, RB-3) including monthly and annual consumption of natural gas of units with LNB; monthly and annual consumption of natural gas of units without LNB; and the startup and removal dates for each boiler each time they are used at this facility. Annual throughput shall be calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.
- d. The maximum liquid fuel (Area 6 residue and distillate oil combined) combustion rate (gallons per minute as a 60-minute average) for each FU-17 boiler operating day.
- e. The maximum hourly heat input (from all fuels) for each FU-17 boiler operating day.
- f. Monthly calculations of annual heat input for the boilers (FU-17, FU-18, FU-19, RB-1, RB-2, RB-3) as required by Condition 468.
- g. Annual capacity factor calculations for distillate oil and natural gas as determined on a 12-month rolling average basis with a new capacity factor calculated at the end of each calendar month.  
(40 CFR 60.49b(d)(1))
- h. The information required by 40 CFR 60.49b(g)(1)-(10) for each FU-17 boiler operating day.  
(40 CFR 60.49b(h))
- i. The 30-day average NO<sub>x</sub> emissions limit (lb/MMBtu) from Condition 459.a, or calculated according to Condition 459.b, for each FU-17 boiler operating day.
- j. The results of all FU-17 boiler performance tests.
- k. The shutdown date for powerhouse boiler #B-8.
- l. Documentation demonstrating that Area 6 residue is a non-hazardous secondary material when combusted in FU-17.
- m. Fuel quality records, including fuel receipts for natural gas combusted in boilers FU-17, FU-18, and FU-19 (e.g., current valid purchase contract, tariff sheet, or transportation contract) that certify that the fuel meets the definition of natural gas as defined in 40 CFR 60.41b and the applicable sulfur limit.  
(40 CFR 60.49b(r)(1))
- n. All Area 6 residue sulfur content analyses and distillate oil fuel supplier certifications.
- o. Results of all stack tests, visible emissions evaluations, and performance evaluations.
- p. Continuous monitoring system calibrations and calibration checks, percent operating time, and excess emissions.

- q. The occurrence and duration of any startup, shutdown, or malfunction, any malfunction of the air pollution control equipment, or any periods during which a continuous monitoring system or monitoring device is inoperative.
- r. Records of the visible emission observations, visible emission evaluations and corrective actions required by Condition 489.
- s. Emission factors, CEMS data and any other information necessary to demonstrate compliance with the emission limitations in Condition 473.
- t. Inventory of spare parts to minimize the duration of air pollution control equipment breakdowns.
- u. Written operating procedures for all process equipment and air pollution control equipment.
- v. Scheduled and unscheduled maintenance and operator training records.

These records shall be available for inspection by the DEQ and shall be current for the most recent five ~~(5)~~ years.

(9VAC5-80-110, 40 CFR 60.49b(d, g, h, r), and Condition 22 of the 4/24/2020 NSR Permit)

491. The permittee shall maintain a file in a permanent form suitable for inspection of all measurements, including continuous monitoring system, monitoring device and performance testing measurements, all continuous monitoring system performance evaluations, all continuous monitoring system or monitoring device calibration, span, and drift checks, other required and non-required periodic audits, adjustments, and maintenance performed on these systems or devices. The measurements shall be retained for a period of five years.  
(9VAC5-80-110, 40 CFR 60.7(f), 9VAC5-50-410, and 9VAC5-50-50)

## Testing

492. Initial performance tests shall be conducted for carbon monoxide, nitrogen oxides, and filterable particulate matter from the FU-17 boiler to determine compliance with the emission limits in Condition 473. The tests shall be performed while burning distillate oil, distillate oil with Area 6 residue, and natural gas with Area 6 residue, when such fuel combinations are originally combusted. The tests shall be performed, reported, and demonstrate compliance within 60 days after the FU-17 boiler achieves the maximum production rate at which the facility will be operated for each fuel, but no later than 180 days after start-up of the FU-17 boiler. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the Piedmont Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit.  
(9VAC5-80-110 and Condition 25 of the 4/24/2020 NSR Permit)
493. For the initial compliance test, NO<sub>x</sub> shall be monitored for 30 successive steam generating unit operating days and the 30-day average emission rate shall be used to determine compliance with the NO<sub>x</sub> emission standard (lb/MMBtu) and the hourly emission limit (lb/hr) in Condition 473. The 30-day average emission rate is calculated as the average of all hourly emissions data recorded by the monitoring system during the 30-day test period. Following the date on which the performance test is completed or is required to be completed in 40 CFR 60.8, whichever date comes first, the permittee shall determine compliance with the

NOx emission standard and hourly emission limit in Condition 473 on a continuous basis through the use of the 30-day rolling average emission rate.

(9VAC5-80-110, 40 CFR 60.46b(c), and 40 CFR 60.46b(e)(1) and (3))

494. Visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall also be conducted on boiler FU-17 when combusting distillate oil. Each test shall consist of ten sets of 24 consecutive observations (at 15 second intervals) to yield a six-minute average. The details of the tests are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. The evaluation shall be performed, reported, and demonstrate compliance within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. One copy of the test result shall be submitted to the Piedmont Regional Office within 60 days after test completion and shall conform to the test report format enclosed with this permit.  
(9VAC5-80-110, 40 CFR 60.48b(a), and Condition 26 of the 4/24/2020 NSR Permit)
495. The permittee shall conduct additional performance tests for PM-10, PM-2.5, CO, and VOC emissions from boilers (FU-17, FU-18, FU-19) at least once every five years to demonstrate compliance with the emission limits contained in this permit. The details of the tests shall be arranged with the Piedmont Regional Office.  
(9VAC5-80-110)
496. Upon request by the DEQ, the permittee shall conduct additional visible emissions evaluations (VEEs) for the boilers (FU-17, FU-18, FU-19) to demonstrate compliance with the visible emission limits contained in this permit. The details of the VEEs shall be arranged with the Piedmont Regional Office.  
(9VAC5-80-110)

## Reporting and Notification Requirements

497. The permittee shall furnish written notification to the Piedmont Regional Office of:
- a. The start-up date and removal date of each of the rental boilers (RB-1, RB-2, RB-3) each time they are used at the facility, postmarked not more than 15 days after such dates.
  - b. The anticipated date of continuous monitoring system performance evaluations postmarked not less than 30 days prior to such date.
  - c. The anticipated date of the performance tests required by Condition 492 postmarked at least 30 days prior to such date.

A copy of the written notification referenced in items a and b above shall be sent to:

Chief, Air Section  
 United States Environmental Protection Agency  
 Region III, Enforcement & Compliance Assurance Division  
 Air, RCRA and Toxics Branch (3ED21)  
 Four Penn Center  
 1600 John F. Kennedy Boulevard  
 Philadelphia, PA 19103-2852

(9VAC5-80-110, 40 CFR 60.48c(a), 40 CFR 60.49b(b), and Condition 32 of the 4/24/2020 NSR Permit)

498. The permittee shall submit to the Administrator the performance test data from the initial performance test and the performance evaluation of the CEMS using the applicable performance specifications in 40 CFR 60, Appendix B.  
(9VAC5-80-110 and 40 CFR 60.49b(b))
499. The permittee shall submit fuel quality reports to the Piedmont Regional Office, postmarked no later than the 30<sup>th</sup> day following the end of each semiannual period ending June 30<sup>th</sup> and December 31<sup>st</sup>. If no shipments of distillate oil were received during the semiannual period, the fuel quality report shall consist of the dates included in the semiannual period and a statement that no distillate oil was received during the semiannual period. If distillate oil was received during the reporting period, the report shall include:
- a. The dates included in the semiannual period.
  - b. A copy of all fuel supplier certifications for all shipments of distillate oil received during the reporting period, indicating the supplier, volume of shipment, sulfur content (weight percent) and the date the shipment was received.
  - c. A signed statement from the owner or operator of the facility that the fuel supplier certifications represent all of the distillate oil received during the reporting period.

One copy of the semiannual fuel report shall be submitted to:

Chief, Air Section  
United States Environmental Protection Agency  
Region III, Enforcement & Compliance Assurance Division  
Air, RCRA and Toxics Branch (3ED21)  
Four Penn Center  
1600 John F. Kennedy Boulevard  
Philadelphia, PA 19103-2852

(Condition 23 of the 4/24/2020 NSR Permit and 9VAC5-80-110)

500. The permittee shall furnish written reports to the Piedmont Regional Office of excess emissions from the boilers (FU-17, FU-18, FU-19) on a quarterly basis, postmarked no later than the 30<sup>th</sup> day following the end of the calendar quarter. Excess emissions are defined as any calculated 30-day rolling average NO<sub>x</sub> emission rate, as determined under 40 CFR 60.46b(e), that exceeds the lb/MMBtu NO<sub>x</sub> emission standard specified in Conditions 457 and 459. These reports shall include, but are not limited to the following information:
- a. The magnitude of excess emissions, any conversion factors used in the calculation of excess emissions, and the date and time of commencement and completion of each period of excess emissions.
  - b. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the process, the nature and cause of the malfunction (if known), the corrective action taken, or preventative measures adopted.
  - c. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

- d. All other information required by 40 CFR 60.49b(g)(1)-(10) for each boiler operating day.
- e. When no excess emissions have occurred or the continuous monitoring systems have not been inoperative, repaired or adjusted, such information shall be stated in that report.

(9VAC5-80-110, 40 CFR 60.49b(g-i), and Condition 31 of the 4/24/2020 NSR Permit)

- 501. The permittee may submit electronic quarterly reports for NOx in lieu of submitting written reports required by Condition 500. The format of each quarterly electronic report shall be coordinated with the DEQ. The electronic report(s) shall be submitted no later than 30 days after the calendar quarter and shall be accompanied by a certification statement from the permittee, indicating whether compliance with the emission standards and minimum data requirements of this subpart was achieved during the reporting period. Before submitting reports in the electronic format, the permittee shall coordinate with the Piedmont Regional Office to obtain their agreement to submit reports in this alternative format.  
(9VAC5-80-110, 40 CFR 60.49b(v), and 9VAC-5-50-50)
- 502. The permittee shall report the results of any 40 CFR Part 60 Appendix A Method 9 opacity test performed as a result of Condition 489. If the test indicates the facility is out of compliance with the standard contained in Condition 494, the source shall also report the length of time associated with any exceedance of the standard and the corrective actions taken to correct the exceedance. This report shall be sent to the Piedmont Regional Office within seven days of the applicable test unless otherwise noted in Condition 628.  
(9VAC5-80-110)

**40 CFR 63 Subpart DDDDD (Boiler MACT) Requirements**

- 503. The permittee shall operate the boilers FU-17, FU-18, and FU-19 in compliance with all applicable requirements of 40 CFR 63 (MACT) Subparts A and DDDDD. RB-1, RB-2, and RB-3 are exempt from the MACT as temporary units according to 40 CFR 63.7491(j).

Boiler	Subcategory
FU-17	New Gas 1 Unit – 40 CFR 63.7499(l) New Liquid Fuel – 40 CFR 63.7499(q) New Heavy Liquid Fuel – 40 CFR 63.7499(t) New Light Liquid Fuel – 40 CFR 63.7499(v) (as applicable – note that Conditions 508-527 will apply if the boiler is operated under any subcategory other than a New Gas 1 Unit)
FU-18, FU-19	New Gas 1 Unit – 40 CFR 63.7499(l)

(9VAC5-80-110 and 40 CFR 63.7499)

- 504. The permittee shall at all times, operate and maintain the boilers (FU-17, FU-18, FU-19), including associated air pollution equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.  
(9VAC5-80-110 and 40 CFR 63.7500(a)(3))

505. The permittee shall conduct a tune-up of the boilers (FU-17, FU-18, FU-19) once every five years in accordance with 40 CFR 63.7540(a)(10) and Table 3 to Subpart DDDDD of Part 63 to demonstrate continuous compliance. Subsequent tune-ups shall be conducted no later than 61 months from the previous tune-up. If the unit is not operating on the required date for a tune-up, then the tune-up must be conducted within 30 calendar days of re-startup. These tune-ups shall consist of the following:
- a. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (permittee may delay the burner inspection until the next scheduled unit shutdown). At units where entry into a piece of process equipment or a storage vessel is required to complete the tune-up inspections, inspections are required only during planned entries into the storage vessel or process equipment, but each burner must be inspected at least once every 12 months;
  - b. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer’s specifications, if available;
  - c. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (the inspection may be delayed until the next scheduled unit shutdown);
  - d. Optimize total emissions of CO. This optimization should be consistent with the manufacturer’s specifications, if available, and with any NOx requirement to which the unit is subject;
  - e. Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made); and
  - f. Maintain on-site and submit, if requested by the Administrator, a report containing the information in §63.7540(a)(10)(vi)(A) through (C).

(9VAC5-80-110, 40 CFR 63.7500(a)(1), §63.7505(a), §63.7515(d), §63.7540(a)(10)(i through vi), §63.7540(a)(12), and Table 3 to Subpart DDDDD of Part 63, Item 1)

506. The permittee shall submit the following reports:
- a. Each report in Table 9 to Subpart DDDDD of Part 63 that applies to the permitted facility. The permittee must submit each report, according to 40 CFR 63.7550(h), by the data in Table 9 to Subpart DDDDD of Part 63 and according to the requirements in 40 CFR 63.7550(b)(1)-(4).
  - b. For units that are subject only to a requirement to conduct subsequent tune-ups according to 40 CFR 63.7540(a)(10), and not subject to emission limits specified in Table 4 to Subpart DDDDD to Part 63, the permittee shall submit only an annual compliance report as specified in 40 CFR 63.7550(b)(1)-(4). The compliance report must contain the information specified in 40 CFR 63.7550(c)(5)(i) through (iii), (xiv), and (xvii).

(9VAC5-80-110 and 40 CFR 63.7550(a) and (b))

507. The permittee shall comply with the applicable General Provisions as specified in Table 10 to Subpart DDDDD of Part 63.  
(40 CFR 63.7565 and 9VAC5-80-110)

**The limitations in Conditions 508-527 apply to FU-17 only. These are considered Future Applicable Requirements, which will apply when the boiler is operated in a subcategory other than a Gas 1 unit.**

**Boiler FU-17 Boiler MACT Future Applicable Requirements**

508. For startup and shutdown, the permittee shall meet the work practice standards according to Items 5 and 6 of Table 3 to Subpart DDDDD of Part 63. (9VAC5-80-110 and 40 CFR 63.7540(d))

509. Prior to October 6, 2025 in accordance with Table 14 to Subpart DDDDD of Part 63, items 14 and 15, emissions from the FU-17 boiler when operating in the “unit designed to burn heavy liquid fuel” subcategory (Area 6 residue combined with either natural gas or distillate oil), the FU-17 boiler shall not exceed the limits specified below:

Particulate Matter (PM) <sup>1</sup> (filterable only)	0.013 lb/MMBtu heat input, <b>OR</b>
Total Selected Metals (TSM) <sup>1</sup>	7.5 x 10 <sup>-5</sup> lb/MMBtu heat input
Carbon Monoxide	130 ppm <sub>dv</sub> <sup>2</sup>
Hydrogen Chloride	4.4 x 10 <sup>-4</sup> lb/MMBtu heat input
Mercury	4.8 x 10 <sup>-7</sup> lb/MMBtu heat input

<sup>1</sup>Comply with either the PM or TSM standard

<sup>2</sup>Measured on a dry basis corrected to 3 percent oxygen, 3-run average (ppm<sub>dv</sub> = parts per million dry volume)

These standards apply at all times the boiler is operating, except for periods of startup and shutdown during which time the boiler must comply only with Items 5 and 6 in Table 3 to Subpart DDDDD of Part 63. The permittee shall demonstrate continuous compliance with each emission limit according to the methods specified in Table 8 to Subpart DDDDD of Part 63 and 40 CFR 63.7540(a)(1) through (19). (9VAC5-80-110, 40 CFR 63.7500(a) and (f), and 40 CFR 63.7540)

510. Prior to October 6, 2025, in accordance with Table 14 to Subpart DDDDD of Part 63, items 14 and 16, emissions from the FU-17 boiler when operating in the “unit designed to burn light liquid fuel” subcategory (either distillate oil only or in combination with natural gas) shall not exceed the limits specified below:

Particulate Matter (PM) <sup>1</sup> (filterable only)	1.1 x 10 <sup>-3</sup> lb/MMBtu heat input, <b>OR</b>
Total Selected Metals (TSM) <sup>1</sup>	2.9 x 10 <sup>-5</sup> lb/MMBtu heat input
Carbon Monoxide	130 ppm <sub>dv</sub> <sup>2</sup>
Hydrogen Chloride	4.4 x 10 <sup>-4</sup> lb/MMBtu heat input

Mercury 4.8 x 10<sup>-7</sup> lb/MMBtu heat input

<sup>1</sup>Comply with either the PM or TSM standard

<sup>2</sup>Measured on a dry basis corrected to 3 percent oxygen, 3-run average (ppmdv = parts per million dry volume)

These standards apply at all times the boiler is operating, except for periods of startup and shutdown during which time the boiler must comply only with Items 5 and 6 in Table 3 to Subpart DDDDD of Part 63. The permittee shall demonstrate continuous compliance with each emission limit according to the methods specified in Table 8 to Subpart DDDDD of Part 63 and 40 CFR 63.7540(a)(1) through (19). (9VAC5-80-110, 40 CFR 63.7500(a) and (f), and 40 CFR 63.7540)

511. As of October 6, 2025, in accordance with Table 1 to Subpart DDDDD of Part 63, items 14 and 15, emissions from the FU-17 boiler when operating in the “unit designed to burn heavy liquid fuel” subcategory (Area 6 residue combined with either natural gas or distillate oil), the FU-17 boiler shall not exceed the limits specified below:

Particulate Matter (PM) <sup>1</sup> (filterable only)	1.9 x 10 <sup>-3</sup> lb/MMBtu heat input, <b>OR</b>
Total Selected Metals (TSM) <sup>1</sup>	6.1 x 10 <sup>-6</sup> lb/MMBtu heat input
Carbon Monoxide	130 ppmdv <sup>2</sup>
Hydrogen Chloride	1.5 x 10 <sup>-4</sup> lb/MMBtu heat input
Mercury	4.8 x 10 <sup>-7</sup> lb/MMBtu heat input

<sup>1</sup>Comply with either the PM or TSM standard

<sup>2</sup>Measured on a dry basis corrected to 3 percent oxygen, 3-run average (ppmdv = parts per million dry volume)

These standards apply at all times the boiler is operating, except for periods of startup and shutdown during which time the boiler must comply only with Items 5 and 6 in Table 3 to Subpart DDDDD of Part 63. The permittee shall demonstrate continuous compliance with each emission limit according to the methods specified in Table 8 to Subpart DDDDD of Part 63 and 40 CFR 63.7540(a)(1) through (19). (9VAC5-80-110, 40 CFR 63.7500(a) and (f), 40 CFR 63.7510(f)(2), and 40 CFR 63.7540)

512. As of October 6, 2025, in accordance with Table 1 to Subpart DDDDD of Part 63, items 14 and 16, emissions from the FU-17 boiler when operating in the “unit designed to burn light liquid fuel” subcategory (either distillate oil only or in combination with natural gas) shall not exceed the limits specified below:

Particulate Matter (PM) <sup>1</sup> (filterable only)	1.1 x 10 <sup>-3</sup> lb/MMBtu heat input, <b>OR</b>
Total Selected Metals (TSM) <sup>1</sup>	2.9 x 10 <sup>-5</sup> lb/MMBtu heat input
Carbon Monoxide	130 ppmdv <sup>2</sup>
Hydrogen Chloride	1.5 x 10 <sup>-4</sup> lb/MMBtu heat input

Mercury

$4.8 \times 10^{-7}$  lb/MMBtu heat input

<sup>1</sup>Comply with either the PM or TSM standard

<sup>2</sup>Measured on a dry basis corrected to 3 percent oxygen, 3-run average (ppmdv = parts per million dry volume)

These standards apply at all times the boiler is operating, except for periods of startup and shutdown during which time the boiler must comply only with Items 5 and 6 in Table 3 to Subpart DDDDD of Part 63. The permittee shall demonstrate continuous compliance with each emission limit according to the methods specified in Table 8 to Subpart DDDDD of Part 63 and 40 CFR 63.7540(a)(1) through (19). (9VAC5-80-110, 40 CFR 63.7500(a) and (f), 40 CFR 63.7510(f)(2), and 40 CFR 63.7540)

513. The permittee shall demonstrate compliance with all applicable emission limits in Condition 509 and 510 using performance stack testing, fuel analysis, or continuous monitoring systems (CMS), including a continuous emission monitoring system (CEMS), continuous opacity monitoring system (COMS), continuous parameter monitoring system (CPMS), or particulate matter continuous parameter monitoring system (PM CPMS), where applicable. The permittee may demonstrate compliance with the applicable emission limit for hydrogen chloride (HCl), mercury, or total selected metals (TSM) using fuel analysis if the emission rate calculated according to 40 CFR 63.7530(c) is less than the applicable emission limit. For gaseous fuels, the permittee may not use fuel analyses to comply with the TSM alternative standard or the HCl standard. Otherwise, the permittee shall demonstrate compliance for HCl, mercury, or TSM using performance stack testing if subject to an applicable emission limit listed in Table 1 or Tables 11 through 15 of 40 CFR 63, Subpart DDDDD.  
(9VAC5-80-110 and 40 CFR 63.7505(c))
514. The permittee shall complete the initial compliance demonstration with the emission limits within 180 days after startup. The permittee shall demonstrate initial compliance with the applicable work practice standards in Table 3 to Subpart DDDDD of Part 63 within the applicable annual, biennial, or 5-year schedule as specified in 40 CFR 63.7515(d) following the initial compliance date specified in 40 CFR 63.7495(a). Thereafter, the permittee is required to complete the annual, biennial, or 5-year schedule as specified in 40 CFR 63.7515(d). For affected sources that switch fuel subcategories consistent with 40 CFR 63.7545(h) after the initial compliance date, the permittee shall demonstrate compliance within 60 days of the effective date of the switch, unless a compliance demonstration was previously conducted for this subcategory within the previous 12 months.  
(9VAC5-80-110 and 40 CFR 63.7510(f), (g), and (k))
515. Should the permittee operate the FU-17 boiler in either the “units designed to burn heavy liquid fuel” subcategory, or the “units designed to burn light liquid fuel” subcategory, the permittee shall install, operate, and maintain an oxygen analyzer system, as defined in 40 CFR 63.7575, to demonstrate compliance with the applicable carbon monoxide emission limits in Conditions 509 or 510. The 30-day rolling average oxygen content of the emissions from FU-17 shall be maintained at or above the lowest hourly average oxygen concentration measured during the CO performance test as specified in Table 8 to Subpart DDDDD of Part 63.  
(9VAC5-80-110 and 40 CFR 63.7525(a))
516. Should the permittee demonstrate compliance with any applicable emission limit through performance testing and subsequent compliance with operating limits through the use of CPMS, or with a CEMS or COMS, the permittee shall develop a site-specific monitoring plan according to the requirements in 40 CFR

63.7505(d)(1)-(4) for the use of any CEMS, COMS, or CPMS. This requirement also applies should the permittee petition the EPA Administrator for alternative monitoring parameters under 40 CFR 63.8(f). (9VAC5-80-110 and 40 CFR 63.7505(d))

517. Should the permittee choose to comply using definition (2) of “Startup” in 40 CFR 63.7575, the permittee shall develop and implement a written startup and shutdown plan (SSP) according to the requirements in Table 3 to Subpart DDDDD of Part 63. The SSP shall be maintained onsite and available upon request for public inspection. (9VAC5-80-110 and 40 CFR 63.7505(e))

518. If the permittee elects to demonstrate compliance with any of the applicable emission limits in Conditions 509 and 510 through performance testing, initial compliance requirements shall include all of the following:

- a. Conduct performance tests according to 40 CFR 63.7520 and Table 5 to Subpart DDDDD of Part 63.
- b. Conduct a fuel analysis for each type of fuel burned in the FU-17 boiler according to 40 CFR 63.7521 and Table 6 to Subpart DDDDD of Part 63, except as specified in 40 CFR 63.7510(a)(2)(i) through (iii).
- c. Establish operating limits according to 40 CFR 63.7530 and Table 7 to Subpart DDDDD of Part 63.
- d. Conduct CMS performance evaluations according to 40 CFR 63.7525.

(9VAC5-80-110 and 40 CFR 63.7510(a))

519. The permittee shall conduct all applicable performance tests according to 40 CFR 63.7520 on an annual basis, except as specified in paragraphs (a) and (b) below. The facility must develop a site-specific stack test plan according to the requirements of 40 CFR 63.7(c). Annual performance tests must be completed no more than 13 months after the previous performance test, except as specified in paragraphs (a) and (b) below:

- a. If the performance tests for a given pollutant for at least 2 consecutive years shows that emissions are below 75 percent of the emission limit for the pollutant, and if there are no changes in the individual boiler or air pollution control equipment that could increase emissions, the permittee may choose to conduct performance tests for the pollutant every third year. Each such performance test must be conducted no more than 37 months after the previous performance test. The requirement to test at maximum chloride input level is waived unless the stack test is conducted for HCl. The requirement to test at maximum mercury input level is waived unless the stack test is conducted for mercury. The requirement to test at maximum TSM input level is waived unless the stack test is conducted for TSM.
- b. If a performance test shows emissions exceeded the emission limit or 75 percent of the emission limit for a pollutant, the permittee shall conduct annual performance tests for that pollutant until all performance tests over a consecutive 2-year period meet the required level (at or below 75 percent of the emission limit), as specified in Conditions 509 and 510.

(9VAC5-80-110, 40 CFR 63.7515(a), (b), and (c), and 40 CFR 63.7520)

520. The permittee shall monitor and collect data according to 40 CFR 63.7535(a), (b), (c), and (d) and the site-specific monitoring plan required by 40 CFR 63.7505(d).

(9VAC5-80-110 and 40 CFR 63.7535(a), (b), (c), and (d))

521. The permittee shall keep records according to 40 CFR 63.7555(a)(1) and (2). These records shall include:
- a. A copy of each notification and report submitted to comply with 40 CFR 63, Subpart DDDDD, including all documentation supporting any Initial Notification or Notification or semiannual compliance report that was submitted, according to the requirements of 40 CFR 63.10(b)(2)(xiv).
  - b. Records of performance tests, fuel analyses, or other compliance demonstrations and performance evaluations as required in 40 CFR 63.10(b)(2)(viii).  
(40 CFR 63.7555(a))
  - c. For each CEMS and continuous monitoring system required by MACT Subpart DDDDD, all records listed in 40 CFR 63.7555(b)(1)-(5).  
(40 CFR 63.7555(b))
  - d. Records required in Table 8 to Subpart DDDDD of Part 63, including records of all monitoring data and calculated averages for applicable operating limits, such as oxygen content and boiler operating load, to show continuous compliance with each applicable emission limit and operating limit.  
(40 CFR 63.7555(c))
  - e. Applicable records required by 40 CFR 63.7555(d)(1) through (11).  
(40 CFR 63.7555(d))
  - f. Records of annual tune-ups for the FU-17 boiler.  
  
(9VAC5-80-110 and 40 CFR 63.7555)
522. The permittee's records shall be in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1).
- a. As specified in 40 CFR 63.10(b)(1), the permittee must keep each record for five years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.
  - b. The permittee must keep each record on site, or they must be accessible from on site, for at least two years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). The permittee can keep the records off site for the remaining three years.  
  
(9VAC5-80-110 and 40 CFR 63.7560(a), (b), and (c))
523. The permittee shall report the results of performance tests and the associated fuel analyses conducted to demonstrate compliance with the applicable emission limits in Conditions 509 and 510 within 60 days after the completion of the performance tests. This report must also verify that the operating limits for each boiler or process heater have not changed or provide documentation of revised operating limits established according to 40 CFR 63.7530 and Table 7 to Subpart DDDDD of Part 63, as applicable. The reports for all subsequent performance tests must include all applicable information required in 40 CFR 63.7550.  
(9VAC5-80-110 and 40 CFR 63.7515(f))

524. The permittee shall report each instance in which each applicable emission limit and operating limit in Tables 1 through 4 or 11 through 15 of Subpart DDDDD of Part 63 was not met. These instances are deviations from the emission limits or operating limits, respectively, in 40 CFR 63 Subpart DDDDD. These deviations must be reported according to the requirements in 40 CFR 63.7550. (9VAC5-80-110 and 40 CFR 63.7540(b))
525. A compliance report shall contain the following information depending on how the facility chooses to comply with the limits set in 40 CFR 63 Subpart DDDDD:
- a. If the facility is subject to the requirements of a tune-up, the permittee shall submit a compliance report with the information in 40 CFR 63.7550(c)(5)(i) through (iii), (xiv), and (xvii).
  - b. If complying with the applicable emission limits with performance testing, the permittee shall submit a compliance report with the information in 40 CFR 63.7550(c)(5)(i) through (iii), (vi), (vii), (viii), (xv), (xviii), and 40 CFR 63.7550(d).
  - c. If complying with an emissions limit using a CMS the compliance report shall contain the information in 40 CFR 63.7550(c)(5)(i) through (iii), (v), (vi), (xi) through (xiii), (xv through xviii) and 40 CFR 63.7550(e).
  - d. For each deviation from an emission or operating limit in 40 CFR 63 Subpart DDDDD when not using a CMS to comply with that emission limit or operating limit, or from the work practice standards for periods of startup and shutdown, the compliance report must additionally contain the information required in 40 CFR 63.7550(d)(1) through (3).
  - e. For each deviation from an emission limit, operating limit, and monitoring requirement in 40 CFR 63 Subpart DDDDD that occurs when using a CMS to comply with the emission limit or operating limit, the compliance report must additionally contain the information in 40 CFR 63.7550(e)(1) through (9). This includes any deviations from the site-specific monitoring plan as required in 40 CFR 63.7505(d).
- (9VAC5-80-110 and 40 CFR 63.7550(c), (d), (e) and (h))
526. The permittee shall submit the reports required by Conditions 506 and 525 according to the procedures specified in 40 CFR 63.7550(h)(1)-(3). A copy of each report shall also be submitted to the Piedmont Regional Office. (9VAC5-80-110 and 40 CFR 63.7550(h))
527. The permittee shall submit the following MACT Subpart DDDDD notifications:
- a. All of the notifications in 40 CFR 63.7(b) and (c), §63.8(e), (f)(4) and (6), and §63.9(b) through (h) that apply to the permitted facility by the dates specified.
  - b. For each initial compliance demonstration as specified in 40 CFR 63.7530, the permittee shall submit a Notification of Compliance Status, including all performance test results and fuel analyses, before the close of business on the 60th day following the completion of all performance test and/or other initial compliance demonstrations for the FU-17 boiler according to 40 CFR 63.10(d)(2). The Notification of Compliance Status Report shall contain all information specified in paragraphs 40 CFR 63.7545(e)(1)-(8), as applicable.

- c. For each required performance test, the permittee shall submit a Notification of Intent to conduct a performance test at least 60 days before the performance test is scheduled to begin.
- d. If the permittee has switched fuels or made a physical change to the FU-17 boiler and the fuel switch or physical change resulted in the applicability of a different subcategory, the permittee shall provide notice of the date upon which the fuel switch or physical change was made within 30 days of the switch/change. The notification must identify the information in 40 CFR 63.7545(h)(1)-(3).

(9VAC5-80-110 and 40 CFR 63.7545(a), (d), (e), and (h))

## AREA 14 AND OXIMES PLANT

### Limitations

#### Control Equipment Requirements

528. Prior to the notification that the Oximes Plant (Multi-Purpose Oximation Process and MEKO Manufacturing Process) has transitioned to using the VOC flare (IN-1) in place of the thermal VOC incinerator (FU-14), the permittee shall comply with Best Available Technology (BACT) requirements for volatile organic compound (VOC) emissions for volatile organic compounds by:
- a. At all times, except during periods when the thermal VOC incinerator (FU-14) is unavailable due to a startup, shutdown, or malfunction (SSM) event as defined by 40 CFR 63 Subpart FFFF, controlling emissions from the process vents and storage tanks indicated below in the thermal VOC incinerator (FU-14):
    - i. The Oximes Plant Multi-Purpose Oximation Process (except for HT-187, VT-603, VT-616, HT-181, VT-757, HT-186, HT-191, TT-MPO/RC-MPO, Drum-MPO, and the acetaldehyde (AA) / methyl isobutyl ketone (MIBK) / methyl propyl ketone (MPK) unloading and storage facility); and
    - ii. The Oximes Plant Crude MEKO Manufacturing Process (except for (HT-181, SE-75, and VT-603));
    - iii. The Oximes Plant Crude 2-PO Manufacturing Process (except for HT-189, SE-75, and VT-603);
    - iv. The Oximes Plant MEKO Purification Process (except for VT-779, VT-787, RC-MEKO, TT-MEKO, and Drum-MEKO); and
    - v. The Oximes Plant 2-PO Purification Process (except for HT-186, HT-191, RC-2-PO, TT-2-PO, and Drum-2-PO).
  - b. During periods when the thermal VOC incinerator (FU-14) is unavailable due to a startup, shutdown, or malfunction (SSM) as defined by 40 CFR 63 Subpart FFFF, complying with the applicable requirements of 9VAC5-20-180 and controlling such emissions as indicated below:
    - i. For the Oximes Plant Multi-Purpose Oximation Process (except for HT-187, VT-603, VT-616, HT-181, VT-757, HT-186, HT-191, TT-MPO/RC-MPO, Drum-MPO, and the acetaldehyde (AA) / methyl isobutyl ketone (MIBK) / methyl propyl ketone (MPK) unloading and storage facility),

VOC emissions shall be minimized in accordance with the 40 CFR 63 Subpart FFFF requirements for Group 2 continuous process vents and by venting the emissions to flare IN-1;

- ii. For the Oximes Plant Crude MEKO Manufacturing Process (except for HT-181, SE-75, and VT-603), VOC emissions shall be minimized in accordance with 9VAC5-20-180;
  - iii. For the Oximes Plant Crude 2-PO Manufacturing Process (except for HT-189, SE-75, and VT-603), VOC emissions shall be minimized in accordance with 9 VAC 5-20-180;
  - iv. For the Oximes Plant MEKO Purification Process (except for VT-779, VT-787, RC-MEKO, TT-MEKO, and Drum-MEKO), VOC emissions shall be minimized in accordance with 9 VAC 5-20-180; and
  - v. For the Oximes Plant 2-PO Purification Process (except for HT-186, HT-191, RC-2-PO, TT-2-PO, and Drum-2-PO), VOC emissions shall be minimized in accordance with 9 VAC 5-20-180.
- c. When any process gas streams are being fed to the thermal VOC incinerator (FU-14), the incinerator shall have a minimum VOC destruction efficiency of 98%, and the incinerator shall be maintained at a minimum temperature of 1400 °F. The incinerator shall be equipped with a temperature monitoring device to continuously monitor the temperature of the incineration chamber. The incinerator shall be provided with adequate access for inspection.

(9VAC5-80-110 and Condition 1 of the 4/23/2021 NSR Permit)

529. **Emission Controls** – Upon notification to the DEQ that the Oximes Plant (Multi-Purpose Oximation Process and MEKO Manufacturing Process) has transitioned to using the VOC flare (IN-1) in place of the thermal VOC incinerator (FU-14), the permittee shall comply with best available control technology (BACT) requirements for volatile organic compound (VOC) emissions by:
- a. At all times, except during periods when the VOC Flare (IN-1) is unavailable due to a startup, shutdown, or malfunction (SSM) event as defined by 40 CFR 63 Subpart FFFF, controlling emissions from the process vents and storage tanks indicated below by venting to the VOC Flare (IN-1):
    - i. The Oximes Plant Multi-Purpose Oximation Process (except for HT-187, VT-603, VT-616, HT-181, VT-757, HT-186, HT-191, TT-MPO/RC-MPO, Drum-MPO, and the acetaldehyde (AA) / methyl isobutyl ketone (MIBK) / methyl propyl ketone (MPK) unloading and storage facility);
    - ii. The Oximes Plant Crude MEKO Manufacturing Process (except for HT-181, SE-75, and VT-603);
    - iii. The Oximes Plant Crude 2-PO Manufacturing Process (except for HT-189, SE-75, and VT-603);
    - iv. The Oximes Plant MEKO Purification Process (except for VT-779, VT-787, RC-MEKO, TT-MEKO, and Drum-MEKO); and
    - v. The Oximes Plant 2-PO Purification Process (except for HT-186, HT-191, RC-2-PO, TT-2-PO, and Drum-2-PO)
  - b. During periods when the VOC Flare (IN-1) is unavailable due to a startup, shutdown, or malfunction (SSM) event as defined by 40 CFR 63, Subpart FFFF, complying with the applicable requirements of 9 VAC 5-20-180 and controlling such emissions as indicated below:

- i. For the Oximes Plant Multi-Purpose Oximation Process (except for HT-187, VT-603, VT-616, HT-181, VT-757, HT-186, HT-191, TT-MPO/RC-MPO, Drum-MPO, and the acetaldehyde (AA) / methyl isobutyl ketone (MIBK) / methyl propyl ketone (MPK) unloading and storage facility), VOC emissions shall be minimized in accordance with the 40 CFR 63 Subpart FFFF requirements for Group 2 continuous process vents and shall not exceed 2.0 lb/hr;
  - ii. For the Oximes Plant Crude MEKO Manufacturing Process (except for HT-181, SE-75, and VT-603), VOC emissions shall be minimized in accordance with 9 VAC 5-20-180;
  - iii. For the Oximes Plant Crude 2-PO Manufacturing Process (except for HT-189, SE-75, and VT-603), VOC emissions shall be minimized in accordance with 9 VAC 5-20-180;
  - iv. For the Oximes Plant MEKO Purification Process (except for VT-779, VT-787, RC-MEKO, TT-MEKO, and Drum-MEKO), VOC emissions shall be minimized in accordance with 9 VAC 5-20-180;
  - v. For the Oximes Plant 2-PO Purification Process (except for HT-186, HT-191, RC-2-PO, TT-2-PO, and Drum-2-PO), VOC emissions shall be minimized in accordance with 9 VAC 5-20-180.
- c. When any process gas streams are being fed to the VOC Flare (IN-1), the flare shall have a minimum VOC destruction efficiency of 98%, and the flare shall be maintained at a minimum net heating value of 200 Btu/scf in accordance with 40 CFR 60.18(b). The flare shall be equipped with a flame detector. The flame detector shall be in proper working order at all times that the flare is in use. The flare shall be provided with adequate access for inspection.

(9VAC5-80-110 and Condition 2 of the 4/23/2021 NSR Permit)

530. Volatile organic compound emissions resulting from fugitive equipment leaks in the Oximes Plant Crude MEKO manufacturing process, the Oximes Plant MEKO purification process, the Oximes Plant Crude 2-PO manufacturing process, and the Oximes Plant 2-PO purification process shall be controlled by a Leak Detection and Repair (LDAR) program. The LDAR program shall be substantively equivalent to the LDAR requirements specified in 40 CFR 60, Subpart VV.  
(9VAC5-80-110 and Condition 3 of the 4/23/2021 NSR Permit)
531. Volatile organic compound emissions resulting from fugitive equipment leaks from the Oximes Plant Multi-Purpose Oximation process shall be controlled by a Leak Detection and Repair (LDAR) Program. The permittee shall keep records which indicate the inspection frequency for equipment leaks in the Oximes Plant Multi-Purpose Oximation process and where leaks are detected, records which indicate the time required to repair the detected leak.  
(9VAC5-80-110 and Condition 4 of the 4/23/2021 NSR Permit)
532. Volatile organic compound emissions from storage tanks VT-215 and VT-217 in the Area 14 Crude MEKO and Area 14 Crude 2-PO manufacturing processes shall be controlled by the use of a submerged fill pipe.  
(9VAC5-80-110 and Condition 5 of the 4/23/2021 NSR Permit)

533. Volatile organic compound emissions from storage tank HT-187 in the Oximes Plant Multi-Purpose Oximation process shall be controlled by being designed and operated as a pressure tank maintaining working pressure sufficient at all times to prevent vapor loss to the atmosphere.  
(9VAC5-80-110, 9VAC5-40-3440 A, and Condition 6 of the 4/23/2021 NSR Permit)
534. Fugitive VOC emissions resulting from equipment leaks in those portions of Area 14 not already subject to fugitive emissions requirements from other applicable regulations shall be controlled through a Leak Detection and Repair (LDAR) program. The LDAR program shall be substantively equivalent to the LDAR requirements specified in 40 CFR 60, Subpart VV.  
(9VAC5-80-110 and Condition #E.7 of the 3/26/1997 RACT Agreement)

### **Operating Limitations**

535. As of January 31, 2014, the Oximes Plant OS-1000/OS-2000 Manufacturing Process, the Oximes Plant Aldicarb Oxime Manufacturing Process and the Oximes Plant Hydroxylamine Sulfate Manufacturing Process shall be permanently shut down. Reactivation of these processes may require a new or amended permit.  
(9VAC5-80-110 and Condition 8 of the 4/23/2021 NSR Permit)
536. As of January 31, 2014, the permittee shall combust no solid or hazardous waste in FU-14.  
(9VAC5-80-110 and Condition 9 of the 4/23/2021 NSR Permit)
537. The production of crude MEKO from the Area 14 Crude MEKO manufacturing process shall not exceed 20,000 tons per year, combined, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.  
(9VAC5-80-110 and Condition 10 of the 4/23/2021 NSR Permit)
538. The production of crude 2-PO from the Area 14 Crude 2-PO manufacturing process shall not exceed 7,500 tons per year, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.  
(9VAC5-80-110 and Condition 11 of the 4/23/2021 NSR Permit)
539. The combined production of crude MEKO and crude 2-PO from the Area 14 Crude MEKO and Area 14 Crude 2-PO manufacturing processes shall not exceed 20,000 tons per year, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.  
(9VAC5-80-110 and Condition 12 of the 4/23/2021 NSR Permit)
540. The production of crude MEKO from the Oximes Plant Crude MEKO manufacturing process shall not exceed 5,990 tons per year, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.  
(9VAC5-80-110 and Condition 13 of the 4/23/2021 NSR Permit)

541. The production of crude 2-PO from the Oximes Plant Crude 2-PO Manufacturing process shall not exceed 10,287 tons per year, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.  
(9VAC5-80-110 and Condition 14 of the 4/23/2021 NSR Permit)
542. The combined annual production of purified MEKO from the Oximes Plant MEKO purification process shall not exceed 15,000 tons per year, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.  
(9VAC5-80-110 and Condition 15 of the 4/23/2021 NSR Permit)
543. The production of purified 2-PO from the Oximes Plant 2-PO Purification process shall not exceed 8,760 tons per year, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.  
(9VAC5-80-110 and Condition 16 of the 4/23/2021 NSR Permit)
544. The annual production of MEKO from the Oximes Plant Multi-Purpose Oximation process shall not exceed 4,000 tons per year, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.  
(9VAC5-80-110 and Condition 17 of the 4/23/2021 NSR Permit)
545. The combined annual production of MIBKO and 2-PO from the Oximes Plant Multi-Purpose Oximation process shall not exceed 5,500 tons per year, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.  
(9VAC5-80-110 and Condition 18 of the 4/23/2021 NSR Permit)
546. The production of AAO from the Oximes Plant Multi-Purpose Oximation process shall not exceed 8,646 tons per year (as 100% AAO), calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.  
(9VAC5-80-110 and Condition 19 of the 4/23/2021 NSR Permit)
547. WWE production from the Oximes Plant WWE process shall not exceed 1,050,000 WWE production units per year, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.  
(9VAC5-80-110 and Condition 20 of the 4/23/2021 NSR Permit)

### **Emission Limitations**

548. Combined emissions from the Thermal VOC Incinerator (FU-14) and the VOC Flare (IN-1) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	0.73	3.2
PM <sub>10</sub>	0.73	3.2
Sulfur Dioxide	10.0	43.8
Nitrogen Oxides (as NO <sub>2</sub> )	25.0	87.1
Volatile Organic Compounds	0.10	0.41

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits shall be determined as stated in Conditions 528, 529, and 540-546.

(9VAC5-80-110 and Condition 21 of the 4/23/2021 NSR Permit)

549. Emissions from the Oximes Plant cooling tower (TW-77) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
PM (filterable only)	19.6	8.4
PM <sub>10</sub>	19.6	8.4

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits shall be determined as stated in Condition 563.m.

(9VAC5-80-110 and Condition 22 of the 4/23/2021 NSR Permit)

550. Emissions from the WWE process shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Volatile Organic Compounds	5.1	5.1

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Condition 547.

(9VAC5-80-110 and Condition 23 of the 4/23/2021 NSR Permit)

551. Emissions from the operation of the Oximes Plant Crude MEKO and Crude 2-PO processes shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Volatile Organic Compounds	2.7	1.1

(9VAC5-80-110 and Condition 24 of the 4/23/2021 NSR Permit)

552. Fugitive emissions from the pumps, valves and flanges associated with the Oximes Plant Crude MEKO process shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Tons/year</b>
Volatile Organic Compounds	7.6

These emissions are derived from the estimated overall emission contribution and are included for emission inventory purposes. Compliance shall be determined as stated in Condition 530.  
 (9VAC5-80-110 and Condition 25 of the 4/23/2021 NSR Permit)

553. Emissions from the operation of the Area 14 Crude MEKO and/or the Area 14 Crude 2-PO manufacturing process (including emissions from filling of VT-215 and VT-217) shall not exceed the limits specified below:

	<b>Crude MEKO</b>	<b>Crude 2-PO</b>	<b>Combined</b>
<b>Pollutant</b>	<b>Lb/hr</b>	<b>Lb/hr</b>	<b>Tons/year</b>
Volatile Organic Compounds	94.7	47.8	4.8

Compliance with these emission limits may be determined as stated in Condition 537-539.  
 (9VAC5-80-110 and Condition 26 of the 4/23/2021 NSR Permit)

554. Fugitive emissions from the pumps, valves and flanges at the Area 14 Crude MEKO and Crude 2-PO manufacturing process shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Tons/year</b>
Volatile Organic Compounds	7.9

These emissions are derived from the estimated overall emission contribution and are included for emission inventory purposes. Compliance shall be determined as stated in Condition 534.  
 (9VAC5-80-110 and Condition 27 of the 4/23/2021 NSR Permit)

555. Visible emissions from the thermal VOC incinerator (FU-14) shall not exceed 20 percent opacity, except for one six-minute period in any one hour of not more than 30 percent opacity.  
 (9VAC5-80-110 and Condition 28 of the 4/23/2021 NSR Permit)
556. Visible emissions from the VOC Flare (IN-1) shall be designed and operated with no visible emissions, except periods not to exceed a total of five (5) minutes during any two (2) consecutive hours. Test Method 22 in Appendix A of 40 CFR 60 shall be used to determine compliance with this visible emission requirement.  
 (9VAC5-80-110 and Condition 29 of the 4/23/2021 NSR Permit)

**MON Process Requirements**

557. The following Oximes affected sources subject to 40 CFR 63 Subpart FFFF shall be operated in compliance with the requirements of 40 CFR 63.2455 and 40 CFR 63.2470:
- Multi-Purpose Oximation (MPO) when running AAO or MIBKO – Group 2
  - VT-187 (stores liquids that contain organic HAP but is not considered a storage tank according to the definition in 40 CFR 63.2550 because it is a pressure vessel designed to operate in excess of 204.9 kPa and without emissions to the atmosphere)

(9VAC5-80-110 and 40 CFR 63 Subparts A and FFFF)

558. Except where this permit is more restrictive than the applicable requirement, the permittee shall operate Oximes equipment in compliance with the requirements of 40 CFR 63 Subparts A and FFFF.  
(40 CFR 63 Subparts A and FFFF)

### **MON LDAR Requirements**

559. The permittee shall operate the Oximes equipment subject to MON requirements in compliance with 40 CFR 63.2480 and the Leak Detection and Repair requirements of 40 CFR 63 Subpart H or 40 CFR 63 Subpart UU. The provisions of this condition apply to pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, instrumentation systems, and closed vent systems and control devices used to meet the requirements of Subpart FFFF. Equipment in vacuum service is excluded from the requirements of Subpart FFFF.  
(9VAC5-80-110 and 40 CFR 63 Subparts A and FFFF)

### **Monitoring**

560. The thermal incinerator (FU-14) shall be observed visually at least once each operating week for at least a brief time period to determine which emissions units have normal visible emissions (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on the emissions unit. Each emissions unit observed having above normal visible emissions shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.  
(9VAC5-80-110)
561. After the transition from FU-14 to IN-1, the permittee shall perform a monthly visual observation of the VOC flare (IN-1) for compliance with the opacity limit in Condition 556. If such periodic observations indicate any visible emissions, the permittee shall take appropriate action immediately to return the unit to normal operation such that no visible emissions exist. If such corrective action fails to eliminate visible emissions, the permittee shall conduct a visible emission evaluation (VEE) utilizing EPA Method 22 (reference 40 CFR 60, Appendix A). If a Method 22 evaluation and/or corrective action becomes necessary, the permittee shall record the details of the incident in a logbook. The logbook shall be kept on site and available for inspection by the DEQ for the most recent five-year period. Anytime the monthly visible emissions observations show visible emissions, or when requested by the DEQ, the monitoring frequency shall be increased to once per week. Upon four consecutive weekly observations with no detectable visible emissions, the monitoring frequency will revert back to monthly.  
(9VAC5-80-110 and Condition 32 of the 4/23/2021 NSR Permit)
562. The thermal incinerator (FU-14) shall be equipped with a temperature monitoring device to continuously monitor the temperature of the incineration chamber.  
(9VAC5-80-110 and Condition 1.c of the 4/23/2021 NSR Permit)

### **Recordkeeping**

563. The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Piedmont Regional Office. These records shall include, but are not limited to:

- a. The monthly production of crude MEKO from the Area 14 Crude MEKO manufacturing process.
- b. The monthly production of crude 2-PO from the Area 14 Crude 2-PO manufacturing process.
- c. The total monthly production of crude MEKO and crude 2-PO, combined, from the Area 14 Crude MEKO and 2-PO manufacturing processes.
- d. The monthly production of crude MEKO from the Oximes Plant Crude MEKO manufacturing process.
- e. The monthly production of crude 2-PO from the Oximes Plant Crude 2-PO manufacturing process.
- f. The monthly production of purified MEKO from the Oximes Plant MEKO purification process.
- g. The monthly production of purified 2-PO from the Oximes Plant 2-PO purification process.
- h. The monthly production of MEKO produced in the Oximes Plant Multi-purpose Oximation process.
- i. The combined monthly production of MIBKO and 2-PO produced in the Oximes Plant Multi-Purpose Oximation process.
- j. The monthly production/throughput of AAO.
- k. The monthly production of the WWE process.
- l. FU-14 natural gas combustion rates, emission factors, fugitive component inventories, hours in VOC service and any other information necessary to demonstrate compliance with the emission limits of Conditions 548-554.
- m. Annual total dissolved solids test results from the Oximes Plant cooling tower (TW-77) water to be used to determine compliance with the emission limits in Condition 549.
- n. Documentation that HT-187 is designed and operated as a pressure tank.
- o. The existence of the pilot flame for the NAO VOC Flare (IN-1), recorded hourly.
- p. The results of the visible emission surveys required by Condition 560 or 561, and details of any corrective action taken as a result of these inspections.
- q. The number of times and length of each occurrence where visible emissions are observed from the flare (IN-1) as required by Condition 561.
- r. For FU-14, data from the continuous temperature monitoring device required by Condition 562 demonstrating compliance with Condition 528.c.
- s. MON records as required by 40 CFR 63.2525 and MON LDAR records in accordance with 40 CFR 63.2480 and either 40 CFR 63.181 or 40 CFR 63.1038.
- t. Results of the performance test required by Condition 564.

- u. The Leak Detection and Repair records required by Conditions 530 and 531 as well as records which indicate the inspection frequency for equipment leaks in the Oximes Plant Multi-Purpose Oximation process and, where leaks are detected, records which indicate the time required to repair the detected leak.
- v. Certification of submerged fill pipe (or bottom filling design) for each storage tank subject to Condition 532.
- w. A maintenance schedule for all process equipment including pumps, valves and flanges, and air pollution control equipment.
- x. Scheduled and unscheduled maintenance records for all process equipment and air pollution control equipment.
- y. Inventory of spare parts to minimize the duration of air pollution control equipment breakdowns.
- z. Written operating procedures for all process equipment and air pollution control equipment.
- aa. Operator training records.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.

(9VAC5-80-110, Condition #E.32 of the 3/26/1997 RACT Agreement, Conditions 3, 4, and 33 of the 4/23/2021 NSR Permit)

## Testing

564. A performance test shall be conducted to determine the net heating value of the gas being combusted and the actual exit velocity for the VOC flare (IN-1). The test shall be performed, and demonstrate compliance with Condition 529.c, within 60 days after achieving maximum production rate at which the flare will be operated, but no later than 180 days after the transition from FU-14 to IN-1. Tests shall be conducted as set forth in 9 VAC 5-50-30 of State Regulations. The test methods and procedures in 40 CFR 60.18(f)(3) and 40 CFR 60.189(f)(4) shall be used to determine the net heating value of the gas being combusted and the actual exit velocity for the VOC flare (IN-1). The details of the test are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. Two copies of the test results for the open flare shall be submitted to the Piedmont Regional Office within 45 days after test completion and shall conform to the test report format enclosed with this permit.  
(9VAC5-80-110 and Condition 30 of the 4/23/2021 NSR Permit)
565. Concurrently with the performance test, Visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 22, shall also be conducted by the permittee on the VOC flare (IN-1). The observation period shall be two hours. The details of the test are to be arranged with the Piedmont Regional Office. The permittee shall submit a test protocol at least 30 days prior to testing. The evaluation shall be performed within 60 days after achieving the maximum production rate at which the flare will be operated but no later than 180 days after the transition from FU-14 to IN-1. Should conditions prevent observations, the Piedmont Regional Office shall be notified in writing within seven days, and visible emissions testing shall be rescheduled within 30 days. Rescheduled testing shall be conducted under the same conditions (as

possible) as the initial performance tests. Two copies of the test results for the open flare shall be submitted to the Piedmont Regional Office

(9VAC5-80-110 and Condition 31 of the 4/23/2021 NSR Permit)

### **Reporting and Notification Requirements**

566. The permittee shall furnish written notification to the Piedmont Regional Office of:

- a. The anticipated date that the Oximes Plant will transition to using the VOC Flare (IN-1) in place of the thermal VOC incinerator (FU-14), postmarked at least 30 days prior to such date or as arranged with the Piedmont Regional Office.
- b. The date the Oximes Plant has transitioned to using the VOC Flare (IN-1) in place of the thermal VOC incinerator (FU-14), within 10 days after transitioning.
- c. The anticipated date for conducting performance tests required by Conditions 564 and 565 and at least 30 days prior to such date.

(9VAC5-80-110 and Condition 34 of the 4/23/2021 NSR Permit)

567. The permittee shall report the results of any 40 CFR Part 60 Appendix A Method 9 opacity test performed as a result of Condition 560 or 561. If the test indicates the facility is out of compliance with the applicable standard contained in Condition 556, the source shall also report the length of time associated with any exceedance of the standard and the corrective actions taken to correct the exceedance. This report shall be sent to the Piedmont Regional Office within seven days of the applicable test unless otherwise noted in Condition 628.

(9VAC5-80-110)

### **MON Notification and Reporting Requirements**

568. The permittee shall submit reports and notifications in accordance with 40 CFR 63.2515, 40 CFR 63.2520, and either 40 CFR 63.182 or 40 CFR 63.1039.

(9VAC5-80-110 and 40 CFR 63 Subparts A and FFFF)

### **Compliance Assurance Monitoring**

569. The permittee shall implement an approved Compliance Assurance Monitoring (CAM) Plan to monitor the flares (FLS-61 and FLS-62) controlling VOC emissions from the Area 6, the Kellogg primary reformer process heater (FU-1) controlling VOC emissions from A6-Hydro, the mist eliminators controlling PM-10 emissions from the Area 9 nitrite and disulfonate towers, the time tanks controlling NOx emissions from TW-22 and TW-32, the packed bed scrubbers controlling NOx emissions from TW-23 and TW-33, the thermal oxidizer (FU-16) controlling VOC emissions from Areas 7 and 8, the scrubbers controlling PM-10 emissions from RD-3N, RD-4, RD-6, RD-7, RD-7N, Building 12, and Building 12B, the baghouse controlling PM-10 emissions from Building 12, the scrubber controlling sulfuric acid mist emissions from the SAP Oleum Tanks, the mist eliminator controlling PM-10 emissions from the SAP, and the compressor controlling NOx emissions from KAPCS-1. For the purposes of this permit, the PSEUs are designated as follows, with the acronym “PSEU” meaning Pollutant Specific Emissions Unit:

**Area 6:**

Pollutant	Emission Units	Pollutant-Specific Emission Unit
VOC	Area 6 Hydro, APT-1, KA Oil Reactor to FLS-61	PSEU A
VOC	Area 6 Hydro to FU-1	PSEU B
VOC	Columns, centrifuges to FLS-62	PSEU C

**Area 9 (Nitrite Towers):**

Pollutant	Emission Units	Pollutant-Specific Emission Unit
PM-10	TW-2	PSEU D
PM-10	TW-8	PSEU E
PM-10	TW-17	PSEU F
PM-10	TW-22	PSEU G
PM-10	TW-32	PSEU H

**Area 9 (Disulfonate Towers):**

Pollutant	Emission Units	Pollutant-Specific Emission Unit
PM-10	TW-62	PSEU I
PM-10	TW-9	PSEU J
PM-10	TW-18	PSEU K
PM-10	TW-23	PSEU L
PM-10	TW-33	PSEU M

**Area 9 (Nitrite Towers):**

Pollutant	Emission Units	Pollutant-Specific Emission Unit
NO <sub>x</sub>	TW-22	PSEU N
NO <sub>x</sub>	TW-32	PSEU O

**Area 9 (Disulfonate Towers):**

Pollutant	Emission Units	Pollutant-Specific Emission Unit
NO <sub>x</sub>	TW-23	PSEU P
NO <sub>x</sub>	TW-33	PSEU Q

**Area 8/16:**

Pollutant	Emission Units	Pollutant-Specific Emission Unit
VOC	FU-16 points	PSEU R

**Area 11:**

Pollutant	Emission Units	Pollutant-Specific Emission Unit
PM-10	Dryers (scrubbers) – RD3N	PSEU S
PM-10	Dryers (scrubbers) – RD4	PSEU T
PM-10	Dryers (scrubbers) – RD6	PSEU U
PM-10	Dryers (scrubbers) – RD7	PSEU V
PM-10	Dryers (scrubbers) – RD7N	PSEU W
PM-10	Bldg 12 (DC-21)	PSEU X
PM-10	Bldg 12 (DC-31)	PSEU Y
PM-10	Bldg 12B (DC-21B)	PSEU Z

**Sulfuric Acid Plant (SAP):**

Pollutant	Emission Units	Pollutant-Specific Emission Unit
PM-10	SAP (PM-10 controlled by SE-105)	PSEU AA
Sulfuric Acid Mist	Oleum Tanks to FS-3	PSEU BB

***Kellogg:***

<b>Pollutant</b>	<b>Emission Units</b>	<b>Pollutant-Specific Emission Unit</b>
NOx	KAPCS-1	PSEU CC

The approved monitoring plans shall be the attached CAM Plans (Attachment A-1 for PSEUs A-C; Attachment A-2 for PSEUs D-M; Attachment A-3 for PSEU N-R; Attachment A-4 for PSEUs S-Z; Attachment A-5 for PSEUs AA-BB; Attachment A-6 for PSEU CC) or the most recent revision to each plan that has been: (1) developed and approved pursuant to 40 CFR 64.7(e) and Conditions 569-580 of this permit; (2) revised pursuant to a Quality Improvement Plan in accordance with 40 CFR 64.8 and Conditions 569-580 of this permit; or (3) otherwise approved by the DEQ conforming with Condition 569-580 of this permit, including, but not limited to, changes initiated by DEQ. (9VAC5-80-110 and 40 CFR 64.6(c))

570. Each monitoring approach shall be designed and implemented in compliance with 40 CFR 64.3(b) or (d). If a monitoring approach uses a monitoring device, the device shall be operated according to manufacturer’s specifications, unless other methods are approved, and in compliance with 40 CFR 64.3(b) or (d). The approved CAM Plan shall include, at a minimum, the following information:
- a. Indicator;
  - b. Measurement Approach;
  - c. Indicator Range or Condition(s) for Range Development; and
  - d. The following performance criteria:
    - i. Data Representativeness;
    - ii. Verification of Operational Status;
    - iii. QA/QC Practices and Criteria;
    - iv. Monitoring Frequency;
    - v. Data Collection Procedures; and
    - vi. Averaging Period

Changes to a CAM Plan pertaining to the information in this condition require prior approval by the DEQ and may require public participation according to the requirements of 9VAC5-80-230. (9VAC5-80-110 and 40 CFR 64.6(c))

571. The permittee shall conduct the monitoring and fulfill the other obligations specified in 40 CFR 64.7 through 40 CFR 64.9. (9VAC5-80-110 and 40 CFR 64.6(c))

572. If a monitoring approach uses a monitoring device, at all times, the permittee shall maintain the monitoring equipment, including, but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.  
(9VAC5-80-110 and 40 CFR 64.7(b))
573. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the permittee shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the PSEU is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for purposes of compliance assurance monitoring, including data averages and calculations, or fulfilling a minimum data availability requirement, if applicable. The permittee shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by inadequate maintenance or improper operation are not malfunctions.  
(9VAC5-80-110 and 40 CFR 64.7(c))
574. Upon detecting an excursion or exceedance, the permittee shall restore operation of the PSEU (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup and shutdown conditions). Such actions may include initial inspection and evaluation, recording that operations returned to normal without operator action (such as through response by a computerized distribution control system), or any necessary follow-up actions to return operation to within the indicator, designated condition, or below the applicable emission limitation or standard, as applicable.  
(9VAC5-80-110 and 40 CFR 64.7(d)(1))
575. Determination that acceptable procedures were used in response to an excursion or exceedance will be based on information available, which may include but is not limited to, monitoring results, review of operation and maintenance procedures and records, and inspection of the control device, associated capture system, and the process.  
(9VAC5-80-110 and 40 CFR 64.7(d)(2))
576. If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly (in accordance with Condition 628) notify the Piedmont Regional Office and, if necessary, submit a revised CAM Plan for approval to the Piedmont Regional Office to address the necessary monitoring changes. Such a modification may include, but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters.  
(9VAC5-80-110, 40 CFR 64.7(e), and 40 CFR 64.6(c))
577. If the number of exceedances or excursions exceeds 5 percent duration of the operating time for a PSEU for a semiannual reporting period, the permittee shall develop, implement, and maintain a Quality Improvement Plan (QIP) in accordance with 40 CFR 64.8. If a QIP is required, the permittee shall have it available for inspection. The QIP initially shall include procedures for evaluating the control performance problems and,

based on the results of the evaluation procedures, the permittee shall modify the plan to include procedures for conducting one or more of the following, as appropriate:

- a. Improved preventative maintenance practices;
- b. Process operation changes;
- c. Appropriate improvements to control methods;
- d. Other steps appropriate to correct control performance; and
- e. More frequent or improved monitoring.

(9VAC5-80-110 and 40 CFR 64.8(a) and (b))

578. Monitoring imposed under 40 CFR Part 64 shall not excuse the permittee from complying with any existing requirements under federal, state, or local law, or any other applicable requirement under the Act, as described in 40 CFR 64.10.

(9VAC5-80-110 and 40 CFR 64.10)

579. The permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan (QIP) required pursuant to §64.8 and any activities undertaken to implement a quality improvement plan (QIP), and other supporting information required to be maintained under 40 CFR Part 64 (such as data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions).

(9VAC5-80-110 and 40 CFR 64.9(b))

580. The permittee shall submit CAM reports for each PSEU as part of the Title V semi-annual monitoring reports required by General Condition 625 of this permit to the Piedmont Regional Office. Such reports shall include at a minimum:

- a. Identification of the PSEU for which the report is made;
- b. Summary information on the number, duration, and cause (including unknown cause, if applicable) of excursions or exceedances, as applicable, and the corrective actions taken;
- c. Summary information on the number, duration, and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero and span or other daily calibration checks, if applicable); and
- d. A description of the actions taken to implement a quality improvement plan (QIP) during the reporting period as specified in §64.8. Upon completion of a QIP, the owner or operator shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions or exceedances occurring.

(9VAC5-80-110 and 40 CFR 64.9(a))

## **Facility Wide Conditions**

### **Limitations**

#### **NOx Emission Cap Requirements**

581. Beginning on June 1, 2000, the total NOx emissions from this facility shall not exceed 13,085 tons per year, calculated monthly as the sum of each previous consecutive 12-month period. The first consecutive 12-month period shall be the twelve months after June 1, 2000. Beginning on June 1, 2000, the total NOx emissions from this facility during the time period beginning June 1 and ending August 31 of each calendar year shall not exceed 3,382 tons. These emissions totals shall be accumulated through this time period and shall be reported to the Piedmont Regional Office by November 15 of each calendar year. (9VAC5-80-110 and Conditions 16 and 17 of the 9/8/2022 NSR Permit)

#### **Solvent Metal Cleaning Requirements**

582. The permittee shall operate any solvent metal cleaning operations (including PW-8, PW-9, PW-17, PW-26, and PW-77) in compliance with all applicable requirements of 9VAC5 Chapter 40 Article 24. (9VAC5-40-3260 to 3400 and 9VAC5-80-110)

#### **July 18, 2013 Consent Decree Requirements**

583. The permittee shall comply with the enhanced leak detection and repair (LDAR) requirements specified in Appendix A of any United States Environmental Protection Agency Consent Decree entered to resolve the Notices of Violation issued to the permittee on March 10, 2009 and August 21, 2010. (9VAC5-80-110 and Condition 20 of the 9/8/2022 NSR Permit)

584. Unless alternative provisions are approved by the Administrator of the EPA and the Piedmont Regional Office, the permittee shall comply with all applicable requirements of any United States Environmental Protection Agency Consent Decree entered to resolve the Notices of Violation issued to the permittee on March 10, 2009 and August 21, 2010. (9VAC5-80-110 and Condition 21 of the 9/8/2022 NSR Permit)

585. The projects associated with the September 8, 2022 permit result in emission increases and/or decreases of particulate matter, particulate matter (PM-10), particulate matter (PM-2.5), sulfur dioxide, nitrogen oxides (NOx) and volatile organic compounds (VOC) as described in the permit application dated March 11, 2011 as amended May 5, 2011, May 22, 2011, June 10, 2011 and June 24, 2011, the permit application dated October 26, 2011 as amended November 4, 2011, November 11, 2011 and November 21, 2011, the permit application dated February 6, 2012 as amended May 30, 2012, July 18, 2012 and September 28, 2012 and the permit application dated June 14, 2013 as amended June 17, 2013. With the inclusion of the emission reductions from the installation of the selective catalytic reduction systems (SCR) referenced in Conditions 118, 122, 126, and 135 (as allowed by any United States Environmental Protection Agency Consent Decree entered to resolve the Notices of Violation issued to the permittee on March 10, 2009 and August 21, 2010), the net emission increase (as defined in 9VAC5 Chapter 80, Article 8) of any regulated NSR pollutant from the projects associated with this permit shall not exceed an amount defined as significant by 9VAC5 Chapter 80, Article 8. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this net emission increase requirement. The content of and format of such records shall be arranged with the Piedmont Regional Office. The emission reductions from

the installation of the SCR systems referenced in Conditions 118, 122, 126, and 135 shall not be eligible for inclusion (creditable) in determining the net emission increase resulting from any future application for the construction, reconstruction, or modification of this facility received by DEQ.  
(9VAC5-80-110 and Condition 22 of the 9/8/2022 NSR Permit)

586. The equipment listed in the Introduction of this permit identifies the emission units approved to be constructed, modified, reconstructed, and operated in accordance with the permit application dated:
- a. March 11, 2011 as amended May 5, 2011, May 22, 2011, June 10, 2011, and June 24, 2011. The individual projects approved for each emission unit are further described in the permit application dated March 11, 2011 as amended May 5, 2011, May 22, 2011, June 10, 2011 and June 24, 2011, the permit application dated October 26, 2011 as amended November 4, 2011, November 11, 2011, and November 21, 2011, the permit application dated February 6, 2012 as amended May 30, 2012, July 18, 2012, and September 28, 2012, and the permit application dated June 14, 2013 as amended June 17, 2013. Unless more frequent reports are required by this permit or 40 CFR 60.7, the permittee shall submit semi-annual project reports to the Piedmont Regional Office within 30 days after the end of each semi-annual period. Each report shall include:
    - i. For each emission unit, a list of the projects planned for that emission unit as identified in the March 11, 2011, October 26, 2011, February 6, 2012, and June 14, 2013 permit applications (as amended) and a brief description of each project.
    - ii. The current status of each project: not begun, under construction or completed.
    - iii. For projects which have not begun construction/implementation, the estimated start date.
    - iv. For projects which are being implemented/constructed as of the date of the report, the estimated project completion date.
    - v. For projects which have already been implemented/completed, the actual implementation/completion date.
    - vi. For each completed project, a detailed description of the project as actually completed including the actual size/capacity of the project, the overall capacity of the modified emission unit associated with the project upon completion of the project and any deviations from the project description identified in the March 11, 2011, October 26, 2011, February 6, 2012, and June 14, 2013 permit applications (as amended).
  - b. March 30, 2018 as amended on August 1, 2018, and the permit application dated July 6, 2020 as amended on May 12, 2022, and August 11, 2022.

Unless more frequent reports are required by this permit or 40 CFR 60.7, the permittee shall submit semi-annual project reports to the Piedmont Regional Office within 30 days after the end of each semi-annual period. Each report shall include:

- i. For each emission unit, a list of the projects planned for that emission unit as identified in the March 30, 2018 and July 6, 2020 permit applications (as amended) and a brief description of each project.

- ii. The current status of each project: not begun, under construction or completed.
- iii. For projects which have not begun construction/implementation, the estimated start date.
- iv. For projects which are being implemented/constructed as of the date of the report, the estimated project completion date.
- v. For projects which have already been implemented/completed, the actual implementation/completion date.
- vi. For each completed project, a detailed description of the project as actually completed including the actual size/capacity of the project, the overall capacity of the modified emission unit associated with the project upon completion of the project and any deviations from the project description identified in the March 30, 2018 permit applications (as amended).

(9VAC5-80-110 and Condition 23 of the 9/8/2022 NSR Permit)

### **Air Pollution Control Equipment Requirements**

587. For the purposes of compliance with this permit and determining the net emission increases or decreases referenced in this condition, unless otherwise specified, the emission limits included in this permit for particulate matter (PM-10) and particulate matter (PM-2.5) shall be applicable to both the filterable emissions and the condensable emissions, if any. Unless otherwise specified, the control equipment requirements included in this permit for particulate matter, particulate matter (PM-10) or particulate matter (PM-2.5) shall be applicable to only the filterable emissions (these conditions generally represent prior BACT determinations that did not account for condensable emissions).  
(9VA5-80-110 and Condition 1 of the 9/8/2022 NSR Permit)
588. The permittee shall operate all control equipment in a manner consistent with good air pollution control practice such that the facility shall remain in compliance with this permit and all applicable portions of the State Air Pollution Control Board's Regulations for the Control and Abatement of Air Pollution. Each control device shall be in operation when the process controlled by the control device is operating, and all emission units and control equipment shall be provided with adequate access for inspection.  
(9VAC5-80-110)
589. The permittee shall use no chromium-based water treatment chemicals in any cooling tower. Chromium based water treatment chemicals shall have the meaning given them in 40 CFR 63.401.  
(9VAC5-80-110, 40 CFR 63.401, and Condition 19 of the 9/8/2022 NSR Permit)

### **Operating Practice Requirements**

590. At all times, including periods of start-up, shutdown, soot blowing, and malfunction, the permittee shall, to the extent practicable, maintain and operate the affected source, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

The permittee shall take the following measures in order to minimize the duration and frequency of excess emissions, with respect to air pollution control equipment and process equipment which affect such emissions:

- a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.
- b. Maintain an inventory of spare parts.
- c. Have available written operating procedures for equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum.
- d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures, prior to their first operation of such equipment. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.

Records of maintenance and training shall be maintained on site for a period of five years and shall be made available to DEQ personnel upon request.

(9VAC5-80-110 and Condition 10 of the 9/8/2022 NSR Permit)

#### **40 CFR 61 Subpart FF (Benzene NESHAP) Requirements**

591. The permittee shall comply with the recordkeeping requirements of 40 CFR 61.356 and the reporting requirements of 40 CFR 61.357; and repeat the determination of total annual benzene quantity from facility waste whenever there is a change in the processes generating the waste that could cause the total annual benzene quantity from facility waste to increase to 1 Mg/yr (1.1 ton/yr) or more.  
(40 CFR 61.355(a)(5) and 9VAC5-80-110)

#### **Diesel Engine Visible Emissions Requirements**

592. Visible emissions from FP-1, FP-2, FP-3, FP-4, GEN-2, GEN-3, and GEN-4 shall not exceed 20 percent opacity, except for one six-minute period in any one hour of not more than 30 percent opacity. Failure to meet the requirements of this condition because of the presence of water vapor shall not be a violation of this section.  
(9VAC5-80-110 and 9VAC5-50-80)
593. Each emission unit subject to Condition 592 shall be observed visually at least once each operating month for at least a brief time period to determine which emissions units have normal visible emissions (does not include condensed water vapor/steam), unless a 40 CFR 60 Appendix A Method 9 visible emissions evaluation is performed on the emissions unit. Each emissions unit observed having above-normal visible emissions shall be followed up with a 40 CFR 60 Appendix A Method 9 visible emissions evaluation unless the visible emission condition is corrected as expeditiously as possible and recorded, and the cause and corrective measures taken are recorded.  
(9VAC5-80-110)
594. The permittee shall report the results of any 40 CFR Part 60 Appendix A Method 9 opacity test performed as a result of Condition 593. If the test indicates the facility is out of compliance with the standard contained in Condition 592, the source shall also report the length of time associated with any exceedance of the standard and the corrective actions taken to correct the exceedance. This report shall be sent to the Piedmont Regional Office within seven days of the applicable test unless otherwise noted in Condition 628.  
(9VAC5-80-110)

**40 CFR 63 Subpart ZZZZ Reciprocating Internal Combustion Engine (RICE) Requirements**

595. The permittee shall operate the diesel fire pump engine (FP-4) in compliance with 40 CFR 63, Subpart ZZZZ by complying with the applicable requirements of 40 CFR 60, Subpart IIII. The emission unit is considered a fire pump as defined in 40 CFR 60.4219. No further requirements of 40 CFR 63, Subpart ZZZZ apply to this engine.

(9VAC5-80-110 and 40 CFR 63.6590(c)(7))

596. As stated in 40 CFR 63.6602 and 63.6640, and as excepted in Table 2c of 40 CFR 63 Subpart ZZZZ, the permittee shall comply with the following requirements for emergency diesel engines FP-1, FP-2, FP-3, GEN-2 and GEN-3:

- a. Change oil and filter every 500 hours of operation or annually, whichever comes first.
- b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first.
- c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

(9VAC5-80-110, 40 CFR 63.6602 and Table 2c of 40 CFR 63 Subpart ZZZZ)

597. For engines FP-1, FP-2, FP-3, GEN-2, and GEN3, the permittee shall use diesel fuel that meets the requirements of 40 CFR 1090.305 for nonroad diesel fuel.

(9VAC5-80-110 and 40 CFR 63.6604(b))

598. The permittee shall operate and maintain each emergency diesel engine (FP-1, FP-2, FP-3, GEN-2 and GEN-3) and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop a site-specific maintenance plan which shall provide to the extent practicable for the maintenance and operation of the each emergency engine (FP-1, FP-2, FP-3, GEN-2 and GEN-3) in a manner consistent with good air pollution control practice for minimizing emissions.

(40 CFR 63.6625(e) and 9VAC5-80-110)

599. For emergency diesel engines FP-1, FP-2, FP-3, GEN-2, GEN-3 and GEN-4, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as described in this condition, is prohibited:

- a. There shall be no time limit on the use of emergency diesel engines FP-1, FP-2, FP-3, GEN-2, GEN-3, and GEN-4 in emergency situations.
- b. The permittee may operate emergency diesel engines FP-1, FP-2, FP-3, GEN-2, GEN-3, and GEN-4 for any combination of the purposes specified in paragraph 40 CFR 63.6640(f)(2)(i) for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraphs 40 CFR 63.6640(f)(3-4) counts as part of the 100 hours per calendar year allowed by this paragraph.
- c. Emergency diesel engines FP-1, FP-2, FP-3, GEN-2, GEN-3, and GEN-4 may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing provided in Condition 599.b. The 50 hours per year for non-emergency situations cannot be used for peak shaving

or non-emergency demand response, or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(9VAC5-80-110 and 40 CFR 63.6640(f))

600. The permittee shall install a non-resettable hour meter on each emergency diesel engine (FP-1, FP-2, FP-3, GEN-2, GEN-3, and GEN-4) if one is not already installed.  
(9VAC5-80-110 and 40 CFR 63.6625(f))
601. If required by Table 7 of 40 CFR 63 Subpart ZZZZ, the permittee shall submit a semi-annual compliance report as specified in Table 7 of 40 CFR 63 Subpart ZZZZ. As of the date of this permit, there are no Table 7 requirements for the emergency diesel engines.  
(9VAC5-80-110 and 40 CFR 63.6650)
602. As specified in 40 CFR 63.10(b)(1), the permittee shall keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. The permittee shall keep records on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record according to 40 CFR 63.10(b)(1). The permittee can keep the records offsite for the remaining 3 years. The permittee's records shall be in a form suitable and readily available for expeditious review as specified in 40 CFR 63.10(b)(1). These records shall include, but are not limited to:
- a. Records of the maintenance conducted on each emergency diesel engine (FP-1, FP-2, FP-3, GEN-2, GEN-3) in order to demonstrate that the permittee operated and maintained the units and after-treatment control devices (if any) according to the maintenance plan required by Condition 598.
  - b. Records of the hours of operation of each emergency diesel engine (FP-1, FP-2, FP-3, GEN-2, GEN-3, and GEN-4) that is recorded through the non-resettable hour meter. The permittee shall document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation.

(9VAC5-80-110 and 40 CFR 63.6655(e-f))

603. The permittee shall operate in compliance with all applicable requirements of 40 CFR 63 Subparts A and ZZZZ. Table 8 of 40 CFR 63 Subpart ZZZZ shows which parts of the General Provisions in 40 CFR 63.1 through 63.13 apply to the permittee.  
(9VAC5-80-110 and 40 CFR 63 Subparts A and ZZZZ)

#### **40 CFR 60 Subpart III Reciprocating Internal Combustion Engine (RICE) Requirements (FP-4)**

604. The permittee shall operate the diesel fire pump (FP-4) in compliance with all applicable requirements of 40 CFR 60 (NSPS) Subpart III. The emission unit (FP-4) is considered a fire pump as defined in 40 CFR 60.4219.  
(9VAC5-80-110 and 40 CFR 63 Subpart III)
605. The diesel fire pump (FP-4) shall install a non-resettable hour meter prior to startup of FP-4, unless the permittee maintains records demonstrating that the engine meets the standards applicable to non-emergency engines.  
(9VAC5-80-110 and 40 CFR 60.4209(a))

606. The diesel fire pump (FP-4) shall comply with the emission standards in Table 4 to 40 CFR 60 Subpart IIII, for all pollutants for the entire life of the engine.  
(9VAC5-80-110, 40 CFR 60.4205(c), 40 CFR 60.4206, and Table 4 to Subpart IIII of Part 60)
607. The permittee shall use diesel fuel for the diesel fire pump (FP-4) that meets the requirements of 40 CFR 1090.305 for nonroad diesel fuel.  
(9VAC5-80-110 and 40 CFR 60.4207(b))
608. For the diesel fire pump (FP-4), the permittee shall comply with the requirements of 40 CFR 60.4211(a) (1) through (3), except as permitted in 40 CFR 60.4211(g).  
(9VAC5-80-110 and 40 CFR 60.4211(a))
609. For the diesel fire pump (FP-4), the permittee shall comply by purchasing, installing, and configuring an engine certified to the emissions standards in 40 CFR 60.4204(b), or 40 CFR 60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, National Fire Protection Association nameplate) engine power. The engine shall be installed and configured according to the manufacturer's emission-related specifications, except as permitted in 40 CFR 60.4211(g).  
(9VAC5-80-110 and 40 CFR 60.4211(c))
610. The permittee shall operate the diesel fire pump (FP-4) according to the requirements of 40 CFR 60.4211(f) (1), (2) and (3). To be considered an emergency engine under 40 CFR 60 Subpart IIII, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as described in 40 CFR 60.4211(f) (1) through (3), is prohibited. If an engine is not operated according to the requirements in 40 CFR 60.4211(f) (1) through (3), the engine will not be considered an emergency engine under 40 CFR 60 Subpart IIII and must meet all requirements for non-emergency engines. Operation for non-emergency purposes may require a permit to modify and operate pursuant to 9VAC5-80 Article 6.  
(9VAC5-80-110 and 40 CFR 60.4211(f))
611. For the diesel fire pump (FP-4), if the permittee does not install, configure, operate, and maintain the engine and control device according to the manufacturer's emission-related written instructions, or the permittee changes emission-related settings in a way that is not permitted by the manufacturer, the permittee shall demonstrate compliance according to 40 CFR 60.4211(g) (1) through (3).  
(9VAC5-80-110 and 40 CFR 60.4211(g))
612. The permittee shall keep records of the operation of the diesel fire pump (FP-4) in emergency and non-emergency service that are recorded through the non-resettable hour meter. The permittee shall record the time of operation of the engine and the reason the engine was in operation during that time.  
(9VAC5-80-110 and 40 CFR 60.4214(b))
613. NSPS Subpart IIII Requirements – The permittee shall comply with the applicable General Provisions (40 CFR 60 Subpart A) as indicated in Table 8 to 40 CFR 60 Subpart IIII.  
(9VAC5-80-110 and 40 CFR 60.4218)

## Facility Wide Recordkeeping Requirements

614. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Piedmont Regional Office. These records shall include but are not limited to:
- All production and analytical data necessary to show compliance with the removal efficiencies defined and described in conditions categorized as **Control Equipment Requirements** in this permit.
  - All production data necessary to show compliance with the throughput limits defined and described in conditions categorized as **Throughput Limits** in this permit.
  - All production and analytical data necessary to show compliance with the emissions limits defined and described in conditions categorized as **Emissions Limits** in this permit.
  - Copies of the results of all initial performance tests conducted consistent with the requirements of this permit and the appropriate technical and regulatory methodology defined in 40 Code of Federal Regulations Part 60 and the associated appendices.
  - Results of Method 9 testing performed to determine opacity in conjunction with initial performance testing and any additional testing consistent with the requirements of this permit.
  - Records that identify each waste stream at the facility subject to 40 CFR 61 Subpart FF, and indicate whether or not the waste stream is controlled for benzene emissions in accordance with Subpart FF.
  - For each waste stream not controlled for benzene emissions in accordance with 40 CFR 61 Subpart FF, records of all test results, measurements, calculations, and other documentation used to determine the following information for the waste stream: waste stream identification, water content, whether or not the waste stream is a process wastewater stream, annual waste quantity, range of benzene concentrations, annual average flow-weighted benzene concentration, and annual benzene quantity.
  - The results of the monthly visible emission surveys required by Condition 593 and details of any corrective action taken as a result of these inspections.
  - Records documenting that each solvent metal cleaning operation at the facility is in compliance with the requirements of Condition 582.

These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years.

(9VAC5-80-110, 40 CFR 61.356(b), and Condition 4 of the 9/8/2022 NSR Permit)

615. The permittee shall maintain production records sufficient to indicate the rated production capacities of the equipment described in the equipment listed in the Introduction to the 9/8/2022 NSR permit. These records shall be available for inspection by the DEQ and shall be current for the most recent five (5) years.  
(9VAC5-80-110 and Condition 3 of the 9/8/2022 NSR Permit)
616. The permittee shall maintain records of the occurrence and duration of any bypass, malfunction, shutdown, or failure of the facility or its associated air pollution control equipment that results in excess emissions for

more than one hour. Records shall include the date, time, duration, description (emission unit, pollutant affected, cause), corrective action, preventive measures taken, and name of person generating the record. (9VAC5-80-110, Condition 37 of the 4/24/2020 NSR Permit, Condition 39 of the 4/23/2021 NSR Permit, and Condition 11 of the 9/8/2022 NSR Permit)

### **Testing**

617. The permitted facility shall be constructed so as to allow for emissions testing and monitoring upon reasonable notice at any time, using appropriate methods. Test ports shall be provided at the appropriate locations.  
(9VAC5-80-110, 9VAC5-50-30 F, and Condition 7 of the 4/23/2021 NSR Permit)
618. If testing is conducted in addition to the monitoring specified in this permit, the permittee shall use the appropriate method(s) in accordance with procedures approved by the DEQ.  
(9VAC5-80-110)

### **Reporting**

619. The permittee shall submit to the Piedmont Regional Office a report that updates the information listed in 40 CFR 61.357(a)(1-3) whenever there is a change in a process generating a waste stream that could cause the total annual benzene quantity from facility waste to increase to 1 Mg/yr (1.1 ton/yr) or more. Copies of reports required by condition are to be sent to:

Chief, Air Section  
United States Environmental Protection Agency  
Region III, Enforcement & Compliance Assurance Division  
Air, RCRA and Toxics Branch (3ED21)  
Four Penn Center  
1600 John F. Kennedy Boulevard  
Philadelphia, PA 19103-2852

(9VAC5-80-110 and 40 CFR 61.357(b))

### **INSIGNIFICANT EMISSION UNITS**

620. The following emission units at the facility are identified in the application as insignificant emission units under 9VAC5-80-720:

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9VAC5-80-720 B)	Rated Capacity (9VAC5-80-720 C)
VT-031 VT-033 VT-099 VT-102 VT-151 VT-230 VT-252 VT-257 VT-333 VT-364 VT-401 VT-522 VT-771 VT-795 VT-796 VT-797	Miscellaneous Area 11 Storage Tanks (VT-031, VT-033, VT-099, VT-102, VT-151, IVT-230, VT-252, VT-257, VT-333, VT-364, VT-401, VT-522, VT-771, VT-795, VT-796, VT-797)	9VAC5-80-720 B	VOC	N/A
VT-507 VT-508 VT-510 VT-511 VT-512	Marine Operations Ammonium Carbonate Storage Tanks (VT-507, VT-508, VT-510, VT-511, and VT-512)	9VAC5-80-720 B	VOC	N/A
TW-07	Carbonate Tower	9VAC5-80-720 B	VOC	N/A
TW-11	Carbonate Tower	9VAC5-80-720 B	VOC	N/A
TW-16	Carbonate Tower	9VAC5-80-720 B	VOC	N/A
TW-21	Carbonate Tower	9VAC5-80-720 B	VOC	N/A
TW-31	Carbonate Tower	9VAC5-80-720 B	VOC	N/A
MH-1	Marine operations portable diesel-fired heater	9VAC5-80-720 C	N/A	0.15 MMBtu/hr
MH-2	Marine operations portable diesel-fired heater	9VAC5-80-720 C	N/A	0.15 MMBtu/hr
MH-3	Marine operations portable diesel-fired heater	9VAC5-80-720 C	N/A	0.15 MMBtu/hr
PB-1	South Maintenance paint fume hood	9VAC5-80-720 B	VOC	N/A
RAC-1	Rental air compressors	9VAC5-80-720	PM, SO <sub>2</sub> ,NO <sub>x</sub> ,CO, VOC	N/A
TT-AS Solution	Ammonium Sulfate Solution Loading Rack	9VAC5-80-720 B		N/A

These emission units are presumed to be in compliance with all requirements of the federal Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping, or reporting shall be required for these emission units in accordance with 9VAC5-80-110.

## PERMIT SHIELD AND INAPPLICABLE REQUIREMENTS

621. Compliance with the provisions of this permit shall be deemed compliance with all applicable requirements in effect as of the permit issuance date as identified in this permit. This permit shield covers only those applicable requirements covered by terms and conditions in this permit and the following requirements which have been specifically identified as being not applicable to this permitted facility:

Citation	Title of Citation	Description of Applicability
None Identified		

Nothing in this permit shield shall alter the provisions of §303 of the federal Clean Air Act, including the authority of the administrator under that section, the liability of the owner for any violation of applicable requirements prior to or at the time of permit issuance, or the ability to obtain information by the administrator pursuant to §114 of the federal Clean Air Act, (ii) the DEQ pursuant to §10.1-1314 or §10.1-1315 of the Virginia Air Pollution Control Law or (iii) the Department pursuant to §10.1-1307.3 of the Virginia Air Pollution Control Law.  
 (9VAC5-80-140)

## GENERAL CONDITIONS

622. **General Conditions - Federal Enforceability** - All terms and conditions in this permit are enforceable by the administrator and citizens under the federal Clean Air Act, except those that have been designated as only state-enforceable.  
 (9VAC5-80-110)
623. **General Conditions - Permit Expiration –**
- a. This permit has a fixed term of five years. The expiration date shall be the date five years from the date of issuance. Unless the owner submits a timely and complete application for renewal to the Department consistent with the requirements of 9VAC5-80-80, the right of the facility to operate shall be terminated upon permit expiration.
  - b. The owner shall submit an application for renewal at least six months but no earlier than eighteen months prior to the date of permit expiration.
  - c. If an applicant submits a timely and complete application for an initial permit or renewal under 9VAC5-80-80 F, the failure of the source to have a permit or the operation of the source without a permit shall not be a violation of Article 1, Part II of 9VAC5 Chapter 80, until the DEQ takes final action on the application under 9VAC5-80-150.
  - d. No source shall operate after the time that it is required to submit a timely and complete application under subsections C and D of 9VAC5-80-80 for a renewal permit, except in compliance with a permit issued under Article 1, Part II of 9VAC5 Chapter 80.
  - e. If an applicant submits a timely and complete application under section 9VAC5-80-80 for a permit renewal but the DEQ fails to issue or deny the renewal permit before the end of the term of the previous permit, (i) the previous permit shall not expire until the renewal permit has been issued or denied and (ii) all the terms and conditions of the previous permit, including any permit shield granted pursuant to 9VAC5-80-140, shall remain in effect from the date the application is determined to be complete until the renewal permit is issued or denied.
  - f. The protection under subsections F 1 and F 5 (ii) of section 9VAC5-80-80 F shall cease to apply if, subsequent to the completeness determination made pursuant section 9VAC5-80-80 D, the applicant

fails to submit by the deadline specified in writing by the DEQ any additional information identified as being needed to process the application.

(9VAC5-80-80, 9VAC5-80-110 and 9VAC5-80-170)

624. **General Conditions -Recordkeeping and Reporting** - All records of monitoring information maintained to demonstrate compliance with the terms and conditions of this permit shall contain, where applicable, the following:

- a. The date, place as defined in the permit, and time of sampling or measurements;
- b. The date(s) analyses were performed;
- c. The company or entity that performed the analyses;
- d. The analytical techniques or methods used;
- e. The results of such analyses; and
- f. The operating conditions existing at the time of sampling or measurement.

(9VAC5-80-110)

625. **General Conditions -Recordkeeping and Reporting** - Records of all monitoring data and support information shall be retained for at least five years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.

(9VAC5-80-110)

626. **General Conditions -Recordkeeping and Reporting** - The permittee shall submit the results of monitoring contained in any applicable requirement to DEQ no later than March 1 and September 1 of each calendar year. This report must be signed by a responsible official, consistent with 9VAC5-80-80 G, and shall include:

- a. The time period included in the report. The time periods to be addressed are January 1 to June 30 and July 1 to December 31; and
- b. All deviations from permit requirements. For purpose of this permit, deviations include, but are not limited to:
  - i. Exceedance of emissions limitations or operational restrictions;
  - ii. Excursions from control device operating parameter requirements, as documented by continuous emission monitoring, periodic monitoring, or Compliance Assurance Monitoring (CAM) which indicates an exceedance of emission limitations or operational restrictions; or,
  - iii. Failure to meet monitoring, recordkeeping, or reporting requirements contained in this permit.

- c. If there were no deviations from permit conditions during the time period, the permittee shall include a statement in the report that "no deviations from permit requirements occurred during this semi-annual reporting period."

(9VAC5-80-110)

627. **General Conditions - Annual Compliance Certification** - Exclusive of any reporting required to assure compliance with the terms and conditions of this permit or as part of a schedule of compliance contained in this permit, the permittee shall submit to EPA and DEQ no later than March 1 each calendar year a certification of compliance with all terms and conditions of this permit including emission limitation standards or work practices for the period ending December 31. The compliance certification shall comply with such additional requirements that may be specified pursuant to §114(a)(3) and §504(b) of the federal Clean Air Act. The permittee shall maintain a copy of the certification for five (5) years after submittal of the certification. This certification shall be signed by a responsible official, consistent with 9VAC5-80-80 G, and shall include:

- a. The time period included in the certification. The time period to be addressed is January 1 to December 31;
- b. The identification of each term or condition of the permit that is the basis of the certification;
- c. The compliance status;
- d. Whether compliance was continuous or intermittent, and if not continuous, documentation of each incident of non-compliance;
- e. Consistent with subsection 9VAC5-80-110, the method or methods used for determining the compliance status of the source at the time of certification and over the reporting period;
- f. Such other facts as the permit may require to determine the compliance status of the source; and
- g. One copy of the annual compliance certification shall be submitted to EPA in electronic format only. The certification document should be sent to the following electronic mailing address:

R3\_APD\_Permits@epa.gov

(9VAC5-80-110)

628. **General Conditions - Permit Deviation Reporting** - The permittee shall notify the Piedmont Regional Office within four daytime business hours after discovery of any deviations from permit requirements which may cause excess emissions for more than one hour, including those attributable to upset conditions as may be defined in this permit. In addition, within 14 days of the discovery, the permittee shall provide a written statement explaining the problem, any corrective actions or preventative measures taken, and the estimated duration of the permit deviation. Owners subject to the requirements of 9VAC5-40-50 C and 9VAC5-50-50 C are not required to provide the written statement prescribed in this paragraph for facilities subject to the monitoring requirements of 9VAC5-40-40 and 9VAC5-50-40. The occurrence should also be reported in the next semi-annual compliance monitoring report pursuant to Condition 626 of this permit. (9VAC5-80-110 F.2 and 9VAC5-80-250)

629. **General Conditions - Failure/Malfunction Reporting** - In the event that any affected facility or related air pollution control equipment fails or malfunctions in such a manner that may cause excess emissions for more than one hour, the owner shall no later than four daytime business hours after the malfunction is discovered, notify the Piedmont Regional Office of such failure or malfunction and shall within 14 days of discovery provide a written statement giving all pertinent facts, including the estimated duration of the breakdown. Owners subject to the requirements of 9VAC5-40-50 C and 9VAC5-50-50 C are not required to provide the written statement prescribed in this paragraph for facilities subject to the monitoring requirements of 9VAC5-40-40 and 9VAC5-50-40. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the owner shall notify the Piedmont Regional Office.  
(9VAC5-80-110 and 9VAC5-20-180)
630. **General Conditions - Failure/Malfunction Reporting** - The emission units that have continuous monitors subject to 9VAC5-40-50 C and 9VAC5-50-50 C are not subject to the 14-day written notification.  
(9VAC5-20-180 C, 9VAC5-40-50, and 9VAC5-50-50)
631. **General Conditions - Failure/Malfunction Reporting** - The emission units subject to the reporting and the procedure requirements of 9VAC5-40-50 C or the procedures of 9VAC5-50-50 C are listed below:
- a. A-Train Ammonium Nitrite (Nitrite) Tower (TW-2); nitrogen oxides, oxygen
  - b. B-Train Nitrite Tower (TW-8): nitrogen oxides, oxygen
  - c. C-Train Nitrite Tower (TW-17): nitrogen oxides, oxygen
  - d. D-Train Nitrite Tower (TW-22): nitrogen oxides, oxygen
  - e. E-Train Nitrite Tower (TW-32): nitrogen oxides, oxygen
  - f. A-Train Hydroxylamine Diammonium Sulfonate (Disulfonate) Tower (TW-62): nitrogen oxides, oxygen
  - g. B-Train Disulfonate Tower (TW-9): nitrogen oxides, oxygen
  - h. C-Train Disulfonate Tower (TW-18): nitrogen oxides, oxygen
  - i. D-Train Disulfonate Tower (TW-23): nitrogen oxides, oxygen
  - j. E-Train Disulfonate Tower (TW-33): nitrogen oxides, oxygen
  - k. Sulfuric Acid Plant Scrubber (SK-1): sulfur dioxide, oxygen, carbon dioxide
  - l. Powerhouse Boiler (FU-17): nitrogen oxides, oxygen
  - m. Powerhouse Boiler (FU-18): nitrogen oxides, oxygen
  - n. Powerhouse Boiler (FU-19): nitrogen oxides, oxygen  
(9VAC5-80-110, 9VAC5-20-180 C and 9VAC5-40-50 or 9VAC5-50-50)

632. **General Conditions - Failure/Malfunction Reporting** - Each owner required to install a continuous monitoring system (CMS) or monitoring device subject to 9VAC5-40-41 or 9VAC5-50-410 shall submit a written report of excess emissions (as defined in the applicable subpart in 9VAC5-50-410) and either a monitoring systems performance report or a summary report form, or both, to the DEQ quarterly. All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter. All reports shall include the following information:
- a. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h) or 9VAC5-40-41 B.6, any conversion factors used, and the date and time of commencement and completion of each period of excess emissions;
  - b. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the source. The nature and cause of any malfunction (if known), the corrective action taken, or preventative measures adopted;
  - c. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments; and
  - d. When no excess emissions have occurred or the continuous monitoring systems have not been inoperative, repaired or adjusted, such information shall be stated in the report.

All malfunctions of emission units not subject to 9VAC5-40-50 C and 9VAC5-50-50 C require written reports within 14 days of the discovery of the malfunction.  
(9VAC5-80-110, 9VAC5-20-180 C, and 9VAC5-40-50 or 9VAC5-50-50)

633. **General Conditions - Severability** - The terms of this permit are severable. If any condition, requirement, or portion of the permit is held invalid or inapplicable under any circumstance, such invalidity or inapplicability shall not affect or impair the remaining conditions, requirements, or portions of the permit.  
(9VAC5-80-110)
634. **General Conditions - Duty to Comply** - The permittee shall comply with all terms and conditions of this permit. Any permit noncompliance constitutes a violation of the federal Clean Air Act or the Virginia Air Pollution Control Law or both and is ground for enforcement action; for permit termination, revocation and reissuance, or modification; or, for denial of a permit renewal application.  
(9VAC5-80-110)
635. **General Conditions - Need to Halt or Reduce Activity not a Defense** - It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.  
(9VAC5-80-110)
636. **General Conditions - Permit Modification** - A physical change in, or change in the method of operation of, this stationary source may be subject to permitting under State Regulations 9VAC5-80-50, 9VAC5-80-1100, 9VAC5-80-1605, or 9VAC5-80-2000 and may require a permit modification and/or revisions except as may be authorized in any approved alternative operating scenarios.  
(9VAC5-80-190 and 9VAC5-80-260)

637. **General Conditions - Property Rights** - The permit does not convey any property rights of any sort, or any exclusive privilege.  
(9VAC5-80-110)
638. **General Conditions - Duty to Submit Information** - The permittee shall furnish to the DEQ, within a reasonable time, any information that the DEQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the DEQ copies of records required to be kept by the permit and, for information claimed to be confidential, the permittee shall furnish such records to the DEQ along with a claim of confidentiality.  
(9VAC5-80-110)
639. **General Conditions - Duty to Submit Information** - Any document (including reports) required in a permit condition to be submitted to the DEQ shall contain a certification by a responsible official that meets the requirements of 9VAC5-80-80 G.  
(9VAC5-80-110)
640. **General Conditions - Duty to Pay Permit Fees** - The owner of any source for which a permit under 9VAC5-80-50 through 9VAC5-80-300 was issued shall pay permit fees consistent with the requirements of 9VAC5-80-310 through 9VAC5-80-350 in addition to an annual permit maintenance fee consistent with the requirements of 9VAC5-80-2310 through 9VAC5-80-2350.  
(9VAC5-80-110, 9VAC5-80-310 et seq., and 9VAC5-80-2310 et seq.)
641. **General Conditions - Fugitive Dust Emission Standards** - During the operation of a stationary source or any other building, structure, facility, or installation, no owner or other person shall cause or permit any materials or property to be handled, transported, stored, used, constructed, altered, repaired, or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne. Such reasonable precautions may include, but are not limited to, the following:
- a. Use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of land;
  - b. Application of asphalt, water, or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which may create airborne dust; the paving of roadways and the maintaining of them in a clean condition;
  - c. Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty material. Adequate containment methods shall be employed during sandblasting or similar operations;
  - d. Open equipment for conveying or transporting material likely to create objectionable air pollution when airborne shall be covered or treated in an equally effective manner at all times when in motion; and,
  - e. The prompt removal of spilled or tracked dirt or other materials from paved streets and of dried sediments resulting from soil erosion.
- (9VAC5-80-110 and 9VAC5-40-90 or 9VAC5-50-90)
642. **General Conditions - Startup, Shutdown, and Malfunction** - At all times, including periods of startup, shutdown, and soot blowing, and malfunction, owners shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with air

pollution control practices for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the DEQ, which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

(9VAC5-80-110 and 9VAC5-50-20 E or 9VAC5-40-20 E)

643. **General Conditions - Alternative Operating Scenarios** - Contemporaneously with making a change between reasonably anticipated operating scenarios identified in this permit, the permittee shall record in a log at the permitted facility a record of the scenario under which it is operating. The permit shield described in 9VAC5-80-140 shall extend to all terms and conditions under each such operating scenario. The terms and conditions of each such alternative scenario shall meet all applicable requirements including the requirements of 9VAC5 Chapter 80, Article 1.

(9VAC5-80-110)

644. **General Conditions - Inspection and Entry Requirements** - The permittee shall allow DEQ, upon presentation of credentials and other documents as may be required by law, to perform the following:

- a. Enter upon the premises where the source is located or emissions-related activity is conducted, or where records must be kept under the terms and conditions of the permit.
- b. Have access to and copy, at reasonable times, any records that must be kept under the terms and conditions of the permit.
- c. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit.
- d. Sample or monitor at reasonable times' substances or parameters for the purpose of assuring compliance with the permit or applicable requirements.

(9VAC5-80-110)

645. **General Conditions - Reopening For Cause** - The permit shall be reopened by the DEQ if additional federal requirements become applicable to a major source with a remaining permit term of three years or more. Such reopening shall be completed no later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended pursuant to 9VAC5-80-80 F. The conditions for reopening a permit are as follows:

- a. The permit shall be reopened if the DEQ or the administrator determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.
- b. The permit shall be reopened if the administrator or the DEQ determines that the permit must be revised or revoked to assure compliance with the applicable requirements.
- c. The permit shall not be reopened by the DEQ if additional applicable state requirements become applicable to a major source prior to the expiration date established under 9VAC5-80-110 D.

(9VAC5-80-110)

646. **General Conditions - Permit Availability** - Within five days after receipt of the issued permit, the permittee shall maintain the permit on the premises for which the permit has been issued and shall make the permit immediately available to DEQ upon request.  
(9VAC5-80-150)
647. **General Conditions - Transfer of Permits** -
- a. No person shall transfer a permit from one location to another, unless authorized under 9VAC5-80-130, or from one piece of equipment to another.
  - b. In the case of a transfer of ownership of a stationary source, the new owner shall comply with any current permit issued to the previous owner. The new owner shall notify the DEQ of the change in ownership within 30 days of the transfer and shall comply with the requirements of 9VAC5-80-200.
  - c. In the case of a name change of a stationary source, the owner shall comply with any current permit issued under the previous source name. The owner shall notify the DEQ of the change in source name within 30 days of the name change and shall comply with the requirements of 9VAC5-80-200.
- (9VAC5-80-110 and 9VAC5-80-160)
648. **General Conditions - Permit Revocation or Termination for Cause** - A permit may be revoked or terminated prior to its expiration date if the owner knowingly makes material misstatements in the permit application or any amendments thereto or if the permittee violates, fails, neglects or refuses to comply with the terms or conditions of the permit, any applicable requirements, or the applicable provisions of 9VAC5 Chapter 80 Article 1. The DEQ may suspend, under such conditions and for such period of time as the DEQ may prescribe any permit for any grounds for revocation or termination or for any other violations of these regulations.  
(9VAC5-80-110, 9VAC5-80-190 C and 9VAC5-80-260)
649. **General Conditions - Duty to Supplement or Correct Application** - Any applicant who fails to submit any relevant facts or who has submitted incorrect information in a permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrections. An applicant shall also provide additional information as necessary to address any requirements that become applicable to the source after the date a complete application was filed but prior to release of a draft permit.  
(9VAC5-80-110 and 9VAC5-80-80 E)
650. **General Conditions - Stratospheric Ozone Protection** - If the permittee handles or emits one or more Class I or II substances subject to a standard promulgated under or established by Title VI (Stratospheric Ozone Protection) of the federal Clean Air Act, the permittee shall comply with all applicable sections of 40 CFR Part 82, Subparts A to F.  
(9VAC5-80-110 and 40 CFR Part 82)
651. **General Conditions - Asbestos Requirements** - The permittee shall comply with the requirements of National Emissions Standards for Hazardous Air Pollutants (40 CFR 61) Subpart M, National Emission Standards for Asbestos as it applies to the following: Standards for Demolition and Renovation (40 CFR 61.145), Standards for Insulating Materials (40 CFR 61.148), and Standards for Waste Disposal (40 CFR 61.150).  
(9VAC5-60-70 and 9VAC5-80-110)

652. **General Conditions - Accidental Release Prevention** - If the permittee has more or will have more than a threshold quantity of a regulated substance in a process, as determined by 40 CFR 68.115, the permittee shall comply with the requirements of 40 CFR Part 68.  
(9VAC5-80-110 and 40 CFR Part 68)
653. **General Conditions - Changes to Permits for Emissions Trading** - No permit revision shall be required under any federally approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes that are provided for in this permit.  
(9VAC5-80-110)
654. **General Conditions - Emissions Trading** - Where the trading of emissions increases and decreases within the permitted facility is to occur within the context of this permit and to the extent that the regulations provide for trading such increases and decreases without a case-by-case approval of each emissions trade:
- a. All terms and conditions required under 9VAC5-80-110, except subsection N, shall be included to determine compliance.
  - b. The permit shield described in 9VAC5-80-140 shall extend to all terms and conditions that allow such increases and decreases in emissions.
  - c. The owner shall meet all applicable requirements including the requirements of 9VAC5-80-50 through 9VAC5-80-300.
- (9VAC5-80-110)

## **NO<sub>x</sub> Budget Program for Non-Electric Generating Units Requirements**

### **General Conditions**

655. **NO<sub>x</sub> Budget Program Requirements** – For NO<sub>x</sub> Budget sources required to have a Title V operating permit approval, the NO<sub>x</sub> budget portion of the Title V permit shall be administered in accordance with the permitting authority’s Title V operating permits regulations. This section of the permit document represents the NO<sub>x</sub> Budget Permit approval.

Each NO<sub>x</sub> Budget permit approval shall contain all applicable NO<sub>x</sub> Budget Program requirements and shall be a complete and segregable portion of the permit approval.

The NO<sub>x</sub> Budget Permit approval will be administrated by the Board under the authority of 9VAC5-80-360 et seq., and 9VAC5-140-10 et seq.  
(9VAC5-80-110 and 9VAC5-140-40)

656. **NO<sub>x</sub> Budget Program Requirements – Facility NO<sub>x</sub> Budget Units** - A review of the air emission units included in this permit approval has determined that the equipment listed in Table 1 meets the definition of a “NO<sub>x</sub> Budget Unit” as described in 9VAC5-140-40. Any source that includes one or more such units shall be a “NO<sub>x</sub> Budget source.”

Table 1. Facility NO<sub>x</sub> Budget Units

ORIS Code	Unit ID	Unit Name and description	Maximum Heat Capacity (MMBtu/hr)	Maximum Generation Capacity (megawatts)
880093	10D	FU-17 – Natural Gas, No. 2 Fuel Oil, or Residue-Fired Steam Generating Industrial Boiler	275.2	--
880093	10E	FU-18 – Natural Gas-Fired Steam Generating Industrial Boiler	350	--
880093	10F	FU-19 – Natural Gas-Fired Steam Generating Industrial Boiler	350	--

(9VAC5-80-110 and 9VAC5-140-40)

657. **NO<sub>x</sub> Budget Program Requirements – Low Mass Emission Units (LME)** - The emission unit(s) in Table 2 have been determined to meet the NO<sub>x</sub> Budget unit applicability requirements as provided in 9VAC5-140-40 and the applicability requirements to be considered an LME unit(s) as provided in 40 CFR 75.19.

To maintain the LME classification for gas-fired or oil-fired units, the owner must meet the applicable general operating requirements of 40 CFR 75.10 and the applicable requirements of 40 CFR.19. Once an LME unit has qualified for and has started using the LME excepted methodology, an annual demonstration is required, showing that the unit(s) continues to emit no more than 100 tons of NO<sub>x</sub> annually (October 1 thru September 31) *and* no more than 50 tons of NO<sub>x</sub> during the ozone control period (May 1 thru September 30) per 40 CFR 19(a)(1)(i)(A). The annual demonstration is provided by using one of the allowable methodologies in 40 CFR 75.19 (c).

Table 2. Facility NO<sub>x</sub> Budget Low Mass Emission (LME) Units

ORIS Code	Unit ID	Unit Name and description	Maximum Heat Capacity (MMBtu/hr)	Maximum Generation Capacity (megawatts)
		None.		

(9VAC5-80-110, 9VAC5-140-710 and 40 CFR 75)

658. **NO<sub>x</sub> Budget Program Requirements – Retired Unit Exemption** - The equipment in Table 3 has met the retired unit exemption requirements the NO<sub>x</sub> Budget program as described in 9VAC5-140-50 B. 1. The retired unit exemption described in this condition shall become effective the day on which the unit is permanently retired. Within 30 days of permanent retirement, the NO<sub>x</sub> authorized account representative shall submit a statement to DEQ and EPA detailing that the unit(s) is permanently retired and will comply with the requirements of 9VAC5-140-50 C, including, but not limited to:

A unit exempt from the NO<sub>x</sub> Budget Program shall not emit any nitrogen oxides, starting on the date that the exemption takes effect; and

For a period of five years from the date the records are created, the owners and operators of a unit exempt under 9VAC5-140-50 shall retain at the source that includes the unit, records demonstrating that the unit is permanently retired. Owners and operators bear the burden of proof that the unit is permanently retired.

Table 3. NO<sub>x</sub> Budget Retirement Exemption Units

ORIS Code	Unit ID	Unit Name and description
880093	10A	FU-7 – Retired Unit/Inactive
880093	10B	FU-9 – Retired Unit/Inactive
880093	10C	FU-8 – Inactive unit, onsite but not operational

(9VAC5-80-110 and 9VAC5-140-50)

## Monitoring

### 659. NO<sub>x</sub> Budget Program Requirements

- a. Owners and operators, and to extent applicable, the NO<sub>x</sub> authorized account representative of a NO<sub>x</sub> Budget unit shall comply with the monitoring requirements as provided in 9VAC5-140-700 et. seq. and in Subpart H of 40 CFR Part 75.
- b. The owner or operator of each NO<sub>x</sub> Budget unit shall meet the following requirements:
  - i. Install all monitoring systems required under this article for monitoring NO<sub>x</sub> mass. This includes all systems required to monitor NO<sub>x</sub> emission rate, NO<sub>x</sub> concentration, heat input, and flow, in accordance with 40 CFR 75.71 and 40 CFR 75.72.
  - ii. Install all monitoring systems for monitoring heat input.
  - iii. Successfully complete all certification tests required under 9VAC5-140-710 and meet all other provisions of this article and 40 CFR Part 75 applicable to the monitoring systems listed above in b. 1) and b. 2) in this condition (9VAC-140-700 B. 1 and 2).
  - iv. Record, and report data from the monitoring systems under b. 1) and b. 2) of this condition (9VAC-140-700 B. 1 and 2).
- c. The owner or operator shall meet the requirements of b. 1) through b. 3) (9VAC-140-700 B. 1, B. 2, and B. 3) of this condition on or before September 10, 2019 and shall record and report data on and after the following date: May 1, 2020.
- d. The owner or operator of a NO<sub>x</sub> Budget unit under 9VAC5-140-700 C. 2., C. 3., or C. 4. shall determine, record, and report NO<sub>x</sub> mass emissions, heat input rate, and any other values required to determine NO<sub>x</sub> mass emissions in accordance with 40 CFR 75.70(g), from the date and hour that the unit starts operating until the date and hour on which the continuous emission monitoring system, excepted monitoring system under Appendix D or E of 40 CFR Part 75, or excepted monitoring methodology under 40 CFR 75.19 is provisionally certified.

e.

- i. No owner or operator of a NO<sub>x</sub> Budget unit or a non-NO<sub>x</sub> Budget unit monitored under 40 CFR 75.72(b)(2)(ii) shall use any alternative monitoring system, alternative reference method, or any other alternative for the required continuous emission monitoring system without having obtained prior written approval in accordance with 9VAC5-140-750.
- ii. No owner or operator of a NO<sub>x</sub> Budget unit or a non-NO<sub>x</sub> Budget unit monitored under 40 CFR 75.72(b)(2)(ii) shall operate the unit so as to discharge, or allow to be discharged, NO<sub>x</sub> emissions to the atmosphere without accounting for all such emissions in accordance with the applicable provisions of 9VAC5-140-700 and 40 CFR Part 75 except as provided in 40 CFR 75.74.
- iii. No owner or operator of a NO<sub>x</sub> Budget unit or a non-NO<sub>x</sub> Budget unit monitored under 40 CFR 75.72(b)(2)(ii) shall disrupt the continuous emission monitoring system, any portion thereof, or any other approved emission monitoring method, and thereby avoid monitoring and recording NO<sub>x</sub> mass emissions discharged into the atmosphere, except for periods of recertification or periods when calibration, quality assurance testing, or maintenance is performed.
- iv. No owner or operator of a NO<sub>x</sub> Budget unit or a non-NO<sub>x</sub> Budget unit monitored under 40 CFR 75.72(b)(2)(ii) shall retire or permanently discontinue use of the continuous emission monitoring system, any component thereof, or any other approved emission monitoring system under this article except for under the following circumstances:
  - (1) A retired unit exemption goes into effect;
  - (2) The owner or operator is monitoring emissions from the unit with another certified monitoring system that has been approved by the permitting authority; or
  - (3) The NO<sub>x</sub> authorized account representative submits notification of the date of certification testing of a replacement monitoring system in accordance with 9VAC5-140-710 A. 2.

(9VAC5-80-110 and 9VAC5-140-700)

660. **NO<sub>x</sub> Budget Program Requirements** – Initial Certification and Recertification Procedures for Emission Monitoring Systems

- a. The owner or operator of a NO<sub>x</sub> Budget unit shall comply with the following initial certification and recertification procedures:

Table 4. Certification and Recertification Procedures

Unit Type	Initial Certification and Recertification Procedures
<b>NO<sub>x</sub> Budget Unit</b>	9VAC5-140-710 A.
<b>NO<sub>x</sub> Budget Unit Qualified for Low Mass Emission Monitoring</b> (qualifies for LME monitoring methodology under 40 CFR 75.19)	9VAC5-140-710 A. 9VAC5-140-710 B.
<b>NO<sub>x</sub> Budget Unit Approved for Alternative Monitoring</b> (unit qualifies under Subpart E of 40 CFR Part 75)	9VAC5-140-710 A. 9VAC5-140-710 C.

- b. Whenever the owner or operator installs a monitoring system in order to meet the requirements of the NO<sub>x</sub> Budget Program where no such emission monitoring system was previously installed, initial certification is required.
- c. Whenever the owner or operator makes a replacement, modification, or change in a certified emission monitoring system that may significantly affect the ability of the system to accurately measure or record NO<sub>x</sub> mass emissions or heat input rate or to meet the requirements of 40 CFR 75.21 or Appendix B to 40 CFR Part 75, the owner or operator shall recertify the emission monitoring system.
- d. Whenever the owner or operator makes a replacement, modification or change to the flue gas handling system or the unit’s operation that may significantly change the stack flow or concentration profile, the owner or operator shall recertify the continuous emissions monitoring system.
- e. The NO<sub>x</sub> authorized account representative shall submit to the permitting authority, the EPA Region III Office, and the Administrator a written notice of the dates of certification in accordance with 9VAC5-140-730.

(9VAC5-80-110 and 9VAC5-140-710)

- 661. **NO<sub>x</sub> Budget Program Requirements** - Initial Certification and Recertification Procedures for Emission Monitoring Systems - The NO<sub>x</sub> authorized account representative shall submit an application to the permitting authority within 45 days after completing all initial certification or recertification tests required under 9VAC5-140-710 including information required under Subpart H of 40 CFR Part 75. (9VAC5-80-110 and 9VAC5-140-740 C.)

**Recordkeeping and Reporting**

- 662. **NO<sub>x</sub> Budget Program Requirements** – The NO<sub>x</sub> authorized account representative shall follow the recordkeeping and reporting requirements as described in 9VAC5-140-100 E.1. and 40 CFR 75.73. (9VAC5-80-110 and 9VAC5-140-740 A.)
- 663. **NO<sub>x</sub> Budget Program Requirements** - Unless otherwise provided, the owners and operators of the NO<sub>x</sub> Budget source and each NO<sub>x</sub> Budget unit at the source shall keep on site at the source each of the following documents for a period of five years from the date the document is created. This period may be extended for cause, at any time prior to the end of five years, in writing by the permitting authority or the administrator.

- a. The account certificate of representation for the NO<sub>x</sub> authorized account representative for the source and each NO<sub>x</sub> Budget unit at the source and all documents that demonstrate the truth of the statements in the account certificate of representation, in accordance with 9VAC5-140-130; provided that the certificate and documents shall be retained on site at the source beyond such five-year period until such documents are superseded because of the submission of a new account certificate of representation changing the NO<sub>x</sub> authorized account representative.
- b. All emissions monitoring information, in accordance with 9VAC5-140-700 et seq. of this part; provided that to the extent that 9VAC5-140-700 et seq. provides for a three-year period for recordkeeping, the three-year period shall apply.
- c. Copies of all reports, compliance certifications, and other submissions and all records made or required under the NO<sub>x</sub> Budget Program.
- d. Copies of all documents used to complete a NO<sub>x</sub> Budget permit application and any other submission under the NO<sub>x</sub> Budget Program or to demonstrate compliance with the requirements of the NO<sub>x</sub> Budget Program.

(9VAC5-80-110 and 9VAC5-140-60 C.1)

664. **NO<sub>x</sub> Budget Program Requirements** - The NO<sub>x</sub> authorized account representative of a NO<sub>x</sub> Budget source and each NO<sub>x</sub> Budget unit at the source shall submit the reports and compliance certifications required under the NO<sub>x</sub> Budget Program, including those under 9VAC5-140-700 et seq. and in Subpart H of 40 CFR Part 75.  
(9VAC5-80-110, 9VAC5-140-60 C.2, and 9VAC5-140-700)
665. **NO<sub>x</sub> Budget Program Requirements** - The owner or operator of a unit shall comply with requirements of 40 CFR 75.62 (Monitoring plan submittals), except that the monitoring plan is only required to include the information required by Subpart H of 40 CFR Part 75.  
(9VAC5-80-110 and 9VAC5-140-740 B.)
666. **NO<sub>x</sub> Budget Program Requirements** – The NO<sub>x</sub> authorized account representative shall submit quarterly reports as follows:
- a. If owner or operator of a NO<sub>x</sub> Budget unit chooses to meet the annual reporting requirements of Article 8 of 9VAC5-140, the NO<sub>x</sub> authorized account representative shall submit a quarterly report, documenting the NO<sub>x</sub> mass emissions from the unit(s) per the guidelines of 9VAC5-140-740 D.;
  - b. The NO<sub>x</sub> authorized account representative shall either:
    - i. Meet all of the requirements of 40 CFR Part 75 related to monitoring and reporting NO<sub>x</sub> mass emissions during the entire year and meet the reporting deadlines specified in 9VAC5-140-740 D. 1; or
    - ii. Submit quarterly reports, documenting NO<sub>x</sub> mass emissions from the unit(s), only for the period from May 1 through September 30 of each year and including the data described in 40 CFR 75.74

(c)(6). The NO<sub>x</sub> authorized account representative shall submit quarterly reports per the guidelines of 9VAC5-140-740 D. 2. (b).

- c. The NO<sub>x</sub> authorized account representative shall submit each quarterly report to the administrator within 30 days following the end of the calendar quarter covered by the report. Quarterly reports shall be submitted in the matter specified in Subpart H of 40 CFR Part 75 and 40 CFR 75.64.

(9VAC5-80-110 and 9VAC5-140-740 D.)

## Testing

667. **NO<sub>x</sub> Budget Program Requirements** - The permitted facility shall be constructed so as to allow for emissions testing at any time using appropriate methods. Upon request from the Department, test ports will be provided at the appropriate locations.  
(9VAC5-80-110 and 9VAC5-50-30)

668. **NO<sub>x</sub> Budget Program Requirements** - If testing is conducted in addition to the monitoring specified in this permit, the permittee shall use the following test methods in accordance with test method procedures approved by the DEQ:

Table 5. Test Methods

Pollutant or Stack Parameter	CEM Certification Test Method 40 CFR 60
Nitrogen Oxides (NO <sub>x</sub> )	USEPA Method 7E
Oxygen (O <sub>2</sub> )	USEPA Method 3a

(9VAC5-80-110, 9VAC5-140-700)

## Liability

669. **NO<sub>x</sub> Budget Program Requirements** – The following requirements concerning liability shall apply:

- a. Any person who knowingly violates any requirement or prohibition of the NO<sub>x</sub> Budget Program, a NO<sub>x</sub> Budget permit, or an exemption under 9VAC5-140-50 shall be subject to enforcement pursuant to applicable State or Federal law.
- b. Any person who knowingly makes a false material statement in any record, submission, or report under the NO<sub>x</sub> Budget Program shall be subject to criminal enforcement pursuant to the applicable State or Federal law.
- c. No permit revision shall excuse any violation of the requirements of the NO<sub>x</sub> Budget Program that occurs prior to the date that the revision takes effect.
- d. NO<sub>x</sub> Budget source and each NO<sub>x</sub> Budget unit shall meet the requirements of the NO<sub>x</sub> Budget Program.

- e. Any provision of the NO<sub>x</sub> Budget Program that applies to a NO<sub>x</sub> Budget source or the NO<sub>x</sub> authorized account representative of a NO<sub>x</sub> Budget source shall also apply to the owners and operators of such source and of the NO<sub>x</sub> Budget units at the source.
- f. Any provision of the NO<sub>x</sub> Budget Program that applies to a NO<sub>x</sub> Budget unit or the NO<sub>x</sub> authorized account representative of a NO<sub>x</sub> Budget unit shall also apply to the owners and operators of such unit. Except with regard to the requirements applicable to units with a common stack under Article 8 (9VAC5-140-700 et seq.), the owners and operators and the NO<sub>x</sub> authorized account representative of one NO<sub>x</sub> Budget unit shall not be liable for any violation by any other NO<sub>x</sub> Budget unit of which they are not owners or operators or the NO<sub>x</sub> authorized account representative and that is located at a source of which they are not owners or operators or the NO<sub>x</sub> authorized account representative.

(9VAC5-80-110 and 9VAC5-140-60 D.)

### **Effect on Other Authorities**

- 670. **NO<sub>x</sub> Budget Program Requirements** - No provision of the NO<sub>x</sub> Budget Program, a NO<sub>x</sub> Budget permit application, a NO<sub>x</sub> Budget permit, or an exemption under 9VAC5-140-50 shall be construed as exempting or excluding the owners and operators and, to the extent applicable, the NO<sub>x</sub> authorized account representative of a NO<sub>x</sub> Budget source or NO<sub>x</sub> Budget unit from compliance with any other provision of the applicable, approved State implementation plan, a federally enforceable permit, or the Clean Air Act. (9VAC5-80-110 and 9VAC5-140-60 E.)

Attachment A-1

**COMPLIANCE ASSURANCE MONITORING PLAN FOR AREA 6  
ADVANSIX RESINS AND CHEMICALS LLC  
TITLE V PERMIT NO. PRO50232**

Compliance Assurance Monitoring (CAM) Rule

The CAM rule is essentially a companion rule to Title V, requiring that control device operating parameters be monitored in order to demonstrate compliance with a specified emission limitation or standard. At 40 CFR 64.2(a), the CAM rule states the following:

*“...the requirements of this part shall apply to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:*

- (1) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;*
- (2) The unit uses a control device to achieve compliance with any such emission limitation or standard; and*
- (3) The unit has the potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...”*

The CAM Rule defines two classes of emission units. These are “large pollutant-specific emissions units” and “other pollutant-specific emissions units”. The “large” units are those, “...with the potential to emit...taking into account control devices...the applicable regulated pollutant in an amount greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...” The “other” units are those that are not “large” units. As such, the primary difference between the two categories is that “large” units are those that are still major (*i.e.*, greater than 100 percent of the major source threshold) after the application of controls, while the “other” units are those that are non-major (*i.e.*, less than or equal to 100 percent of the major source threshold) following the application of controls.

The federal regulations, at 40 CFR 64.5(a)(2), state the following with regard to submittal of a CAM Plan for “large pollutant-specific emissions units”:

*“On or after April 20, 1998, the owner or operator shall submit information as part of an application for a significant permit revision under part 70 or 71 of this chapter, but only with respect to those pollutant-specific emissions units for which the proposed permit revision is applicable.”*

The regulations, at 40 CFR 64.5(b), state the following with regard to submittal of a CAM Plan for the “other pollutant-specific emissions units”:

*“...the owner or operator shall submit the information required...as part of an application for a renewal of a part 70 or part 71 permit.”*

## I. Area 6 Sources Venting to FLS-61

### A. Background

#### 1. Emissions Unit

Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant  
Process Units and Control Device: See Table Below  
Pollutant: VOC  
PSEU: A  
PCD ID: FLS-61

<b>Ref. #</b>	<b>Process/Equipment Description</b>
A-6 Hydro	Equipment as outlined in Conditions 1.a.i, 1.a.ii, 1.a.iii, 1.b, 1.c.i, 1.c.ii., and 1.c.iii, as applicable
APT-1	Cyclohexanol Batch Reactor

#### 2. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the AdvanSix Resins and Chemicals LLC - Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- The various systems (see above) are subject to existing Title V Permit limits. The Title V Permit was originally issued on January 1, 2007.
- The process equipment utilizes a control device (flare) to achieve compliance with the VOC emission limits.
- The pre-controlled, potential VOC emission rate is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for VOC.

CAM Emissions limit: FLS-61 VOC: 98% control; 4.7 lb/hr; 5.75 tons/year

Pre-CAM Monitoring Requirements: Bypass Flow Indicators, Pilot Flame Indicators and Visible Emissions Observations.

#### 3. Control Technology, Capture system, Bypass

Controls: Flare  
Capture System: Closed duct system  
Bypass: Periods of bypass are documented and reported as necessary.  
PTE Before Control: >major source thresholds for VOC  
PTE After Control: 5.75 tons/year

## B. CAM Approach

FLS-61

	Indicator 1	Indicator 2	Indicator 3
Indicator	Pilot light indication	Exit Velocity	Higher heating value or hydrogen content
Measurement Approach	Monitored continuously with "Pilot Eye"	Continuous-calculation of exit velocity	Continuous calculation of higher heating value or hydrogen content
Indicator Range	Indication that pilots are lit	Less than limit calculated using formula in Condition 98	Greater than 7.45 MJ/scm (200 Btu/scf) or greater than 8.0 percent by volume hydrogen content
Performance Criteria			
Data Representativeness	Measured continuously	Calculated continuously	Calculated continuously
Verification of Operational Status	NA	Verify that area is running before collecting flow data	Verify that area is running before collecting heat data or hydrogen content data
QA/QC practices	Follow site PM schedule for calibration	Periodic review of underlying data and calculations	Periodic review of underlying data and calculations
Monitoring Frequency	Continuous	Continuous	Continuous
Data Collection Procedures	15-minute averages recorded	1-hour averages recorded	1-hour averages recorded
Averaging Period	15-minute	3-hour block (calculated each hour)	3-hour block (calculated each hour)
Excursions	Absence of pilot light (for 15 minutes)	Velocity less than limit calculated using formula in Condition 98	Heat content less than 7.45 MJ/scm (200 Btu/scf) or hydrogen content < 8% by volume

### **C. Response to Excursion**

During normal operation, the absence of a pilot light, increased velocity of exit gases, and/or low fuel higher heating value or low hydrogen content indicate flare performance issues that require corrective actions. During such events, an investigation will be initiated to determine the cause of the excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

### **D. Justification**

#### **1. Background**

The pollutant specific emissions unit A (PSEU A) is VOC from the Area 6 emission units controlled by FLS-61.

#### **2. Rationale for Selection of Performance Indicators and Ranges**

The CAM indicators selected are pilot light indication, velocity of gas to flares and higher heating value or hydrogen content of the gas to the flare. These approaches are typical for flares and in combination with the continuous monitoring of flow rates of streams venting to the flare provide sufficient verification that effective destruction of VOC vented to the flare is occurring.

## II. Area 6 Sources Venting to Kellogg FU-1

### A. Background

#### 1. Emissions Unit

Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant  
Process Unit: A6 Continuous Cyclohexanone Hydrogenation (A6-Hydro)  
Pollutant: VOC  
PSEU: B  
PCD ID: FU-1

#### 2. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the AdvanSix Resins & Chemicals LLC - Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- A-6 Hydro (as controlled by FU-1) is required to meet a 98% reduction in VOC.
- The process equipment utilizes a process heater (FU-1) in Kellogg during various operating scenarios to achieve compliance with the VOC reduction standard.
- The pre-controlled, potential VOC emission rate is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for VOC.

CAM Emissions limit: 98% control of A6-Hydro VOC emissions that are routed to FU-1 for control (not 100% of A6-Hydro VOC emissions are routed to FU-1)

Pre-CAM Monitoring Requirements: Flow Indication

#### 3. Control Technology, Capture system, Bypass, Potential-to-Emit

Controls: Process Heater (FU-1)  
Capture System: Closed duct system  
Bypass: N/A

## B. CAM Approach

	Indicator 1
Indicator	Temperature monitoring of FU-1 (when flow of reaction gases from A6-Hydro to FU-1 is indicated by flow meter)
Measurement Approach	Measure temperature
Indicator Range	Greater than the normal operating temperature of 800 °C (1472 °F)
Performance Criteria	
Data Representativeness	NA - continuously monitored
Verification of Operational Status	NA
QA/QC practices	Follow site PM schedule for calibration
Monitoring Frequency	Continuous
Data Collection Procedures	1-hr averages recorded
Averaging Period	3-hr rolling average (calculated each hour)
Excursions	Temperature below normal operating temperature of 800 °C (1472 °F)

## C. Response to Excursion

The plant continuously monitors the temperature within the chamber of FU-1. During normal operation, the indication of temperature below 800 °C indicates process heater performance issues that require corrective actions. During such events, an investigation will be initiated to determine the cause of the excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

## D. Justification

### 1. Background

The pollutant specific emissions unit B (PSEU B) is VOC from A6-Hydro controlled by FU-1.

### 2. Rationale for Selection of Performance Indicators and Ranges

The CAM indicator selected is chamber temperature in FU-1. The minimum temperature in the chamber of the process heater will be maintained above the temperature demonstrated to provide sufficient destruction efficiency. The minimum temperature applies during periods where FU-1 is used to control A6-Hydro.

### III. Area 6 Sources Venting to FLS-62

#### A. Background

##### 1. Emissions Unit

Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant  
Process Units and Control Device : See Table Below  
Pollutant: VOC  
PSEU: C  
PCD ID: FLS-62

<b>Ref. #</b>	<b>Process/Equipment Description</b>
CL-2	Cyclohexanone Distillation Column
CL-9	Cyclohexanol (APT-1 System) Distillation Column
CL-17	Cyclohexanol Distillation Column
CL-18	Cyclohexanone Distillation Column
CL-26	Cyclohexanone Distillation Column
CL-80	Cyclohexanol Distillation Column
CL-65N	Cyclohexanone Distillation Column
CT-48, CT-53, CT-55	Three Continuous Cyclohexanone Catalyst Centrifuges
CL-KA1	KA Oil Distillation Column

##### 2. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the AdvanSix Resins and Chemicals LLC - Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- The various systems (see above) are subject to minor New Source Review permit limits.
- The process equipment utilizes a control device (flare) to achieve compliance with the VOC emission limits.
- The pre-controlled, potential VOC emission rate is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for VOC.

CAM Emissions limit: VOC: 98% control; 1.5 lb/hr; 4.27 tons/year

Pre-CAM Monitoring Requirements: Bypass Flow Indicators, Pilot Flame Indicators and Visible Emissions Observations.

##### 3. Control Technology, Capture system, Bypass, Potential-to-Emit

Controls: Flare  
Capture System: Closed duct system  
Bypass: Periods of bypass are documented and reported as necessary.  
PTE Before Control: >major source thresholds for VOC  
PTE After Control: 4.27 tons/year

## B. CAM Approach

FLS-62

	Indicator 1	Indicator 2	Indicator 3
Indicator	Pilot light indication	Exit Velocity	Higher heating value or hydrogen content
Measurement Approach	Monitored continuously with "Pilot Eye"	Flow rate sampling	Gas sample
Indicator Range	Indication that pilots are lit	Less than limit calculated using formula in Condition 98	Greater than 7.45 MJ/scm (200 Btu/scf) or greater than 8.0 percent by volume hydrogen content
Performance Criteria			
Data Representativeness	Measured continuously	NA – once per year check at sample port	NA – once per year sampling at sample port
Verification of Operational Status	NA	Verify that area is running before collecting flow data	Verify that area is running before collecting heat data or hydrogen content data
QA/QC practices	Follow site PM schedule for calibration	NA	NA
Monitoring Frequency	Continuous	Flow measurement once per year	Heat content or hydrogen content sample taken once per year
Data Collection Procedures	15-minute averages recorded	Paper record	Paper record
Averaging Period	15-minute	3-hour (test)	3-hour (test)
Excursions	Absence of pilot light (for 15 minutes)	Velocity greater than limit calculated using formula in Condition 98	Heat content less than 7.45 MJ/scm (200 Btu/scf) or hydrogen content < 8% by volume

### **C. Response to Excursion**

During normal operation, the absence of a pilot light, increased velocity of exit gases, and/or low fuel higher heating value or low hydrogen content indicate flare performance issues that require corrective actions. During such events, an investigation will be initiated to determine the cause of the excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

### **D. Justification**

#### **1. Background**

The pollutant specific emissions unit C (PSEU C) is VOC from the Area 6 emission units controlled by FLS-62.

#### **2. Rationale for Selection of Performance Indicators and Ranges**

The CAM indicators selected are pilot light indication, velocity of gas to flares, and higher heating value or hydrogen content of the gas to the flare. These approaches are typical for flares and in combination with the continuous monitoring of flow rates of streams venting to the flare provide sufficient verification that effective destruction of VOC vented to the flare is occurring.

Attachment A-2

**COMPLIANCE ASSURANCE MONITORING PLAN FOR AREA 9  
ADVANSIX RESINS AND CHEMICALS LLC  
TITLE V PERMIT NO. PRO50232**

Compliance Assurance Monitoring (CAM) Rule

The CAM rule is essentially a companion rule to Title V, requiring that control device operating parameters be monitored in order to demonstrate compliance with a specified emission limitation or standard. At 40 CFR 64.2(a), the CAM rule states the following:

*“...the requirements of this part shall apply to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:*

- (4) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;*
- (5) The unit uses a control device to achieve compliance with any such emission limitation or standard; and*
- (6) The unit has the potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...”*

The CAM Rule defines two classes of emission units. These are “large pollutant-specific emissions units” and “other pollutant-specific emissions units”. The “large” units are those, “...with the potential to emit...taking into account control devices...the applicable regulated pollutant in an amount greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...” The “other” units are those that are not “large” units. As such, the primary difference between the two categories is that “large” units are those that are still major (*i.e.*, greater than 100 percent of the major source threshold) after the application of controls, while the “other” units are those that are non-major (*i.e.*, less than or equal to 100 percent of the major source threshold) following the application of controls.

The federal regulations, at 40 CFR 64.5(a)(2), state the following with regard to submittal of a CAM Plan for “large pollutant-specific emissions units”:

*“On or after April 20, 1998, the owner or operator shall submit information as part of an application for a significant permit revision under part 70 or 71 of this chapter, but only with respect to those pollutant-specific emissions units for which the proposed permit revision is applicable.”*

The regulations, at 40 CFR 64.5(b), state the following with regard to submittal of a CAM Plan for the “other pollutant-specific emissions units”:

*“...the owner or operator shall submit the information required...as part of an application for a renewal of a part 70 or part 71 permit.”*

## I. Area 9 Sources Controlled by Venturi Scrubbers and Mist Eliminators

### A. Background

#### 4. Emissions Unit

Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant  
 Process Units and Control Devices: see table below  
 Pollutant: PM-10  
 PSEUs: D through M

Tower Type	Train	Ref. No.	Venturi Scrubber	Mist Eliminator
Nitrite	A	TW-2	SE-328	SE-329
Nitrite	B	TW-8	SE-179	SE-324
Nitrite	C	TW-17	SE-322	SE-323
Nitrite	D	TW-22	SE-65	
Nitrite	E	TW-32	SE-116	SE-335
Disulfonate	A	TW-62		SE-88
Disulfonate	B	TW-9		SE-89
Disulfonate	C	TW-18		SE-90
Disulfonate	D	TW-23		SE-91
Disulfonate	E	TW-33		SE-101

#### 5. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the AdvanSix Resins and Chemicals LLC - Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- The process equipment (see above) is subject to minor New Source Review permit limits.
- The process equipment utilizes a control devices to achieve compliance with the PM-10 emission limits.
- The pre-controlled, potential PM-10 emission rate is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for PM.

#### CAM Emission Limits:

TW-2:	PM-10: 2.0 lb/hr	8.0 tons/yr
TW-8:	PM-10: 2.0 lb/hr	8.0 tons/yr
TW-17:	PM-10: 2.0 lb/hr	8.0 tons/yr
TW-22:	PM-10: 3.0 lb/hr	12.0 tons/yr
TW-32:	PM-10: 2.0 lb/hr	8.7 tons/yr
TW-62:	PM-10: 2.3 lb/hr	10.2 tons/yr
TW-9:	PM-10: 2.3 lb/hr	10.2 tons/yr
TW-18:	PM-10: 2.3 lb/hr	10.2 tons/yr
TW-23:	PM-10: 2.4 lb/hr	10.5 tons/yr
TW-33:	PM-10: 2.5 lb/hr	10.8 tons/yr

#### Pre-CAM Monitoring Requirements: Pressure Drop

**6. Control Technology, Capture system, Bypass, Potential-to-Emit**

Controls: As listed above  
 Capture System: Closed duct system  
 Bypass: N/A  
 PTE Before Control: 225 tons/yr PM-10 per emission unit  
 PTE After Control: See CAM emission limits above

**B. CAM Approach**

**Nitrite Towers**

	Indicator 1	Indicator 2	Indicator 3
Indicator	Liquid Flow Rate (Venturi Scrubber)	Pressure Drop (Venturi Scrubber)	Pressure Drop (Mist Eliminator)
Measurement Approach	Scrubber liquid flow rate continuously measured and recorded	Pressure drop continuously measured and recorded	Pressure drop continuously measured and recorded
Indicator Range	Scrubber liquid flow rate as determined during performance testing. See values listed in table below.	Pressure drop as determined during performance testing. See values listed in table below.	Pressure drop as determined during performance testing. See values listed in table below.
Performance Criteria			
Data Representativeness	NA - measured continuously	NA – measured continuously	NA – measured continuously
Verification of Operational Status	NA	NA	NA
QA/QC practices	Flow sensors calibrated according to site PM schedule	Pressure sensors calibrated according to site PM schedule	Pressure sensors calibrated according to site PM schedule
Monitoring Frequency	Continuous	Continuous	Continuous
Data Collection Procedures	1-hour averages recorded	1-hour averages recorded	1-hour averages recorded
Averaging Period	3-hour rolling (calculated each hour)	3-hour rolling (calculated each hour)	3-hour rolling (calculated each hour)
Excursions	Scrubber liquid flow rate less than the established indicator range	Pressure drop less than the established indicator range	Pressure drop less than the established indicator range

**Disulfonate Towers**

	Indicator 1
Indicator	Pressure Drop (Mist Eliminator)
Measurement Approach	Pressure drop continuously measured and recorded
Indicator Range	Pressure drop as determined during performance testing. See values listed in table below.
<b>Performance Criteria</b>	
Data Representativeness	NA – measured continuously
Verification of Operational Status	NA
QA/QC practices	Pressure sensors calibrated according to site PM schedule
Monitoring Frequency	Continuous
Data Collection Procedures	1-hour averages recorded
Averaging Period	3-hour rolling (calculated each hour)
Excursions	Pressure drop less than the established indicator range

**Established Indicator Ranges:**

**Nitrite Towers:**

Train	Ref. No.	PCD #	PCD Type	Minimum Liquid Flow Rate (gpm)	Minimum Pressure Drop (in. of H <sub>2</sub> O)
A	TW-2	SE-328	Venturi Scrubber	50	0.25
A	TW-2	SE-329	Mist Eliminator		3
B	TW-8	SE-179	Venturi Scrubber	50	0.07
B	TW-8	SE-324	Mist Eliminator		3
C	TW-17	SE-322	Venturi Scrubber	50	0.25
C	TW-17	SE-323	Mist Eliminator		3
D	TW-22	SE-65	Venturi Scrubber	15	30
E	TW-32	SE-116	Venturi Scrubber	30	0.25
E	TW-32	SE-335	Mist Eliminator		3

**Disulfonate Towers:**

Train	Ref. No.	PCD #	PCD Type	Minimum Pressure Drop (in. of H <sub>2</sub> O)
A	TW-62	SE-88	Mist Eliminator	7
B	TW-9	SE-89	Mist Eliminator	5.7
C	TW-18	SE-90	Mist Eliminator	7
D	TW-23	SE-91	Mist Eliminator	7
E	TW-33	SE-101	Mist Eliminator	7

### **C. Response to Excursion**

During normal operation, low liquid flow or pressure drop indicates performance issues that require corrective action. During such events, an investigation will be initiated to determine the cause of the excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

### **D. Justification**

#### **1. Background**

The pollutant specific emissions units (PSEUs) for PM-10 are:

- PSEU D for TW-2
- PSEU E for TW-8
- PSEU F for TW-17
- PSEU G for TW-22
- PSEU H for TW-32
- PSEU I for TW-62
- PSEU J for TW-9
- PSEU K for TW-18
- PSEU L for TW-23
- PSEU M for TW-33

#### **2. Rationale for Selection of Performance Indicators and Ranges**

A decrease in flow rate or pressure differential will indicate non-normal operation of the scrubbers and mist eliminators.

## **XIX. Area 9 Sources Venting to NO Time Tanks and Scrubbers**

### **A. Background**

#### **1. Emissions Unit**

Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant  
Process Units and Control Devices: See Table Below  
Pollutant: NO<sub>x</sub>  
PSEUs: N through Q

<b>Tower Type</b>	<b>Train</b>	<b>Ref. No.</b>	<b>NO Time Tank</b>	<b>Scrubber</b>
Nitrite	D	TW-22	VT-883	
Nitrite	E	TW-32	VT-847	
Disulfonate	D	TW-23	VT-883	SE-32
Disulfonate	E	TW-33	VT-847	SE-54

#### **2. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements**

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- The process units (see above) are subject to minor NSR permit limits.
- The process units utilize control devices (NO time tanks or packed bed scrubbers) to achieve compliance with the NO<sub>x</sub> emission limits.
- The pre-controlled, potential NO<sub>x</sub> emission rate is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for NO<sub>x</sub>.

#### CAM Emission Limits:

TW-22:	NO <sub>x</sub> : 70% reduction efficiency*;	240 lb/hr;	600 tons/yr
TW-32:	NO <sub>x</sub> : 50% reduction efficiency*;	13 lb/hr (200 lb/hr startup);	33 tons/yr
TW-23:	NO <sub>x</sub> : 70% reduction efficiency*;	300 lb/hr	600 tons/yr
TW-33:	NO <sub>x</sub> : 50% reduction efficiency*;	16 lb/hr (200 lb/hr startup)	32 tons/yr

\*Compliance with the emission limits as demonstrated by CEMS is presumed to demonstrate compliance with the control efficiency requirements above.

Pre-CAM Monitoring Requirements: CEMS

#### **3. Control Technology, Capture system, Bypass, Potential-to-Emit**

Controls: As listed above  
Capture System: Closed duct system  
Bypass: N/A  
PTE Before Control: >major source thresholds for NO<sub>x</sub>  
PTE After Control: As listed above

## B. CAM Approach

	Indicator 1
Indicator	NOx emission rates
Measurement Approach	CEMS continuously measure NOx emissions
Indicator Range	Below permit limits
Performance Criteria	
Data Representativeness	NA - continuously monitored
Verification of Operational Status	NA
QA/QC practices	Part 60 requirements
Monitoring Frequency	Continuous
Data Collection Procedures	15-minute averages recorded 1-hr averages recorded
Averaging Period	3 hour rolling (calculated each hour)
Excursions	Exceedance of emissions limit

## C. Response to Excursion

A CEMS is used as CAM for the NO time tanks and SCRs which control NOx emissions below the permitted limits. An excursion is an exceedance of the NOx emission limits. During such events, an investigation will be initiated to determine the cause of the excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

## D. Justification

### 1. Background

The pollutant specific emissions units (PSEUs) for NOx are:

- PSEU N for TW-22
- PSEU O for TW-32
- PSEU P for TW-23
- PSEU Q for TW-32

### 2. Rationale for Selection of Performance Indicators and Ranges

CEMS will be used as CAM for the NO time tanks and SCRs that are the control devices for the Area 9 “D” and “E” train disulfonate and nitrite towers. CAM requires CEMS to be used as CAM when they are required by the underlying applicable requirement. The CEMS provide a continuous measurement of NOx in pounds per hour. If the pounds per hour limit is met then the assumption is that the control device efficiency is also met. Therefore, there is not a need for additional monitoring of control device parameters.

Attachment A-3

**COMPLIANCE ASSURANCE MONITORING PLAN FOR AREA 8/16  
ADVANSIX RESINS AND CHEMICALS LLC  
TITLE V PERMIT NO. PRO50232**

Compliance Assurance Monitoring (CAM) Rule

The CAM rule is essentially a companion rule to Title V, requiring that control device operating parameters be monitored in order to demonstrate compliance with a specified emission limitation or standard. At 40 CFR 64.2(a), the CAM rule states the following:

*“...the requirements of this part shall apply to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:*

- (7) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;*
- (8) The unit uses a control device to achieve compliance with any such emission limitation or standard; and*
- (9) The unit has the potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...”*

The CAM Rule defines two classes of emission units. These are “large pollutant-specific emissions units” and “other pollutant-specific emissions units”. The “large” units are those, “...with the potential to emit...taking into account control devices...the applicable regulated pollutant in an amount greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...” The “other” units are those that are not “large” units. As such, the primary difference between the two categories is that “large” units are those that are still major (*i.e.*, greater than 100 percent of the major source threshold) after the application of controls, while the “other” units are those that are non-major (*i.e.*, less than or equal to 100 percent of the major source threshold) following the application of controls.

The federal regulations, at 40 CFR 64.5(a)(2), state the following with regard to submittal of a CAM Plan for “large pollutant-specific emissions units”:

*“On or after April 20, 1998, the owner or operator shall submit information as part of an application for a significant permit revision under part 70 or 71 of this chapter, but only with respect to those pollutant-specific emissions units for which the proposed permit revision is applicable.”*

The regulations, at 40 CFR 64.5(b), state the following with regard to submittal of a CAM Plan for the “other pollutant-specific emissions units”:

*“...the owner or operator shall submit the information required...as part of an application for a renewal of a part 70 or part 71 permit.”*

## I. Area 8/16 Sources Venting to Thermal Oxidizer (FU-16)

### A. Background

#### 1. Emissions Unit

Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant  
Process Units and Control Devices: See Table Below  
Pollutant: VOC  
PSEU: R  
PCD ID: FU-16

<b>Ref. #</b>	<b>Process/Equipment Description</b>
LacSep	Lactam/Sulfate/Emulsion Separation (APT-9, APT-10, HT-58, HT-74, HT-99, VT-246)
LacExt	Caprolactam Extraction and Separation (CL-14, CL-45, SE-125)
CL-15, CL-81	Toluene/Sulfate Stripper Columns
CL-28, 29	Toluizer Head Tanks
CL-29new	Toluizer Head Tank
CL-62, CL-62new	Toluene/Lactam Distillation Columns
HT-53	Toluene/Water Separator
VT-221	Toluene Storage Tank
VT-227	Toluene Recovery Flash Tank
VT-245	Toluene Storage Tank
VT-344	CL-15 O/H Recovery Tank
VT-361	Toluene Vent Condenser
SolLdg	Area 8 Solvent Purge Loadout

#### 2. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the AdvanSix Resins and Chemicals LLC - Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- The process units (see above) are subject to minor New Source Review permit limits.
- The process units utilize a control device (thermal oxidizer) to achieve compliance with the VOC emission limits.
- The pre-controlled, potential VOC emission rate is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for VOC.

CAM Emissions limit: VOC: 8.6 lb/hr; 4.8 tons/year

Pre-CAM Monitoring Requirements: Temperature Monitors and Visible Emissions Observations

#### 3. Control Technology, Capture system, Bypass

Controls: Thermal Oxidizer  
Capture System: Closed duct system  
Bypass: Periods of bypass are documented and reported as necessary.

## B. CAM Approach

	Indicator 1
Indicator	Temperature
Measurement Approach	Continuously measured
Indicator Range	Minimum temperature of 1132 °F (611°C) established during 9/2008 performance test (minimum temperature can change according to most recent stack test)
Performance Criteria	
Data Representativeness	Measured continuously
Verification of Operational Status	NA
QA/QC practices	Thermocouple calibration according to site PM schedule
Monitoring Frequency	Continuous
Data Collection Procedures	15-minute averages recorded
Averaging Period	3 hour rolling (calculated each hour)
Excursions	Temperature less than minimum temperature of 1132 °F (611°C) (minimum temperature can change according to most recent stack test)

## C. Response to Excursion

During normal operation, an indication of temperature below the limit established by the stack test indicates thermal oxidizer performance issues that require corrective actions. During such events, an investigation will be initiated to determine the cause of the excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

## D. Justification

### 1. Background

The pollutant specific emissions unit R (PSEU R) is VOC from various Area 8/16 emission units.

### 2. Rationale for Selection of Performance Indicators and Ranges

The CAM approach for the site's thermal oxidizers will be to monitor temperature continuously. The minimum temperature will be maintained above the temperature demonstrated to provide sufficient destruction efficiency during source testing.

Attachment A-4

**COMPLIANCE ASSURANCE MONITORING PLAN FOR AREA 11  
ADVANSIX RESINS AND CHEMICALS LLC  
TITLE V PERMIT NO. PRO50232**

Compliance Assurance Monitoring (CAM) Rule

The CAM rule is essentially a companion rule to Title V, requiring that control device operating parameters be monitored in order to demonstrate compliance with a specified emission limitation or standard. At 40 CFR 64.2(a), the CAM rule states the following:

*“...the requirements of this part shall apply to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:*

- (10) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;*
- (11) The unit uses a control device to achieve compliance with any such emission limitation or standard; and*
- (12) The unit has the potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...”*

The CAM Rule defines two classes of emission units. These are “large pollutant-specific emissions units” and “other pollutant-specific emissions units”. The “large” units are those, “...with the potential to emit...taking into account control devices...the applicable regulated pollutant in an amount greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...” The “other” units are those that are not “large” units. As such, the primary difference between the two categories is that “large” units are those that are still major (*i.e.*, greater than 100 percent of the major source threshold) after the application of controls, while the “other” units are those that are non-major (*i.e.*, less than or equal to 100 percent of the major source threshold) following the application of controls.

The federal regulations, at 40 CFR 64.5(a)(2), state the following with regard to submittal of a CAM Plan for “large pollutant-specific emissions units”:

*“On or after April 20, 1998, the owner or operator shall submit information as part of an application for a significant permit revision under part 70 or 71 of this chapter, but only with respect to those pollutant-specific emissions units for which the proposed permit revision is applicable.”*

The regulations, at 40 CFR 64.5(b), state the following with regard to submittal of a CAM Plan for the “other pollutant-specific emissions units”:

*“...the owner or operator shall submit the information required...as part of an application for a renewal of a part 70 or part 71 permit.”*

## I. Area 11 Sources Venting to Scrubbers

### A. Background

#### 1. Emissions Unit

Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant  
 Process Units and Control Devices: See Table Below  
 PSEU: S through Y  
 Pollutant: PM-10  
 PCD ID: See Table Below

Ref. No.	Process/Equipment Description	PCD ID
RD-3N	Rotary Dryer	DC-7N
RD-4	Rotary Dryer	DC-11
RD-6	Rotary Dryer	DC-12
RD-7	Rotary Dryer	DC-29
RD-7N	Rotary Dryer	DC-29N
DC-21	Building 12 Ammonium Sulfate Storage and loading operation, including but not limited to, the four (4) triple deck screens (SC-65, SC-66, SC-67, SC-68N), the mid-grade conveyor (CO-225), the ammonium sulfate bulk storage bin/loading station (BN-11), the bulk storage bin conveyor (CO-226), and the bulk storage bin elevator (EL-25)	DC-21
DC-21B	Building 12B Ammonium Sulfate Storage and loading operation	DC-21B

#### 2. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the AdvanSix Resins and Chemicals LLC - Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- The various systems (see above) are subject to minor New Source Review permit limits.
- The process units utilize control devices (scrubbers) to achieve compliance with the PM-10 emission limits.
- The pre-controlled, potential PM-10 emission rate is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for PM-10.

<u>CAM Emission Limits:</u>	RD-3N	PM-10:	5.2 lb/hr	22.3 tons/yr
	RD-4	PM-10:	5.2 lb/hr	22.3 tons/yr
	RD-6	PM-10:	3.8 lb/hr	16.3 tons/yr
	RD-7	PM-10:	3.8 lb/hr	16.3 tons/yr
	RD-7N	PM-10:	5.2 lb/hr	22.3 tons/yr
	DC-21	PM-10:	4.1 lb/hr	10.3 tons/yr
	DC-21N	PM-10:	1.0 lb/hr	3.1 tons/yr

Pre-CAM Monitoring Requirements: Pressure Drip, Flow Rate, and Visible Emissions Observations

**3. Control Technology, Capture system, Bypass, Potential-to-Emit**

Controls: Scrubbers  
 Capture System: Closed duct system  
 Bypass: N/A  
 PTE Before Control: >major source thresholds for PM-10  
 PTE After Control: See emission limits above

**B. CAM Approach**

	Indicator 1	Indicator 2
Indicator	Pressure drop	Scrubbant flow
Measurement Approach	Continuously monitor	Continuously monitor
Indicator Range	As determined by engineering judgment*	As determined by engineering judgment*
<b>Performance Criteria</b>		
Data Representativeness	NA - continuously monitored	NA - continuously monitored
Verification of Operational Status	NA	NA
QA/QC practices	Calibration of monitoring devices according to site PM schedule	Calibration of monitoring devices according to site PM schedule
Monitoring Frequency	Continuous	Continuous
Data Collection Procedures	15-minute averages recorded 1-hour averages recorded	15-minute averages recorded 1-hour averages recorded
Averaging Period	3-hour rolling	3-hour rolling
Excursions	Pressure drop less than the established indicator ranges	Flow rate less than the established indicator ranges

**\*Established Indicator Ranges:**

Emission Unit	Control Unit No.	Pressure drop (in. of H <sub>2</sub> O)	Flow Rate (gpm)
RD-3N	DC-7N	2	50
RD-4	DC-11	2	50
RD-6	DC-12	1	30
RD-7	DC-29	1	20
RD-7N	DC-29N	TBD	TBD
Building 12	DC-21	5	80
Building 12B	DC-21B	TBD	TBD

**C. Response to Excursion**

During normal operation, low pressure drop or scrubbant flow indicates scrubber performance issues that require corrective actions. During such events, an investigation will be initiated to determine the cause of the excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

## **D. Justification**

### **1. Background**

The pollutant specific emissions units for PM-10 emissions are:

- PSEU S for RD-3N
- PSEU T for RD-4
- PSEU U for RD-6
- PSEU V for RD-7
- PSEU W for RD-7N
- PSEU X for Building 12 (DC-21)
- PSEU Y for Building 12B (DC-21N)

### **2. Rationale for Selection of Performance Indicators and Ranges**

For all scrubbers in Area 11 used as air pollution control devices, the pressure differential across the devices and the liquid flow rates will be used as CAM. Historical operations data indicates that when the units are operating at the setpoints given above, then there are no compliance issues. Therefore, these setpoints are appropriate for monitoring the operation of the control equipment.

## II. Area 11 Sources Venting to Baghouse (DC-31)

### A. Background

#### 1. Emissions Unit

Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant  
Process Unit: Building 12 Fugitive Dust  
Pollutant: PM-10  
PSEU: Z  
PCD ID: DC-31

#### 2. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the AdvanSix Resins and Chemicals LLC - Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- The process unit (see above) is subject to minor New Source Review permit limits.
- The process equipment utilizes a control device (baghouse) to achieve compliance with the PM-10 emission limit.
- The pre-controlled, potential PM-10 emission rate is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for PM-10.

CAM Emission Limits: DC-31: PM-10: 1.0 lb/hr 2.8 tons/yr

Pre-CAM Monitoring Requirements: pressure drop and visible emissions observations.

#### 3. Control Technology, Capture system, Bypass, Potential-to-Emit

Controls: Baghouse  
Capture System: Closed duct system  
Bypass: N/A  
PTE Before Control: >major source thresholds for PM  
PTE After Control: 2.8 tons/yr

## B. CAM Approach

	Indicator 1
Indicator	Pressure drop
Measurement Approach	Continuously monitor
Indicator Range	Minimum pressure drop of 0.5 inches of water
Performance Criteria	
Data Representativeness	NA - continuously monitored
Verification of Operational Status	NA
QA/QC practices	Calibration of monitoring devices according to site PM schedule
Monitoring Frequency	Continuous
Data Collection Procedures	15-minute averages recorded 1-hour averages recorded
Averaging Period	3-hour rolling (calculated each hour)
Excursions	Pressure drop less than 0.5 inches of water

## C. Response to Excursion

During normal operation, low pressure drop indicates a baghouse performance issue that requires corrective actions. During such events, an investigation will be initiated to determine the cause of the excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

## D. Justification

### 1. Background

The pollutant specific emissions unit Z (PSEU Z) is PM-10 from Building 12 (DC-31).

### 2. Rationale for Selection of Performance Indicators and Ranges

A decrease in pressure differential will indicate failure in the filter material or failure in other elements of the baghouse system (such as a fan). Continuous monitoring of the pressure difference will provide rapid (virtually instantaneous) indication of such problems. Historical operations data indicates that when the baghouse is operating at or more than the setpoint given above, then there are no compliance issues. Therefore, this setpoint is appropriate for monitoring the operation of the baghouse.

Attachment A-5

**COMPLIANCE ASSURANCE MONITORING PLAN FOR SAP  
ADVANSIX RESINS AND CHEMICALS LLC  
TITLE V PERMIT NO. PRO50232**

Compliance Assurance Monitoring (CAM) Rule

The CAM rule is essentially a companion rule to Title V, requiring that control device operating parameters be monitored in order to demonstrate compliance with a specified emission limitation or standard. At 40 CFR 64.2(a), the CAM rule states the following:

*“...the requirements of this part shall apply to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:*

- (13) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;*
- (14) The unit uses a control device to achieve compliance with any such emission limitation or standard; and*
- (15) The unit has the potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...”*

The CAM Rule defines two classes of emission units. These are “large pollutant-specific emissions units” and “other pollutant-specific emissions units”. The “large” units are those, “...with the potential to emit...taking into account control devices...the applicable regulated pollutant in an amount greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...” The “other” units are those that are not “large” units. As such, the primary difference between the two categories is that “large” units are those that are still major (*i.e.*, greater than 100 percent of the major source threshold) after the application of controls, while the “other” units are those that are non-major (*i.e.*, less than or equal to 100 percent of the major source threshold) following the application of controls.

The federal regulations, at 40 CFR 64.5(a)(2), state the following with regard to submittal of a CAM Plan for “large pollutant-specific emissions units”:

“On or after April 20, 1998, the owner or operator shall submit information as part of an application for a significant permit revision under part 70 or 71 of this chapter, but only with respect to those pollutant-specific emissions units for which the proposed permit revision is applicable.”

The regulations, at 40 CFR 64.5(b), state the following with regard to submittal of a CAM Plan for the “other pollutant-specific emissions units”:

*“...the owner or operator shall submit the information required...as part of an application for a renewal of a part 70 or part 71 permit.”*

## I. SAP Sources Controlled by Mist Eliminator SE-105

### A. Background

#### 1. Emissions Unit

Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant  
Process Unit : Sulfuric Acid Plant (SAP)  
Pollutant: PM-10  
PSEU: AA  
PCD ID: SE-105

#### 2. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the AdvanSix Resins and Chemicals LLC - Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- The process unit is subject to minor New Source Review permit limits.
- The process unit utilizes a control device (mist eliminator) to achieve compliance with the PM-10 (Sulfuric Acid Mist) emission limits.
- The pre-controlled, potential PM-10 (Sulfuric Acid Mist) emission rate is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for PM-10 (Sulfuric Acid Mist)..

CAM Emissions limit: PM-10 (Sulfuric Acid Mist): 2.2 lb/hr 8.2 tons/year

Pre-CAM Monitoring Requirements: Pressure Drop and Visible Emissions Observations

#### 3. Control Technology, Capture system, Bypass, Potential-to-Emit

Controls: Scrubber  
Capture System: Closed duct system  
Bypass: N/A  
PTE Before Control: >major source thresholds for PM-10 (Sulfuric Acid Mist)  
PTE After Control: 2.2 lb/hr 8.2 tons/year

## B. CAM Approach

	Indicator 1
Indicator	Pressure Drop
Measurement Approach	Continuously measure
Indicator Range	Minimum pressure drop of 10 in of water during normal process operation (based on October 5, 2008 stack test). When sulfur burn rate is less than 160 tons/day, minimum pressure drop does not apply.
Performance Criteria	
Data Representativeness	NA - measured continuously
Verification of Operational Status	NA
QA/QC practices	Periodic calibration of pressure measuring devices according to site PM schedule
Monitoring Frequency	Continuous
Data Collection Procedures	15-minute averages recorded
Averaging Period	3-hour rolling (calculated each hour)
Excursions	Pressure drop less than 10 in. of water during normal operation (more than 160 tons/day burn rate)

## C. Response to Excursion

During normal operation (more than 160 tons per day of sulfur burn rate), low pressure across the mist eliminator indicates control device performance issues that require corrective actions. During such events, an investigation will be initiated to determine the cause of the excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

## D. Justification

### 1. Background

The pollutant specific emissions unit AA (PSEU AA) is PM-10 from the SAP.

### 2. Rationale for Selection of Performance Indicators and Ranges

For the mist eliminator, the pressure differential across the device will be used as CAM. An indication of low pressure would signal a problem with scrubber performance.

## II. SAP Sources Controlled by Acid Gas Scrubber FS-3

### A. Background

#### 1. Emissions Unit

Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant  
Process Units: Sulfuric Acid Mist emissions from oleum storage tanks VT-437, VT-438, VT-746, and VT-747 controlled by acid scrubber FS-3  
Pollutant: Sulfuric Acid Mist  
PSEU: BB  
PCD ID: FS-3

#### 2. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the AdvanSix Resins and Chemicals LLC - Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- The process units (see above) are subject to minor New Source Review permit requirements.
- The process units utilize a control device (acid scrubber) to achieve compliance with the sulfuric acid mist emission limits.
- The pre-controlled, potential sulfuric acid mist emission rate is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for sulfuric acid mist.

CAM Emissions limit: Sulfuric Acid Mist: 0.69 lb/hr 1.1 tons/year

Pre-CAM Monitoring Requirements: pressure drop and visible emissions observations.

#### 3. Control Technology, Capture system, Bypass, Potential-to-Emit

Controls: Acid Scrubber (FS-3)  
Capture System: Closed duct system  
Bypass: N/A  
PTE Before Control: >major source thresholds for PM  
PTE After Control: 0.69 lb/hr 1.1 tons/year

## B. CAM Approach

	Indicator 1
Indicator	Scrubber liquid flow rate
Measurement Approach	Continuously measured
Indicator Range	Minimum flowrate based on manufacturer's recommendations
Performance Criteria	
Data Representativeness	NA - continuously measured
Verification of Operational Status	NA
QA/QC practices	Periodic calibration of flow rate measuring devices according to site PM schedule
Monitoring Frequency	Continuous
Data Collection Procedures	15-minute averages recorded
Averaging Period	3-hour rolling (calculated each hour)
Excursions	Scrubber liquid flow rate less than 6 gpm

## C. Response to Excursion

During normal operation, low scrubber liquid flow indicates control device performance issues that require corrective actions. During such events, an investigation will be initiated to determine the cause of the excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

## D. Justification

### 1. Background

The pollutant specific emissions unit BB (PSEU BB) is Sulfuric Acid Mist from the SAP.

### 2. Rationale for Selection of Performance Indicators and Ranges

For the acid scrubber, the scrubber liquid flow rate will be used as CAM. An indication of low flow would signal a problem with scrubber performance.

Attachment A-6

**COMPLIANCE ASSURANCE MONITORING PLAN FOR KELLOGG  
ADVANSIX RESINS AND CHEMICALS LLC  
TITLE V PERMIT NO. PRO50232**

Compliance Assurance Monitoring (CAM) Rule

The CAM rule is essentially a companion rule to Title V, requiring that control device operating parameters be monitored in order to demonstrate compliance with a specified emission limitation or standard. At 40 CFR 64.2(a), the CAM rule states the following:

*“...the requirements of this part shall apply to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:*

- (16) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;*
- (17) The unit uses a control device to achieve compliance with any such emission limitation or standard; and*
- (18) The unit has the potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...”*

The CAM Rule defines two classes of emission units. These are “large pollutant-specific emissions units” and “other pollutant-specific emissions units”. The “large” units are those, “...with the potential to emit...taking into account control devices...the applicable regulated pollutant in an amount greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source...” The “other” units are those that are not “large” units. As such, the primary difference between the two categories is that “large” units are those that are still major (*i.e.*, greater than 100 percent of the major source threshold) after the application of controls, while the “other” units are those that are non-major (*i.e.*, less than or equal to 100 percent of the major source threshold) following the application of controls.

The federal regulations, at 40 CFR 64.5(a)(2), state the following with regard to submittal of a CAM Plan for “large pollutant-specific emissions units”:

“On or after April 20, 1998, the owner or operator shall submit information as part of an application for a significant permit revision under part 70 or 71 of this chapter, but only with respect to those pollutant-specific emissions units for which the proposed permit revision is applicable.”

The regulations, at 40 CFR 64.5(b), state the following with regard to submittal of a CAM Plan for the “other pollutant-specific emissions units”:

*“...the owner or operator shall submit the information required...as part of an application for a renewal of a part 70 or part 71 permit.”*

## I. Kellogg Ammonia Plant Combustion System (KAPCS-1)

### A. Background

#### 1. Emissions Unit

Facility: AdvanSix Resins and Chemicals LLC - Hopewell Plant  
Process Unit: Kellogg Ammonia Plant Combustion System (KAPCS-1).  
Pollutant: NO<sub>x</sub>  
PSEU: CC  
PCD ID: GC-11, TW-65

#### 2. Applicable Regulation, Emissions Limit, and Pre-CAM Monitoring Requirements

With regard to the four criteria listed above for a facility to be subject to the CAM rule, the following facts pertain to the AdvanSix Resins and Chemicals LLC - Hopewell Plant:

- The Hopewell Plant is a major source and has a Title V Permit, PRO50232.
- The various systems (see above) are subject to minor New Source Review permit limits.
- The process units utilize control devices to achieve compliance with the NO<sub>x</sub> emission limit.
- The pre-controlled, potential NO<sub>x</sub> emission rate from KAPCS-1 is above the major source level of 100 tons per year.

Based on these facts, the emission units are subject to the CAM requirements for NO<sub>x</sub>.

CAM Emissions limit: NO<sub>x</sub>: 517.0 lb/hr 552.6 tons/year

Pre-CAM Monitoring Requirements: Purge Stream Pressure at Inlet of Compressor and Visible Emissions Observations

#### 3. Control Technology, Capture system, Bypass, Potential-to-Emit

Controls: Operation of compressor GC-11 such that the combined purge stream from the ammonia synthesis loop is routed to the ammonia scrubber (TW-65) prior to combustion in the primary reformer process heater (FU-1)  
Capture System: Closed duct system  
Bypass: N/A  
PTE Before Control: >major source thresholds for NO<sub>x</sub>  
PTE After Control: 552.6 tons/year

## B. CAM Approach

	Indicator 1	Indicator 2
Indicator	Low pressure purge bypass valve	TW-65 level control valve position
Measurement Approach	Continuously measured	Continuously measured
Indicator Range	Low-pressure purge bypass valve open (>5% valve position)	Level control valve open
<b>Performance Criteria</b>		
Data Representativeness	NA – continuous	NA – continuous
Verification of Operational Status	NA	NA
QA/QC practices	Periodic calibration of valve position sensor according to site PM schedule	Periodic calibration of level control valve
Monitoring Frequency	Continuous	Continuous
Data Collection Procedures	15-min averages recorded 1-hour averages recorded	15-min averages recorded 1-hour averages recorded
Averaging Period	1-hour	1-hour
Excursions	Valve open position > 5%	Level control valve in closed position indicating no water flow

## C. Response to Excursion

During normal operation, the valve in the purge line is kept closed (position at less than 5% open) to assure that the low-pressure purge is sent to TW-65. This prevents the ammonia in the low-pressure purge from being sent directly to FU-1, where excess NOx emissions would be created but not at a level that would impact compliance with the hourly emission limit. However, the cumulative effect of higher emissions during hourly excursions has the potential to impact compliance with the annual limit. A valve position of greater than 5% during normal operation would result in an alarm and would indicate process conditions that require corrective actions. The level control valve on the bottom discharge of TW-65 is monitored to assure water is flowing into TW-65 to absorb ammonia from the combined purge stream so that it is not sent to FU-1 where excess NOx emissions would be created. An excursion occurs when the level control valve is in the closed position. During such events, an investigation will be initiated to determine the cause of the excursion and corrective actions taken as soon as practicable to correct the cause of the excursion. All excursions will be documented and reported as necessary.

## D. Justification

### 1. Background

The pollutant specific emissions unit CC (PSEU CC) is NOx from KAPCS-1.

### 2. Rationale for Selection of Performance Indicators and Ranges

Monitoring the bypass valve position to assure that the low-pressure purge gas is being routed to TW-65 and monitoring the level control valve to assure that water is flowing to TW-65 is as CAM. When the low-pressure purge bypass valve position is less than 5% open and water is flowing to TW-65, historical data indicates that there are no NOx compliance issues in regards to NOx for FU-1.

