ADEQ
OPERATING
AIR PERMIT

Pursuant to the Regulations of the Arkansas Operating Air Permit Program, Regulation #26:

Permit #: 860-AOP-R3

IS ISSUED TO:

Ciba Specialty Chemicals Water Treatments, Inc.
100 Bridgeport Road
West Memphis, AR 72301
Crittenden County
CSN: 18-0081

THIS PERMIT AUTHORIZES THE ABOVE REFERENCED PERMITTEE TO INSTALL, OPERATE, AND MAINTAIN THE EQUIPMENT AND EMISSION UNITS DESCRIBED IN THE PERMIT APPLICATION AND ON THE FOLLOWING PAGES. THIS PERMIT IS VALID BETWEEN:

July 10, 2000 and July 9, 2005

AND IS SUBJECT TO ALL LIMITS AND CONDITIONS CONTAINED HEREIN.

Signed:

Keith A. Michaels

Date Modified

SECTION I: FACILITY INFORMATION

PERMITTEE:	Ciba Specialty Chemicals Water Treatments, Inc.
CSN:	18-0081
PERMIT NUMBER:	860-AOP-R3
FACILITY ADDRESS:	100 Bridgeport Road West Memphis, AR 72301
COUNTY:	Crittenden
CONTACT POSITION:	J. Stewart Johnson
TELEPHONE NUMBER:	(870) 735-8750
REVIEWING ENGINEER:	Paula Parker
UTM North-South (Y):	3891.17
UTM East-West (X):	764.46

SECTION II: INTRODUCTION

Summary

Ciba Specialty Chemicals Water Treatments, Inc. (Ciba), owns and operates a facility which manufactures intermediate synthetic organic chemicals used in water treatment applications. The intermediate chemicals produced at Ciba include crude glycol ethers and (meth)acrylic esters. The facility is requesting a minor modification to allow the manufacture of additional water treatment chemicals in its P-3 process unit. Reactors in the P3-1 process unit will be permitted for additional service. Five new tanks will be installed, two in the 600 Tank Farm (SN-P3-2) and three tanks in the 400 Tank Farm (SN-P3-3). Emission increases from this minor modification include 8.7 tons/yr VOC, 1.09 tons/yr methanol, 0.84 tons/yr methyl methacrylate, and 1.2 tons/yr acetone. The modification is not PSD-significant since it is below 40 tons/yr. These tanks are not subject to the requirements of 40 CFR Part 60 Subpart Kb, *Standards of Performance for Volatile Organic Liquid Storage Vessels*.

Ciba is classified as a major stationary source as defined by Title V of the Clean Air Act for volatile organic compounds (VOC) and for hazardous air pollutants (HAPs). VOC emissions at this facility are permitted at 478.9 tons per year. The three hazardous air pollutants which exceed the minor/major defining threshold are methanol, allyl chloride, methyl methacrylate, and methyl chloride, permitted at 26.29, 21.90, 14.74, and 20.30 tons per year, respectively.

Ciba is also classified as a major stationary source for VOC under the regulations of 40 CFR Part 52.21, *Prevention of Significant Deterioration of Air Quality* (PSD).

The applicability of major source status under PSD first became clear in early 1997, when the facility and its consultant performed a comprehensive re-analysis of existing emissions generated by the facility. During this inventory, it was discovered that existing but newly quantified fugitive emissions brought the VOC emission total to a level beyond 100 tons per year, the major source threshold for the chemical plant category under PSD.

At the time of Title V permit application submittal in March of 1998, the facility (then CPS Chemical) reported to the Department that two wash tanks (V1212 and V1213, SN-P3-10a) had been installed in 1991 without authorization. In addition to violating the terms of Air Permit 860-A, the facility stated that the combined potential emissions from these tanks may have exceeded the significant increase threshold for VOC under the regulations of PSD. The Department responded by issuing Consent Administrative Order LIS: 98-073. One of the Order's conditions required the facility to submit a historical PSD permit application. In September of 1998, the facility submitted the PSD application, which included an applicability review, a Best Available Control Technology (BACT) analysis, and an air quality analysis.

After reviewing the PSD application, the Department accepted the facility's proposal for BACT: the installation of chilled vent condensers as control equipment for the wash tanks. Additionally, the Department approved the facility's plan to implement a leak detection and repair (LDAR) program for the P-3 plant, which houses the tanks. The condenser efficiency was estimated at 90% for VOC reduction, and the LDAR program at 95% for fugitive VOC.

The application of the chilled vent condenser systems to the wash tanks reduce their potential to emit from 58 to 5.8 tons per year, below the PSD significant increase threshold. The Department has incorporated this proposed control as a requirement of Operating Air Permit 860-AOP-R0. In requiring the control as a federally enforceable limit, the issuance of a PSD air permit is not required for the tanks.

In addition to the previously installed wash tanks, VOC increases from new process modifications were also examined for PSD applicability during the application review. The units in the P3 process contributed 14.1 ton/yr in VOC emissions, while the P4 process line resulted in a total of 38.3 ton/yr of VOC. Since the P3 and P4 processes were not related (they share no common equipment or materials, and neither process depends upon the other), their combined emission increases did not constitute a PSD review for this permitting action.

In addition to the regulations of Title V and PSD, the facility is also subject to the requirements of 40 CFR Part 60 Subpart Kb, *Standards of Performance for Volatile Organic Liquid Storage Vessels* (a New Source Performance Standard, or NSPS). This regulation specifically applies to the following tanks:

NSPS Subpart Kb Tanks				
Source	Tank #	Location	Capacity	Contents
SN-P3-2	605	Tank Farm 600	21,000 gallon	Methyl Methacrylate
SN-P3-2	607	Tank Farm 600	14,500 gallon	Methanol
SN-P3-2	608	Tank Farm 600	14,500 gallon	Methyl Methacrylate
SN-P3-2	610	Tank Farm 600	14,500 gallon	Methanol
SN-P3-2	619	Tank Farm 600	14,500 gallon	Methyl Methacrylate
SN-P3-2	621	Tank Farm 600	14,500 gallon	Methanol
SN-P3-2	622	Tank Farm 600	14,500 gallon	Cyclohexane
SN-P3-2	624	Tank Farm 600	14,500 gallon	Methanol
SN-P3-2	625	Tank Farm 600	14,500 gallon	Methanol

Ciba Specialty Chemicals Water Treatments, Inc.
Permit #: 860-AOP-R3
CSN #: 18-0081

NSPS Subpart Kb Tanks				
Source	Tank #	Location	Capacity	Contents
SN-P3-3	400	Tank Farm 400	29,000 gallon	Out of service.
SN-P3-3	401	Tank Farm 400	25,000 gallon	Allyl Chloride
SN-P3-12	700	Tank Farm 700	50,000 gallon	Dimethyl Amine
SN-P4-2	-	P4 Tank Farm	32,000 gallon	Methyl Acrylate
SN-P4-2	-	P4 Tank Farm	32,000 gallon	Methyl Acrylate
SN-P4-2	-	P4 Tank Farm	32,000 gallon	Methyl Acrylate
SN-P4-2	-	P4 Tank Farm	32,000 gallon	Methyl Acrylate
SN-P4-2	-	P4 Tank Farm	32,000 gallon	Dimethylamino Ethanol
SN-P4-2	-	P4 Tank Farm	32,000 gallon	Dimethylamino Ethanol
SN-P4-2	-	P4 Tank Farm	32,000 gallon	Dimethylamino Ethanol
SN-P4-2	-	P4 Tank Farm	32,000 gallon	Dimethylamino Ethanol
SN-P4-2	-	P4 Tank Farm	32,000 gallon	Byproduct Methanol
SN-P4-2	-	P4 Tank Farm	32,000 gallon	Byproduct Methanol
SN-P4-2	-	P4 Tank Farm	32,000 gallon	Tetra Isopropyl Titanate
SN-P4-2	-	P4 Tank Farm	32,000 gallons	Byproduct Isopropanol
SN-P4-2	-	P4 Tank Farm	32,000 gallons	Dimethyl Amino Ethyl Acrylate
SN-P4-2	-	P4 Tank Farm	32,000 gallons	Dimethyl Amino Ethyl Acrylate
SN-P4-2	-	P4 Tank Farm	32,000 gallons	Dimethyl Amino Ethyl Acrylate
SN-P4-2	-	P4 Tank Farm	32,000 gallons	Dimethyl Amino Ethyl Acrylate
SN-P4-2	-	P4 Tank Farm	32,000 gallons	Dimethyl Amino Ethyl Acrylate
SN-P4-2	-	P4 Tank Farm	32,000 gallons	Dimethyl Amino Ethyl Acrylate

Boiler #1 (SN-P3-4), Boiler #3 (SN-P3-6), and Boiler #4 (SN-P4-5) are subject to the requirements of 40 CFR Part 60, Subpart Dc (*Standards for Small Industrial-Commercial-Institutional Steam Generating Units*). These boilers each have a heat input capacity of 33.5 million Btu/hr (#1 and #4) and 29.4 million Btu/hr (#3). The units were modified in 1995, after the regulation's effective date of June 9, 1989.

Ciba's Cationic Monomer Plant (SN-P4-1) is also subject to 40 CFR Part 60 Subpart NNN, the *Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations* (an NSPS regulation) and RRR, *Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes*.

Specific information related to the above listed NSPS requirements may be found in the Specific Conditions in the "Emission Unit Information" section of this permit. NSPS Subpart Kb is also described in the Plantwide Conditions.

Finally, the Ciba facility in general is subject to regulation under the *Clean Air Act* as amended, the *Arkansas Water and Air Pollution Control Act*, the *Arkansas Air Pollution Control Code* (Regulation 18), the *Regulations of the Arkansas Plan of Implementation for Air Pollution Control* (Regulation 19), and the *Regulations of the Arkansas Operating Air Permit Program* (Regulation 26).

Ciba Specialty Chemicals Water Treatments, Inc.
Permit #: 860-AOP-R3
CSN #: 18-0081

Emission Summary

The following table is a summary of emissions from the facility. Specific conditions and emissions for each source can be found starting on the page cross referenced in the table.

EMISSION SUMMARY					
Source No.	Description	Pollutant	Emission Rates		Cross Reference Page
			lb/hr	tpy	
Total Allowable Emissions		PM PM_{10} SO_2 VOC CO NO_X Acetone Acrylamide[HAP] Acrylic Acid[HAP] Allyl Chloride[HAP] Methanol[HAP] Methyl Methacrylate[HAP] Methyl Chloride[HAP]	10.0 10.0 8.2 134.8 31.9 134.4 0.33 0.04 0.05 5.02 8.79 4.68 4.86	6.4 6.4 0.9 478.9 27.6 65.6 1.2 0.40 0.20 21.90 26.29 14.74 20.30	-
P1-1	Reactor 104	VOC Acrylic Acid[HAP] Acrylamide[HAP] Allyl Chloride[HAP] Methanol[HAP] Methyl Methacrylate[HAP]	36.1 0.04 0.01 5.02 1.30 0.02	u	13
P1-2	Reactor 105				13
P1-3	Reactor 106				14
P1-4	Reactor 114				14
P1-5	Tank Farm 500				15
P1-6	Tank Farm 300				15
P1-7	Reactor 107				13
P1-8	Tank Farm 200				15
P1-9	Reactors 104, 105, and 107 for mDMDAC				15

Ciba Specialty Chemicals Water Treatments, Inc.
Permit #: 860-AOP-R3
CSN #: 18-0081

EMISSION SUMMARY					
Source No.	Description	Pollutant	Emission Rates		Cross Reference Page
			lb/hr	tpy	
P2-1	Reactor 101	VOC Acrylamide[HAP] Methanol[HAP] Methyl Chloride[HAP] Methyl Methacrylate[HAP]	9.5 0.03 1.80 2.40 1.18	u	18
P2-2	Reactor 102				18
P2-3	Reactor 103				18
P2-4	Reactor 108				18
P2-5	Reactor 109				18
P2-6	Tank Farm 100				19

Ciba Specialty Chemicals Water Treatments, Inc.
Permit #: 860-AOP-R3
CSN #: 18-0081

EMISSION SUMMARY					
Source No.	Description	Pollutant	Emission Rates		Cross Reference Page
			lb/hr	tpy	
P3-1	Reactors 110, 112, 113, 115, 116	PM PM_{10} SO_2 VOC CO NO_X Acetone Acrylic Acid[HAP] Methanol[HAP] Methyl Methacrylate[HAP]			22
P3-2	Tank Farm 600				22
P3-3	Tank Farm 400				23
P3-4	Boiler #1				23
P3-5	Boiler #2 —Removed.				N/A
P3-6	Boiler #3		1.6 1.6 0.9 13.7 5.5 18.1 0.33 0.01 1.99 2.18	u	23
P3-7	Fire Emergency Pump				24
P3-8	500 Gallon Gasoline Tank				24
P3-9	500 Gallon Diesel Tank				24
P3-10a	Wash Tanks (Existing)				23
P3-10b	Wash Tanks (New)				23
P3-11	Methanol Recovery				23
P3-12	Tank Farm 700				24
P3-13	Inhibitor Vats				24
P3-14	10,000 Gallon Diesel Tank				25
P3-15	10,000 Gallon Diesel Tank				25

Ciba Specialty Chemicals Water Treatments, Inc.
Permit #: 860-AOP-R3
CSN #: 18-0081

EMISSION SUMMARY					
Source No.	Description	Pollutant	Emission Rates		Cross Reference Page
			lb/hr	tpy	
P4-1	P4 Cationic Monomer Reactors	PM PM_{10} SO_2 VOC CO NO_X Methanol[HAP] Methyl Chloride[HAP]	8.4 8.4 7.3 17.9 25.2 116.3 0.22 2.20	u	31
P4-2	P4 Tank Farm				31
P4-3	P4 Loading/Unloading				31
P4-4	P4 Equipment Leaks				31
P4-5	Boiler #4				31
P4-6	25,000 Gallon Diesel Storage Tank				31
P4-7	Quat Plant				32
P4-8	25,000 Gallon Diesel Storage Tank				33
P4-9	Emergency Electrical Generator (by P-2)				33
P4-10	Fire Protection Generator (WWTP / Instrumentation)				33
P4-11	Electrical Generator (400 kW / 600 hp -P4)				34
FS-1	Loading/Unloading (P1, P2, P3)	VOC Methanol[HAP]	0.9 0.74	u	42
FS-2	Equipment Leaks (P1, P2, P3)	VOC	9.9	u	42
FS-3	Wastewater Fugitives	VOC Methyl Chloride[HAP] Methanol[HAP] Methyl Methacrylate[HAP]	46.8 0.26 2.74 1.30	u	42

u Ton per year emission limit compliance to be based upon plantwide values.

SECTION III: PERMIT HISTORY

Ciba Specialty Chemicals Water Treatments, Inc.
Permit #: 860-AOP-R3
CSN #: 18-0081

The following table summarizes the history of prior permitting actions at this facility.

Air Permit	Date Issued	Action
860-A	03/26/90	First consolidated air permit issued to CPS Chemical, encompassing all existing sources.
860-AR-1	04/28/92	Acknowledged the applicability of NSPS Subpart Kb in relation to tanks T-400 and T-401. Also bubbled the tank farm emissions into a single source designation.
860-AR-2	08/12/96	Permitted the addition of a new reactor, R-107, into building P-1. Also organized the sources into three main process areas, P-1, P-2, and P-3.
860-AOP-R0	07/10/00	Title V permit assigned to the facility. Due to the installation of two unpermitted sources, the facility was required to submit a PSD application. After reviewing the PSD application, the Department accepted the facility's proposal for BACT. The Department incorporated the proposed controls as a requirement of Operating Air Permit 860-AOP-R0. In requiring the control as a federally enforceable limit, the issuance of a PSD air permit was not required.
860-AOP-R1	04/18/01	This minor modification was concerned with the usage of two reactors, 106 and 114, in the P1 manufacturing section. In addition to their current use, they were allowed to produce DMDAC polymers in a similar fashion as in the P2 section.
860-AOP-R2	09/18/01	Three modifications were incorporated in this permit. One entailed additional service to the T-600 tank farm (SN-P3-2), involving an allowance for cyclohexane/methyl methacrylate processing at tanks T-606, T-620, T-623, and T-627. Secondly, Boiler #3 (SN- P3-6) was allowed to utilize by-product methanol as a fuel source under the EPA's guidelines for alternative fuels. Third, an emission limit for Reactor 108 (R-108) in source P2-4 was corrected.

SECTION IV: EMISSION UNIT INFORMATION

Ciba Specialty Chemicals Water Treatments, Inc.
Permit #: 860-AOP-R3
CSN #: 18-0081

P-1 Process Building

Crude mDMDAC Process
Reactors R-104, R-105, and R-107 for mDMDAC Service (SN-P1-09)

Crude dimethyl diallyl ammonium chloride (mDMDAC) is produced by reacting dimethylamine (DMA) with allyl chloride and sodium hydroxide. The initial charging step and subsequent reaction occur in a closed system. The reactors are not vented, and no emissions occur. Vapors that leave the top of the columns are combined and routed through a new water/glycol-cooled condenser. A majority of the volatile organics are condensed in this unit and returned to the reaction vessel.

Following this reaction, the reactors contain the product mDMDAC in an aqueous phase, as well as a small organic phase consisting of unreacted allyl chloride and byproduct allyl alcohol. The units enter a vent down cycle, in which the unreacted contents of each reactor's vapor space are vented through the water/glycol condenser, and then through a new packed-column caustic (NaOH) scrubber to the atmosphere. Once the reactors are vented, a water strip and allyl alcohol strip are performed. Organics from the strip processes are also routed through the condenser and caustic scrubber. When product specifications are achieved, the product is pumped to storage.

Polymer DMDAC Process
R-104 (SN-P1-1), R-105 (SN-P1-2), and R-107 (SN-P1-7)

DMDAC polymers are produced by reacting an aqueous solution of monomer dimethyl diallyl ammonium chloride (mDMDAC). The reactor is vented to the atmosphere during the entire process, which includes an initial charging step, reaction, and nitrogen sparge. Following sparging, the batch is diluted with water and adjusted to specification. Water vapors leave the unit and pass through a water-cooled condenser. Any volatile organics present are condensed in this unit and returned to the reaction vessel. Vapors that pass through this condenser vent to the atmosphere.

The R-104, R-105, and R-107 scrubbers are single staged units, each consisting of a packed column. A solution of sodium hydroxide (caustic) and water is continuously circulated to the top of the columns, where it makes continuous contact with the vapors that exit the reactor's condenser. The caustic strength is monitored, and fresh caustic solution is added as required. After the vapors are scrubbed, they are vented to the atmosphere.

Direct Esterification Process
R-104 (SN-P1-1), R-107 (SN-P1-7)

(Meth)acrylic acid reacts with an alcohol in the presence of a catalyst. This reaction yields (meth)acrylate ester and water. The reaction takes place in a hydrocarbon solvent media (i.e., heptane or cyclohexane). The ester is then washed to remove any excess acid. This is followed by a strip to remove the hydrocarbon solvent.

DMDAC Polymer and Copolymer Process
R-106 (P1-3) and R-114 (P1-4)

DMDAC copolymers are produced by reacting an aqueous solution of mDMDAC with aqueous acrylamide as a second monomer. Therefore, this reaction will produce the DMDAC-accylamide copolymer.

DMDAC polymers are produced by reacting an aqueous solution of mDMDAC. This reaction produces a DMDAC homopolymer.

The reactor is vented to the atmosphere during the entire process, which includes an initial charging step, reaction, and nitrogen sparge. Following sparging, the batch is diluted with water and adjusted to specification.

Trans Esterification
R-104 (SN-P1-1), R-107 (SN-P1-7)

Methyl (meth)acrylate reacts with alcohol in the presence of a catalyst. This reaction yields the (meth)acrylate ester and methanol. The reaction takes place in a solvent media of cyclohexane and /or heptane. R-104 also has the capability to react ethyl acrylate with alcohol. This produces ethyl acrylate ester and a side product of ethanol. This is followed by a strip to remove the hydrocarbon solvent.

Poly Epiamine Process
R-105 (SN-P1-2), R-106 (SN-P1-3), R-107 (SN-P1-7), and R-114 (SN-P1-4)

This process reacts dimethylamine (DMA) with epichlorohydrin in the presence of water in a closed reactor. The system is closed during the charging and reaction. This process produces poly epiamines for use as a flocculent. The process is only vented to atmosphere at the end of the batch run.

Ciba Specialty Chemicals Water Treatments, Inc.
Permit #: 860-AOP-R3
CSN #: 18-0081

1. Pursuant to §19.501 et seq of the Regulations of the Arkansas Plan of Implementation for Air Pollution Control (Regulation #19) effective February 15, 1999 and 40 CFR Part 52, Subpart E, the permittee shall not exceed the emission rates set forth in the following table. Compliance with this condition will be demonstrated through fulfillment of the requirements of Specific Conditions 3, 4, 5, 7, and Plantwide Condition 6.

SN	Description	Pollutant	lb/hr*
P1-1	Reactor 104	VOC	36.1
P1-2	Reactor 105		
P1-3	Reactor 106		
P1-4	Reactor 114		
P1-5	Tank Farm 500		
P1-6	Tank Farm 300		
P1-7	Reactor 107		
P1-8	Tank Farm 200		
P1-9	Reactors 104, 105, and 107 for mDMDAC		

*Based upon a 24-hour average.

2. Pursuant to §18.801 of the Arkansas Air Pollution Control Code (Regulation #18) effective February 15, 1999, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall not exceed the emission rates set forth in the following table. Compliance with this condition will be demonstrated through fulfillment of the requirements of Specific Conditions 3, 4, and 6, and Plantwide Condition 7.

SN	Description	Pollutant	lb/hr*
P1-1	Reactor 104		
		Acrylic Acid[HAP]	0.04
		Acrylamide[HAP]	0.01
		Methanol[HAP]	1.30
		Methyl Methacrylate[HAP]	0.02
		Allyl Chloride[HAP]	5.02

SN	Description	Pollutant	lb/hr*
P1-2	Reactor 105		
P1-5	Tank Farm 500		
P1-7	Reactor 107		
P1-9	Reactors 104, 105, and 107 for mDMDAC		

*Based upon a 24-hour average.

3. Pursuant to §19.303 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall operate the packed column scrubbers at SN-P1-1, SN-P1-2, SN-P1-7, and SN-P1-9 and the chilled vent condenser at SN-P1-9 in accordance with manufacturer's specification, or as indicated by stack testing compliance, at all times. A copy of the recommended scrubber parameters shall be kept at each source and made available to Department personnel upon request. A summary sheet of current scrubber parameters is included in Appendix B of this permit. Specifications for the condenser and scrubber at SN-P1-9 was submitted to the Department as a condition of R0. The information was also added to the facility's on-site copy of Appendix B.

4. Pursuant to §19.703 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19), 40 CFR Part 52 Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall sample scrubbing fluid flow and caustic concentration at each of the scrubbers once every three hours of operation. In the absence of a flow meter, scrubbing fluid flow may be derived and recorded from a pump curve performance chart. Additionally, the inlet temperature at the condenser (SN-P1-9) shall be measured and recorded every three operating hours. The inlet temperature may be measured at the recirculation loop located at the chilled water tank.

   The sampled values shall be kept in a log at each source in order to verify compliance with Specific Condition 3. These records shall be made available to Department personnel upon request.

5. Pursuant to §19.705 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 52 Subpart E, the permittee shall maintain records of VOC lb/hr emissions within the P1 Process Building area and associated storage tanks on a monthly basis. The monthly VOC total divided by the monthly operating hours shall be compared to the value permitted in Specific Condition 1 for compliance purposes. The records and calculations shall be kept on site and made available to Department personnel upon request.

6. Pursuant to §18.1004 of the Arkansas Air Pollution Control Code (Regulation 18) and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall maintain records of hazardous air pollutant (HAP) lb/hr emissions within the P1 Process Building area and associated storage tanks on a monthly basis. The daily HAP totals divided by the monthly operating hours shall be compared to the values permitted in Specific Condition 2 for compliance purposes. The records and calculations shall be kept on site and made available to Department personnel upon request.

7. Pursuant to §19.702 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 52 Subpart E, the permittee shall test SN-P1-9 for VOC within 180 days of the initial permit issuance, and every 30 months thereafter. The testing shall be performed in accordance with EPA Reference Method 25A. Compliance shall be determined by conformity of the test results with a limit of 16.4 lb/hr. This initial testing is currently in progress.

Ciba Specialty Chemicals Water Treatments, Inc.
Permit #: 860-AOP-R3
CSN #: 18-0081

P-2 Process Building

DMDAC Polymer and Copolymer Process
R-101 (SN-P2-1), R-102 (SN-P2-2), and R-103 (SN-P2-3)

DMDAC copolymers are produced by reacting an aqueous solution of mDMDAC with aqueous acrylamide as a second monomer. Therefore, this reaction will produce the DMDAC-accylamide copolymer.

DMDAC polymers are produced by reacting an aqueous solution of mDMDAC. This reaction produces a DMDAC homopolymer.

The reactor is vented to the atmosphere during the entire process, which includes an initial charging step, reaction, and nitrogen sparge. Following sparging, the batch is diluted with water and adjusted to specification.

Trans Esterification
R-108 (SN-P2-4)

Methyl (meth)acrylate reacts with alcohol in the presence of a catalyst. This reaction yields the (meth)acrylate ester and methanol. The reaction takes place in a solvent media of cyclohexane and/or heptane. R-108 also has the capability to react ethyl acrylate with an alcohol. This produces ethyl acrylate ester and a side product of ethanol.

Quat Process
R-101 (SN-P2-1), R-109 (SN-P2-5)

The Quat Process involves an initial charging step, in which a heel of quat is charged and heated. Then, an initial quantity of methyl chloride is fed into a closed reactor vessel and a continuous flow of methyl chloride and (meth)acrylate ester is co-fed into the reactor to begin the reaction. There is no venting during the reaction, and the vessel pressure increases as unreacted methyl chloride and air accumulates in the vapor space. As the reaction proceeds, water is also fed into the reaction.

When the reaction is completed, the unreacted methyl chloride and air in the vapor space is vented to the scrubber. Remaining methyl chloride is stripped from the reactor contents under vacuum. With the exception of unreacted methyl chloride, the contents of R-109 during the time the unit is vented to the scrubber are non-volatile. In the scrubber, a single-stage venturi contacts

the vented methyl chloride with a circulating stream of (meth)acrylate ester. A majority of the methyl chloride reacts with the (meth)acrylate ester to produce quat, which is recycled back to R-109 in a subsequent batch.

Specific Conditions

8. Pursuant to §19.501 et seq of the Regulations of the Arkansas Plan of Implementation for Air Pollution Control (Regulation #19) effective February 15, 1999 and 40 CFR Part 52, Subpart E, the permittee shall not exceed the emission rates set forth in the following table. Compliance with this condition will be demonstrated through fulfillment of the requirements of Specific Conditions 10-12, and Plantwide Condition 6.

SN	Description	Pollutant	lb/hr*
P2-1	Reactor 101	VOC	9.5
P2-2	Reactor 102		
P2-3	Reactor 103		
P2-4	Reactor 108		
P2-5	Reactor 109		
P2-6	Tank Farm 100		

*Based upon a 24-hour average.

9. Pursuant to §18.801 of the Arkansas Air Pollution Control Code (Regulation #18) effective February 15, 1999, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall not exceed the emission rates set forth in the following table. Compliance with this condition will be demonstrated through fulfillment of the requirements of Specific Conditions 10, 11, and 13, and Plantwide Condition 7.

SN	Description	Pollutant	lb/hr*
P2-1	Reactor 101	Acrylamide[HAP] Methanol[HAP] Methyl Methacrylate[HAP] Methyl Chloride[HAP]	0.03 1.80 1.18 2.40
P2-2	Reactor 102		
P2-3	Reactor 103		
P2-4	Reactor 108		
P2-5	Reactor 109		
P2-6	Tank Farm 100		

*Based upon a 24-hour average.

10. Pursuant to §19.303 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall operate the packed column scrubber at SN-P2-5 in accordance with manufacturer's specification, or as indicated by stack testing compliance, at all times. A copy of the recommended scrubber parameters shall be kept at the source and made available to Department personnel upon request. A summary sheet of current scrubber parameters is included in Appendix B of this permit.

11. Pursuant to §19.703 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19), 40 CFR Part 52 Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall sample scrubbing fluid flow at the SN-P2-5 scrubber once every three hours of operation. In the absence of a flow meter, scrubbing fluid flow may be derived and recorded from a pump curve performance chart.

    The SN-P2-5 scrubber shall be charged prior to initiation of each batch of product to be manufactured. A minimum of 95 weight percent amine shall be required. A record of each charge shall be maintained and shall include: a) date and time of the charge, b) amine charge lot number, c) amine charge concentration (wt %), d) quantity of amine charged, and e) quantity of water charged. At the conclusion of each batch cycle, the contents of the scrubber shall be discharged for use in the next batch of product to be manufactured. A record of the discharge of the SN-P2-5 scrubber shall be maintained and shall include: a) date and time of the discharge, and b) subsequent batch number manufactured.

    The above listed parameter values shall be kept in a log at the source in order to verify compliance with Specific Condition 10. These records shall be made available to Department personnel upon request.

12. Pursuant to §19.705 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 52 Subpart E, the permittee shall maintain records of VOC lb/hr emissions within the P2 Process Building area and associated storage tanks on a monthly basis. The monthly VOC total divided by the monthly operating hours shall be compared to the value permitted in Specific Condition 8 for compliance purposes. The records and calculations shall be kept on site and made available to Department personnel upon request.

13. Pursuant to §18.1004 of the Arkansas Air Pollution Control Code (Regulation 18) and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall maintain records of hazardous air pollutant (HAP) lb/hr emissions within the P2 Process Building area and associated storage tanks on a monthly basis. The monthly HAP totals divided by the monthly operating hours shall be compared to the values permitted in Specific Condition 9 for compliance purposes. The records and calculations shall be kept on site and made available to Department personnel upon request.

Ciba Specialty Chemicals Water Treatments, Inc.
Permit #: 860-AOP-R3
CSN #: 18-0081

P-3 Process Building

There are five similar reactor units in P-3. Five types of operations are run in this equipment. The reactors are controlled by a two-stage packed column caustic scrubber.

Trans Esterification
R-110, R-112, R-113, R-115, and R-116 (all under Source SN-P3-1)

Methyl (meth)acrylate reacts with alcohol in the presence of a catalyst. This reaction yields the (meth)acrylate ester and methanol. The reaction takes place in a solvent media of cyclohexane and/or heptane. P-3 also has the capability to react ethyl acrylate with an alcohol. This produces an ethyl acrylate ester and a side product of ethanol. (Meth)acrylate esters are produced in all P-3 reactors.

Direct Esterification
R-112, R-113 (SN-P3-1)

(Meth)acrylic acid reacts with alcohol in the presence of a catalyst. This reaction yields (meth)acrylate ester and water. The reaction takes place in a solvent media of cyclohexane and/or heptane. (Meth)acrylate esters may be produced by the direct esterification route in R-112 and R-113.

Epoxidation
R-112, R-113 (SN-P3-1)

Alcohol is reacted with epichlorohydrin in the presence of a catalyst to produce monochlorohydrin. This reaction can take place in R-112 or R-113.

Solvent Recovery
R-112, R-113 (SN-P3-1)

Solvents from esterification are distilled in R-112 and R-113 to permit reuse in future reactions.

Tank Farm 600
(SN-P3-2)

The tank farm consists of several vessels of varying capacities which are used to store components or products of reactions. Tanks T-606, T-623, T-620, and T-627 are used for additional cyclo/MMA storage service. Also tanks T-615 and T-612 are used for ester service (storage). Two new tanks will be installed in Tank Farm 600.

Ciba Specialty Chemicals Water Treatments, Inc.
Permit #: 860-AOP-R3
CSN #: 18-0081

Tank Farm 400
(SN-P3-3)

The tank farm consists of several vessels of varying capacities which are used to store components or products of reactions. Three new tanks will be installed in Tank Farm 400.

Methanol Recovery
SN-P3-11

The by-product methanol/water streams from the trans-esterification processes are mixed with caustic to saponify residual (meth)acrylate. Following saponification, the solution is pH adjusted with sulfuric acid. A portion of the methanol/water solution is then distilled in R-112, R-110, R-113, R-116 or the methanol recovery still for recovery. The remaining portion is shipped off-site for recovery. Emissions from the methanol recovery still are controlled by a chilled vent condenser.

Wash Tanks
SN-P3-10a, SN-P3-10b

The esters produced in the reactors are washed in the wash tanks with water, dilute caustic, and/or brine (sodium chloride) to remove excess acid, catalyst, and impurities. On occasion, the wash tanks can be used for a process rework. Emissions from the wash tanks are controlled by a chilled vent condenser.

Boilers
Boiler #1 (SN-P3-4), Boiler #3 (SN-P3-6)

Boiler #1 and Boiler #3 are used to supply steam for facility processes (Boiler #2 has been removed from service). Boilers #1 is natural gas-fired with a design heat input of 33.5 MMBTU/hr. Boiler #3 is allowed to use natural gas or by-product methanol on a continuous basis. The design heat input of Boiler #3 is 29.4 MMBTU/hr. Boiler emission estimates have been calculated at maximum capacity, assuming year-round operation at worst-case scenario.

Boiler #1 and Boiler #3 are subject to the requirements of 40 CFR Part 60, Subpart Dc (*Standards for Small Industrial-Commercial-Institutional Steam Generating Units*). Both boilers in this process area are allowed to use No. 2 fuel oil during times of natural gas curtailment. These emergency events shall be treated as upset conditions, and reported as outlined in General Provision 8.

Ciba Specialty Chemicals Water Treatments, Inc.
Permit #: 860-AOP-R3
CSN #: 18-0081

Fire Emergency Pump
SN-P3-7

A 300 horsepower diesel-fired generator powers the fire water pump, if necessary, to provide copious amounts of water in case of a plant fire or other emergency event. The generator is tested on a weekly basis, to ensure operability. The generator's short-term emissions have been calculated at maximum capacity, but with a long-term limit of 200 hours of operation per year.

Specific Conditions

14. Pursuant to §19.501 et seq of the Regulations of the Arkansas Plan of Implementation for Air Pollution Control (Regulation #19) effective February 15, 1999 and 40 CFR Part 52, Subpart E, the permittee shall not exceed the emission rates set forth in the following table. Compliance with this condition will be demonstrated through fulfillment of the requirements of Specific Conditions 16 through 22, 24-31, and Plantwide Condition 6.

SN	Description	Pollutant	lb/hr*
P3-1	Reactors 110, 112, 113, 115, 116		
P3-2	Tank Farm 600		
P3-3	Tank Farm 400		
P3-4	Boiler #1		
P3-6	Boiler #3		
P3-7	Fire Emergency Pump		
P3-8	500 Gallon Gasoline Tank		
P3-9	500 Gallon Diesel Tank		
P3-10a	Wash Tanks (Existing)	PM_{10}	1.6
P3-10b	Wash Tanks (New)	SO_2	0.9
P3-11	Methanol Recovery	VOC	13.7
P3-12	Tank Farm 700	CO	5.5
P3-13	Inhibitor Vats	NO_X	18.1
P3-14	10,000 Gallon Diesel Tank		
P3-15	10,000 Gallon Diesel Tank		

*Based upon a 24-hour average. NOTE: SN-P3-5 (Boiler #2) has been removed.

15. Pursuant to §18.801 of the Arkansas Air Pollution Control Code (Regulation #18) effective February 15, 1999, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall not exceed the emission rates set forth in the following table. Compliance with this condition will be demonstrated through fulfillment of the requirements of Specific Conditions 19-21, 23, Plantwide Condition 7.

SN	Description	Pollutant	lb/hr*
P3-1	Reactors 110, 112, 113, 115, 116	PM	1.6
P3-2	Tank Farm 600	Acetone	0.3
P3-3	Tank Farm 400	Acrylic Acid[HAP]	0.01
P3-4	Boiler #1	Methanol[HAP]	1.99
P3-6	Boiler #3	Methyl Methacrylate[HAP]	2.18
P3-7	Fire Emergency Pump		
P3-10a	Wash Tanks (Existing)		
P3-10b	Wash Tanks (New)		
P3-11	Methanol Recovery		
P3-13	Inhibitor Vats		

*Based upon a 24-hour average.

16. Pursuant to §18.501 of the Arkansas Air Pollution Control Code (Regulation 18) and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the following sources shall not exceed 5% opacity: SN-P3-4 and SN-P3-6. 20% opacity shall be allowed during periods of natural gas curtailment, when fuel oil is used. Compliance with this limit shall be satisfied through the requirements of Specific Conditions 18 and 24.

17. Pursuant to §19.503 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 52 Subpart E, the following source shall not exceed 20% opacity, when operating: SN-P3-7. Compliance with this limit shall be satisfied through the requirements of Specific Condition 18.

18. Pursuant to §19.705 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 52 Subpart E, the permittee shall conduct weekly observations of opacity for the following sources: SN-P3-4 and SN-P3-6. The weekly

observations shall only be required during periods where gas curtailment exceeds one week. Daily observations shall be required for the following source: SN-P3-7. The daily observations shall only be required when diesel generator use exceeds 24-hours per event. The visible emission observations shall be used as a method of compliance verification for the opacity limit at SN-P3-4, SN-P3-6, SN-P3-7. The observations shall be conducted by personnel familiar with the facility's visible emissions. If during the daily/weekly observations, visible emissions are detected which appear to be in excess of the permitted opacity limit, the permittee shall:

a) Take immediate action to identify the cause of the visible emissions.
b) Implement all necessary corrective action.
c) Reassess the visible emissions after corrective action is taken.
    i. If excessive visible emissions are still detected, an opacity reading shall be conducted in accordance with EPA Reference Method 9. This reading shall be conducted by personnel trained and certified in the reference method. If the opacity reading exceeds the permitted limit, further corrective measures shall be taken.
    ii. If no excessive visible emissions are detected, the incident shall be noted in the records as described below.

The permittee shall maintain records related to all visible emission observations and Method 9 Readings, to be updated on an as-performed basis. The records shall be kept on site and made available to Department personnel upon request. The records shall contain the following items:

1) the date and time of each observation/reading.
2) any observance of visible emissions appearing to be above permitted limits, or any Method 9 reading which indicates exceedence.
3) the cause of any observed exceedence of opacity limits, corrective action taken, and results of the reassessment.
4) The name of the person conducting the observation/reading.

19. Pursuant to §19.303 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall operate the packed column scrubber at SN-P3-1 and the chilled vent condensers at SN-P3-10a, SN-P3-10b, and SN-P3-11 in accordance with manufacturer's specification, or as indicated by stack testing compliance, at all times. A copy of the recommended scrubber and vent condenser parameters shall be kept at the source and made available to Department personnel upon request. A summary sheet of current scrubber /condenser parameters is included in Appendix B of this permit.

20. Pursuant to §19.703 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19), 40 CFR Part 52 Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall sample scrubbing fluid flow at the SN-P3-1 scrubber once every three hours of operation. In the absence of a flow meter, scrubbing fluid flow may be derived and recorded from a pump curve performance chart. The sampled values shall be kept in a log at the source in order to verify compliance with Specific Condition 19. These records shall be made available to Department personnel upon request.

    The permittee shall measure the caustic concentration of the scrubbing fluid at SN-P3-1 by means of a continuous process control monitoring system. The caustic monitoring system shall be designed to effect a fresh charge of caustic to the scrubber whenever the pH for a given batch drops below the designated setpoint. The caustic monitoring system shall be installed and operable within 180 days of permit issuance. After installation, the permittee shall have an additional 30 days to submit to the Department a monitoring outline for the system. The monitoring outline shall include a description and diagram of the system, pH setpoints for each batch type, proposed record keeping of generated data, and a quality assurance plan for ongoing maintenance. This requirement was satisfied on February 12, 2001 as a condition of R0.

    Until the above described system is installed, the permittee shall sample and record the caustic strength or pH at SN-P3-1 once every 24 hours of operation. The sampled values shall be kept in a log at the source in order to verify compliance with a minimum caustic concentration value of 15%. These records shall be made available to Department personnel upon request.

21. Pursuant to §19.703 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19), 40 CFR Part 52 Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall measure the chilled vent condenser inlet temperatures at SN-P3-10a, SN-P3-10b, and SN-P3-11 once every three operating hours. The inlet temperature may be measured at the recirculation loop located at the chilled water tank. The measured values shall be kept in a log at the sources in order to verify compliance with Specific Condition 19. These records shall be made available to Department personnel upon request.
22. Pursuant to §19.705 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 52 Subpart E, the permittee shall maintain records of VOC lb/hr emissions within the P3 Process Building area and associated storage tanks on a monthly basis. The monthly VOC total divided by the monthly operating hours shall be compared to the value permitted in Specific Condition 14 for compliance purposes. The records and calculations shall be kept on site and made available to Department personnel upon request.

23. Pursuant to §18.1004 of the Arkansas Air Pollution Control Code (Regulation 18) and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall maintain records of hazardous air pollutant (HAP) lb/hr emissions within the P3 Process Building area and associated storage tanks on a monthly basis. The monthly HAP totals divided by the monthly operating hours shall be compared to the values permitted in Specific Condition 15 for compliance purposes. The records and calculations shall be kept on site and made available to Department personnel upon request.

24. Pursuant to §19.705 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19), A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and 40 CFR 70.6, the permittee may only burn pipeline quality natural gas in Boiler #1 and Boiler #3 (SN-P3-4 and SN-P3-6), except during times of natural gas curtailment. In such instances, #2 fuel oil may be burned. This option may be exercised provided the Department is notified in advance, with sufficient justification of the curtailment condition, and provided the events are reported as upset conditions in accordance with General Provision 8 of this permit.

25. Pursuant to §19.304 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 60 Subpart Dc, Boiler #1 and Boiler #3 (SN-P3-4 and SN-P3-6) shall fully comply with all applicable requirements of the *Standards for Small Industrial-Commercial-Institutional Steam Generating Units* (see Appendix A). These requirements include, but are not limited to, the following.

For natural gas combustion:

Recordkeeping [from 60.48c(g), (i)]. Amounts of each fuel combusted shall be recorded on a monthly* basis. The records shall be maintained by the facility for a period of two years following the date of recording.

Reporting [from 60.48c(a), (a)(1), (a)(3)]. The facility shall submit notification of the date of construction or reconstruction, anticipated startup, and actual startup. The notification shall include: the design heat input capacity of the affected unit, and the annual capacity factor at which the facility anticipates operating the affected unit, based upon the fuel(s) fired.

For No. 2 fuel oil (see the regulation in Appendix A for details):

For No. 2 Fuel Oil Combustion	
Category	Requirement
Standard	60.42c(d), (h), (i), and (j)
Monitoring and Testing	60.44c(h), 60.46c(e)

Recordkeeping	60.48c(e), (e)(1), (e)(5)-(6), (e)(11), (f), (f)(1), (g), (i)
Reporting	60.48c(a), (a)(1), (a)(3), (b), (d), (e), (e)(1), (e)(5), (e)(6), (e)(11), (f), (f)(1)

*An EPA determination of February 20, 1992 (Determination Detail Control Number 9300003) allows monthly record keeping in lieu of daily records only in the case of natural gas usage, as originally specified in Subpart Dc. This allowance is conditional upon the permittee maintaining documentation on site which certifies the sulfur content of the combusted fuels. The allowable sulfur content shall be less than 0.5%.

26. Pursuant to §19.304 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19), the permittee shall not use more than 4,600,000 gallons of by-product methanol as fuel at SN-P3-6 (Boiler #3) per rolling 12-month period. Compliance with this condition shall be verified by maintaining daily records of the amount of fuel used. These records shall be kept on site and made available to Department personnel upon request.

27. Pursuant to §18.1004 of the Arkansas Air Pollution Control Code (Regulation 18), 40 CFR Subpart 261.38, and A.C.A. §8-4-203, the permittee will sample and analyze the methanol by-product semi-annually in accordance with the methanol by-product analysis plan and the provisions of 40 CFR 261.38 to ensure the constituents listed in this subpart are not present over RCRA threshold amounts. These threshold values are listed below.

Substance	Concentration Limit per 261.38 Table 1
Cadmium	1.2 ppm
Methyl Acrylate	None
Total Nitrogen	4,900 ppm
Total Halides (as Chloride)	540 ppm

28. Pursuant to §19.702 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 52 Subpart E, the permittee shall conduct initial tests for VOC concentration at SN-P3-6 in accordance with EPA Reference Method 25A. The testing shall conform with the requirements of Plantwide Conditions 3 and 4 and was a condition of R2.

29. Pursuant to §19.304 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 60 Subpart Kb, the following storage tanks shall fully comply with all applicable requirements of the *Standards of Performance for Volatile Organic Liquid Storage Vessels* (see Appendix A): Tanks 605, 607, 608, 610, 619, 621, 622, 624, and 625 (SN-P3-2); Tanks 400 and 401 (SN-P3-3); and T-700 (SN-P3-12).

Applicable requirements include, but are not limited to, the items outlined in Plantwide Condition 8.

30. Pursuant to §19.705 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19), A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and 40 CFR 70.6, the permittee shall not operate the Fire Emergency Pump (SN-P3-7) more than 200 hours per rolling 12-month period for testing and maintenance purposes. Records of testing/maintenance operation time shall be maintained on site and made available to Department personnel upon request. Operation time required for actual emergency use is not restricted by this permit.

31. Pursuant to §19.702 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 52 Subpart E, the permittee shall test the chilled vent condenser serving the existing wash tanks at SN-P3-10a for VOC. The testing shall be conducted within 180 days of permit issuance, and shall conform with the requirements of Plantwide Conditions 3 and 4. The inlet and outlet VOC concentrations shall be sampled to confirm a minimum efficiency of 90%. This initial testing is currently in progress.

Ciba Specialty Chemicals Water Treatments, Inc.
Permit #: 860-AOP-R3
CSN #: 18-0081

P-4 Process Building

Cationic Monomer Plant

The new Cationic Monomer Plant uses the semi-continuous process technology which has been developed through two generations of plant at the site of its parent company. The plant is dedicated to the production of dimethl amino ethyl acrylate (FA-1), with provision for the production of the process catalyst. The expansion also includes a new dedicated tank farm.

The reaction section of the process consists of two (2) continuous stirred tank reactors. Methyl acrylate (MAC), catalyst, and other reactants are fed into the primary reactor, which will operate in series with the remaining reactor to further product purification.

Noncondensables from the system are routed to the off-gas scrubbing units.

The off-gases are scrubbed with sodium hydroxide solution followed by sulfuric acid solution before being passed through a carbon adsorber. The adsorber gases are vented to the atmosphere. The plant control system automatically shuts down the process plant unless a minimum circulation flow on one caustic and one acid scrubber is being measured.

All storage tanks (SN-P4-2) associated with the Cationic Monomer Plant (except the catalyst tank, which has no vapor pressure) are vented by pressure relief valves to the scrubber system.

Fugitive emissions (SN-P4-4) will arise from equipment leaks in P4. Fugitive emissions also arise from the loading and unloading of truck tanks and rail cars (SN-P4-3).

Boiler #4 (SN-P4-5) operates to generate steam, which is used in various chemical processing operations. The boiler is equipped to burn either natural gas or, during times of natural gas curtailment, No. 2 fuel oil (10,000 gallon oil tank, SN-P4-6). Boiler emission estimates have been calculated at maximum capacity, assuming year-round operation.

Boiler #4 is subject to the requirements of 40 CFR Part 60, Subpart Dc (*Standards for Small Industrial-Commercial-Institutional Steam Generating Units*).

Quaternization
(SN-P4-7)

Cationic monomer (DMAEA) from the previously mentioned process is reacted with methyl chloride to produce methyl chloride quaternized di methyl amino ethyl acrylate (quat monomer).

DMAEA, methyl chloride, and water are fed to a reactor where the DMAEA is converted to quat monomer.

Quat monomer exiting the reactor is fed to the quat stripper. Air from the monomer scrubber is used to strip impurities from the quat monomer product. Air exiting the quat stripper enters the caustic scrubber. Here, methyl acrylate and the smaller quantities of impurities are absorbed. This is taken as a waste stream and sent to the existing effluent treatment plant.

The monomer feed to the first reactor is fed via the monomer scrubber. Air laden with methyl chloride exiting the caustic scrubber is fed to the monomer scrubber.

Some of the air exiting the monomer scrubber enters the water scrubber. In the water scrubber, any carry-over of DMAEA and other volatile impurities are absorbed by the water. The air from the water scrubber is then released to atmosphere (SN-P4-7). This is the only emission point from this additional process. The water exiting the scrubber is fed to the primary reactor under flow control.

The facility maintains a 1500 Hp diesel-fired emergency generator in the P-4 process area, in order to provide electrical generation in the event of a power outage or other emergency event.

A leak detection and repair program is maintained for the P-4 process area, to assist in the control of fugitive emissions.

Specific Conditions

32. Pursuant to §19.501 et seq of the Regulations of the Arkansas Plan of Implementation for Air Pollution Control (Regulation #19) effective February 15, 1999 and 40 CFR Part 52, Subpart E, the permittee shall not exceed the emission rates set forth in the following table. Compliance with this condition will be demonstrated through fulfillment of the requirements of Specific Conditions 37-39, 41-51, and Plantwide Condition 6.

SN	Description	Pollutant	lb/hr*
P4-1	P4 Cationic Monomer Reactors	PM_{10}	8.4
P4-2	P4 Tank Farm	SO_2	7.3
P4-3	P4 Loading/Unloading	VOC	17.9
P4-4	P4 Equipment Leaks	CO	25.2
P4-5	Boiler #4	NO_X	116.3
P4-6	25,000 Gallon Diesel Storage Tank		
P4-7	Quat Plant		
P4-8	25,000 Gallon Diesel Storage Tank		

SN	Description	Pollutant	lb/hr*
P4-9	Emergency Electrical Generator (by P-2)		
P4-10	Fire Protection Generator (WWTP/Instrumentation)		
P4-11	Electrical Generator (400 kW/600 Hp-P4)		

*Based upon a 24-hour average.

33. Pursuant to §18.801 of the Arkansas Air Pollution Control Code (Regulation #18) effective February 15, 1999, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall not exceed the emission rates set forth in the following table. Compliance with this condition will be demonstrated through fulfillment of the requirements of Specific Conditions 37-39, 41, and Plantwide Condition 7.

SN	Description	Pollutant	lb/hr*
P4-1	P4 Cationic Monomer Reactors	PM Methanol[HAP] Methyl Chloride[HAP]	3.8 0.22 2.20
P4-5	Boiler #4		
P4-7	Quat Plant		
P4-9	Emergency Electrical Generator (by P-2)		
P4-10	Fire Protection Generator (WWTP/Instrumentation)		
P4-11	Electrical Generator (400 kW/600 Hp-P4)		

*Based upon a 24-hour average.

34. Pursuant to §18.501 of the Arkansas Air Pollution Control Code (Regulation 18) and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the following sources shall not exceed 5% opacity: SN-P4-5. 20% opacity shall be allowed during periods of natural gas curtailment, when fuel oil is used. Compliance with this limit shall be satisfied through the requirements of Specific Condition 36 and 41.

35. Pursuant to §19.503 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 52 Subpart E, the following sources shall not exceed 20% opacity, when operating: SN-P4-9, SN-P4-10, and SN-P4-11. Compliance with this limit shall be satisfied through the requirements of Specific Condition 36.

36. Pursuant to §19.705 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 52 Subpart E, the permittee shall conduct weekly observations of opacity for the following sources: SN-P4-5. The weekly observations shall only be required during periods where gas curtailment exceeds one week. The permittee shall conduct daily observations of opacity for the following sources: SN-P4-9, SN-P4-10, and SN-P4-11. The daily observations shall only be required when diesel generator use exceeds 24 hours per event.

    The visible emission observations shall be used as a method of compliance verification for the opacity limit at SN-P4-5, SN-P4-9, SN-P4-10, and SN-P4-11. The observations shall be conducted by personnel familiar with the facility's visible emissions. If during the daily/weekly observations, visible emissions are detected which appear to be in excess of the permitted opacity limit, the permittee shall:

    a) Take immediate action to identify the cause of the visible emissions.
    b) Implement all necessary corrective action.
    c) Reassess the visible emissions after corrective action is taken.
        i. If excessive visible emissions are still detected, an opacity reading shall be conducted in accordance with EPA Reference Method 9. This reading shall be conducted by personnel trained and certified in the reference method. If the opacity reading exceeds the permitted limit, further corrective measures shall be taken.
        ii. If no excessive visible emissions are detected, the incident shall be noted in the records as described below.

    The permittee shall maintain daily/weekly records related to all visible emission observations and Method 9 Readings. The records shall be kept on site and made available to Department personnel upon request. The records shall contain the following items:

    1) the date and time of each observation/reading.
    2) any observance of visible emissions appearing to be above permitted limits, or any Method 9 reading which indicates exceedence.
    3) the cause of any observed exceedence of opacity limits, corrective action taken, and results of the reassessment.
    4) The name of the person conducting the observation/reading.

37. Pursuant to §19.303 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall operate the caustic scrubber, acid scrubber, and carbon adsorber at SN-P4-1, as well as the caustic and water scrubbers at SN-P4-7 in accordance with manufacturer's specification, or as indicated by stack testing compliance, at all times. A copy of the recommended scrubber and carbon adsorber parameters shall be kept at the source and made available to Department personnel upon request. A summary sheet of current scrubber parameters is included in Appendix B of this permit.

38. Pursuant to §19.703 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19), 40 CFR Part 52 Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall sample scrubbing fluid flow at the SN-P4-1 and SN-P4-7 (caustic and water) scrubbers once every three hours of operation. In the absence of a flow meter, scrubbing fluid flow may be derived and recorded from a pump curve performance chart.
The caustic concentration of the caustic scrubber at SN-P4-7 shall be sampled once every three operating hours. The caustic and acid concentrations at the SN-P4-1 scrubbers shall be sampled once every seven days of operation. The SN-P4-1 concentrations shall be maintained at a minimum of 3%, for both caustic and acid media.

    The sampled flow values and the sampled caustic and acid concentrations shall be kept in a log at the source in order to verify compliance with Specific Condition 36. These records shall be made available to Department personnel upon request.

39. Pursuant to §19.705 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 52 Subpart E, the permittee shall maintain records of VOC lb/hr emissions within the P4 Process Building area and associated storage tanks on a monthly basis. The monthly VOC total divided by the monthly operating hours shall be compared to the value permitted in Specific Condition 32 for compliance purposes. The records and calculations shall be kept on site and made available to Department personnel upon request.

40. Pursuant to §18.1004 of the Arkansas Air Pollution Control Code (Regulation 18) and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall maintain records of hazardous air pollutant (HAP) lb/hr emissions within the P4 Process Building area and associated storage tanks on a monthly basis. The monthly HAP totals divided by the monthly operating hours shall be compared to the values permitted in Specific Condition 33 for compliance purposes. The records and calculations shall be kept on site and made available to Department personnel upon request.

41. Pursuant to §19.705 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19), A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and 40 CFR 70.6, the permittee may only burn pipeline quality natural gas in Boiler #4 (SN-P4-5), except during times of natural gas curtailment. In such instances, #2 fuel oil may be burned, provided the events are reported as upset conditions in accordance with General Provision 8 of this permit.

42. Pursuant to §19.304 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 60 Subpart Dc, Boiler #4 (SN-P4-5) shall fully comply with all applicable requirements of the *Standards for Small Industrial-Commercial-Institutional Steam Generating Units* (see Appendix A). These requirements include, but are not limited to, the following.

For natural gas combustion:

Recordkeeping [from 60.48c(g), (i)]. Amounts of each fuel combusted shall be recorded on a monthly* basis. The records shall be maintained by the facility for a period of two years following the date of recording.

Reporting [from 60.48c(a), (a)(1), (a)(3)]. The facility shall submit notification of the date of construction or reconstruction, anticipated startup, and actual startup. The notification shall include: the design heat input capacity of the affected unit, and the annual capacity factor at which the facility anticipates operating the affected unit, based upon the fuel(s) fired.

For No. 2 fuel oil combustion (see the regulation in Appendix A for details):

For No. 2 Fuel Oil Combustion	
Category	Requirement
Standard	60.42c(d), (h), (i), and (j)
Monitoring and Testing	60.44c(h), 60.46c(e)
Recordkeeping	60.48c(e), (e)(1), (e)(5)-(6), (e)(11), (f), (f)(1), (g), (i)
Reporting	60.48c(a), (a)(1), (a)(3), (b), (d), (e), (e)(1), (e)(5), (e)(6), (e)(11), (f), (f)(1)

*An EPA determination of February 20, 1992 (Determination Detail Control Number 9300003) allows monthly record keeping in lieu of daily records, as originally specified in Subpart Dc. This allowance is conditional upon the permittee maintaining documentation on site which certifies the sulfur content of the combusted fuels. The allowable sulfur content shall be less than 0.5%.

43. Pursuant to §19.304 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 60 Subpart Kb, the following storage tanks shall fully comply with all applicable requirements of the *Standards of Performance for Volatile Organic Liquid Storage Vessels* (see Appendix A):

Four (4) 32,000 Gallon Methyl Acrylate Tanks
Four (4) 32,000 Gallon Dimethylamino Ethanol Tanks
Two (2) 32,000 Gallon Byproduct Methanol Tanks
One (1) 32,000 Gallon Tetra Isopropyl Titanate Tank
One (1) 32,000 Gallon Byproduct Isopropanol Tank
Six (6) 32,000 Gallon Dimethyl Amino Ethyl Acrylate Tanks

All the above listed tanks are in the P4 Tank Farm and are permitted under source number SN-P4-2. Applicable requirements include, but are not limited to, the items outlined in Plantwide Condition 8.

44. Pursuant to §19.304 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 60 Subpart NNN, the Cationic Monomer Plant (SN-P4-1) shall fully comply with all applicable requirements of the *Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations* (see Appendix A). Applicable requirements include, but are not limited to, the items outlined below.

Ciba Specialty Chemicals Water Treatments, Inc.
Permit #: 860-AOP-R3
CSN #: 18-0081

Subpart NNN: VOC Emissions for SOCMI Distillation Operations		
Emission Unit(s)	•Distillation units not discharging vent stream into recovery system. •Combinations of distillation unit(s) and recovery system into which its vent stream(s) is discharged.	
Pollutant(s)	VOC	
Emission Standard/Avg Time	•98% reduction efficiency or reduce concentration to 20 ppmv (dry basis) corrected to 3% O_2, whichever is less stringent/3-hr avg. •Note: If boiler or process heater used to comply, vent stream must be introduced into flame zone.	
Monitoring	Incinerator Units: •Continuous monitoring and recording of temperature: -in firebox (thermal). -before and after bed (catalytic). •At least hourly measurement using flow indicator of vent stream flow to incinerator.	Boiler/Process Heater Units: •Continuous monitoring and recording of temperature in firebox (if boiler/process heater <44 MW heat input capacity). •Monitoring and recording of periods of operation (if boiler process heater $44 MW heat input capacity). •At least hourly measurement using flow indicator of vent stream flow to boiler/process heater.
PS/QA	Monitor Accuracy: •Temperature: Greater of ±1% or ±0.5°C. •Flow: Location specifications.	•Monitor Accuracy: Temperature: Greater of ±1% or ±0.5°C. •Boiler/process heater records of operation readily available for inspection. •Flow indicator: Location specifications.
Exceedence Level	•Any 3-hr period in which temperature >28°C below baseline (thermal and pre-bed temperature monitor for catalytic). •Any period in which temperature difference across catalytic bed <80% of baseline.	•Any 3-hr period in which temperature >28°C below baseline. •Boilers/Process Heaters: Change in location of where vent stream introduced into flame zone.
Performance Testing (PT) Test Method When Conducted	 •RM's 1, 2 (2A, 2C, 2D), 3 and 18, as applicable. •Initial, except waived if boiler/process heater $44 MW heat input capacity.	
Specific Reporting	•PT data and results. •Semiannual reports of exceedence, including periods when vent stream diverted from controls or when no flow rate, and any periods in which an applicable boiler or process heater not operating.	
Specific Recordkeeping	•Detailed requirements similar to data required for reporting.	

Ciba Specialty Chemicals Water Treatments, Inc.
Permit #: 860-AOP-R3
CSN #: 18-0081

Subpart NNN: VOC Emissions for SOCMI Distillation Operations	
Emission Unit(s)	•Distillation units not discharging vent stream into recovery system. •Combinations of distillation unit(s) and recovery system into which its vent stream(s) is discharged.
Pollutant(s)	VOC
Emission Standard/Avg Time	Combust emissions in a flare meeting §60.18/None.
Monitoring System/Procedure PS/QA Exceedence Level	 •Heat sensing device, such as a thermocouple or ultra-violet beam sensor at pilot light to indicate continuous presence of flame. •At least hourly measurement using flow indicator of vent stream flow to flare. •Flow indicator: Location specifications. •None.
Performance Testing (PT) Test Method When Conducted	 •§60.18 requirements apply: -RM 22 for VE. -Procedures for determining net heating value (RM 18 and ASTM Methods). -Exit velocity using RM 2 (or 2A, 2C, 2D). •Initial.
Specific Reporting	•PT data and results •Semiannual report of periods when pilot flame absent and when vent stream diverted from flare or has no flow rate.
Specific Recordkeeping	•Detailed requirements similar to data required for reporting. •Includes all data records from pilot flame monitor.

Subpart NNN: VOC Emissions for SOCMI Distillation Operations	
Emission Unit(s)	•Distillation units not discharging vent stream into recovery system. •Combinations of distillation unit(s) and recovery system into which its vent control stream(s) is discharged.
Pollutant(s)	VOC
Emission Standard/Avg Time	Maintain TRE index value greater than 1.0 without use of VOC emission control devices/Not specified.

Subpart NNN: VOC Emissions for SOCMI Distillation Operations				
Monitoring	Absorber Units:	Condenser Units	Carbon Adsorber Units:	Alternative for any Recovery Device:
System/Procedure	•Continuous monitoring and recording of: -Scrubbing liquid temperature. -Specific gravity.	•Continuous monitoring and recording of: -Temperature.	•Continuous monitoring and recording of: -Steam flow. -Carbon bed temperature.	•VOC CEMS at exit.
PS/QA	•Monitor accuracy: -Temperature: Greater of ±1% or ±0.5ºC. -Specific Gravity: ±0.02 units.	•Monitor accuracy: -Temperature: Greater of ±1% or ±0.5ºC.	•Monitor accuracy: Steam flow: ±10%. -Temperature: Greater of ±1% or ±0.5ºC.	•None.
Exceedence Level	•Any 3-hr period in which temperature >11ºC above baseline. •Any 3-hr period in which specific gravity >±0.1 unit from baseline.	•Any 3-hr period in which temperature >28ºC below baseline.	•Any period in which mass steam flow for regeneration cycle >10% below baseline. Any 3-hr period in which temperature >28ºC below baseline.	•Any 3-hr period in which concentration level>20% above baseline.
Performance Testing (PT)				
Test Method	•Determine net heating value of gas combusted and calculate TRE using specified calculations and RM's 1 (1A), 2 (2A, 2C, 2D), 4 and 18 and other procedures, as applicable.			
When Conducted	Initial and whenever process changes conducted.			
Specific Reporting	•PT data and results •Semiannual report of exceedence and any recalculation of TRE index.			
Specific Recordkeeping	•Detailed requirements similar to data required for semiannual reports.			

Testing for this source was completed on March 20, 2001 and June 1, 2001 as a condition of R0.

47. Pursuant to §19.304 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 60 Subpart RRR, the Cationic Monomer Plant

(SN-P4-1) shall fully comply with all applicable requirements of the *Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes* (see Appendix A).

In keeping with the exemption provided by 60.700(c)(5), the facility is only required to comply with 60.705(r). The permittee must submit a process design description as part of the initial report which must be retained for the life of the process.

48. Pursuant to §19.702 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 52 Subpart E, the permittee shall test the carbon bed exit stream at SN-P4-1 for VOC. The testing shall be conducted within 180 days of permit issuance, and shall conform with the requirements of Plantwide Conditions 3 and 4. Compliance shall be determined by conformity of the test results with a limit of 0.5 lb/hr. This requirement was completed on March 20, 2001 as a condition of R0.

49. Pursuant to §19.702 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 52 Subpart E, the permittee shall test the exit vent of the Quat Plant water scrubber (SN-P4-7) for VOC. The testing shall be conducted within 180 days of the source's initial startup, and shall conform with the requirements of Plantwide Conditions 3 and 4. Compliance shall be determined by conformity of the test results with a limit of 2.2 lb/hr. This requirement will apply upon completion of the P4-7 unit.

50. Pursuant to §19.705 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 52 Subpart E, the permittee shall maintain a copy of the manufacturer's specification sheet for the Emergency Electrical Generator (SN-P4-9), the Fire Protection Generator (SN-P4-10), and the Electrical Generator (SN-P4-11). This information shall be kept on site and made available to Department personnel upon request.

51. Pursuant to §19.705 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19), A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, and 40 CFR 70.6, the permittee shall be limited to 2 hours per week and 100 hours per year of diesel generator testing and maintenance operating time (each for SN-P4-9, SN-P4-10, and SN-P4-11). Records of generator use for testing/maintenance shall be maintained on site, updated on a per-event basis, and made available to Department personnel upon request. Operation time required for actual emergency use is not restricted by this permit.

Ciba Specialty Chemicals Water Treatments, Inc.
Permit #: 860-AOP-R3
CSN #: 18-0081

Fugitive Emissions

Loading/Unloading for Plants P1, P2, and P3
SN-FS-1

Loading and unloading losses in P1, P2, and P3 occur through evaporation at drums, rail tank cars, and tank trucks. A loading loss equation from the USEPA AP-42 was used to estimate these emissions.

Equipment Leaks for Plants P1, P2, and P3
SN-FS-2

Fugitive emissions from processes and equipment at Ciba have been calculated using the SOCMI emission factors found in the EPA's guidance document, Protocol for Equipment Leak Emissions Estimates. The permittee submitted an equipment count with the fugitive calculations at the time of application submittal.

Wastewater Fugitives
SN-FS-3

Some fugitive emissions at Ciba are generated by its wastewater treatment operation. The estimated water flow at the plant is 230,000 gallons per day. An in-house wastewater analysis has been performed at the plant, where VOC constituents were measured from samples taken over a five-day operating period. This analysis is the basis for permitted emission limits for wastewater fugitives.

Specific Conditions

52. Pursuant to §19.501 et seq of the Regulations of the Arkansas Plan of Implementation for Air Pollution Control (Regulation #19) effective February 15, 1999 and 40 CFR Part 52, Subpart E, the permittee shall not exceed the emission rates set forth in the following table. Compliance with this condition will be demonstrated through fulfillment of the requirements of Specific Condition 54 and Plantwide Condition 6.

SN	Description	Pollutant	lb/hr	ton/yr
FS-1	Loading/Unloading (P1, P2, P3)	VOC	0.9	3.9
FS-2	Equipment Leaks (P1, P2, P3)	VOC	9.9	43.4
FS-3	Wastewater Fugitives	VOC	46.8	205.0

53. Pursuant to §18.801 of the Arkansas Air Pollution Control Code (Regulation #18) effective February 15, 1999, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall not exceed the emission rates set forth in the following table. Compliance with this condition will be demonstrated through fulfillment of the requirements of Specific Condition 55 and Plantwide Condition 7.

SN	Description	Pollutant	lb/hr	ton/yr
FS-1	Loading/Unloading (P1, P2, P3)	Methanol[HAP]	0.74	3.30
FS-3	Wastewater Fugitives	Methyl Chloride[HAP] Methanol[HAP] Methyl Methacrylate[HAP]	0.26 2.74 1.30	1.14 12.0 5.68

54. Pursuant to §19.705 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 52 Subpart E, the permittee shall maintain records of VOC emissions from SN-FS-1, SN-FS-2, and SN-FS-3 on a monthly basis. The records and calculations shall be kept on site and made available to Department personnel upon request.

55. Pursuant to §18.1004 of the Arkansas Air Pollution Control Code (Regulation 18) and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall maintain records of hazardous air pollutant (HAP) emissions from SN-FS-1, SN-FS-2, and SN-FS-3 on a monthly basis. The records and calculations shall be kept on site and made available to Department personnel upon request.

SECTION V: COMPLIANCE PLAN AND SCHEDULE

Ciba Specialty Chemicals Water Treatments, Inc. is in compliance with the applicable regulations cited in the permit application. Ciba Specialty Chemicals Water Treatments, Inc. will continue to operate in compliance with those identified regulatory provisions. The facility will examine and analyze future regulations that may apply and determine their applicability with any necessary action taken on a timely basis.

SECTION VI: PLANTWIDE CONDITIONS

1. Pursuant to §19.704 of Regulation 19, 40 CFR Part 52, Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the Director shall be notified in writing within thirty (30) days after construction has commenced, construction is complete, the equipment and/or facility is first placed in operation, and the equipment and/or facility first reaches the target production rate.

2. Pursuant to §19.410(B) of Regulation 19, 40 CFR Part 52, Subpart E, the Director may cancel all or part of this permit if the construction or modification authorized herein is not begun within 18 months from the date of the permit issuance if the work involved in the construction or modification is suspended for a total of 18 months or more.

3. Pursuant to §19.702 of Regulation 19 and/or §18.1002 of Regulation 18 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311, any equipment that is to be tested, unless stated in the Specific Conditions of this permit or by any federally regulated requirements, shall be tested with the following time frames: (1) Equipment to be constructed or modified shall be tested within sixty (60) days of achieving the maximum production rate, but in no event later than 180 days after initial start-up of the permitted source or (2) equipment already operating shall be tested according to the time frames set forth by the Department. The permittee shall notify the Department of the scheduled date of compliance testing at least fifteen (15) days in advance of such test. Compliance test results shall be submitted to the Department within thirty (30) days after the completed testing.

4. Pursuant to §19.702 of Regulation 19 and/or §18.1002 of Regulation 18 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311, the permittee shall provide:

    1. Sampling ports adequate for applicable test methods
    2. Safe sampling platforms
    3. Safe access to sampling platforms
    4. Utilities for sampling and testing equipment

5. Pursuant to §19.303 of Regulation 19 and A.C.A. §8-4-203 as referenced by A.C. A. §8-4-304 and §8-4-311, the equipment, control apparatus and emission monitoring equipment shall be operated within their design limitations and maintained in good condition at all times.

6. Pursuant to §19.705 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 52 Subpart E, the permittee shall maintain records of

plantwide VOC emissions on a monthly basis. These records must be kept on site and made available to Department personnel upon request. Compliance shall be based upon a 12-month rolling total to comply with the below table. Calculations shall be based on boiler fuel usage, reactor kinetic equations, estimations from the TANKS program, and fugitive emissions caused by unloading, wastewater treatment, and equipment leaks. These records shall be included in the semiannual report outlined in General Provision 7.

Plantwide Emission Limit		
Pollutant	lb/hr	tpy
VOC	134.8	478.9

7. Pursuant to §18.1004 of the Arkansas Air Pollution Control Code (Regulation 18) and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall maintain records of plantwide HAP emissions on a monthly basis. These records must be kept on site and made available to Department personnel upon request. Compliance shall be based upon a 12-month rolling total to comply with the below table. Calculations shall be based on boiler fuel usage, reactor kinetic equations, estimations from the TANKS program, and fugitive emissions caused by unloading, wastewater treatment, and equipment leaks. These records shall be included in the semiannual report outlined in General Provision 7.

Plantwide Emission Limit		
Pollutant	lb/hr	tpy
Acetone	0.33	1.2
Acrylamide[HAP]	0.04	0.40
Acrylic Acid[HAP]	0.05	0.20
Allyl Chloride[HAP]	5.02	21.90
Methanol[HAP]	8.79	26.29
Methyl Methacrylate[HAP]	4.68	14.74
Methyl Chloride[HAP]	4.86	20.30

8. Pursuant to §19.304 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19) and 40 CFR Part 60 Subpart Kb, the permittee shall be responsible for complying with all applicable requirements of NSPS-Kb at any tank at the facility if a volatile organic liquid meeting the vapor pressure and quantity thresholds outlined in NSPS-Kb is stored in the tank. These vapor pressure and quantity thresholds are presented in the following table for reference:

NSPS Kb Summary of Requirements

Standards of Performance for Volatile Organic Liquid Storage Vessels for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984.

Ciba Specialty Chemicals Water Treatments, Inc.
Permit #: 860-AOP-R3
CSN #: 18-0081

Vessel Capacity (gallons)	VOL Pressure Limit	Required Control Device	Summary of Testing & Procedures	Recordkeeping & Reporting	Monitoring of Operations
>=10,567 but <19,812	N/A	None	None	None	Items A & B
>=19,813 but <39,889	<2.18 psia	None	None	None	Items A & B
>=19,813 but <39,889	>2.18 psia but < 4.00 psia	None	None	None	Items A, B, C, & D
>=39,890	>0.5 psia	None	None	None	Items A & B
>=39,890	>0.5 psia but < 0.75 psia	None	None	None	Items A, B, C, & D
>=39,890	>= 0.75 psia but <11.11 psia	IFR, EFR, or Closed Vent System, or EPA Alternative	See Below	See Below	Items A, B, & C
>=19,813 but <39,890	>= 4.00 psia but < 11.11 psia	IFR, EFR, or Closed Vent System, or EPA Alternative	See Below	See Below	Items A, B, & C
>19,813	>= 11.11 psia	Closed VentSystem or EPA Alternative	See Below	See Below	Items A & B

DESCRIPTION OF CONTROL DEVICE

IFR = Internal Floating Roof, in conjunction with a fixed roof. The IFR is equipped with a liquid-mounted or mechanical shoe primary seal, either flexible fabric sleeve seals on pipe columns or gasketed sliding covers on built-up or pipe columns, slit fabric membranes or sample wells, and gasketed covers on roof fittings.

EFR = External Floating Roof, equipped with mechanical shoe primary seals and a continuous rim-mounted secondary seal, with both seals meeting certain minimum gap requirements, and gasketed covers on roof fittings.

Closed Vent System and Control Device: = 95% effective control device

Alternative means of emission limitation: May be approved by EPA after notice and an opportunity for public hearing.

SUMMARY OF TESTING AND PROCEDURES

Closed Vent System: Submit a design specification and operation and maintenance plan, which specifies maintenance, and operating practices.

Alternate Means Approved by EPA: Specified by EPA when approved.

External Floating Roof: Inspect seals prior to filling. Also, gap measurements between the seal and vessel wall are required to ensure equipment is properly maintained and operated. Gap measurement of primary and secondary seals are required within 60 days of introducing liquid to the vessel. Every 12 months, secondary gap measurements must be conducted. Every five years, primary seal gap measurements must be conducted. Measured gaps that exceed limitations must be repaired within 45 days, or the vessel must be emptied. Notify EPA 30 days prior to gap measurements being conducted and also prior to filling and refilling of vessel.

Fixed Roof with IFR: Required to inspect to ensure that equipment is maintained and properly operated. Floating roof and seals are to be inspected prior to filling the vessel to ensure there are no hole in the IFR and that there are no holes, tears, or other openings in the seal from the fixed roof. If there are holes in the IFR or if liquid has accumulated on the roof, then repairs can be made within 45 days or the vessel can be emptied within 45 days. Every ten years, the vessel must be emptied to inspect the IFR and primary and secondary seals. All defects must be repaired before the vessel is refilled. Notify EPA 30 days prior to filling and refilling the vessel.

SUMMARY OF REPORTING AND RECORDKEEPING

Closed Vent System: Maintenance and operation according to previously submitted plan. Plan must be kept for the life of the source.

Alternative Means Approved by EPA: Specified by EPA when approved.

Fixed Roof and External Floating Roof: Submit to EPA a report that describes control equipment and certifies that control equipment meets specifications. Required inspections of specific items at specific intervals. Report to EPA any condition not meeting limitations within 30 days of inspection. All inspections and reports have a two-year retention period.

SUMMARY OF MONITORING OPERATIONS

Item A: Requirement to keep copies of all records required by Items C and D for two years. The record required by Item B is to be kept for the life of the source.

Item B: Record showing the dimension of the storage vessel and an analysis showing the capacity of the vessel.

Item C: maintain a record of the VOL stored, the period of storage and the maximum true vapor pressure of that VOL during the respective storage period. Vessels with closed vent systems and control device are exempt.

Item D: Notify EPA within 30 days when the maximum true vapor pressure of the liquid exceeds the respective maximum true vapor pressure values for each volume range. *Vessels with Closed Vent System and Control Device are **EXEMPT***.

AFFECTED FACILITY DEFINED

The affected facility to which this subpart applies is each storage vessel with a capacity greater than or equal to 10, 567 gallons that is used to store volatile organic liquids (VOL's) for which construction, reconstruction, or modification is commenced after July 23, 1984.

EXCEPTIONS

1. Vessels at coke oven by-product plants.

2. Pressure vessels designed to operate in excess of 204.9 kPA (29.69 psia) and without emissions to the atmosphere

3. Vessels with a design capacity less than or equal to 420,000 gal. Used for petroleum or condensate stored, processed, or treated prior to custody transfer.

4. Vessels located at bulk gasoline plants.

5. Storage vessels located at gasoline service stations.

6. Vessels used to store beverage alcohol.

9. Pursuant to §19.703 of the Arkansas State Implementation Plan for Air Pollution Control (Regulation 19), 40 CFR Part 52 Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, the permittee shall be allowed to submit alternative proposals for parameter sampling time intervals for a period up to 270 days after permit issuance. Eligible items include sampling schedules for scrubbing fluid flow rates, caustic concentration, chilled vent condenser temperature, et cetera. Any such proposals must contain the following information for Department review:

    a. Source number (SN).
    b. The sampled parameter history.
    c. A correlation of parameter history with stack test results or internal plant emission sampling.
    d. An alternative sampling schedule, with sufficient documentation to support the expectation of ongoing source compliance.
    e. Supplementary details, including raw material and product information, batch time for affected processes, and an explanation of how batch materials and process conditions affect the parameter in question (caustic strength deterioration, condenser temperature maintenance, etc).

10. Pursuant to Regulation 26 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, this permit subsumes and incorporates all previously issued air permits for this facility.

Title VI Provisions

11. The permittee shall comply with the standards for labeling of products using ozone depleting substances pursuant to 40 CFR Part 82, Subpart E:

    a. All containers containing a class I or class II substance stored or transported, all products containing a class I substance, and all products directly manufactured with

a class I substance must bear the required warning statement if it is being introduced to interstate commerce pursuant to §82.106.

b. The placement of the required warning statement must comply with the requirements pursuant to §82.108.
c. The form of the label bearing the required warning must comply with the requirements pursuant to §82.110.
d. No person may modify, remove, or interfere with the required warning statement except as described in §82.112.

12. The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F, except as provided for MVACs in Subpart B:

a. Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to §82.156.
b. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to §82.158.
c. Persons performing maintenance, service repair, or disposal of appliances must be certified by an approved technician certification program pursuant to §82.161.
d. Persons disposing of small appliances, MVACs, and MVAC-like appliances must comply with record keeping requirements pursuant to §82.166. ("MVAC-like appliance" as defined at §82.152.)
e. Persons owning commercial or industrial process refrigeration equipment must comply with leak repair requirements pursuant to §82.156.
f. Owners/operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to §82.166.

13. If the permittee manufactures, transforms, destroys, imports, or exports a class I or class II substance, the permittee is subject to all requirements as specified in 40 CFR part 82, Subpart A, Production and Consumption Controls.

14. If the permittee performs a service on motor (fleet) vehicles when this service involves ozone-depleting substance refrigerant (or regulated substitute substance) in the motor vehicle air conditioner (MVAC), the permittee is subject to all the applicable requirements as specified in 40 CFR part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners.

The term "motor vehicle" as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed. The term "MVAC" as used in Subpart B does not include the air-tight sealed refrigeration system used as refrigerated cargo, or the system used on passenger buses using HCFC-22 refrigerant.

15. The permittee shall be allowed to switch from any ozone-depleting substance to any alternative that is listed in the Significant New Alternatives Program (SNAP) promulgated pursuant to 40 CFR part 82, Subpart G, Significant New Alternatives Policy Program.

SECTION VII: INSIGNIFICANT ACTIVITIES

Pursuant to §26.304 of Regulation 26, the following sources are insignificant activities. Any activity for which a state or federal applicable requirement applies is not insignificant even if this activity meets the criteria of §304 of Regulation 26 or is listed below. Insignificant activity determinations rely upon the information submitted by the permittee in an application dated March 11, 1998.

Description	Category
NONE	

Pursuant to §26.304 of Regulation 26, the emission units, operations, or activities contained in Regulation 19, Appendix A, Group B, have been determined by the Department to be insignificant

activities. Activities included in this list are allowable under this permit and need not be specifically identified.

SECTION VIII: GENERAL PROVISIONS

1. Pursuant to 40 C.F.R. 70.6(b)(2), any terms or conditions included in this permit which specify and reference Arkansas Pollution Control & Ecology Commission Regulation 18 or the Arkansas Water and Air Pollution Control Act (A.C.A. §8-4-101 *et seq*.) as the sole origin of and authority for the terms or conditions are not required under the Clean Air Act or any of its applicable requirements, and are not federally enforceable under the Clean Air Act. Arkansas Pollution Control & Ecology Commission Regulation 18 was adopted pursuant to the Arkansas Water and Air Pollution Control Act (A.C.A. §8-4-101 *et seq*.). Any terms or conditions included in this permit which specify and reference Arkansas Pollution Control & Ecology Commission Regulation 18 or the Arkansas Water and Air Pollution Control Act (A.C.A. §8-4-101 *et seq*.) as the origin of and authority for the terms or conditions are enforceable under this Arkansas statute.

2. Pursuant to 40 C.F.R. 70.6(a)(2) and §26.7 of the Regulations of the Arkansas Operating Air Permit Program (Regulation 26), this permit shall be valid for a period of five (5) years beginning on the date this permit becomes effective and ending five (5) years later.

3. Pursuant to §26.4 of Regulation #26, it is the duty of the permittee to submit a complete application for permit renewal at least six (6) months prior to the date of permit expiration. Permit expiration terminates the permittee's right to operate unless a complete renewal application was submitted at least six (6) months prior to permit expiration, in which case the existing permit shall remain in effect until the Department takes final action on the renewal application. The Department will not necessarily notify the permittee when the permit renewal application is due.

4. Pursuant to 40 C.F.R. 70.6(a)(1)(ii) and §26.7 of Regulation #26, where an applicable requirement of the Clean Air Act, as amended, 42 U.S.C. 7401, *et seq* (Act) is more stringent than an applicable requirement of regulations promulgated under Title IV of the Act, both provisions are incorporated into the permit and shall be enforceable by the Director or Administrator.

5. Pursuant to 40 C.F.R. 70.6(a)(3)(ii)(A) and §26.7 of Regulation #26, records of monitoring information required by this permit shall include the following:

    a. The date, place as defined in this 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.

6. Pursuant to 40 C.F.R. 70.6(a)(3)(ii)(B) and §26.7 of Regulation #26, records of all required monitoring data and support information shall be retained for a period of at least 5

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 this permit.

7. Pursuant to 40 C.F.R. 70.6(a)(3)(iii)(A) and §26.7 of Regulation #26, the permittee shall submit reports of all required monitoring every 6 months. If no other reporting period has been established, the reporting period shall end on the last day of the anniversary month of this permit. The report shall be due within 30 days of the end of the reporting period. Even though the reports are due every six months, each report shall contain a full year of data. All instances of deviations from permit requirements must be clearly identified in such reports. All required reports must be certified by a responsible official as defined in §26.2 of Regulation #26 and must be sent to the address below.

Arkansas Department of Environmental Quality
Air Division
ATTN: Compliance Inspector Supervisor
Post Office Box 8913
Little Rock, AR 72219

8. Pursuant to 40 CFR 70.6(a)(3)(iii)(B), §26.701(C)(3)(b) of Regulation #26, and §19.601 and 19.602 of Regulation #19, all deviations from permit requirements, including those attributable to upset conditions as defined in the permit shall be reported to the Department. An initial report shall be made to the Department by the next business day after the discovery of the occurrence. The initial report may be made by telephone and shall include:

a. The facility name and location,
b. The process unit or emission source which is deviating from the permit limit,
c. The permit limit, including the identification of pollutants, from which deviation occurs,
d. The date and time the deviation started,
e. The duration of the deviation,
f. The average emissions during the deviation,
g. The probable cause of such deviations,
h. Any corrective actions or preventive measures taken or being taken to prevent such deviations in the future, and
i. The name of the person submitting the report.

A full report shall be made in writing to the Department within five (5) business days of discovery of the occurrence and shall include in addition to the information required by initial report a schedule of actions to be taken to eliminate future occurrences and/or to minimize the amount by which the permits limits are exceeded and to reduce the length of time for which said limits are exceeded. If the permittee wishes, they may submit a full

report in writing (by facsimile, overnight courier, or other means) by the next business day after discovery of the occurrence and such report will serve as both the initial report and full report.

9. Pursuant to 40 C.F.R. 70.6(a)(5) and §26.7 of Regulation #26, and A.C.A.§8-4-203, as referenced by §8-4-304 and §8-4-311, if any provision of the permit or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications hereof which can be given effect without the invalid provision or application, and to this end, provisions of this Regulation are declared to be separable and severable.

10. Pursuant to 40 C.F.R. 70.6(a)(6)(i) and §26.7 of Regulation #26, the permittee must comply with all conditions of this Part 70 permit. Any permit noncompliance with applicable requirements as defined in Regulation #26 constitutes a violation of the Clean Air Act, as amended, 42 U.S.C. 7401, *et seq.* and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. Any permit noncompliance with a state requirement constitutes a violation of the Arkansas Water and Air Pollution Control Act (A.C.A. §8-4-101 *et seq*.) and is also grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

11. Pursuant to 40 C.F.R. 70.6(a)(6)(ii) and §26.7 of Regulation #26, 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.

12. Pursuant to 40 C.F.R. 70.6(a)(6)(iii) and §26.7 of Regulation #26, this permit may be modified, revoked, reopened, and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.

13. Pursuant to 40 C.F.R. 70.6(a)(6)(iv) and §26.7 of Regulation #26, this permit does not convey any property rights of any sort, or any exclusive privilege.

14. Pursuant to 40 C.F.R. 70.6(a)(6)(v) and §26.7 of Regulation #26, the permittee shall furnish to the Director, within the time specified by the Director, any information that the Director 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 Director copies of records required to be kept by the permit. For information claimed to be confidential, the permittee may be required to furnish such records directly to the Administrator along with a claim of confidentiality.

15. Pursuant to 40 C.F.R. 70.6(a)(7) and §26.7 of Regulation #26, the permittee shall pay all permit fees in accordance with the procedures established in Regulation #9.

16. Pursuant to 40 C.F.R. 70.6(a)(8) and §26.7 of Regulation #26, no permit revision shall be required, under any approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes that are provided for elsewhere in this permit.

17. Pursuant to 40 C.F.R. 70.6(a)(9)(i) and §26.7 of Regulation #26, if the permittee is allowed to operate under different operating scenarios, the permittee shall, contemporaneously with making a change from one operating scenario to another, record in a log at the permitted facility a record of the scenario under which the facility or source is operating.

18. Pursuant to 40 C.F.R. 70.6(b) and §26.7 of Regulation #26, all terms and conditions in this permit, including any provisions designed to limit a source's potential to emit, are enforceable by the Administrator and citizens under the Act unless the Department has specifically designated as not being federally enforceable under the Act any terms and conditions included in the permit that are not required under the Act or under any of its applicable requirements.

19. Pursuant to 40 C.F.R. 70.6(c)(1) and §26.7 of Regulation #26, any document (including reports) required by this permit shall contain a certification by a responsible official as defined in §26.2 of Regulation #26.

20. Pursuant to 40 C.F.R. 70.6(c)(2) and §26.7 of Regulation #26, the permittee shall allow an authorized representative of the Department, upon presentation of credentials, to perform the following:

    a. Enter upon the permittee's premises where the permitted source is located or emissions-related activity is conducted, or where records must be kept under the conditions of this permit;
    b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
    c. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit; and
    d. As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with this permit or applicable requirements.

21. Pursuant to 40 C.F.R. 70.6(c)(5) and §26.7 of Regulation #26, the permittee shall submit a compliance certification with terms and conditions contained in the permit, including emission limitations, standards, or work practices. This compliance certification shall be submitted annually and shall be submitted to the Administrator as well as to the Department. All compliance certifications required by this permit shall include the following:

a. The identification of each term or condition of the permit that is the basis of the certification;
b. The compliance status;
c. Whether compliance was continuous or intermittent;
d. The method(s) used for determining the compliance status of the source, currently and over the reporting period established by the monitoring requirements of this permit; and
e. Such other facts as the Department may require elsewhere in this permit or by §114(a)(3) and 504(b) of the Act.

22. Pursuant to §26.7 of Regulation #26, nothing in this permit shall alter or affect the following:

a. The provisions of Section 303 of the Act (emergency orders), including the authority of the Administrator under that section;
b. The liability of the permittee for any violation of applicable requirements prior to or at the time of permit issuance;
c. The applicable requirements of the acid rain program, consistent with §408(a) of the Act; or
d. The ability of EPA to obtain information from a source pursuant to §114 of the Act.

23. Pursuant to A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311, this permit authorizes only those pollutant emitting activities addressed herein.

APPENDIX A

NSPS Subparts
Dc, Kb, NNN, RRR

APPENDIX B

Summary of Control Equipment Parameters

APPENDIX C

APPENDIX D

SUMMARY OF CONTROL EQUIPMENT PARAMETERS

Scrubbers				
Source Number	Unit Description	Scrubbing Fluid	Minimum Concentration (wt %)	Minimum Flow (gpm)
SN-P1-1	R-104 Scrubber	Caustic (NaOH)	10	20
SN-P1-2	R-105 Scrubber	Caustic (NaOH)	10	20
SN-P1-7	R-106 Scrubber	Caustic (NaOH)	15	10
SN-P1-9*	Reactors 104, 105, and 107 for mDMDAC	Caustic (NaOH)		
SN-P2-5	R-109 Scrubber	(Meth) Acrylate Ester	95	15
SN-P3-1	R-110, R-112, R-113, R-115, and R-116 Scrubber	Caustic (NaOH)	15	40
SN-P4-1	Cationic Monomer Plant Scrubber	Caustic (NaOH) followed by Acid (H_2SO_4) Solution	3-13 Caustic 3-13 Acid	60-80 Caustic 40-60 Acid
SN-P4-7	Quat Plant Scrubber	Water	100	3-5

*To be determined and submitted within 60 days of installation.

Chilled Vent Condensers		
Source Number	Unit Description	Maximum Glycol/Water Outlet Temperature (ºF)
SN-P1-9*	Chilled Vent Condenser	
SN-P3-10a	V-1212 Chilled Vent Condenser	35
SN-P3-10a	V-1213 Chilled Vent Condenser	35
SN-P3-10b	VE-643 Chilled Vent Condenser	35
SN-P3-10b	VE-644 Chilled Vent Condenser	35
SN-P3-10b	VE-645 Chilled Vent Condenser	35
SN-P3-10b	VE-646 Chilled Vent Condenser	35
SN-P3-11	MeOH Recovery Chilled Vent Condenser	35

*To be determined and submitted within 60 days of installation.