ADEQ
OPERATING
AIR PERMIT

Pursuant to the Regulations of the Arkansas Operating Air Permit Program, Regulation No. 26:

Permit No. : 762-AOP-R10

Renewal #1

IS ISSUED TO:

Albemarle Corporation – South Plant

Magnolia, AR 71753

Columbia County

AFIN: 14-00028

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:

June 30, 2005 AND June 29, 2010

IS SUBJECT TO ALL LIMITS AND CONDITIONS CONTAINED HEREIN.

Signed:

Mike Bates
Chief, Air Division

April 13, 2007

Date Modified

Facility: Albemarle Corporation – South Plant
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AFIN: 14-00028

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Table 1 - List of Acronyms

A.C.A.	Arkansas Code Annotated
AFIN	ADEQ Facility Identification Number
CFR	Code of Federal Regulations
CO	Carbon Monoxide
HAP	Hazardous Air Pollutant
lb/hr	Pound per hour
MVAC	Motor Vehicle Air Conditioner
No.	Number
NO_x	Nitrogen Oxide
PM	Particulate matter
PM_{10}	Particulate matter smaller than ten microns
SNAP	Significant New Alternatives Program (SNAP)
SO_2	Sulfur dioxide
SSM	Startup, Shutdown, and Malfunction Plan
Tpy	Ton per year
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compound

Section I: FACILITY INFORMATION

PERMITTEE:	Albemarle Corporation – South Plant
AFIN:	14-00028
PERMIT NUMBER:	762-AOP-R10
FACILITY ADDRESS:	HWY 79, Approximately Six Miles South of Magnolia Magnolia, AR 71753
MAILING ADDRESS:	Albemarle Corporation P.O. Box 729 Magnolia, AR 71754
COUNTY:	Columbia
CONTACT POSITION:	Clarice Hanusz – Environmental Specialist
TELEPHONE NUMBER:	(870) 235-6291
FAX NUMBER:	(870) 235-6020
REVIEWING ENGINEER:	Charles Hurt
UTM North - South (Y):	Zone 15 [3669.711]
UTM East - West (X):	Zone 15 [479.704]

Section II: INTRODUCTION

Summary of Permit Activity

Albemarle Corporation – South Plant owns and operates a chemical manufacturing facility (P.O. Box 729) on Highway 79, approximately seven miles south of Magnolia, Arkansas 71753. Albemarle requested the following changes:

- Add an emission source (SN-DB-20) for drum D-2515 at the NC-12 Unit. During the NC-15 Production Alternate Operating Scenario the drum will store diphenyl ethane (DPE). Potential emissions from the drum are 0.32 lb/hr and 1.41 tpy of VOC;

- Install and operate a temporary (rental) scrubber (SN-DB-19T) for the NC-12 Unit for operation under the NC-15 Production Alternate Operating Scenario. The temporary scrubber will enable Albemarle to begin NC-15 production before the permanent scrubber (SN-DB-19) is completed. The control efficiency for Br_2 + HBr is 40% which is a higher efficiency than the permanent scrubber is expected to achieve. The control efficiency for PM/PM_{10} for SN-DB-19T is expected to be less than expected for the permanent scrubber. Albemarle proposed limiting operation of the scrubber to 1,080 hours per consecutive 12-month period. Permitted emissions will increase by 2.00 tpy PM/PM_{10};

- Revise Plantwide Condition #28 to address RICE units which are not exempt from Subpart ZZZZ but the only applicable requirement is the initial notification; and

- Install a heat transfer fluid system expansion tank (SN-TB-44), an insignificant activity.

Process Description

Bromine-containing brine is extracted from geological formations via wells, and is pumped to a treatment area where the bromine is separated through chlorination, steam stripping, and condensation. The sour gas from the brine is treated in a sulfur-removal process, and is then either used for boiler fuel or flared.

Once the bromine has been isolated from the brine, it may be routed to one or more chemical processing units, where it is used in the manufacture of several different products: bromine chloride, ethylene dibromide, calcium bromide, zinc bromide, hydrogen bromide, alkyl amines, alkyl bromides, flame retardant materials, and other bromine-related by-products.

Regulations

The following table contains the regulations applicable to this permit.

Table 2 – Regulations

Source No.	Regulation	Description
Facility	Arkansas Regulation 18	Arkansas Air Pollution Control Code

Facility: Albemarle Corporation – South Plant
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Source No.	Regulation	Description
Facility	Arkansas Regulation 19	Compilation of Regulations of the Arkansas State Implementation Plan for Air Pollution Control
Facility	Arkansas Regulation 26	Regulations of the Arkansas Operating Air Permit Program
Facility	40 CFR Part 61, Subpart M	National Emission Standard for Asbestos
DECTP Process	40 CFR Part 61, Subpart FF	National Emission Standards for Benzene Waste Operations
All sources or units subject to a 40 CFR Part 64 standard	40 CFR Part 63, Subpart A	National Emission Standards for Hazardous Air Pollutants for Source Categories, General Provisions
AB-15	40 CFR Part 63, Subpart F	National Emission Standards for Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry
AB-15	40 CFR Part 63, Subpart G	National Emission Standards for Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater
AB-15	40 CFR Part 63, Subpart H	National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks
TB-29	40 CFR Part 60, Subpart VV	Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry
TB-03	40 CFR Part 63, Subpart F	National Emission Standards for Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry
TB-11		
TB-17		
TB-25	40 CFR Part 63, Subpart G	National Emission Standards for Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater
TB-29		
TB-30		
TB-31		
TB-32		
TB-34	40 CFR Part 63, Subpart H	National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks
TB-35		
WW-01		
NC-14 Process	40 CFR Part 82, Subpart A	Protection of Stratospheric Ozone, Production and Consumption Controls
NC-14 Process	40 CFR Part 82, Subpart E	Protection of Stratospheric Ozone, The Labeling of Products Using Ozone-Depleting Substances
NC-17 CMPU	40 CFR Part 63, Subpart F	National Emission Standards for Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry
NC-17 CMPU	40 CFR Part 63, Subpart G	National Emission Standards for Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater
NC-17 CMPU	40 CFR Part 63, Subpart H	National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks
21-01 21-02	40 CFR Part 61, Subpart A	National Emission Standards for Hazardous Air Pollutants, General Provisions
21-01 21-02	40 CFR Part 61, Subpart J	National Emission Standards for Equipment Leaks (Fugitive Emission Sources) of Benzene

Source No.	Regulation	Description
21-01 21-02	40 CFR Part 61, Subpart V	National Emission Standards for Equipment Leaks (Fugitive Emission Sources)
21-01 21-02	40 CFR Part 61, Subpart Y	National Emission Standards for Benzene Emissions from Benzene Storage Vessels
21-01 21-02	40 CFR Part 61, Subpart FF	National Emission Standards for Benzene Waste Operations
MS-05	40 CFR Part 63, Subpart JJ	National Emission Standards for Wood Furniture Manufacturing Operations
Facility	40 CFR Part 82, Subpart E	Protection of Stratospheric Ozone, The Labeling of Products Using Ozone-Depleting Substances
MCPU's: DECTP DMTDA NC-12 NC-15 NC-17 NC-21 NC-23	40 CFR Part 63, Subpart FFFF	National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing and Miscellaneous Coating Manufacturing; Compliance Date: May 10, 2008 Application Date: November 10, 2007
CB-04 All Ethylene Glycol Storage	40 CFR Part 63, Subpart EEEE	National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline)
BH-01, BH-02, AD-16, AD-32, 15-14 16-20 16-30	40 CFR Part 63, Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Industrial/Commercial/Institutional Boilers and Process Heaters

Note: As of this writing, the Department has not received delegation from the Environmental Protection Agency (EPA) in order to implement the program associated with 40 CFR Part 68, *Chemical Accident Prevention Provisions*. However, the facility is subject to this part, and has submitted related documentation to the EPA.

The following table is a summary of emissions from the facility. The following table contains cross references to the pages containing specific conditions and emissions for each source. Fugitive Emissions have been calculated using usage data, monitoring data with EPA stratified factors, and EPA average SOCMI factors. Information on specific process related to the listed emission units may be located on the pages indicated in the cross-reference column. The Introduction section of this permit, including the Emissions Summary Table, is for informational purposes only and does not contain enforceable conditions.

Table 3 – Emission Summary

EMISSION SUMMARY					
KEY: PM_{10}=Particulate <10 microns. SO_2=Sulfur Dioxide. VOC=Volatile Organic Compounds. CO=Carbon Monoxide. NO_X=Oxides of Nitrogen. HAP=Hazardous Air Pollutant. NCAC=Non-Criteria Air Contaminant.					
Source No.	**Description**	**Pollutant**	**Emission Rates**		**Cross Reference Page**
			lb/hr	**tpy**	
Total Allowable Emissions Criteria Air Pollutants		PM_{10}	35.02	115.98	-
		SO_2	12,817.67	3,312.19	
		VOC	566.92	564.94	
		CO	234.32	209.09	
		NO_X	177.88	471.37	
Total Allowable Emissions Hazardous Air Pollutants (HAPs) *HAP emissions are included in VOC rates, except HCl, Cl_2, and (Cl_2+Br_2).		Xylene + Ethyl Benzene	3.51	15.35	-
		1,1 Dichloroethane	0.09	0.39	
		1,2-Epoxybutane	1.40	0.60	
		Acetaldehyde	0.48	2.11	
		Benzene	6.22	4.91	
		Bromoform	3.26	5.51	
		Chloroethane	3.72	2.95	
		Chloroform	0.09	0.39	
		Chlorine (Cl_2)	0.78	3.42	
		Cl_2 or Halogens	3.02	13.22	
		(Cl_2 + Br_2)	1.60	0.10	
		Dimethyl Formide	0.09	0.39	
		Ethylene Chloride	0.20	0.88	
		Ethyl Benzene	0.10	0.10	
		Ethylene Dibromide	2.30	5.50	
		Ethylene Dichloride	0.09	0.40	
		Ethylene Glycol	1.25	5.45	
		HCl	14.36	41.00	
		Hexane	3.92	0.14	
		Iso-Octane	0.40	0.10	
		Dichloromethane	1.74	7.70	
		Methanol	47.81	33.66	
		Methyl Bromide	4.17	18.25	
		Methyl Naphthalene	1.36	5.59	
		Phenol	0.10	0.44	
		Phthalic Anhydride	3.93	1.24	
		Toluene Diamine	0.08	0.35	
		Toluene	48.78	24.87	
		Xylene	0.58	0.11	

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Source No.	Description	Pollutant	Emission Rates		Cross Reference Page
			lb/hr	tpy	
Total Allowable Emissions: Non-Criteria Air Contaminants (NCACs, State-regulated)		PM	37.54	127.08	-
		Br_2+HBr	17.40	82.68	
		Acetone	0.30	0.30	
		Ammonia (NH_3)	12.54	48.40	
		Br_2	6.12	27.17	
		BrCl	0.20	0.88	
		H_2O_2	2.11	9.30	
		H_2S	257.61	4.04	
		H_2SO_4	0.01	0.06	
		HBr	3.58	11.89	
BR-01	#1 Bromine Tower Vent Scrubber C-3042	VOC	1.50	6.60	33
		Cl_2	0.06	0.26	
		Br_2	0.26	1.14	
BR-04	#2 Bromine Tower Vent Scrubber C-3043	VOC	3.81	16.70	33
		Cl_2	0.03	0.13	
		Br_2	0.14	0.61	
BR-08	Recycle HCl Storage Tank	HCl	0.07	0.31	33
BR-09	Recycle HBr Storage Tank, Vent Scrubber C-3036	Br_2	0.02	0.06	33
		HBr	0.02	0.09	
BR-12	Bromine Area Scrubber C-3049	Cl_2	0.10	0.44	33
		Br_2	0.30	1.31	
BR-14	Bromine Fugitive Emissions	VOC	0.50	2.20	33
		Cl_2	0.04	0.18	
		Br_2	1.39	6.09	
BR-15	Caustic Drum	Br_2 + Cl_2	1.60	0.10	33
SL-01	Gas Sweetening Process Flare	PM/PM_{10}	0.01	0.05	36
		SO_2	0.01	0.05	
		VOC	0.01	0.05	
		CO	0.01	0.05	
		NO_X	0.02	0.10	
SL-01	Gas Sweetening Process Flare – Emergency Flaring of Brinefield Gas	PM/PM_{10}	3.70	0.02	36
		SO_2	12,066.00	36.00	
		VOC	3.70	0.02	
		CO	13.40	0.04	
		NO_X	31.40	0.10	
SL-02	Sulfinol Storage Tank	VOC	0.12	0.60	36
SR-01	Tail Gas Incinerator	PM/PM_{10}	0.07	0.31	36
		SO_2	727.00	3,184.00	
		VOC	0.07	0.31	
		CO	0.25	1.10	
		NO_X	0.60	2.60	
SR-01	Tail Gas Incinerator –Pilot Flame Deviation (<1200 °F)	SO_2	242.6	2.82	36
		H_2S	257.4	3.09	
SR-02	Sulfur Area Fugitives	VOC	0.50	2.20	36
		Methanol	0.06	0.26	
CB-01	Raw Material Silo	PM/PM_{10}	0.10	0.44	40

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Source No.	Description	Pollutant	Emission Rates		Cross Reference Page
			lb/hr	tpy	
CB-02	R-21 Vent Scrubber (South)	VOC Ammonia Methyl Bromide Methanol Br_2	0.27 1.00 0.20 0.07 0.10	1.18. 1.10 0.88 0.30 0.44	40
CB-04	Methanol Storage Tank	VOC Methanol	26.00 26.00	0.40 0.40	40
CB-16	R-22 Vent Scrubber (North)	VOC Ammonia Methyl Bromide Methanol Br_2	0.27 1.00 0.20 0.07 0.10	1.18. 1.10 0.88 0.30 0.44	40
CB-17	CCF Fugitive Emissions	VOC Methanol Br_2+HBr	1.80 1.30 2.40	7.90 5.70 10.50	40
CB-18	Raw Material Baghouse	PM/PM_{10}	0.10	0.44	40
CB-02 CB-16	R-21 and R-22 Vent Scrubbers *Alternate Operating Scenario*	VOC Methyl Bromide Methanol Bromoform Ethylene Dibromide HBr Br_2	9.00 2.30 2.30 2.30 2.30 0.10 0.10	22.20 8.30 0.80 1.30 5.50 0.22 0.44	40
DE-01	ADMA Brine Storage Tank *Additional ADMA Storage Scenario*	VOC	0.50	2.10	49
DE-04	Crude Product Storage Tank	VOC Toluene Methyl Naphthalene	8.96 8.80 0.01	3.93 3.85 0.01	44
DE-06	Product Rundown Storage Tank	VOC	0.62	0.28	44
DE-07	Product Rundown Storage Tank	VOC	0.62	0.28	44
DE-08	Product Rundown Storage Tank	VOC	0.62	0.28	44
DE-10	Product Rundown Storage Tank	VOC	0.62	0.28	44
DE-11	Chaser Bulk Storage, T-302	VOC Methyl Naphthalene	0.39 0.12	1.71 0.53	44
DE-12	Recovered Oil Storage Tank	VOC Toluene Methyl Naphthalene	0.20 0.04 0.01	0.10 0.02 0.01	44
DE-17	Process Safety Flare Emergency Use Only XF-2461 (Continuous Pilot)	PM/PM_{10} SO_2 VOC CO NO_X	0.01 0.06 0.01 0.04 0.05	0.05 0.05 0.05 0.18 0.22	44
DE-18	Reactor Safety Blowdown System Vent Line (Continuous Pilot)	PM/PM_{10} SO_2 VOC CO NO_X	0.01 0.01 0.01 0.07 0.10	0.05 0.05 0.05 0.31 0.44	44

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Source No.	Description	Pollutant	Emission Rates		Cross Reference Page
			lb/hr	tpy	
DE-19	Sulfur Trailer Knockout Drum	VOC Toluene	8.00 8.00	3.50 3.50	44
DE-20	Isopropanol Storage Tank	VOC	9.40	4.10	
DE-21	Vent Gas Oxidizer (VGO)	PM/PM_{10} SO_2 VOC CO NO_X Cl_2 HCl Toluene Ethylene Chloride	2.20 7.00 0.60 2.00 1.00 0.30 6.72 0.40 0.20	9.64 30.70 2.63 8.76 4.38 1.31 29.40 1.76 0.88	44
DE-22	DECTP Fugitive Emissions	VOC Cl_2 HCl Toluene Methyl Naphthalene	9.40 0.05 1.00 0.55 1.13	41.10 0.22 4.40 2.40 5.00	44
DE-23	DECTP Purification Process	VOC HCl Chloroethane	2.83 0.34 2.60	1.24 0.15 1.14	44
DE-24	MC-2431, Centrifuge	VOC Toluene	12.70 12.70	5.60 5.60	44
DE-28	Vent Header (for DE-01, 02, 03, 09, 25)	VOC Toluene Methyl Naphthalene	23.60 11.00 0.09	10.40 4.82 0.04	44
AD-01	Olefins Storage Tank #1, T-1501	VOC	0.16	0.71	49
AD-02	Olefins Storage Tank #2, T-1503	VOC	0.16	0.71	49
AD-03	Alkyl Amines Storage Tank, T1502	VOC	0.26	1.14	49
AD-05	Acid Vent Scrubber , C-1531 (CD-AD-05, also formerly SC-03)	VOC Br_2+HBr	0.20 0.05	0.88 0.22	49
AD-07	Alkyl Amines Rundown Tank T-1534A	VOC	0.05	0.22	49
AD-08	Alkyl Amines Rundown Tank T-1534B	VOC	0.05	0.22	49
AD-09	Alkyl Amines Rundown Tank T-1534	VOC	0.05	0.22	49
AD-10	Alkyl Amines Storage Tank, T-1537	VOC	0.26	1.14	49
AD-11	Alkyl Amines Storage Tank, T-1537	VOC	0.26	1.14	49
AD-12	Alkyl Amines Storage Tank, T-1535	VOC	0.26	1.14	49
AD-13	Alkyl Amines Storage Tank, T-1536	VOC	0.26	1.14	49
AD-14	Alkyl Amines Storage Tank, T-1538	VOC	0.26	1.14	49
AD-15	Alkyl Amines Storage Tank, T-1539	VOC	0.26	1.14	49
AD-17	Alkyl Amines Blend Tank, T-1540	VOC	0.26	1.14	49
AD-18	Sodium Bromide Brine for Recycle T-1409	VOC	0.26	1.14	49
AD-20	Olefins Storage Tank, T-1405A	VOC	0.16	0.71	49
AD-21	Olefins Storage Tank, T-1405B	VOC	3.45	15.08	49

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Source No.	Description	Pollutant	Emission Rates		Cross Reference Page
			lb/hr	tpy	
AD-23	Alkyl Amines Storage Tanks T-1408A, B	VOC	0.03	0.14	49
AD-24	Product Storage: Alkyl Amines T-1542	VOC	0.26	1.14	49
AD-25	Product Storage: Alkyl Amines T-1542	VOC	0.26	1.14	49
AD-26	ADMA Flare *Alkyl Amines Scenario Emergency Flaring Events*	PM/PM_{10} SO_2 VOC CO NO_X Br_2	0.12 0.06 0.62 0.06 0.38 0.02	0.07 0.15 0.16 0.15 0.20 0.01	49
AD-26	ADMA Flare *Alkyl Amines Scenario Non-Emergency Events*	PM/PM_{10} SO_2 VOC CO NO_X	0.80 0.10 48.50 18.90 3.50	0.10 0.10 0.60 0.30 0.10	49
AD-26	ADMA Flare *NC-24 Production Scenario*	PM/PM_{10} SO_2 VOC CO NO_X	0.80 0.10 48.50 18.90 3.50	0.10 0.10 0.60 0.30 0.10	108
AD-27	Recycle Brine Storage Tank, T-1407	VOC	0.26	1.14	49
AD-28	Stripped Recycle Brine Tank, T-1541	VOC	0.08	0.35	49
AD-29	Stripped Recycle Brine Tank, T-1544	VOC	0.08	0.25	49
AD-35	Alkyl Amines Odor Control Vent Gas Oxidizer (VGO)	PM/PM_{10} SO_2 VOC CO NO_X Br_2	0.22 0.09 1.22 0.06 0.70 0.03	0.97 0.40 5.35 0.27 3.07 0.14	49
AD-36	Fugitive Emissions Including Product Loading	VOC Br_2+HBr Ethylene Glycol	4.13 3.76 0.06	18.14 16.47 0.30	49
AD-37	ADMA Condensate Collection Tank	VOC	0.05	0.17	49
AD-39	ADMA Brine Loadout *Additional ADMA Storage Scenario*	VOC	0.1	0.4	49
AB-15	Carbon Bed Adsorbers (CB-304 and CB-305)	VOC Dichloromethane	1.20 0.24	5.30 1.10	54
AB-16	Alkyl Bromide Fugitive Emissions	VOC Dichloromethane	7.50 1.50	32.90 6.60	54
DB-01	Vent Scrubber	VOC Br_2+HBr	0.28 0.44	1.23 1.93	57

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Source No.	Description	Pollutant	Emission Rates		Cross Reference Page
			lb/hr	tpy	
DB-04	Product Dryer Filter	PM/PM_{10} SO_2 VOC CO NO_X Br_2+HBr	1.80 0.14 0.96 3.60 1.60 1.65	7.90 0.61 4.20 15.80 7.00 7.20	57
DB-04	Product Dryer Filter During NC-15 Production Alt. Op. Scenario	Routed to SN-DB-19			57
DB-05	Product Vent Filter Silo Baghouse	PM/PM_{10}	0.30	1.30	57
DB-06	Product Vent Filter Silo Baghouse	PM/PM_{10}	0.30	1.30	57
DB-07	Raw Material Storage Tank	VOC HCl	0.10 5.10	0.44 3.10	57
DB-08	Product Vent Filter	PM/PM_{10}	1.10	4.80	57
DB-10	Ethylene Glycol Storage Tank	VOC Ethylene Glycol	0.01 0.01	0.04 0.04	57
DB-16	NC-12 Fugitive Emissions	VOC Br_2+HBr	1.40 5.81	6.10 25.44	57
DB-17	Back-up Water Scrubber	Br_2+HBr	0.10	0.44	57
DB-18	Receiving Baghouse	PM/PM_{10}	0.30	1.40	57
DB-19	Product Dryer Scrubber During NC-15 Production Alt. Op. Scenario	PM/PM_{10} SO_2 VOC CO NO_X Br_2 + HBr	0.86 0.14 0.96 3.60 1.60 1.00	3.77 0.61 4.20 15.80 7.00 4.38	57
DB-19T	Product Dryer Scrubber (Temporary) *During NC-15 Production Alt. Op. Scenario*	PM/PM_{10} SO_2 VOC CO NO_x Br_2+HBr	3.70 0.14 0.96 3.60 1.60 1.00	2.00 0.61 4.20 15.80 7.00 4.38	57
DB-20	DPE Storage Tank, D-2515 *During NC-15 Production Alt. Op Scenario*	VOC	0.32	1.41	57
TB-03	Area Process Scrubber (Methyl Bromide Recovery Unit) *MeBr Production Scenario*	VOC Methanol Methyl Bromide	2.57 1.03 0.94	11.30 4.51 4.12	60
TB-03	Area Process Scrubber *NaBr Production*	Br_2+HBr	0.10	0.44	102
TB-03	Area Process Scrubber (Ethyl Bromide Recovery Unit) *EtBr Production*	VOC	10.70	7.50	103
TB-04	NC-22 Product Baghouse *NC-22 Production Scenario A*	PM PM_{10} VOC HBr	0.90 0.90 0.21 2.00	4.00 4.00 0.92 6.16	80

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EMISSION SUMMARY					
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Source No.	**Description**	**Pollutant**	**Emission Rates**		**Cross Reference Page**
			lb/hr	**tpy**	
TB-08	Dust Collector *NC-22 Production Scenarios A and B*	PM PM_{10}	0.30 0.30	1.40 1.40	80
TB-11	Column Feed Tank *MeBr Production Scenario*	VOC Methanol	2.91 2.91	1.89 1.89	60
TB-11	ADMA Brine Storage Tank *Additional ADMA Storage Scenario*	VOC	0.1	0.4	49
TB-12	Spent Sulfuric Acid Storage *MeBr Production Scenario*	VOC Methanol H_2SO_4	0.10 0.10 0.01	0.10 0.10 0.05	60
TB-12	Spent Sulfuric Acid Storage *EtBr Production Scenario*	VOC H_2SO_4	0.53 0.01	0.38 0.01	103
TB-14	Caustic Scrubber *95ND141/Stabrom 909 Production Scenario*	Br_2 BrCl Cl_2	0.10 0.10 0.10	0.44 0.44 0.44	99
TB-14	Bromine Scrubber *NC-22 Production Scenarios A and B*	Br_2	0.10	0.44	80
TB-25	Column Vent *MeBr Production Scenario*	VOC Methanol	0.40 0.40	1.75 1.75	60
TB-25	Refrigerated Vent Condenser *NC-24 Production Scenario*	VOC HBr Acetone HCl 1,2-Epoxybutane	43.50 0.10 0.10 0.10 1.30	4.60 0.10 0.10 0.10 0.10	108
TB-29	NC-22 Fugitive Emissions *MeBr Production Scenario*	VOC Methanol Methyl Bromide	0.93 0.93 0.93	4.07 4.07 4.07	60
TB-29	NC-22 Fugitive Emissions *95ND141/Stabrom 909 Production Scenario*	Br_2 BrCl Cl_2	0.10 0.10 0.10	0.44 0.44 0.44	99
TB-29	NC-22 Fugitive Emissions *EtBr Production Scenario*	VOC Br_2+HBr	3.47 0.46	2.40 0.32	103
TB-29	NC-22 Fugitive Emissions *NC-22 Production A Scenario*	VOC Ethylene Glycol Br_2 + HBr HCl	1.33 0.08 0.44 0.06	5.76 0.34 1.92 0.24	80
TB-29	NC-22 Fugitive Emissions *NC-22 Production B Scenario*	VOC Ethylene Glycol Br_2 + HBr HCl	1.37 0.08 0.44 0.06	5.90 0.34 1.92 0.24	80
TB-30	Methanol Storage Tank *MeBr Production Scenario*	VOC Methanol	11.80 11.80	9.30 9.30	60
TB-30	Methanol Storage Tank *EtBr Production Scenario*	VOC	11.30	6.30	103
TB-37	Raw Material Recovery *EtBr Production Scenario*	VOC HBr	1.34 0.10	0.94 0.10	103

EMISSION SUMMARY

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Source No.	Description	Pollutant	Emission Rates		Cross Reference Page
			lb/hr	tpy	
TB-41	(2) Carbon Bed Solvent Recovery Units *NC-22 Production Scenario A*	VOC HCl HBr	6.40 0.07 0.02	8.30 0.10 0.02	80
TB-41	(2) Carbon Bed Solvent Recovery Units *NC-22 Production Scenario B*	VOC HCl HBr	9.70 0.07 0.04	12.80 0.15 0.05	80
TB-42	HBr Solution Storage Tank *NC-22 Production Scenarios A and B*	HBr	0.25	0.40	80
TB-43	Centrate Holdup Drum	VOC	0.63	1.10	80
TB-01	ADMA Storage Tank	VOC	7.20	7.20	60
TB-04	Product Baghouse	Reserved for future use	--	--	N/A
TB-08	Dust Collector Baghouse	Reserved for future use	--	--	N/A
TB-15	Water Tank	Reserved for future use	--	--	N/A
TB-18	Column Bottoms Tank	Reserved for future use	--	--	N/A
TB-22	BPA Storage Silo	Reserved for future use	--	--	N/A
TB-23	BPA Weigh Hopper Baghouse	Reserved for future use	--	--	N/A
TB-28	Hydrochloric Acid Scrubber	Reserved for future use	--	--	N/A
15-02	Process Scrubber	Br_2 HBr	0.10 0.10	0.44 0.44	67
15-09	Refrigerated Coolant Storage	VOC Ethylene Glycol	0.03 0.03	0.13 0.13	67
15-12	NC-15 Area Scrubber	PM/PM_{10} SO_2 VOC CO NO_X Br_2+HBr	1.52 0.01 2.20 0.15 0.18 1.09	6.66 0.05 9.64 0.66 0.79 4.78	67
15-13	Raw Material Storage Tanks D-9965, D-9966	VOC	0.07	0.31	67
15-15	Fugitive Emissions	PM/PM_{10} VOC Br_2+HBr	0.03 4.23 1.54	0.13 18.30 6.72	67
15-16	Pollution Control Dust Scrubber J-99601 CD-15-16	PM/PM_{10}	1.20	5.30	67
15-17	Rail Car Vent	VOC	0.69	3.03	67
15-18	DPE Byproduct/Heavy Organics Storage Tank (serving NC-21)	VOC	0.10	0.10	67
16-01	TBPA Production Packed Scrubber	SO_2 PM_{10} Phthalic Anhydride	0.50 0.10 0.10	2.19 0.44 0.44	70
16-02	TBPA Production Off Gas Scrubber	SO_2 VOC Br_2	0.40 0.10 0.10	1.75 0.44 0.44	70
16-05	EBTBP Production Packed Scrubber	VOC	0.10	0.44	70

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Source No.	Description	Pollutant	Emission Rates		Cross Reference Page
			lb/hr	tpy	
16-06	EBTBP Production Converter Scrubber	VOC PM/PM_{10}	0.10 0.40	0.44 1.75	70
16-07	EBTBP Production In Process Storage Silo Vent Filter	PM/PM_{10}	0.30	1.32	70
16-08	EBTBP Production Product Transfer and Storage Fabric Filter	PM/PM_{10}	0.30	1.32	70
16-10	Product Transfer and Storage Fabric Filter	PM/PM_{10} SO_2	0.50 0.10	2.19 0.44	70
16-11	TBPA Production Packaging Filter	PM/PM_{10}	0.10	0.44	70
16-12	TBPA Weigh Hopper Filter	PM/PM_{10}	0.10	0.44	70
16-13	TBPA Production Vacuum Pump	SO_2	0.10	0.44	70
16-14	Ethylene Diamine Storage Tank	VOC	0.01	0.04	70
16-15	Propanoic Acid Storage Tank	VOC	0.01	0.04	70
16-16	TBPA Neutralization Tank	SO_2	0.10	0.44	70
16-17	Ethylene Glycol Tank	VOC Ethylene Glycol	0.02 0.02	0.09 0.09	70
16-18	Vent Gas Oxidizer	PM/PM_{10} SO_2 NO_X CO VOC Ethyl Benzene + Xylene	0.05 0.07 0.64 0.86 0.66 0.52	0.22 0.31 2.80 3.77 2.89 2.28	70
16-19	Charge Hopper Vent	PM/PM_{10} SO_2	0.30 0.10	1.32 0.44	70
16-20	Heat Exchange Heater	PM/PM_{10} SO_2 NO_X CO VOC	0.04 0.06 0.50 0.19 0.13	0.18 0.27 2.18 0.83 0.57	70
16-21	Product Storage Hopper	PM/PM_{10} VOC Ethyl Benzene + Xylene	0.20 0.40 0.28	0.88 1.76 1.23	70
16-22	By-Product Powder Packaging	PM/PM_{10} VOC Ethyl Benzene + Xylene	0.01 0.01 0.01	0.04 0.04 0.04	70
16-23	NC-17 Operation Fugitive Emissions	PM/PM_{10} SO_2 VOC Ethyl Benzene + Xylene Ethylene Glycol Br_2	0.32 1.02 6.60 2.70 0.41 0.34	1.40 4.47 28.53 11.80 1.80 1.49	70
16-24	Raw Material Unloading, Brinks (Limited Hours of Operation)	SO_2	1.80	1.58	70

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Source No.	Description	Pollutant	Emission Rates		Cross Reference Page
			lb/hr	tpy	
16-25	Wet Scrubber	PM/PM_{10} VOC	0.40 1.02	1.75 3.46	70
16-26	EBTBP or TBBPA Rework Transfer and Storage Filter	PM/PM_{10}	0.30	1.32	70
16-27	Reactor Weight Hopper Filter	PM/PM_{10}	0.30	1.32	70
16-28	TBPA Neutralization Tank	SO_2	0.10	0.44	70
16-31	Molten Phthalic Anhydride Storage Tank	VOC Phthalic Anhydride	3.83 3.83	0.80 0.80	70
BH-01	#1 Boiler 340 MMBTU/hr Natural Gas Fired	PM PM_{10} SO_2 VOC CO NO_X	3.40 2.59 -- 1.87 13.60 47.60	-- -- -- -- -- --	76
BH-02	#2 Boiler 340 MMBTU/hr Natural Gas Fired	PM PM_{10} SO_2 VOC CO NO_X	3.40 2.59 -- 1.87 13.60 47.60	-- -- -- -- -- --	76
BH-01 And BH-02	Combined Boiler Emissions	PM PM_{10} SO_2 VOC CO NO_X	-- -- 5.60 -- -- --	29.78 22.64 24.60 16.38 119.2 417.00	76
21-01	Emission Control Vent Gas Incinerator (FL-3671)(CD-21-01)	PM/PM_{10} SO_2 VOC CO NO_X Benzene HCl	0.10 0.01 0.35 5.00 0.50 0.35 0.35	0.44 0.04 1.54 21.90 2.20 1.54 1.54	78
21-02	NC-21 Fugitive Emissions	VOC Benzene HCl Ethylene Dichloride	3.50 0.69 0.05 0.09	15.30 3.02 0.22 0.40	78
21-03	Waste Water Effluent	VOC Benzene	0.01 0.01	0.01 0.01	78
21-04	HCl Loading Operation	VOC Benzene HCl	0.80 0.80 0.30	0.20 0.20 0.10	78
23-01	NC-23 Fugitive Emissions	VOC Br_2 HBr Chloroethane	1.12 0.22 0.11 0.03	4.91 0.97 0.49 0.13	84

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Source No.	Description	Pollutant	Emission Rates		Cross Reference Page
			lb/hr	tpy	
23-02	Raw Material Unloading Baghouse	PM_{10} PM	0.10 0.20	0.44 0.88	84
23-03	Raw Material Scrubber	VOC HBr	0.35 0.35	1.53 1.50	84
23-04	By- Product Loading	VOC	0.44	1.93	84
23-05	Vent Absorber	VOC Phenol Bromoform Acetaldehyde Chloroethane	2.90 0.10 0.43 0.10 0.49	12.70 0.44 1.89 0.44 0.36	84
23-06 23-07 23-08	Receiving Silo Baghouse Blending Silo Baghouse Discharging Silo Baghouse	PM_{10} PM VOC HBr Acetaldehyde Chloroethane	0.30 0.60 3.80 0.22 0.10 0.60	1.32 2.64 16.60 0.96 0.44 1.32	84
23-09	Product Packaging Baghouse	PM_{10} PM HBr	0.10 0.20 0.01	0.44 0.88 0.01	84
23-10	Product Dust Collection	PM_{10} PM	0.10 0.20	0.44 0.88	84
23-11A 23-11B	Product Loading Baghouse Product Loading Railcar	PM_{10} PM	0.10 0.20	0.44 0.88	84
23-12A 23-12B	Product Loading Baghouse Product Loading Railcar	PM_{10} PM	0.10 0.20	0.44 0.88	84
23-13	Floor Vacuum Baghouse	PM_{10} PM	0.10 0.20	0.44 0.88	84
23-14	Solvent Tote Bin	VOC	40.8	1.53	84
23-15	Phenol Storage Tank 6,500 gal	Emissions Routed to 23-05			84
BT-01	Feed Brine Oil Separator/Surge Tank V-3011	VOC H_2S	0.01 0.14	0.05 0.61	88
BT-11	Neutralization Tank T-3110	VOC H_2S NH_3 Cl_2 or Halogens	0.01 0.01 0.20 0.03	0.05 0.05 0.90 0.13	88
BT-12	Tail Brine Line Vent	VOC NH_3 Cl_2 or Halogens	0.01 0.01 0.01	0.05 0.05 0.05	88
BT-13	Tail Brine Tank T-3101	VOC H_2S NH_3 Cl_2 or Halogens	0.01 0.01 0.02 0.01	0.05 0.05 0.09 0.05	88
BT-16	Brinefield Oil/Water Separator T-7001	VOC H_2S	30.00 0.01	1.80 0.05	88
BT-17	Brinefield Oil Storage Tank T-7002	VOC H_2S	16.40 0.01	1.70 0.05	88

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EMISSION SUMMARY

KEY: PM_{10}=Particulate <10 microns. SO_2=Sulfur Dioxide. VOC=Volatile Organic Compounds. CO=Carbon Monoxide. NO_X=Oxides of Nitrogen. HAP=Hazardous Air Pollutant. NCAC=Non-Criteria Air Contaminant.

Source No.	Description	Pollutant	Emission Rates		Cross Reference Page
			lb/hr	tpy	
BT-21	Four Tail Brine Cooling Towers Y-3120, Y-3121, Y-3122, Y-3123	PM/PM_{10}	4.12	18.09	88
		VOC	3.37	14.72	
		NH_3	10.23	44.77	
		Cl_2 or Halogens	2.89	12.60	
BT-22	Brine Management, Fugitive Emissions Including Ground Brine Ponds	VOC	0.02	0.09	88
		H_2S	0.02	0.09	
		NH_3	0.02	0.09	
		Cl_2 or Halogens	0.02	0.09	
BT-23	Line Vent	VOC	0.01	0.05	88
		NH_3	0.01	0.05	
		Cl_2 or Halogens	0.01	0.05	
BT-24	Line Vent	VOC	0.01	0.05	88
		NH_3	0.01	0.05	
		Cl_2 or Halogens	0.01	0.05	
BT-25	DRT Tail Brine Line Vent	VOC	0.01	0.05	88
		NH_3	0.01	0.05	
		Cl_2 or Halogens	0.01	0.05	
BT-26	DRT Tail Brine Line Vent	VOC	0.01	0.05	88
		NH_3	0.01	0.05	
		Cl_2 or Halogens	0.01	0.05	
BT-27	Tail Brine Line Vent	VOC	0.01	0.05	88
		NH_3	0.01	0.05	
		Cl_2 or Halogens	0.01	0.05	
BT-28	Tail Brine Line Vent	VOC	0.01	0.05	88
		NH_3	0.01	0.05	
		Cl_2 or Halogens	0.01	0.05	
BT-29	Oil Separator Tank T-292	VOC	30.00	1.95	88
		H_2S	0.01	0.05	
		Benzene	3.87	0.04	
		Toluene	1.34	0.02	
		Xylene	0.28	0.01	
		Hexane	3.12	0.04	
DM-01	Ethylene Glycol Tank	VOC	0.03	0.11	91
		Ethylene Glycol	0.03	0.11	
DM-02	Thermal Oxidizer	PM/PM_{10}	0.20	0.88	91
		SO_2	4.00	17.50	
		VOC	0.10	0.44	
		CO	0.10	0.44	
		NO_X	0.31	1.40	
DM-03	Hydrogen Peroxide Tank 1	H_2O_2	0.81	3.55	91
DM-06	Hydrogen Peroxide Tank 2	H_2O_2	0.81	3.55	91
DM-07	Fugitive Emissions	VOC	3.18	13.95	91
		Toluene Diamine	0.08	0.35	
		Dimethyl Formamide	0.09	0.39	
		Ethylene Glycol	0.41	1.80	
		H_2O_2	0.49	2.20	

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Source No.	Description	Pollutant	Emission Rates		Cross Reference Page
			lb/hr	tpy	
MS-01	Extraneous Water System	VOC	4.00	17.60	93
		Bromoform	0.53	2.32	
		Chloroform	0.09	0.39	
		1,1-Dichloroethane	0.09	0.39	
		Toluene	0.25	1.10	
		Acetaldehyde	0.28	1.23	
		Methanol	0.98	4.28	
MS-02	Drying Bed	VOC	0.10	0.44	93
MS-03	French Drain Sump Bubble	VOC	0.30	1.32	93
		Br_2	2.70	11.83	
MS-05	Carpenter's Shop Fugitive Emissions	VOC	0.67	2.20	93
MS-06	South Landfill	SO_2	0.50	0.17	93
		VOC	7.00	2.40	
		Toluene	5.00	1.70	
MS-07	Gasoline Storage Tank	VOC	47.70	1.00	93
		Benzene	0.50	0.10	
		Hexane	0.80	0.10	
		Toluene	0.70	0.10	
		Xylene	0.30	0.10	
		Ethyl Benzene	0.10	0.10	
		Iso-octane	0.40	0.10	
MS-08	Electric Generators	PM/PM_{10}	3.00	1.40	101
		SO_2	2.80	1.30	
		VOC	8.10	13.20	
		CO	162.50	19.00	
		NO_X	41.60	19.00	
MS-12	Plantwide Fugitive Refrigerant Emissions	VOC	1.06	4.64	93
24-01	Wash Column	VOC	48.5	8.80	108
		HBr	0.10	0.50	
		Acetone	0.10	0.10	
		HCl	0.10	0.50	
24-02	NC-24 Fugitives	VOC	1.10	4.80	108
		HBr	0.10	0.40	
		Acetone	0.10	0.10	
		HCl	0.10	0.10	
		Ethyl Glycol	0.20	0.50	
		1,2-Epoxybutane	0.10	0.10	

Section III:PERMIT HISTORY

The following timetable summarizes the Department's permitting actions related to this facility from 1973 until it received its initial Title V permit.

Table 4 – Permitting Actions from 1973 to Initial Title V Permit

Date	Permit Number	Purpose (summary)
3/10/00	762-AOP-R0	First operating air permit; incorporated limits and provisions for all minor modifications initiated by the facility from 1992 through August, 1999
06/28/73	164-A	Issued for Sulfinol Gas Sweetening unit.
12/04/74	273-A	Issued for Tail Gas Incinerator.
03/26/76	324-A	Issued for CBN production.
09/24/76	363-A	Issued for NC-9 Alkyl Amine Production plant.
09/23/77	424-A	Issued for production of Pyrochek (MG-3).
09/23/77	425-A	Issued for DECTP plant.
11/22/78	273-AR-1	Modification issued for addition of MDEA unit.
03/23/79	425-AR-1	Modification issued for production of DMCTP.
05/30/79	552-A	Issued for Calcium and Zinc Bromide production.
11/26/79	552-AR-1	Modification issued for Calcium Bromide.
07/24/81	353-AI	Issued for incineration of office waste.
08/11/81	708-A	Issued for NC-14 process.
04/05/82	424-AR-1	Issued for NC-12 process.
07/22/83	708-AR-1	Modification issued for Sodium Bromide production.
02/08/84	728-A	Issued for Bromine Chloride production.
02/23/86	762-A	Issued to Ethyl as the original consolidated air permit for the site.
05/26/87	832-A	Issued for NC-16 process.
09/15/87	846-A	Issued for NC-15 process.
03/17/88	762-AR-1	Modification issued for the DBDPO process.
11/01/88	762-AR-2	Modification issued for an expansion of the TBBPA (NC-14) process.
11/09/88	832-AR-1	Modification and expansion to the existing NC-16 process.
01/11/89	922-A	Issued to allow construction of the Alkyl Bromides process.
02/13/89	933-A	Issued to allow construction of the BRU. The unit later was brought under RCRA BIF regulations.
11/15/89	832-AR-2	Issued for the NC-17 process.
04/30/90	398-IR-1	Issued for the Air Curtain Incinerator.
05/10/91	922-AR-1	Modification issued for the Alkyl Bromides process. Consolidated 913-A and 922-A.
11/18/91	762-AR-3	Consolidated all existing air permits for the facility.
11/04/92	762-AR-4	Modification issued for NC-21 construction.
02/19/93	762-AR-5	Modification issued for NC-14.
09/10/93	762-AR-6	Modification issued for NC-16, and allowed construction of NC-17, NC-18.
12/08/93	762-AR-7	Issued to allow Feed Brine Tank construction.
04/08/94	762-AR-8	Issued to allow DECTP and VGO construction.
01/26/96	762-AR-9	Issued to resolve 762-AR-8 appeal.
3/10/00	762-AOP-R0	First operating air permit; incorporated limits and provisions for all minor modifications initiated by the facility from 1992 through August, 1999

The following table summarizes the changes made in Permit No. 762-AOP-R0.

Table 5 – Permit No. 762-AOP-R1 through R4 Modifications

Change	Type of change	Application date
NC-14, 95ND141/ Stabrom 909 - New scenario increases bromine and chlorine each by 0.88 tons per year.	Minor modification	5/1/00
Alkyl Amines Area, Alcohol addition system - A-3 insignificant storage tank and various instrumentation were added to insignificant list.	Administrative Amendment (Insignificant source)	5/25/00
NC-12, New heated air blower (SN-DB-04) & Backup scrubber (SN-DB-17) are permitted at Decabrom unit. PM/PM_{10} increases by 5.3 tpy each. Br_2+HBr emissions from SN DB-04 increased by 2.4 tpy, and new HBr emissions from SN-DB-17 were 0.44 tpy.	Minor modification	6/9/00
NC-17, Specific Condition 151 error - A source was referenced in error.	Administrative Amendment	6/15/00
NC-17, Specific Condition 152 removal - Requirement was removed to maintain minimum acid strength for SO_x scrubber SN-16-13. This requirement didn't make sense because lower acid strength would only allow better removal. A scrubber flow requirements are already in place as a compliance mechanism.	Administrative Amendment	6/15/00
Boilers, Specific Condition 170 - Testing requirement is removed PM/PM_{10} testing at #1 and #2 Boilers (SN-BH-01 & SN-BH-02) Testing was determined to be unnecessary due to reliability of the factors used.	Modification	7/13/00
DECTP, higher purity and emissions reroute - Purification (SN-DE-23) emissions are routed to the VGO (SN-DE-21). VGO HCl emissions increase by 25 tpy. This was determined to not be a MACT issue because no affected process units are constructed or reconstructed as part of the modification. Purification had the capacity for the higher purity product beforehand. Only the emissions vent header will be constructed which allows the emissions to be routed to the VGO. Other emissions from these two sources change slightly.	Modification	8/11/00
NC-23, emissions updates - SN-23-06, 07, and 08 emission bubble is changed to allow higher VOC and HBr emissions. Stack testing showed some occurrences of exceedances during multiple test runs. VOC is increased by 1.8 tpy and HBr is increased by 0.5 tpy. SN-23-03 emissions are lowered to reflect test data.	Modification	8/29/00
NC-12, increase Decabrom Product Dryer firing rate (SN-DB-04), increase DPO annual dry rate at storage tank (SN-DB-07), allow Decabrom usage of TBBPA packaging equipment - At SN-DB-04 combustion emissions increase slightly. At the same source PM/PM10 emissions increase by 2.1 tpy and VOC is increased by 2.1 tpy. At SN-DB-07, HCl emissions increase by 0.6 tpy.	Minor modification	10/4/00

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Change	Type of change	Application date
NC-17, New xylene formulation - At SN-16-18, 21, 22, and 23 xylene emissions are changed to include the possibility of mixed xylene or ethyl benzene.	Minor modification	11/17/00
NC-14, Bleach production - This is an additional change related to the 5/1/00 minor mod. Bleach production is permitted at the NC-14 reactor under existing permit limits.	Minor modification	12/6/00
Clear Completion Fluids - VOC emissions at SN-CB-02 and 16 are reduced to reflect test data. Annual SN-CB-04 VOC emissions were reduced to reflect updated emission calculation methodology and annual methanol throughput limit.	Administrative amendment	1/9/01
NC-14, Tank (SN-TB-26) - This tank is allowed ethylene glycol storage use. During these periods emissions are insignificant.	Administrative amendment	2/21/01
NC-23, Solvent tote bin (SN-23-14) - VOC emissions increase by 1.53 tpy.	Minor modification	3/15/01
Bromine area -Caustic drum (SN-BR-15) and generator usage (SN-MS-08) - Caustic Drum is allowed as an alternate control for periods when Bromine Area Scrubber is down. Additional Cl_2 and Br_2 emissions are 0.1 tpy each. Combustion emissions increase due to generator allowance with the greatest being NO_x and CO at 19.0 tpy each.	Minor modification	5/15/01
NC-14, NaBr production - This scenario is permits NaBr production increasing Br_2 and HBr emissions by 0.44 tpy each at SN-TB-03.	Minor modification	6/11/01
NC-15, update bromine rate at SN-15-02 and alternative compliance with SN-15-02 and SN-15-12 bromine rates - HBr and Br_2 rates at SN-15-02 are increases by 0.3 tpy each.	Minor modification	7/24/01
NC-23, Phenol Storage Tank (SN-23-15) - Emissions are routed to existing Vent Absorber (SN-23-05). VOC and phenol emissions at SN-23-05 increase by 0.4 tpy.	Minor modification	12/13/01
Bleach storage tank - a 6,000 gallon bleach storage tank was listed as an insignificant activity. No regulated emissions result from this activity.	Administrative amendment	1/9/02
DECTP, Vent header - SN-DE-01, 02, 03,09, and 25 combine to SN-DE-28. No changes result only emissions are bubbled into new source (SN-DE-28).	Minor modification	2/14/02
NC-21, HCl tank and gasoline through put - A new 10,000 gallon HCl tank is permitted with emissions routed to Incinerator (SN-21-01). Increased throughput at Gasoline Storage Tank (SN-MS-07) is permitted. Extra combustion emissions result at SN-21-01. VOC increases 0.7 tpy at SN-MS-07 along with various HAPs.	Minor modification	2/14/02
NC-14, Ethyl bromide production scenario - EtBr scenario is permitted under existing MeBr emission limits with some exceptions. Exceptions result in a VOC increase of 1.2 tpy and HBr increase of 0.1 tpy.	Minor modification	4/19/02

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Change	Type of change	Application date
NC-17, Phthalic Anhydride (PA) Tank (SN-16-31) - PA tank is no longer vented to Scrubber (SN-16-02). PA emissions removed from the scrubber vent. PA and VOC emissions from SN-16-31 are listed at 0.8 tpy each resulting in a 0.4 tpy increase of the PA emissions.	Minor Modification	5/6/02
NC-23, Caustic Addition - The permittee is allowed to add caustic to recirculating solvent for corrosion prevention. This project allows 19.2 tpy of additional VOC. This project may or may not be related to other projects at NC-23 since the unit's construction in 1998 which have allowed total VOC increases of 39.3 tpy. Additional increases at this unit may trigger PSD review by causing total VOC increases exceeding 40 tpy depending on the relation ship between past and future projects. Bromoform is increased by 1.9 tpy and acetaldehyde ins increased by 0.9 tpy.	Minor Modification	5/7/02
Boilers, H_2S Monitoring Protocol - Specific Condition 169 regarding SN-BH-01 and 02 (Boilers) is adjusted to allow a decrease in monitoring frequency from every 15 minutes to every 6 hours. This is deemed appropriate after reviewing historical data from the past four quarterly reports of 15 minute data. The reports show low variance in emission rates and indicate little chance of exceeding permitted rates.	Modification	6/19/02
NC-17, Sulfuric Acid Storage Tank - T-9315 - This tank is now vented to the atmosphere and listed as an insignificant source (SN-16-32).	Administrative amendment	7/3/02
Molten Sulfur Tank - T9369	Administrative amendment	1/21/03
Brine Treatment Area - SN-BT-10 (T-292) is removed from Insignificant Activities list and listed as a permitted source to allow heat treatment of the tank contents.	Minor Modification	1/21/03
Alkyl Bromides Area - SN-AB-15 - Storage tank (T-83403B) is replaced with a new 11,130 gallon tank making it subject to NSPS Subpart Kb. Emissions are not affected as they remain routed to SN-AB-15.	Minor Modification	1/30/03
NC-12 Process Area - SN-DB-01 is changed out with a similar scrubber. No changes to emission rates or compliance mechanisms.	Minor Modification	2/21/03
Insignificant Activities List - Hot Oil Expansion Tank (T-9354) added for use at NC-16 & 17; Six Emergency use generators and fire pumps added; Hot oil Surge Tank (D-3490) added for use at NC-16 & 17; Molten Sulfur Pit and Loadout added for use at the Sulfur recovery area.	Administrative amendment	3/17/03
Sulfur Recovery Area (Gas Sweetening) - Sulfinol Storage Tank (SN-SL-02) is added. Emissions of VOC are increased by 0.6 tpy.	Minor Modification	3/17/03

Change	Type of change	Application date
NC-12 & NC-15 - Product Packaging is automated. Higher air flows at SN-15-16 increase PM/PM_{10} emissions by 2.1 tons per year.	Minor Modification	4/14/03
Backup Power Generators - A change is made to the original minor modification dated 5/15/01. A larger total capacity is allowed while firing of diesel fuel affecting pound per hour emission rates. Limits remain in effect for annual operation that limits generator usage below PSD thresholds. Annual emissions are unaffected.	Minor Modification	4/24/03
An alternative chemical reaction was identified and used to manufacture products in the clear completion fluids process. The alternative reaction replaces methanol with ammonia hydroxide resulting in ammonia emissions of 2.0 lb/hr and 2.2 tpy.	Minor Modification	02/18/2004
Albemarle has the option of installing a new distillation column to be used to recover benzene from the co-product HCl (HCl Loading Operation, SN-21-04) for reuse in the NC-21 process unit. Permitted emissions will increase by 0.8 lb/hr and 0.2 tpy, Benzene and VOC by 0.3 lb/hr and 0.1 tpy, HCl.	Minor Modification	07/13/04

Permit #762-AOP-R5 was issued on June 30, 2005. This was the first renewal issued to Albemarle under the Title V program. The following table lists the changes requested in the renewal application:

Process Name	Modification
Br_2 Production	1. Revised description for SN-BR-14 2. Revised description for SN-BR-13 (Insignificant Activity) 3. Added SN-ED-04 to Insignificant Activity List 4. Revised emission rates and description for SN-BR-05 (Insignificant Activity) 5. Added Hot Water Tank, B-3010 to Insignificant Activity List 6. Revised the equipment description in Specific Condition #9 7. Revised the annual Br_2 emission limit for SN-BR-09 from 0.06 tpy to 0.09 tpy
Sulfur Production	1. Deleted Specific Condition #20a, Sulfinol Storage Tank no longer subject to NSPS Subpart Kb. 2. Added SN-SL-03 (Sulfinol Storage Sump), SN-SL-04 (MDEA Storage Tank), and SN-SR-03 (Molten Sulfur Pit and Loadout) to Insignificant Activity List 3. Added 3-hour SO_2 limit for Emergency Flaring of Brinefield Gas at SN-SL-01 to Specific Conditions #17 and #18
Clear Completion Fluids	1. Added source numbers to the Ammonium Hydroxide (SN-CB-19) and the Formic Acid Bins (SN-CB-20) insignificant activities. 2. Removed Methanol Storage Tank (SN-CB-04) emission limits from Specific Condition #29 3. Rounded up VOC emissions limits in Specific Conditions #21 and #22 for consistency 4. Revised the HBr and Br_2 emission limits for Alternate Operating Scenario for R-21 Vent Scrubber (SN-CB02/16) to 0.22 tpy and 0.44 tpy, respectively

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Process Name	Modification
DECTP Production	1. Deleted Specific Condition #47 because the tanks are no longer subject to NSPS Subpart Kb 2. For SN-DE-21, revised the annual emission limit for SO_2 to 30.7 tpy and add emission limits for Toluene (0.40 lb/hr and 1.76 tpy) and Ethyl Chloride (0.20 lb/hr and 0.88 tpy) 3. Added DECTP process sewers to the Insignificant Activity List 4. Revised the CO emission limits for SN-DE-17 (0.04 lb/hr and 0.18 tpy) and SN-DE-18 (0.07 lb/hr and 0.31 tpy)
Alkyl Amines Production	1. Deleted Specific Condition #59 because tanks are no longer subject to NSPS Subpart Kb and SN-AD-35 is not a storage vessel. 2. Added ethylene glycol emission limits (0.06 lb/hr and 0.30 tpy) to SN-AD-36 3. Revised emission limits for SN-AD-26 based on updated AP-42 natural gas combustion limits 4. Revised the HBr and Br_2 emission limits for SN-AD-05 5. Changed the source designation for SN-AD-37 to SN-AD-38 6. Added Liquid Hydrogen Pressurized Tank (SN-AD-31) to Insignificant Activity List
Alkyl Bromides Production	1. Deleted Specific Conditions #79 and #257 because tanks are no longer subject to NSPS Subpart Kb 2. Added SN-AB-17 and SN-AB-18 Insignificant Activities List
NC-12 Production	1. Deleted Specific Condition #85 because tank is no longer subject to NSPS Subpart Kb
NC-14 Processes	1. Deleted Specific Conditions #91 through #104 because TBBPA production has been discontinued 2. Revised emission limit for VOC, Methanol, Methyl bromide to 0.93 lb/hr and 4.07 tpy, each 3. Removed Brine Stripper Column Vent (SN-TB-20) from Insignificant Activity List because source has been removed from service 4. Revised source description for 6,000 gallon Bleach Storage Tank (Insignificant Activity)
NC-15 Production	1. Removed Toluene emission limits from SN-15-15 because process emitting Toluene has been discontinued 2. Revised CO emission rates for SN-15-12 to 0.15 lb/hr and 0.66 tpy 3. Revised VOC emission rates for SN-15-13 to 0.07 lb/hr and 0.31 tpy 4. Revised the PM/PM_{10} emission rates for SN-15-16 to 1.20 lb/hr and 5.30 tpy
NC-17 Production	1. Added Sulfuric Acid Storage Tank, T-9315 (SN-16-34) to Insignificant Activity List 2. Revised SO_2 emission limits for SN-16-10 to 0.10 lb/hr and 0.44 tpy 3. Revised PM/PM_{10} emission limits for SN-16-11 to 0.10 lb/hr and 0.44 tpy 4. Revised CO (0.86 lb/hr and 3.77 tpy) and PM/PM_{10} (0.05 lb/hr and 0.22 tpy) emission limits for SN-16-18 5. Revised PM/PM_{10} emission limits for SN-16-20 to 0.04 lb/hr and 0.18 tpy 6. Removed Phthalic Anhydride emission limits from SN-16-02 because the process generating the emissions has been discontinued
NC-21 Production	1. Added statement to Specific Condition #177 that a formal RATA is not required for the continuous parametric monitoring system on SN-21-01.
Boilers	1. Revised PM, PM_{10}, and VOC emission rates based on updated AP-42 natural gas combustion factors 2. Added Boiler Water Treatment Chemicals Storage Tank to Insignificant Activity List

Process Name	Modification
Brine Management	1. Updated the process description to reflect the construction of the tail brine tank system has been completed and operation approved. 2. Revised hourly VOC emission limit for SN-BT-17 to 16.40 based on updated estimate 3. Added existing Line Vents SN-BT-25 through SN-BT-28 4. Assigned source designation SN-BT-29 to the alternate operating scenario for Oil Separator Tank, T-292 and restored SN-BT-10 to Insignificant Activity List
DMTDA Production	1. Added Bleach Storage Tank (SN-DM-08) to Insignificant Activity List 2. Revised CO emission rates for SN-DM-02 to 0.10 lb/hr to 0.44 tpy
Maintenance and Support Operations	1. Revised insignificant activity Gasoline Storage Tank (SN-MS-10) source description to a capacity of 2,000 gallon 2. Revised VOC and HAP emission limits for the Extraneous Water Systems (SN-MS-01) 3. Revised SN-MS-03 source description to French Drain Sump Bubble 4. Revised emission rates for Cooling Towers (Insignificant Activity, SN-MS-11) 5. Included all fugitive refrigerant annual emissions under one plantwide bubble (Specific Condition #219) 6. Added the following sources to the Insignificant Activity List: Drinking Water Treatment and Distribution, Quality Control Laboratory, Pave Plant Roads and Parking Areas, Unpaved Plant Roads, Building Air Conditioning Systems, Filter Aid Tanks T-1306 and T-1307, Sulfuric Acid Tank 7. Added Plantwide Condition 28 requiring records demonstrating that all reciprocating internal combustion engines (RICE) are exempt from 40 CFR Part 63, Subpart ZZZZ.

In addition to the renewal application Albemarle submitted a request for a minor modification involving two flame retardant process units, NC-14 production unit and NC-22 production unit, permitted at the facility. The NC-22 production unit was never built, and portions of NC-14 have not operated for a few years. Albemarle proposed to use exiting equipment at NC-14 along with some new equipment to produce NC-22 as an alternate operating scenario. Also, Albemarle requested the TBBPA alternate operating scenario for NC-14 be removed from the permit.

The new equipment installed included two carbon bed solvent recovery units (SN-TB-41), distillation columns, as well as several pumps, heat exchangers, other small process vessels, and new refrigeration unit. Five existing tanks that were purchased but never installed for the NC-22 process unit were taken from storage and placed into operation. All non-fugitive emissions from the new equipment are routed to the carbon bed solvent recovery units or the caustic scrubber (SN-TB-14). Due to the requested modifications, permitted PM/PM_{10} annual emissions decreased by 9.5 tpy, and permitted VOC and HAP annual emissions increased by 1.5 tpy and 0.63 tpy, respectively.

Permit #762-AOP-R6 was issued on September 7, 2005. Albemarle submitted requests for four separate modifications.

- The first modification addressed an increase in production at the NC-15 and NC-21 process units. Albemarle requested to install additional process equipment (several pumps, heat exchangers, condensers, and a process tank) at the NC-15 and NC-21 production areas. None of the new equipment vents directly to the atmosphere, and it is controlled by either the Emission Control Vent Gas Incinerator (SN-21-01) or the NC-15

Area Scrubber (SN-15-12). No new point sources were associated with this modification, but the throughput to SN-21-01 and NC-15-12 increased by approximately 13.5 %.

- The second modification addressed installation of an alternate control device and an alternate operating scenario at SN-TB-41. Albemarle proposed to use an alternate, but equivalent, control device for the Carbon Bed/Tote Solvent Recovery Units (SN-TB-41). The alternate control device is a carbon adsorption system contained in portable totes (a.k.a. Carbon Totes). Unlike the existing carbon beds which will remain in a fixed position, the carbon totes are shipped off site for regeneration. With the appropriate recordkeeping, Albemarle may switch between the fixed carbon beds and the carbon tote adsorption systems.

  Albemarle also proposed an alternate operating scenario for SN-TB-41. The alternate scenario addressed NC-22 production when only solvent storage and solvent drying is being performed. VOC vapors sent to the adsorption system while operating under the alternate scenario are less than 48 lb/day in comparison to 993 lbs/day during normal operation.

- The third modification addresses a request to use an alternate brominating raw material (ABRM1) for the NC-23 production unit. The use of ABRM1 resulted in a chloroethane production rate that is 20 percent of the current ethyl bromide production rate. No additional VOCs are emitted from the use of ABRM1. Therefore, permitted VOC emission limits do not need to be increased.

- The fourth modification addressed a request to increase the number of possible products at the NC-12 production unit. Other products can be produced by changing the raw material in the reaction. No additional equipment is required, and downstream collection and purification processes do not need to be modified because the additional products are similar to the existing.

Due to the requested modifications, permitted emission limits increased for VOC and benzene by 0.4 tpy, CO by 5.3 tpy, HCl by 0.23 tpy, PM/PM_{10} by 0.9 tpy, and chloroethane by 1.81 tpy.

Permit #762-AOP-R7 was issued on April 12, 2006. Albemarle proposed production of a product designated as NC-24. The NC-24 production unit consists of pre-existing and proposed equipment. The pre-existing equipment is used as part of an alternate operating scenario for the production of NC-24, includes the Emergency Flare (SN-AD-26), the Wash Water Tank (SN-CB-10), and the Refrigerated Vent Condensers at (SN-TB-25). The equipment installed included a Wash Column (SN-24-01) as well as a number of distillation columns, flash drums, pumps, and heat exchangers which do not vent directly to the atmosphere. The estimated emission rates for the requested modification were 18.8 tpy VOC, 0.7 tpy HCl, 1.0 tpy HBr, 0.3 tpy Acetone, 0.2 tpy 1,2-Epoxybutane, 0.5 tpy Ethylene Glycol, 0.3 tpy CO, 0.1 tpy SO_2, 0.1 tpy NO_X, and 0.1 tpy PM/PM_{10}.

Permit No. 762-AOP-R8 was issued on August 10, 2006. Four separate minor modification applications were submitted. The following changes were requested:

- Albemarle proposed a permit modification to increase the throughput for DPE Byproduct/Heavy Organic Storage (SN-15-18) and the maximum allowable DPE (1,2-Diphenylethane) in the byproduct stream. Albemarle proposed a revised method of calculating emissions from SN-15-18. The total VOC emission associated with this modification is 0.1 tpy of VOC.

- Albemarle proposed a permit modification to allow the use of DECTP Ethanol Storage Tank (SN-DE-01) and NC-14 Unit Feed Tank (SN-TB-11) under an alternate operating scenario as additional ADMA brine storage tanks. Permitted VOC emissions increased by 2.9 tpy.

- Albemarle requested permission to install an additional baghouse (SN-DB-18). The new baghouse will be located downstream of the product dryer (SN-DB-04), and it will be used to separate conveyance air from dried product. Permitted PM/PM_{10} emission limits increased by 0.3 lb/hr and 1.4 tpy.

- Albemarle proposed an alternate operating scenario when the NC-24 reactor loses reaction. When this happens, the raw material vapors (propylene and hydrogen bromide) must be vented before re-initiating the reaction. The vapors are vented to the Wash Column (SN-24-01), which absorbs the hydrogen bromide just as in the primary operating scenario. Propylene will pass through the wash column unaffected.

- The process will be controlled such that the flaring (SN-AD-26) and depressurization of the reactor will not occur at the same time. The pressure control valve on the NC-24 reactor will be designed to allow no more than 48.5 lb/hr of VOC which is the same rate VOC would otherwise be routed to the flare in the primary operating scenario. No HBr beyond what is already permitted will be emitted during the alternate operating scenario. Permitted VOC emission limits increased by 0.60 tpy.

Permit No. 762-AOP-R9 was issued on January 1, 2007. Three separate minor modifications applications were submitted. The following changes were requested:

- Albemarle proposed a permit modification to increase NC-15 production with a portion of the additional NC-15 production under an alternate operating scenario which uses NC-12 equipment, to install at the NC-12 process unit a 19,800 gallon Diphenyl Oxide storage tank, and to install a caustic scrubber. The caustic scrubber (SN-DB-19) was installed immediately after the product dry filter (SN-DB-04) to provide additional PM/PM_{10} and Br_2 + HBr control while operating in the alternate scenario. Permitted VOC limits increased by 1.10 tpy, while permitted PM/PM_{10} and Br_2 + HBr limits decreased by 2.77 tpy and 1.01 tpy, respectively.

- Albemarle requested the limits for the ADMA Flare (SN-AD-26) be revised while operating as an emergency control device for the alkyl amines process. The purpose of increasing the emission limits is to allow and to account for non-emergency operation of the flare such as cleaning and/or maintenance. Permitted PM/PM_{10}, VOC, CO limits increase by 0.03 tpy, 0.44 tpy, and 0.15 tpy, and permitted SO_2 and NO_X limits decreased

by 0.05 tpy and 0.10 tpy.

- Albemarle proposed a permit modification to allow an alternate operating scenario (Scenario B) for NC-22 production and to increase the maximum number of batches to 1,925 batches rolling 12-month period. The existing process (hereafter referred to as Operating Scenario A) has two VOC control scenarios which will also be utilized to control VOC emissions from Scenario B. The new scenario utilizes a different processing method to isolate the final product. In Scenario B, the product is not centrifuged; therefore the centrate hold-up drum (SN-TB-43) is not used to store centrate. Instead, process water is stored in the hold-up drum, and the drum is an insignificant activity under Scenario B. Also, Scenario B results in the product being formed into pellets rather than powder. The pellets do not require the product baghouse (SN-TB-04) to be collected. Since, Scenario B is the worst case for VOC and HCl the permitted emission limits will increase by 2.72 tpy VOC and 0.05 tpy HCl.

Section IV: SPECIFIC CONDITIONS

Bromine (Br_2) Production

Bromine Production

Bromine-containing brine occurs naturally in specific south Arkansas geological formations. The separation of bromine from the brine takes place in two bromine towers.

When the brine first comes out of the ground, it contains sour natural gas and sodium bromide. This gas is separated from the sodium bromide and sent to the sulfur recovery processes. The degassed brine is fed directly to the bromine towers through a feed brine tank. In the bromine towers, the brine is mixed with chlorine. Liquid chlorine is unloaded directly from railcars and passed through a vaporizer (the chlorine railcar unloading takes place under pressure, so negligible losses result). The chlorine gas is injected into the bromine towers. There is no permanent chlorine storage at this plant.

In the bromine towers, the brine is chlorinated to produce the bromine. The bromine vapors are condensed, purified, and then packaged.

Each bromine tower has an atmospheric scrubber. Scrubbers SN-BR-01 and SN-BR-04 are associated with the bromine towers, while SN-BR-02 and SN-BR-03 are associated with the common purification train. SN-BR-02 and SN-BR-03 do not vent directly to the atmosphere. The gases leaving these two scrubbers are sent to a third scrubber, the bromine area scrubber, SN-BR-12.

Bromine vapors displaced during the packaging and loading operations are vented back to the bromine purification train scrubbers. If a bromine shipping container needs to be completely purged of bromine vapors (for internal inspection or repair), nitrogen is blown into the container and the vapors are vented to the bromine purification train scrubbers.

Compliance with permitted emission rates shall be demonstrated through stack testing, parametric monitoring, and record keeping requirements.

Specific Conditions

1. The permittee shall not exceed the emission rates set forth in the following table: [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 6 – Bromine (Br_2) Production Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
BR-01	#1 Bromine Tower Vent Scrubber C-3042	VOC	1.50	6.60
BR-04	#2 Bromine Tower Vent Scrubber C-3043	VOC	3.81	16.70
BR-14	Br_2 Fugitive Emissions	VOC	0.50	2.20

2. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 7 – Bromine (Br_2) Production Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
BR-01	#1 Bromine Tower Vent Scrubber C-3042	Cl_2 Br_2	0.06 0.26	0.26 1.14
BR-04	#2 Bromine Tower Vent Scrubber C-3043	Cl_2 Br_2	0.03 0.14	0.13 0.61
BR-08	Recycle HCl Storage Tank	HCl	0.07	0.31
BR-09	Recycle HBr Storage Tank, Vent Scrubber C-3036	Br_2 HBr	0.02 0.02	0.09 0.09
BR-12	Bromine Area Scrubber C-3049	Cl_2 Br_2	0.10 0.30	0.44 1.31
BR-14	Br_2 Fugitive Emissions	Cl_2 Br_2	0.04 1.39	0.18 6.09

3. The following sources shall not exceed 5% opacity: SN-BR-01, SN-BR-04, SN-BR-09, and SN-BR-12. [Regulation No. 18 §18.501 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

4. All bromine vapors displaced during loading shall be vented back to the bromine purification train scrubber (SN-BR-03), in such manner that no vapors are released to the atmosphere. In the event a shipping container requires purging of bromine or other vapors, such activity shall be performed so that no vapors are emitted. [Regulation No. 18 §18.1004 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

5. The permittee shall calculate Br_2 and HBr emissions from SN-BR-09 once every six months. The calculation method shall be the same as presented in the permit application, or a method otherwise pre-approved by the Department. Emission estimates shall be quantified as lb/hr and ton/yr using worst-case parameters for hourly emissions and a rolling twelve-month total for annual figures. The calculations shall be kept on-site and made available to Department personnel upon request. [Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

6. The permittee shall test SN-BR-01 and SN-BR-04 for VOC, using EPA Reference Method 25A or EPA Method 18. Testing shall be conducted within 10% of maximum source throughput capacity. It shall be performed in 2005 and every five years thereafter. [Regulation No. 19 §19.702 and 40 CFR Part 52, Subpart E]

7. The permittee shall test SN-BR-01, SN-BR-04, and SN-BR-12 for bromine and chlorine, using EPA Reference Method 26A. Testing for bromine shall be done during calendar year 2002 and every five years thereafter, and testing for chlorine shall be done during calendar year 2002 and every five years thereafter. Throughput during the testing events shall be within 10% of

maximum capacity. [Regulation No. 18 §18.1002 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

8. The permittee shall install and operate a continuous flow monitor alarm at SN-BR-01 and SN-BR-04, which shall indicate when the scrubber brine solution flow rate fails to meet the established compliant parameter value. The flow rates measured at the most recent satisfactory test event shall be recorded and established as a sufficient parameter for demonstration of continuous compliance until the next test is performed. Proposed parametric set points and allowable operating ranges shall be submitted with the test report. A log of alarm incidents and corrective action shall be maintained on site and made available to Department personnel upon request. [Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

9. The permittee shall record, every three hours, the pump discharge valve position and pump run light at SN-BR-12. The pump discharge valve position at the most recent satisfactory test event shall be recorded and established as a sufficient parameter for demonstration of continuous compliance until the next test is performed. Proposed parametric set points and allowable operating ranges shall be submitted with the test report. The pump discharge valve position/pump light records shall be maintained on site and made available to Department personnel upon request. [Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

10. The permittee shall measure and record the caustic concentration of the scrubber media used for SN-BR-12 at least once per 12-hour shift. Each caustic changeout shall be logged as performed. Both caustic strength and changeout records corresponding to the most recent approved satisfactory test event shall be kept on site and made available to Department personnel upon request. [Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Sulfur Production

Introduction

Sour gas is co-produced with brine. The hydrogen sulfide (which makes the gas sour) is removed in the gas sweetening plants. These plants use solvents to remove the hydrogen sulfide from the sour gas. The treated gas is sent to the boilers where it is burned as fuel. The acid gas from the sweetening units, the gas which contains the hydrogen sulfide, is sent to a sulfur recovery plant for conversion to sulfur. Part of this sulfur is sold, and part is used in the diethylchlorothiophosphate (DECTP) process. The tail gas from the sulfur recovery plant is incinerated. Hydrogen sulfide from the DECTP process is recycled to the sulfur plant.

Gas Sweetening Plants

The gas sweetening plants are absorption processes. In these processes, the sour gas enters the bottom of the contactor. The absorption solution absorbs the H_2S contained in the gas. The desulfurized gas leaves the top of the absorber, while the rich solution (the solution which contains the H_2S) is sent to the regenerator column. In the regenerator, the volatile H_2S is separated by steam stripping. The regenerated solution is recycled to the contactor. The acid gas, which now contains the H_2S, is sent to the sulfur plant. A flare (SN-SL-01) is used during emergencies to burn vent gases when either equipment malfunction or power failure occur.

Sulfur Recovery Plant

The acid gas from the Gas Sweetening Plants is sent to a sulfur recovery plant. The sulfur recovery plant uses the Claus process, where exothermic reactions convert H_2S to elemental sulfur. The Claus plant at Albemarle removes 93% of the sulfur from the sour gas. The sulfur is sold as a product. The tail gas is sent to an incinerator (SN-SR-01). The Claus plant itself has no emissions.

Tail Gas Incinerator

Vent gases from the sulfur recovery plant and the DECTP scrubber are burned in the tail gas incinerator. The tail gas incinerator is designed for a minimum exhaust temperature of 1200°F.

Compliance with permitted emission rates shall be demonstrated through stack testing, parametric monitoring, record keeping, and reporting requirements.

Alternate Operating Scenarios

There are two alternate operating scenarios for SN-SL-01: (1) emergency flaring of “sour” brinefield gas and (2) emergency flaring of “sweet” gas. There is also one alternate operating scenario for SN-SR-01 that covers the situation when the incinerator operating temperature falls below 1,200°F. Specific Conditions # 17 through #20 set forth the requirements for these alternate operating scenarios.

Specific Conditions

11. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq*. effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 8 – Sulfur Production Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
SL-01	Gas Sweetening Process Flare	PM_{10}	0.01	0.05
		SO_2	0.01	0.05
		VOC	0.01	0.05
		CO	0.01	0.05
		NO_X	0.02	0.10
SL-02	Sulfinol Storage Tank	VOC	0.12	0.60
SR-01	Tail Gas Incinerator	PM_{10}	0.07	0.31
		SO_2	727.00	3184.0
		VOC	0.07	0.31
		CO	0.25	1.10
		NO_X	0.60	2.60
SR-02	Sulfur Area Fugitives	VOC	0.50	2.20

12. The permittee shall not exceed the non-criteria emission rates set forth in the following table: [Regulation No. 18 §18.801 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 9 – Sulfur Production Maximum Non-Criteria Pollutant Emission Rate

SN-#	Description	Pollutant	lb/hr	tpy
SL-01	Gas Sweetening Process Flare	PM	0.01	0.05
SR-01	Tail Gas Incinerator	PM	0.07	0.31
SR-02	Sulfur Area Fugitives	Methanol	0.06	0.26

13. The following sources shall not exceed 5% opacity: SN-SL-01 and SN-SR-01. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

14. Any flare event where non-pipeline quality gas is burned at SN-SL-01, with the exception of those instances outlined in Specific Condition #17, shall be reported in accordance with the requirements of General Provision 8. [Regulation No. 26 §26.701 and 40 CFR 70.6(a)(3)(iii)(B)]

15. The permittee shall operate and maintain a device to continuously monitor and record the temperature of the exhaust from the tail gas incinerator (SN-SR-01). This temperature shall be maintained at or above 1200°F during those periods when sulfur-bearing gases are being incinerated. [Regulation No. 19 §19.703, 40 CFR Part 52, Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

16. The permittee shall test SN-SR-01 for lb/hr emissions of SO_2, using EPA Reference Method 6C. The testing shall be performed in 2005, and every five years thereafter. [Regulation No. 19 §19.702 and 40 CFR Part 52, Subpart E]

17. During times of equipment malfunction or power failure, the permittee shall be allowed to operate under the following alternate scenarios within the limits outlined for each. [Regulation No. 19 §19.705, 40 CFR Part 52, Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 10 – Sulfur Production Criteria Emission Rates During Periods of Emergency

Source	Scenario	Emission Limits			Operating Limits
		Pollutant	lb/hr	ton/yr	
SN-SL-01	Emergency Flaring of Brinefield Gas	PM_{10} SO_2 VOC CO NO_X	3.70 12,066.00***** 3.70 13.40 31.40	0.02 36.00 0.02 0.04 0.10	Actual emissions shall be calculated and recorded for each event.
SN-SL-01	Emergency Flaring of Sweet Gas	PM_{10} SO_2 VOC CO NO_X	2.20 5.60 2.20 7.80 18.40	0.11 0.27 0.11 0.38 0.89	Not to exceed 96 hours per year.
SN-SR-01	Tail Gas Pilot Flame Deviation (<1200^oF)	SO_2	242.6	2.82	Not to exceed 24 hours per year.

*** One-hour maximum emission rate. The 3-hour average limit is 7,500 lb/hr.**

18. The permittee shall maintain records which document compliance with the operating limits of the above listed scenarios. To demonstrate compliance with the limits given for emergency flaring of brinefield gas, the records must show that emissions were less than 12,066 pounds for any event lasting one hour or less. For events lasting longer than one hour, the records must show that emissions were less than 12,066 pounds for each hour and less than 22,500 pounds for any consecutive 3-hour period (i.e., 7,500 lb/hr on a 3-hour average). The records shall be updated as performed, kept on site, and made available to Department personnel upon request. If SO_2 emissions exceed these limits, the emissions must be reported in accordance with §19.601 or §19.602, as applicable. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

19. During times of equipment malfunction or power failure, the permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.501 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 11 – Sulfur Production Non-Criteria Emission Rates During Periods of Emergency

Source	Scenario	Emission Limits			Operating Limits
		Pollutant	lb/hr	ton/yr	
SN-SL-01	Emergency Flaring of Brinefield Gas	PM	3.7	0.02	Actual emissions shall be calculated and recorded for each event.
SN-SL-01	Emergency Flaring of Sweet Gas	PM	2.2	0.11	Not to exceed 96 hours per year.

Source	Scenario	Emission Limits			Operating Limits
		Pollutant	lb/hr	ton/yr	
SN-SR-01	Tail Gas Pilot Flame Deviation (<1200°F)	H_2S	257.4	3.09	Not to exceed 24 hours per year.

20. The permittee shall maintain records which document compliance with the operating limits of the above listed scenarios. The records shall be updated as performed, kept on-site, and made available to Department personnel upon request. [Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Clear Completion Fluids

Calcium, Zinc, and Sodium Bromide Process Description

Calcium, zinc, and sodium bromide are produced in a batch process by reacting lime, zinc oxide, or sodium hydroxide with hydrobromic acid and elemental bromine. Albemarle can also produce these bromides by reacting the metal, or metal hydroxide, bromine, and methanol. These processes are capable of producing a number of bromine salts, depending on the metal, metal oxide, or metal hydroxide used as a starting material. However, Albemarle is only permitted to manufacture those compounds listed here. Vapors generated during the reaction are controlled by two scrubbers (SN-CB-02, SN-CB-16). Particulate emissions from raw material handling are controlled by two baghouses (SN-CB-01, SN-CB-18).

Calcium Bromide Alternate Operating Scenario

The alternate operating scenario for the Clear Completion Fluids process area employs Br_2, methanol (MeOH), and calcium hydroxide ($Ca(OH)_2$ as feedstocks for batch $CaBr_2$ production. Calcium hydroxide reacts with the Br_2/MeOH in an exothermic reaction to yield $CaBr_2$ product. Condensates entrained in the vapor leaving the reactor are collected in a knockout pot. Periodically, these condensates are drained and neutralized before being piped to an extraneous water system. The remaining vapor is routed to a caustic (NaOH) scrubber before being vented to the atmosphere. The spent caustic scrubber water is drained and piped to an extraneous water system. Approximate batch time for $CaBr_2$ production using Br_2/MeOH is six hours.

Compliance with permitted emission rates for the Clear Completion Fluids processes shall be demonstrated through stack testing, parametric monitoring, and record keeping requirements.

Specific Conditions

21. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 12 – Clear Completion Fluids Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
CB-01	Raw Material Silo	PM_{10}	0.10	0.44
CB-02	R-21 Vent Scrubber (South)	VOC	0.27	1.18
CB-04	Methanol Storage Tank	VOC	26.00	0.40
CB-16	R-21 Vent Scrubber (North)	VOC	0.27	1.18
CB-17	CCF Fugitive Emissions	VOC	1.80	7.90
CB-18	Raw Material Baghouse	PM_{10}	0.10	0.44

22. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 13 – Clear Completion Fluids Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
CB-01	Raw Material Silo	PM	0.10	0.44
CB-02	R-21 Vent Scrubber (South)	Ammonia Methyl Bromide Methanol Br_2	1.00 0.20 0.07 0.10	1.10 0.88 0.30 0.44
CB-04	Methanol Storage Tank	Methanol	26.00	0.40
CB-16	R-21 Vent Scrubber (North)	Ammonia Methyl Bromide Methanol Br_2	1.00 0.20 0.07 0.10	1.10 0.88 0.30 0.44
CB-17	CCF Fugitive Emissions	Methanol (Br_2+HBr)	1.30 2.40	5.70 10.50
CB-18	Raw Material Baghouse	PM	0.10	0.44

23. The following sources shall not exceed 5% opacity: SN-CB-01, SN-CB-02, SN-CB-16, and SN-CB-18. [Regulation No. 18 §18.501 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

24. The permittee shall conduct stack testing for bromine (Br_2) at SN-CB-02 and SN-CB-16. The testing shall be performed in 2002, and every five years thereafter, using EPA Reference Method 26A. [Regulation No. 18 §18.1002 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

25. The permittee shall perform a visual inspection of the pumps driving the scrubber media at SN-CB-02 and SN-CB-16 at least once per batch, to ensure that sufficient flow is maintained. Inspection results shall be recorded in a log. These records shall be kept on site and made available to Department personnel upon request. [Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

26. The permittee shall use fresh caustic with every zinc chloride batch at scrubbers SN-CB-02 and SN-CB-16. For calcium bromide and sodium bromide, the pH shall be tested once per batch, and caustic changeouts performed as needed. Each pH test and caustic changeout shall be logged as performed. Both pH and changeout records corresponding to the most recent satisfactory test event shall be kept on site and made available to Department personnel upon request. [Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

27. The permittee shall calculate methyl bromide and methanol emissions from SN-CB-02 and SN-CB-16 once every six months. Emission estimates shall be quantified as lb/hr and ton/yr, using worst-case parameters for hourly emissions and a rolling twelve-month total for annual figures. The calculations shall be kept on site and made available to Department personnel upon request. The calculations shall indicate compliance status with regard to both normal and alternate operating scenarios. [Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

27a. The permittee shall demonstrate compliance with SN-CB-04 emission rates by not exceeding a throughput of 1,000,000 gallons of methanol or other less volatile VOC per twelve consecutive months at this tank. [Regulation No. 19 §19.705, Regulation No. 18 §18.1004, 40 CFR Part 70.6, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

27b. The permittee shall maintain monthly records demonstrating compliance with Specific Condition #27a. Records shall be updated by the 15th day following the month to which the records pertain, made available to Department personnel upon request, and otherwise in accordance with General Provision 7. [Regulation No. 19 §19.705, Regulation No. 18 §18.1004, 40 CFR Part 52, Subpart E, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Additional conditions for Calcium Bromide Alternate Operating Scenario:

28. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 14 – Calcium Bromide Production Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
CB-02 CB-16	R-21 Vent Scrubber (South) & R-21 Vent Scrubber (North)	VOC	9.00	22.20

29. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311

Table 15 – Calcium Bromide Production Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
CB-02 CB-16	R-21 Vent Scrubber (South) R-21 Vent Scrubber (North)	Methyl Bromide	2.30	8.30
		Methanol	2.30	0.80
		Bromoform	2.30	1.30
		Ethylene Dibromide	2.30	5.50
		HBr	0.10	0.22
		Br_2	0.10	0.44

30. The permittee shall perform a visual inspection of the pumps driving the scrubber media at SN-CB-02 and SN-CB-16 at least once per alternate scenario batch, to ensure that sufficient flow is maintained. Inspection results shall be recorded in a log. These records shall be kept on site and made available to Department personnel upon request. [Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

31. The permittee shall use fresh caustic with each alternate scenario batch SN-CB-02 and SN-CB-16. Each caustic changeout shall be logged as performed. Both caustic strength and changeout records shall be kept on site and made available to Department personnel upon request. [Regulation No. 18 §18.1004 of and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

32. The permittee shall be limited to 1460 total batches under the alternate operating scenario per rolling 12-month period. Monthly records documenting batch totals shall be maintained on site

and made available to Department personnel upon request. [Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

33. The permittee shall only use one Clear Completion Fluids reactor at any given time under the alternate scenario. [Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

34. The permittee shall conduct stack testing on the Clear Completion Fluids reactor scrubber vents according to the following methods and schedule: [Regulation No. 19 §19.702 and 40 CFR Part 52, Subpart E]

Table 16 – Clear Completion Fluids Reactor Scrubber Vents Test Schedule

SN	Pollutant	EPA Reference Method	Schedule
CB-02	VOC	18 or 25A	Within 270 operating days under this alternate scenario and every 365 operating days thereafter.
CB-16	VOC	18 or 25A	Within 180 operating days under this alternate scenario and every 365 operating days thereafter.

The testing shall be performed while the reactors are operating under the alternate CaBr scenario.

35. The permittee shall conduct stack testing for methyl bromide at either SN-CB-02 or SN-CB-16. The test for MeBr shall be conducted on whichever source (SN-CB-02 or SN-CB-16) is involved in the alternate CaBr operating scenario, as described above, at the time of testing. The test shall be performed within 180 operating days of this alternate scenario, and within every 730 operating days thereafter, using EPA Reference Method 18. [Regulation No. 18 §18.1002 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Diethylchlorothiophosphate (DECTP) Production

Raw materials and solvent are added to the reactors. Two by-products are formed during the main reactions: H_2S and HCl. The H_2S evolved during initial stages of the batch is compressed and stored. A portion of this H_2S is later recycled back to the reactor, and the remainder is sent to the sulfur plant to be converted to elemental sulfur. The HCl evolved is scrubbed with water, and the aqueous HCl is sent to a storage tank in the bromine area. Both H_2S and HCl are vented from the reactor during the latter part of the batch. The HCl is scrubbed with water and the H_2S is neutralized in a vent scrubber.

The crude product is centrifuged to remove elemental sulfur. The sulfur is melted, and a vacuum is applied to remove organics. The sulfur is transferred to the sulfur trailer and finally to the landfill. The sulfur trailer vents to the vent gas oxidizer (VGO, SN-DE-21).

The crude product is purified via distillation. The solvent is recovered and recycled, and the purified product is either sent directly to bulk product storage, or further purified before final storage. The vent gases and liquid wastes from the purification process are neutralized with caustic. The vent gases from the final purification operation are scrubbed in a packed aqueous scrubber. The aqueous waste is disposed of by deep well injection, and the organic waste is sent off site.

In the event of an emergency, gases are vented to the flare system (SN-DE-17), to be combusted before their release to the atmosphere. Any liquids or solids discharged from the reactor or crystallizer are routed to the blowdown pit (SN-DE-18), where they are burned.

The vent gases from raw material storage, product storage, and waste oil storage are routed through the VGO, where 99% of the vent gases are destroyed before being released to the atmosphere.

A product purification area is in operation. Emissions are controlled by a reactive vent scrubber, employing an aqueous solution of sodium hydroxide. The vent from this operation is routed to the VGO during normal operation; however, during VGO downtime, exhausts are designated as SN-DE-23. VGO downtime is limited to a maximum of 876 hours per year.

Compliance with permitted emission rates shall be demonstrated through stack testing, parametric monitoring, record keeping, and reporting requirements.

Specific Conditions

36. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 17 – DECTP Production Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
DE-01	Ethanol Storage Tank**	Routed to SN-DE-28		
DE-02	Toluene Storage Tank			
DE-03	Chaser Storage Tank			
DE-04	Crude Product Storage Tank	VOC	8.96	3.93*
DE-06	Product Rundown Storage Tank	VOC	0.62	0.28*
DE-07	Product Rundown Storage Tank	VOC	0.62	0.28*
DE-08	Product Rundown Storage Tank	VOC	0.62	0.28*
DE-09	Product Bulk Storage Tank	Routed to SN-DE-28		
DE-10	Product Rundown Storage Tank	VOC	0.62	0.28*
DE-11	Chaser Bulk Storage, T-302	VOC	0.39	1.71
DE-12	Recovered Oil Storage Tank	VOC	0.20	0.10*
DE-17	Process Safety Flare, Emergency Use Only, XF-2461 (Continuous Pilot)	PM_{10} SO_2 VOC CO NO_x	0.01 0.06 0.01 0.04 0.05	0.05 0.05 0.05 0.18 0.22
DE-18	Reactor Safety Blowdown System Vent Line (Continuous Pilot)	PM_{10} SO_2 VOC CO NO_x	0.01 0.01 0.01 0.07 0.10	0.05 0.05 0.05 0.31 0.44
DE-19	Sulfur Trailer Knockout Drum	VOC	8.00	3.50*
DE-20	Isopropanol Storage Tank	VOC	9.40	4.10*
DE-21	Vent Gas Oxidizer (VGO) Basic Environmental Eng., Inc. Model T075 (99.0% efficient)	PM_{10} SO_2 VOC CO NO_x	2.20 7.00 0.60 2.00 1.00	9.64 30.70 2.63 8.76 4.38
DE-22	DECTP Fugitive Emissions	VOC	9.40	41.10
DE-23	DECTP Purification Process	VOC	2.83	1.24*
DE-24	MC-2431, Centrifuge	VOC	12.70	5.60*
DE-25	Product Storage Tank	Routed to SN-DE-28		
DE-28	Vent Header	VOC	23.6	10.4*

* See Specific Condition #39

** An alternate operating scenario exists for this source. The tank is used as additional storage for ADMA brine or any non-HAP material with a vapor pressure less than 0.0120 psia. (Specific Condition #56)

37. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 18 – DECTP Production Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
DE-02	Toluene Storage Tank	Routed to SN-DE-28		
DE-03	Chaser Storage Tank			
DE-04	Crude Product Storage Tank	Toluene Methyl Naphthalene	8.80 0.01	3.85* 0.01*
DE-11	Chaser Bulk Storage, T-302	Methyl Naphthalene	0.12	0.53
DE-12	Recovered Oil Storage Tank	Toluene Methyl Naphthalene	0.04 0.01	0.02* 0.01*
DE-17	Process Safety Flare, Emergency Use Only, XF-2461 (Continuous Pilot)	PM	0.01	0.05
DE-18	Reactor Safety Blowdown System Vent Line (Continuous Pilot)	PM	0.01	0.05
DE-19	Sulfur Trailer Caustic Drum	Toluene	8.00	3.50*
DE-21	Vent Gas Oxidizer (VGO) Basic Environmental Eng., Inc., Model T075 (99% efficient)	PM Cl_2 HCl Toluene EtCl	2.20 0.30 6.72 0.40 0.20	9.64 1.31 29.4 1.76 0.88
DE-22	DECTP Fugitive Emissions	Cl_2 HCl Toluene Methyl Naphthalene	0.05 1.00 0.55 1.13	0.22 4.40 2.40 5.00
DE-23	DECTP Purification Process	HCl Chloroethane	0.34 2.60	0.15* 1.14*
DE-24	MC-2431, Centrifuge	Toluene	12.70	5.60*
DE-28	Vent Header	Toluene Methyl Naphthalene	11.0 0.09	4.82* 0.04*

* See Specific Condition #39

38. The following sources shall not exceed 5% opacity: SN-DE-17, SN-DE-18, SN-DE-21, and SN-DE-23. [Regulation No. 18 §18.501 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

39. All sources marked with an asterisk (*) in the tables following Specific Conditions #36 and #37 shall be vented to the Vent Gas Oxidizer (VGO), SN-DE-21, under Scenario I. Scenario I may be operated 8760 hours per year. However, in the event of a VGO shutdown (Scenario II), the marked sources shall be permitted individually for the emissions shown. Scenario II, an alternate operating scenario, shall only be in effect when the VGO is down, and shall not exceed 876 hours per year. [Pursuant to §19.705, 40 CFR Part 70.6, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

40. The permittee shall keep monthly records of operating hours for Scenario II ("VGO Down"). The records shall be updated by the 5th day of the month following the recorded month, and shall include a rolling twelve-month total of the operating hours. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

41. Reserved.

42. Reserved.

43. Operation of the Emergency Flare (SN-DE-17) is authorized for emergency and maintenance use only. Operation of this control device for emergency use shall not exceed 30 minutes, in the aggregate, during any 24-hour period. Any emergency use exceeding this requirement shall be recorded as an upset condition, in accordance with General Provision 8 of this permit. Operation for maintenance use shall not exceed 24 hours per year. Flare operation time logs shall be required for both emergency events and maintenance operations. Calculated emission records shall only be required for emergency events. All aforementioned documentation shall be updated on an as-performed basis, maintained on site, and made available to Department personnel upon request. [40 CFR Part 70.6 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

44. Operation of the Blowdown Pit (SN-DE-18) is authorized for emergency use only. Any time this source is activated, the permittee shall report the occurrence as an upset condition, in accordance with General Provision 8. [40 CFR Part 70.6 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

45. The Vent Gas Oxidizer (SN-DE-21) shall be designed and operated such that the VOC emissions routed to it are maintained at a minimum combustion zone temperature of 1400°F. The combustion zone temperature shall be continuously monitored by a monitoring and recording device that is operated, calibrated, and maintained according to the manufacturer's specifications and recommendations for use. [Regulation No. 19 §19.703, 40 CFR Part 52, Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

46. The permittee shall maintain an operating log for the Vent Gas Oxidizer showing all periods during which the minimum temperature is not maintained while operating in the "VGO Up" scenario (Scenario I). The permittee shall report all such occurrences in accordance with General Provision 8. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

47. Reserved

48. The permittee shall keep all applicable benzene waste stream records as outlined by §61.356 (b). [Regulation No. 19 §19.304 and 40 CFR Part 61, Subpart FF (see Appendix A)]

49. The permittee shall comply with all applicable benzene waste stream reporting requirements as outlined by §61.357 (c). [Regulation No. 19 §19.304 and 40 CFR Part 61, Subpart FF]

50. The permittee shall measure and record the liquid flow rate of the scrubber media at SN-DE-23 every four hours. These records shall be kept on site and made available to Department

personnel upon request. The flow value measured at the most recent satisfactory test event shall be established as minimum for purposes of continuous compliance until the next test is performed. [Regulation No. 19 §19.703, 40 CFR Part 52, Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

51. The permittee shall measure and record the caustic concentration of the scrubber media used for SN-DE-23 prior to each caustic changeout. The caustic shall be changed at SN-DE-23 at least once every two operating hours. Each caustic changeout shall be logged as performed. Both caustic strength and changeout records shall be kept on site and made available to Department personnel upon request. [Regulation No. 19 §19.703, 40 CFR Part 52, Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

52. Reserved.

53. Reserved.

54. The permittee shall test SN-DE-21 for VOC using EPA Reference Method 18 or 25A. The testing shall be conducted in 2005 and every five years thereafter. The testing shall be coordinated in advance with the Compliance Inspector Supervisor. [Regulation No. 19 §19.702 and 40 CFR Part 52, Subpart E]

55. The permittee shall calculate worst-case lb/hr emissions for toluene and DECTP at SN-DE-24 every 100 hours of operation. This applies only to operation during the VGO downtime scenario. These calculations shall be kept on site and made available to Department personnel upon request. [Regulation No. 18 §18. and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Alkyl Amines Process

Alkyl amines are produced by the reaction of primary or secondary amines with alkyl bromides in the presence of sodium hydroxide.

The raw materials used in the production of alkyl amines are primary and/or secondary amines, which are purchased as raw materials from an outside supplier, and olefins. The olefins are selected from the group of olefins that have eight or more carbon atoms in their structure. These olefins are also purchased from off-site suppliers. The olefins are converted to an alkyl bromide by reaction with hydrogen bromide produced on-site. The alkyl bromides thus produced are reacted with a primary and/or secondary amine in the presence of sodium hydroxide to produce the desired product alkyl amine. The choice of the starting amine(s) and alkyl bromide(s) determines the structure of the product, which is a secondary or tertiary alkyl amine. The product amine is thus "tailored" to the needs of the user. Product amines are, by nature of the production process, statistical distributions of alkyl amines, depending on the initial raw materials.

By-products from this process are mixtures of alkyl amines and olefins and an aqueous solution of sodium bromide. The by-products can often be sold as product, depending on market demand. By-products that cannot be sold or internally transferred as product are disposed off-site.

By-product sodium bromide brines are recycled to the bromine plant for conversion to bromine. Bromine from the bromine plant is the ultimate source of the hydrogen bromide used to make the alkyl bromides mentioned above.

Hydrogen bromide is produced within the Alkyl Amines facility in an integrated process by directly reacting hydrogen and bromine. Part of this hydrogen bromide is used to produce hydrobromic acid, which may be used on-site or transferred off-site as product.

Under the product recovery process, the bottoms waste stream from the ADMA product distillation column is collected in a tank and sent batchwise to a wiped film evaporator, where the product is flashed overhead and condensed in a heat exchanger. The condensate drains by gravity to a collection drum, from which it would be pumped to a storage tank (D-1534). Recovered material would be pumped to existing ADMA storage tanks. Evaporator bottoms would be sent to the existing waste tank.

The only emission point affected by this scenario is the tank's vent, SN-AD-37. The emissions involved are volatile organic compounds, at a rate of 0.05 lb/hr and 0.17 ton/yr. The volatile emissions are not considered hazardous air pollutants.

Emission control devices for the Alkyl Amines process include the Acid Vent Scrubber (SN-AD-05), the Emergency Flare (SN-AD-26), and the Alkyl Amines Area Odor Control Vent Gas Oxidizer (SN-AD-35).

Compliance with permitted emission rates shall be demonstrated through stack testing, parametric monitoring, record keeping, and reporting requirements.

Specific Conditions

56. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 19 – Alkyl Amines Process Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
AD-01	Olefins Storage Tank #1: T-1501	VOC	0.16	0.71
AD-02	Olefins Storage Tank #2: T-1503	VOC	0.16	0.71
AD-03	Alkyl Amines Storage Tank: T-1502	VOC	0.26	1.14
AD-05	Acid Vent Scrubber: C-1531 (CD-AD-05, also formerly SB-03).	VOC	0.20	0.88
AD-07	Alkyl Amine Rundown Tank: T-1534A	VOC	0.05	0.22
AD-08	Alkyl Amines Rundown Tank: T-1534B	VOC	0.05	0.22
AD-09	Alkyl Amines Rundown Tank: T-1534C	VOC	0.05	0.22
AD-10	Alkyl Amines Storage Tank: T-1537	VOC	0.26	1.14
AD-11	Alkyl Amines Storage Tank: T-1535	VOC	0.26	1.14
AD-12	Alkyl Amines Storage Tank: T-1536	VOC	0.26	1.14
AD-13	Alkyl Amines Storage Tank: T-1538	VOC	0.26	1.14
AD-14	Alkyl Amines Storage Tank: T-1539	VOC	0.26	1.14
AD-15	Alkyl Amines Storage Tank: T-1540	VOC	0.26	1.14
AD-17	Alkyl Amines Blend Tank: D2427-A	VOC	0.26	1.14
AD-18	Sodium Bromide Brine for Recycle: T-1409	VOC	0.26	1.14
AD-20	Olefins Storage Tank: T-1405A	VOC	0.16	0.71
AD-21	Olefins Storage Tank: T-1405B	VOC	3.45	15.08
AD-23	Alkyl Amines Storage Tanks: T-1408 A, B	VOC	0.03	0.14
AD-24	Product Storage: Alkyl Amines: T-1542	VOC	0.26	1.14
AD-25	Product Storage: Alkyl Amines: T-1543	VOC	0.26	1.14
AD-26	ADMA Flare *Alkyl Amines Scenario Emergency Flaring Events*	PM_{10} SO_2 VOC CO NO_X	0.12 0.06 0.62 0.06 0.38	0.07 0.15 0.16 0.15 0.20
AD-26	ADMA Flare *Alkyl Amines Scenario Non-Emergency Flaring Events*	PM_{10} SO_2 VOC CO NO_x	0.80 0.10 48.50 18.90 3.50	0.10 0.10 0.60 0.30 0.10
AD-27	Recycle Brine Storage Tank: T-1407	VOC	0.26	1.14
AD-28	Stripped Recycle Brine Storage Tank: T-1541	VOC	0.08	0.35
AD-29	Stripped Recycle Brine Tank: T-1544	VOC	0.08	0.35

SN-#	Description	Pollutant	lb/hr	tpy
AD-35	Alkyl Amines Area Odor Control Vent Gas Oxidizer (VGO)	PM_{10} SO_2 VOC CO NO_x	0.22 0.09 1.22 0.06 0.70	0.97 0.40 5.35 0.27 3.07
AD-36	Fugitive Emissions, Including Product Loading	VOC	4.13	18.14
AD-37	ADMA Condensate Collection Tank	VOC	0.05	0.17
AD-39	ADMA Brine Load Out***	VOC*	0.10	0.40
DE-01	ADMA Brine Storage Tank**	VOC*	0.50	2.10
TB-11	ADMA Brine Storage Tank**	VOC*	0.10	0.40

* ADMA brine or any non-HAP material with a vapor pressure less than or equal to 0.0120psia may be stored and loaded out.

** ADMA brine service is not the primary operating scenario for these sources. The primary operating scenario for DE-01 and TB-11 are DECTP Production and MeBr Primary Production Scenario, respectively.

*** AD-39 is the emissions from the loadout of both DE-01 and TB-11 in ADMA brine service.

57. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 20 – Alkyl Amines Process Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
AD-05	Acid Vent Scrubber: C-1531 (CD-AD-05, also formerly SB-03).	$HBr+Br_2$	0.05	0.22
AD-26	ADMA Flare *Alkyl Amines Scenario Emergency Flaring Events*	PM Br_2	0.12 0.02	0.07 0.01
AD-26	ADMA Flare *Alkyl Amines Scenario Non-Emergency Flaring Events*	PM	0.80	0.10
AD-35	Alkyl Amines Area Odor Control Vent Gas Oxidizer (VGO)	PM Br_2	0.22 0.03	0.97 0.14
AD-36	Fugitive Emissions, Including Product Loading	(Br_2+HBr) Ethylene Glycol	3.76 0.06	16.47 0.30

58. The following sources shall not exceed 5% opacity: SN-AD-05, SN-AD-26 and SN-AD-35. [Regulation No. 18 §18.501 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

59. The permittee shall document the time SN-DE-01 and SN-TB-11 are in ADMA brine service and calculate the emissions from each tank and loadout (SN-AD-39). The permittee shall include in the documentation the time and date for the beginning and end, the vapor pressure of the material, and VOC emitted for each period of ADMA brine service. These records shall be kept on site and made available to Department personnel upon request. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

60. The permittee shall maintain readily accessible records which document that storage of C8 olefin at SN-AD-21 does not exceed 4380 hours per rolling 12-month time frame. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

61. Operation of the Emergency Flare (SN-AD-26) for emergency use shall not exceed 30 minutes, in the aggregate, during any 24-hour period. See Specific Condition #62 for operation of the flare during non-emergency events. [Regulation No. 19 §19.705, 40 CFR Part 70.6, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

62. The permittee shall maintain records of each venting event to SN-AD-26, both emergency and non-emergency. Acceptable non-emergency events are cleaning and maintenance of equipment where emissions of such activities are routed to the flare. These records shall contain the date, time, reason, duration of each event, and total duration per rolling twelve month period. The permittee shall calculate the emissions for each event in order to demonstrate compliance with the limits in Specific Conditions #56 and #57. These records shall be updated following each event, kept onsite, and made available to Department personnel upon request. Any emergency use exceeding the requirement set forth in the previous condition shall be an upset condition, in accordance with General Provision 8 of this permit. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

63. The permittee shall test SN-AD-05 for VOC in 2006 and every five years thereafter. The testing shall be performed in accordance with EPA Reference Method 18 or 25A. [Regulation No. 19 §19.702 and 40 CFR Part 52, Subpart E]

64. The permittee shall measure and record the flow rate of the scrubber media at SN-AD-05 every four hours. These records shall be kept on site and made available to Department personnel upon request. The flow value measured at the most recent satisfactory test event shall be established as minimum for purposes of continuous compliance until the next test is performed. [Regulation No. 19 §19.703, 40 CFR Part 52, Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

65. The permittee shall measure and record the caustic concentration of the scrubber media used for SN-AD-05 once per twelve-hour shift. Each caustic changeout shall be logged as performed. Both caustic strength and changeout records shall be kept on site and made available to Department personnel upon request. The caustic concentration and changeout schedule corresponding to the most recent satisfactory test event shall be established as minimum for purposes of continuous compliance until the next test is performed. [Regulation No. 19 §19.703, 40 CFR Part 52, Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

66. The permittee shall test SN-AD-35 for the following compounds in 2002 and every two years thereafter. Applicable test methods are listed in the right column of the table. [Regulation No. 19 §19.702 and 40 CFR Part 52, Subpart E]

Table 21 – Required Test Methods for SN-AD-35

Pollutant	EPA Reference Method
PM_{10}	5
SO_2	6C
VOC	18 or 25A
CO	10B
NO_X	7E

67. The permittee shall operate and maintain a device to continuously monitor and record the temperature of the exhaust from the vent incinerator (SN-AD-35). This temperature shall be maintained at or above 1500°F during those periods when any process gases are being incinerated. [Regulation No. 19 §19.703, 40 C FR Part 52, Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

68. The permittee shall test SN-AD-05 and SN-AD-35 for the following compounds in calendar year 2002 and every five years thereafter. Applicable test methods are listed in the right column of the table. [Regulation No. 18 §18.1002 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 22 – Required Test Methods for SN-AD-05 and SN-AD-35

Source	Pollutant	EPA Reference Method
SN-AD-05	HBr	26A
SN-AD-35	Br_2	26A

Alternative test methods may be submitted to the Compliance Inspector Supervisor at least 30 days in advance of planned testing. These methods must receive Department approval prior to the testing event.

Alkyl Bromides Process

Alkyl bromides (RBr) can be produced by the action of hydrogen bromide (HBr) on the corresponding alkyl chloride (RCl). An example is to react HBr with dichloromethane (commonly called methylene chloride) to produce a mixture of bromochloromethane (BCM) and dibromomethane (methylene dibromide, MDB). The product mixture can be separated by distillation and stored. The alkyl bromide product finds use on the plant site as a process solvent, and is sold into various markets.

The alkyl chlorides used as raw materials are low boiling liquids. The alkyl bromide products are higher boiling liquids, and can thus be separated by batch distillation from the other constituents in the product mixture. The hydrogen bromide used as a raw material is a gas at ordinary temperatures and pressures.

Emission control at the Alkyl Bromides Process is facilitated by a carbon bed adsorption system, which vents at SN-AB-15.

Compliance with permitted emission rates shall be demonstrated through parametric monitoring, record keeping, and reporting requirements.

Specific Conditions

69. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq*. effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 23 – Alkyl Bromides Process Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
AB-15	Emission Control: Carbon Bed Adsorbers (CB-304 and CB-05)	VOC	1.20	5.30
AB-16	Alkyl Bromide Fugitive Emissions	VOC	7.50	32.90

70. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 24 – Alkyl Bromides Process Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
AB-15	Emission Control: Carbon Bed Adsorbers (CB-304 and CB-05)	$MeCl_2$	0.24	1.10
AB-16	Alkyl Bromide Fugitive Emissions	$MeCl_2$	1.50	6.60

71. All methylene chloride/water heat exchangers shall be operated with the minimum pressure on the cooling side at least 35 kPa greater than the maximum pressure on the process side. [Regulation No. 19 §19.304 and 40 CFR Part 63, Subpart F, 63.104(a)(1) (see Appendix A)]

72. The pressure differential between the cooling and process sides of the methylene chloride/water heat exchangers shall be measured once daily and recorded in a log. This record shall be kept on

site as a verification of compliance with 63.104(a)(1), and shall be made available to Department personnel upon request. [Regulation No. 18 §18.1003 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

73. A maintenance wastewater procedure shall be prepared and followed for this process. Details of the requirements of this procedure are contained in 40 CFR 63.105(b) through (e). [Regulation No. 19 §19.304 and 40 CFR Part 63, Subpart F, 63.105]

74. Total Resource Effectiveness (TRE) calculations shall be performed and maintained for all process vents (all Subpart G vents in this process area are Group 2 vents). The TRE calculations shall be updated whenever process changes are made. If the TRE index value is less than or equal to 4.0, the permittee shall follow the procedures outlined in 40 CFR 63.115(d) (1)(ii). [Regulation No. 19 §19.304 and 40 CFR Part 63, Subpart G, 63.115(d)(1)(i) (see Appendix A)]

75. The following records shall be maintained: [Regulation No. 19 §19.304 and 40 CFR Part 63, Subpart G]

    a. TRE calculations and all backup information [63.117(b)].

    b. Records of process changes and TRE recalculations [63.118(c)(1)&(2)].

    c. Records of $MeCl_2$ storage vessel dimensions and capacity [63.123(a)].

76. The permittee shall submit reports of compliance status and process changes as outlined in paragraphs 63.117(b), 63.118(g), and 63.118(h). [Regulation No. 19 §19.304 and 40 CFR Part 63, Subpart G]

77. All equipment in $MeCl_2$ service shall comply with the requirements of the National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks, as outlined in paragraphs 63.160 through 63.182. These sections specify standards for pumps in light liquid service, compressors, pressure relief devices in gas/vapor service, sampling connection systems, open-ended valves or lines, and valves in gas/vapor service and light liquid service. [Regulation No. 19 §19.304 and 40 CFR Part 63, Subpart H]

78. The permittee shall follow the recordkeeping and reporting procedures for equipment leaks as outlined in paragraphs 63.181 and 63.182. [Regulation No. 19 §19.304 and 40 CFR Part 63, Subpart H (see Appendix A)]

79. RESERVED

80. The control equipment maintained on source SN-AB-15 shall be comprised of a minimum of two carbon adsorption units, each having a 2' diameter and a 4.7' column length. The carbon shall be regenerated once per 12 hours of operating time. Only steam shall be used to regenerate the carbon. Upon completion of regeneration, only air shall be used to cool the carbon. The carbon shall be replaced as needed, but no less frequently than every 10,220 hours of actual source operation. [Regulation No. 19 §19.705, 40 CFR Part 70.6, A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

81. Records of all carbon regeneration and replacement shall be maintained, updated as performed, and made available to Department personnel upon request. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

NC-12 Flame Retardant Process

Flame retardant products are produced by reacting diphenyl oxide or other similar raw materials with bromine. This reaction forms hydrogen bromide as a by-product. The hydrogen bromide is purified and stored under pressure, or absorbed in water to make hydrobromic acid. The flame retardant product is a solid. Dust generated by the handling and packaging of the product is controlled by fabric filters (SN-DB-05, SN-DB-06).

Back-up Scrubber (SN-DB-17) is used during periods when Vent Scrubber (SN-DB-01) is down. The Back-up Scrubber controls emissions resulting from the nitrogen purge system at the NC-12 HBr compression equipment.

The NC-12 production unit has an alternate operating scenario to produce NC-15 product. The scrubber (SN-DB-19) which follows the product dryer (SN-DB-04) filter is not required to be operated during NC-12 production.

Compliance with permitted emission rates shall be demonstrated through stack testing, parametric monitoring, and record keeping requirements.

Specific Conditions

82. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq*. effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 25 – NC-12 Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
DB-01	Vent Scrubber	VOC	0.28	1.23
DB-04	Product Dryer Filter	PM_{10}	1.80	7.90
		SO_2	0.14	0.61
		VOC	0.96	4.20
		CO	3.60	15.8
		NO_x	1.60	7.00
DB-04	Product Dryer Filter ***During NC-15 Production Alt. Op. Scenario***	Emissions Routed to SN-DB-19		
DB-05	Product Vent Filter Silo Baghouse	PM_{10}	0.30	1.30
DB-06	Product Vent Filter Silo Baghouse	PM_{10}	0.30	1.30
DB-07	Raw Material Storage Tank	VOC	0.10	0.44
DB-08	Product Vent Filter	PM_{10}	1.10	4.80
DB-10	Ethylene Glycol Storage Tank	VOC	0.01	0.04
DB-16	NC-12 Fugitive Emissions	VOC	1.40	6.10
DB-18	Receiving Baghouse	PM_{10}	0.30	1.40
DB-19	Product Dryer Scrubber ***During NC-15 Production Alt. Op. Scenario***	PM_{10}	0.86	3.77
		SO_2	0.14	0.61
		VOC	0.96	4.20
		CO	3.60	15.80
		NO_x	1.60	7.00

SN-#	Description	Pollutant	lb/hr	tpy
DB-19T	Product Dryer Scrubber (Temporary) ***During NC-15 Production Alt. Op. Scenario***	PM_{10} SO_2 VOC CO NO_x	3.70 0.14 0.96 3.60 1.60	2.00 0.61 4.20 15.80 7.00
DB-20	DPE Storage Tank, D-2515 ***During NC-15 Production Alt. Op Scenario***	VOC	0.32	1.41

83. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 26 – NC-12 Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
DB-01	Vent Scrubber	Br_2+HBr	0.44	1.93
DB-04	Product Dryer Filter	PM Br_2+HBr	1.80 1.65	7.90 7.20
DB-04	Product Dryer Filter ***During NC-15 Production Alt. Op. Scenario***	Emissions Routed to SN-DB-19		
DB-05	Product Vent Filter Silo Baghouse	PM	0.30	1.30
DB-06	Product Vent Filter Silo Baghouse	PM	0.30	1.30
DB-07	Raw Material Storage Tank	HCl	5.10	3.10
DB-08	Product Vent Filter	PM	1.10	4.80
DB-10	Ethylene Glycol Storage Tank	Ethylene Glycol	0.01	0.04
DB-16	NC-12 Fugitive Emissions	Br_2+HBr	5.81	25.44
DB-17	Back-up Water Scrubber	Br_2+HBr	0.10	0.44
DB-18	Receiving Baghouse	PM	0.30	1.40
DB-19	Product Dryer Scrubber ***During SN-15 Production Alt. Op. Scenario***	PM Br_2 + HBr	0.86 1.00	3.77 4.38
DB-19T	Product Dryer Scrubber (Temporary) ***During NC-15 Production Alt. Op. Scenario***	PM Br_2 + HBr	3.70 1.00	2.00 4.38

84. The following sources shall not exceed 5% opacity: SN-DB-01, SN-DB-04, SN-DB-05, SN-DB-06, SN-DB-08, SN-DB-17, SN-DB-18, SN-DB-19, and SN-DB-19T. [Regulation No. 18 §18.501 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

85. The permittee shall limit operation of the scrubber at SN-DB-19T to 1,080 hours, total. Upon reaching 1,080 hours of operation, the permittee shall document that NC-15 production at the NC-12 has either ceased or that the permanent scrubber, SN-DB-19 is operating. The records of the hours of operation for SN-DB-19T shall be kept onsite and be made available to Department personnel upon request. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

86. The permittee shall test the following sources for the listed compounds in calendar year 2002 and every five years thereafter. Test methods are listed in the following table. [Regulation No. 18 §18.1002 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 27 – Required Test Methods for NC-12 Flame Retardant Process

Source	Compound	EPA Reference Method	Test Criteria / Operating Scenario
SN-DB-01	Br_2	26A	NC-12 or NC-15 Production
SN-DB-04	Br_2	26A	NC-12 Production
SN-DB-19	Br_2	26A	NC-15 Production

Alternative test methods may be submitted to the Compliance Inspector Supervisor at least 30 days in advance of planned testing. These methods must receive Department approval prior to the testing event.

87. The permittee shall perform a visual inspection of the pumps driving the scrubber media at SN-DB-01 at least once per day, to ensure that sufficient flow is maintained. The permittee shall also perform a visual inspection of the pumps driving the scrubber media at SN-DB-19 at least once per day that the NC-12 unit is used (under the alternate operating scenario) to product NC-15 product, to ensure that sufficient flow is maintained. Inspection results shall be recorded in a log. These records shall be kept on site and made available to Department personnel upon request. The visual inspection method shall be confirmed by the most recent satisfactory stack test for purposes of continuous compliance until the next test is performed. [Regulation No. 18 §18.1003 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

88. The permittee shall measure and record the caustic concentration of the scrubber media used for SN-DB-01 at least once per twelve-hour shift. The caustic shall be replaced when the concentration falls below 5% strength. [Regulation No. 19 §19.703, 40 CFR Part 52, Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

89. The permittee shall perform monthly calculations for worst-case lb/hr and ton/month emissions of Br_2 and HBr at SN-DB-04. The permittee shall also perform monthly calculations for the worst-case lb/hr and ton/month emissions of Br_2 and HBr at SN-DB-19 for any month that the NC-12 unit is used (under the alternate operating scenario) to produce NC-15 product. These calculations shall be based upon most recent available test data. These calculations shall be completed by the 15th day of the following month, and shall be kept on site and made available to Department personnel upon request. [Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

90. The permittee shall be limited to drying 150 tanks of diphenyl oxide (DPO, stored at SN-DB-07) per rolling 12-month period. Records shall be maintained to demonstrate compliance with this limit. The records shall be updated weekly, maintained on site, and made available to Department personnel upon request. [Regulation No. 18 §18.1004 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

NC-14 Flame Retardant Production

Methyl bromide (MeBr) is produced by reacting hydrogen bromide with methanol. The reaction product is purified to isolate MeBr. The MeBr is compressed into the liquid state, and temporarily stored before being unloaded into railcars. The vapors from the storage tanks, processing equipment, and transfer operations are controlled by a product recovery system, where the MeBr is recovered and sent back to the purification process. Therefore, the methyl bromide recovery unit also serves as the emission control device for the process. The unreacted methanol (in water solution) is sent to the methanol recovery system, where the methanol is recovered and sent back to be used as feedstock for the reaction.

Under an alternate methanol recovery scenario, methanol introduced in the MeBr recovery system is also routed to the methanol recovery system where the methanol is recovered and recycled for use as feedstock. The water left over from methanol recovery has brine value and; therefore, is piped to the bromine recovery process. Thus, HON process wastewater stream is not generated.

Methyl bromide is a Class I, Group VI, ozone depleting substance (ODS). 40 CFR Part 82, Subpart A, is applicable to the MeBr process. During MeBr production, affected sources in this unit are also subject to the requirements of 40 CFR Part 63, Subparts F,G, and H.

Compliance with permitted emission rates in the NC-14 process area shall be demonstrated through stack testing, parametric monitoring, and record keeping requirements.

Multiple alternate operating scenarios exist for the NC-14 process. The following table lists these additional operating scenarios.

Table 28 – Alternate Operating Scenarios for NC-14 Process Equipment

Alternate Operating Scenario	Reference Page
NC-22 Production	80
95ND141/Stabrom 909 Production	99
NaBr Production	102
EtBr Production	103

Specific Conditions

91. The permittee shall not exceed the emission rates set forth in the following table. Compliance with this condition shall be demonstrated by the ADMA product being stored having a molecular weight greater than or equal to 157.3 lb/lb mol. Documentation of ADMA material type and molecular weight shall be kept on site and made available to Department personnel upon request. [Regulation No. 19 §19.501 *et seq*. effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 29 – ADMA Storage Tank Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
TB-01	ADMA Storage Tank	VOC	7.20	7.20

92. RESERVED

93. RESERVED

94. RESERVED

95. RESERVED

96. RESERVED

97. RESERVED

98. RESERVED

99. RESERVED

100. RESERVED

101. RESERVED

102. RESERVED

103. RESERVED

104. RESERVED

Conditions for All Production Scenarios

105. The following sources shall not exceed 5% opacity: SN-TB-04, SN-TB-08, SN-TB-14. [Regulation No. 18 §18.501 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

106. The permittee may not produce methyl bromide at any time in a control period (except that are transformed or destroyed domestically or by a person of another party) in excess of the amount of unexpended production allowances or unexpended Article 5 allowances held. [Regulation No. 19 §19.304 and 40 CFR Part 82, Subpart A, Paragraph 82.4(a) (see Appendix A)]

107. The permittee may not produce or (except for transshipments, heels, or used controlled substances) import methyl bromide, at any time in a control period (except for controlled substances that are transformed or destroyed), in excess of unexpended consumption allowances held. [Regulation No. 19 §19.304 and 40 CFR Part 82, Subpart A, Paragraph 82.4(c)]

108. Production and consumption allowances may be adjusted by the procedures in paragraphs 82.9, 82.10, 82.11, and 82.12. [Regulation No. 19 §19.304 and 40 CFR Part 82, Subpart A]

109. The permittee shall conform with the record keeping and reporting practices for methyl bromide as outlined in Paragraph 82.13. [Regulation No. 19 §19.304 and 40 CFR Part 82, Subpart A]

110. All containers in which methyl bromide is stored or transported must be labeled as outlined in Paragraphs 82.106, 82.108, and 82.110. [Regulation No. 19 §19.304 and 40 CFR Part 82, Subpart A]

111. Producer Quarterly Reports must be mailed to the Administrator within 45 days of each calendar quarter, as outlined in Paragraphs 82.13(c) and 82.13(f)(3). [Regulation No. 19 §19.304 and 40 CFR Part 82, Subpart A]

Conditions for MeBr as a primary product scenario only

112. The following NC-14 area sources are subject to Subparts F, G, and H (the HON rule). The permittee shall comply with all applicable requirements of the HON, including but not limited to the requirements listed in this permit. [Regulation No. 19 §19.304 and 40 CFR Part 63]

Table 30 – Applicable HON Requirements for NC-14

Source	Description	HON Source Type	HON Group
SN-TB-17	Methyl Bromide Transfer Rack (vented to SN-TB-03)	Transfer Operation	Group 1
SN-TB-32	Methyl Bromide Storage Tank (vented to SN-TB-03)	Storage Vessel	Group 1
SN-TB-03	Methyl Bromide Recovery Unit	Process Vent	Group 2
SN-TB-11	Methanol Column Feed Tank	Storage Vessel	§63.149
SN-TB-30	Methanol Feed Storage Tank	Storage Vessel	Group 2
SN-TB-31	Methyl Bromide Storage Tank D-24	Storage Vessel	Group 2
SN-TB-34	Wastewater Storage T-2A	Storage Vessel	§63.149
SN-TB-35	Wastewater Storage T-102	Storage Vessel	§63.149
SN-WW-01	Methanol Recovery Column Wastewater (if discharged)	Wastewater Stream	Group 2
SN-TB-29	Fugitive Equipment Leaks	Equipment Leaks	N/A

113. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 31 – MeBr Primary Product Scenario Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
TB-03	Area Process Scrubber (Methyl Bromide Recovery Unit)	VOC	2.57	11.30
TB-11	Column Feed Tank*	VOC	2.91	1.89
TB-12	Spent Sulfuric Acid Storage	VOC	0.10	0.10
TB-25	Column Vent	VOC	0.40	1.75
TB-29	NC-14 Fugitive Emissions	VOC	0.93	4.07
TB-30	Methanol Storage Tank	VOC	11.80	9.30

* An alternate operating scenario exists for this source. The tank is used as additional storage for ADMA brine or any non-HAP material with a vapor pressure less than 0.0120 psia. (Specific Condition #56)

114. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 32 – MeBr Primary Product Scenario Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
TB-03	Area Process Scrubber (Methyl Bromide Recovery Unit)	Methanol Methyl Bromide	1.03 0.94	4.51 4.12
TB-11	Column Feed Tank*	Methanol	2.91	1.89
TB-12	Spent Sulfuric Acid Storage	Methanol H_2SO_4	0.10 0.01	0.10 0.05
TB-25	Column Vent	Methanol	0.40	1.75
TB-29	NC-14 Fugitive Emissions	Methanol Methyl Bromide	0.93 0.93	4.07 4.07
TB-30	Methanol Storage Tank	Methanol	11.80	9.30

* An alternate operating scenario exists for this source. The tank is used as additional storage for ADMA brine or any non-HAP material with a vapor pressure less than 0.0120 psia. (Specific Condition #56)

General HON-related conditions

115. The requirements of Subparts G and H apply at all times, except during periods of startup, shutdown, malfunction, or non-operation of the unit resulting in cessation of emissions to which Subparts F and G apply. [Regulation No. 19 §19.304 and 40 CFR §63.102(a)]

116. The permittee shall develop, implement, retain, and revise (as necessary) a written startup, shutdown, and malfunction (SSM) plan that describes, in detail, procedures for operating and maintaining the affected sources during SSM and a program of corrective action for malfunctioning process and air pollution control equipment used to comply with the relevant standard. The SSM plan and any revision to the plan is incorporated by reference and is enforceable as a term and condition of this permit. Any revisions to the plan are automatically incorporated by reference and do not require a permit revision. [Regulation No. 19 §19.304 and 40 CFR §63.6(e)(3)]

117. The permittee shall submit a Notification of Compliance Status (NCS) within 150 calendar days after initial start-up of the methyl bromide production unit. This was satisfied by the April 2000 submission of the NCS. [Regulation No. 19 §19.304 and 40 CFR §63.152(b)]

118. All required Periodic Reports shall be submitted semi-annually no later than 60 days after the end of each 6-month period. Reports shall be submitted no later than 8 months after the date the NCS is due, and shall cover the 6-month period beginning on the date the NCS is due. Subsequent reports are due every six months after the date that the first report was due as long as the MeBr unit operates in this unit. [Regulation No. 19 §19.304 and 40 CFR §63.152(c)(1)]

MeBr Process Vent Conditions

119. The permittee shall recalculate, as applicable, the TRE index value, flow, or organic hazardous air pollutants concentration for each Group 2 process vent whenever process changes are made that could reasonably be expected to change the vent to a Group 1 vent. [Regulation No. 19 §19.304 and 40 CFR §63.115(e)]

120. The NCS shall include documentation of all assumptions and procedures used to determine the TRE index value for the methyl bromide reactor process vent (SN-TB-03). This was satisfied by the April 2000 submission of the NCS. [Regulation No. 19 §19.304 and 40 CFR §63.117(b)]

121. The NCS shall include documentation of all assumptions and procedures used to determine Group 2 status (i.e., less than 50 ppm organic HAP) for the SN-TB-25 process vent. This was satisfied by the April 2000 submission of the NCS. [Regulation No. 19 §19.304 and 40 CFR §63.117(d)]

122. Emissions during methyl bromide production shall not exceed the limits listed in the following table. Compliance with these emission limits shall be demonstrated by complying with monitoring, reporting, and record keeping requirements of the HON. [Regulation No. 19 §19.304 and 40 CFR Part 63, Subpart G]

Table 33 – MeBr Process Vent HAP Emission Limits

SN-#	Description	Pollutant	lb/hr	tpy
TB-03	Area Process Scrubber	Methanol	1.03	4.51
	(Methyl Bromide Recovery Unit)	Methyl Bromide	0.94	4.12
TB-25	Column Vent	Methanol	0.40	1.75

MeBr Storage Vessel Conditions

123. Compliance with the Group 1 storage vessel reference control technology standard (given in 40 CFR §63.119(e)), including applicable monitoring, record keeping, and reporting, for SN-TB-32 shall be shown by compliance with the Group 1 transfer rack emission standard in 40 CFR §63.126. The methyl bromide storage tank D-26 (SN-TB-32) shall be vented to the methyl bromide recovery unit (SN-TB-03) at all times, except for the 240 hours per year downtime allowable under 40 CFR §63.119(e)(3). [Regulation No. 19 §19.304 and 40 CFR §63.112(e)(3)(ii)]

124. The permittee shall keep readily accessible records for each Group 1 or Group 2 storage vessel showing the dimensions of the storage vessel, and an analysis showing the capacity of the storage vessel. This record shall be kept as long as the storage vessel retains Group 1 or Group 2 status and is in operation. [Regulation No. 19 §19.304 and 40 CFR §63.123(a)]

MeBr Transfer Operations Conditions

125. The methyl bromide recovery unit (SN-TB-03) shall be operated at all times when organic HAPs are vented to it. Any deviation from this Condition shall be reported in the start-up, shutdown, and malfunction reports required under 40 CFR §63.10(d)(5). [Regulation No. 19 §19.304 and 40 CFR §63.126(a)(3)]

126. The methyl bromide recovery unit (SN-TB-03) shall reduce emissions of total organic HAPs from methyl bromide loading operations by 98 weight percent. Compliance with this condition is demonstrated by the design evaluation included in the NCS and by compliance with Specific Conditions #127 and #128. [Regulation No. 19 §19.304 and 40 CFR §63.126(b)]

127. The permittee shall maintain a liquid mass flow rate (in lb/hr) to gas mass flow rate (in lb/hr) ratio in the absorber column of the methyl bromide recovery unit (SN-TB-03) equal to or greater than 15.5. [Regulation No. 19 §19.304 and 40 CFR §63.126(b), §63.127(e)]

128. The permittee shall maintain a temperature in the methyl bromide stripper of the methyl bromide recovery unit (SN-TB-03) equal to or greater than 169.7 ºF as measured in the location indicated by the NCS. [Regulation No. 19 §19.304 and 40 CFR §63.126(b), §63.127(e)]

129. The permittee shall comply with all applicable requirements related to methyl bromide transfer operations. [Regulation No. 19 §19.304 and 40 CFR §63.126(f), (g), (h), and (i)]

130. The permittee shall maintain continuous (as defined in §63.111) records of absorber liquid-to-gas ratio and stripper overhead temperature while the transfer stream is being vented to the methyl bromide recovery unit, and shall maintain records of the daily average value for each parameter for each operating day. [Regulation No. 19 §19.304 and 40 CFR §63.130(a)]

131. The permittee shall submit Periodic Reports as specified in §63.130(d). [Regulation No. 19 §19.304 and 40 CFR Subpart G]

132. The permittee shall maintain the DOT tank certification or Method 27 testing records as required by §63.130(e). [Regulation No. 19 §19.304 and 40 CFR Subpart G]

133. The permittee shall annually update and maintain, in a readily accessible location on site, the transfer rack information required in 40 CFR §63.130(f). [Regulation No. 19 §19.304 and 40 CFR Subpart G]

MeBr Wastewater Conditions, if wastewater is generated (Note: If wastewater is generated, the only organic HAP it will contain above trace quantities is methanol)

134. The permittee shall submit the SN-WW-01 information as required in Table 15 of Subpart G with the NCS. [Regulation No. 19 §19.304 and 40 CFR §63.146(b)(2)]

135. The permittee shall keep readily accessible records documenting how process knowledge was used to determine the annual average organic HAP concentration and/or annual average flow rate of SN-WW-01. [Regulation No. 19 §19.304 and 40 CFR §63.147(f)]

MeBr Equipment Leaks

136. The permittee shall comply with all applicable sections of §63.160 through §63.182. [Regulation No. 19 §19.304 and 40 CFR 63, Subpart H]

Miscellaneous Requirements

137. Spent sulfuric acid shall be the only material permitted for storage in the tanks which vent at SN-TB-12. [A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

NC-15 Flame Retardant Process

Solvent (if used), bromine, raw material, and catalyst are added to the reactor. The reaction proceeds with external cooling to completion. Hydrogen bromide gas is produced and exits the reactor through a condenser. Bromine carried by the gas is returned to the reactor. The hydrogen bromide (which is not condensed) carries on to a recovery system and is recycled to another plant. Any HBr which is not recovered is neutralized in a caustic scrubber (SN-15-12).

After the reaction is complete, any excess bromine is stripped or neutralized. The stripped bromine is dried and recycled to the process in future batches. Solvent may be added to aid processing.

The stripped or neutralized product is isolated from the solvent or aqueous mixture by various means, such as centrifugation and distillation. The product is dried, ground, and packaged to specifications. If solvent was used in the process, it is recovered and recycled. Tank, T-9962, which vents at SN-15-18, is used to store byproduct diphenyl ethane and heavy organics.

Compliance with permitted emission rates shall be demonstrated through stack testing, parametric monitoring, and record keeping requirements.

Specific Conditions

138. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 34 – NC-15 Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
15-09	Refrigerated Coolant Storage	VOC	0.03	0.13
15-12	NC-15 Area Scrubber	PM_{10} SO_2 VOC CO NO_x	1.52 0.01 2.20 0.15 0.18	6.66 0.05 9.64 0.66 0.79
15-13	Raw Material Weigh Tanks D-9965, D-9966	VOC	0.07	0.31
15-15	Fugitive Emissions	PM_{10} VOC	0.03 4.23	0.13 18.30
15-16	Pollution Control: Dust Scrubber J-99601 CD-15-16	PM_{10}	1.20	5.30
15-17	Rail Car Vent	VOC	0.69	3.03
15-18	DPE Byproduct/Heavy Organics Storage Tank (serving NC-21)	VOC	0.10	0.10

139. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 35 – NC-15 Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
15-02	Process Scrubber	Br_2 HBr	0.10 0.10	0.44 0.44
15-09	Refrigerated Coolant Storage	Ethylene Glycol	0.03	0.13
15-10	Never installed.			
15-11	Never installed.			
15-12	NC-15 Area Scrubber	PM Br_2+HBr	1.52 1.09	6.66 4.78
15-15	Fugitive Emissions	PM Br_2+HBr	0.03 1.54	0.13 6.72
15-16	Pollution Control: Dust Scrubber J-99601 CD-15-16	PM	1.20	5.30

140. The following sources shall not exceed 5% opacity: SN-15-02, SN-15-12, and SN-15-16. [Regulation No. 18 §18.501 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

141. The permittee shall operate a bromine monitor on SN-15-02 and SN-15-12 at all times when the units are in operation. This monitor shall be maintained and operated in accordance with the latest revised version of the "Preventative Maintenance Plan for the Emission Control Devices." Bromine emission records and a copy of the latest revised version of the Maintenance Plan shall be maintained on site and made available to Department personnel upon request. Specific Conditions 145a and 145b may take the place of this requirement. [Regulation No. 18 §18.1003 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

142. The permittee shall conduct stack testing for the following compounds in calendar year 2002, and every two years thereafter. Test methods are listed in the right-hand column of the table. [Regulation No. 19 §19.702 and 40 CFR Part 52, Subpart E]

Table 36 – Required Testing for NC-15 Flame Retardant Process

Source	Compound	EPA Reference Method
SN-15-12	VOC	18 or 25A
SN-15-12	PM/PM_{10}	5
SN-15-16	PM/PM_{10}	5

143. The permittee shall conduct stack testing for bromine at SN-15-12 in calendar year 2002, and every five years thereafter. The testing shall be conducted using EPA Reference Method 26A. [Regulation No. 18 §18.1002 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 37 – Required Testing (Once Every Five Years) for NC-15 Retardant Process

Source	Compound	EPA Reference Method
SN-15-12	Br_2	26A

Alternative test methods may be submitted to the Compliance Inspector Supervisor at least 30

days in advance of planned testing. These methods must receive Department approval prior to the testing event.

144. Reserved.

145. The permittee shall maintain weekly production records of DPE product generated in the NC-21 production unit. A factor of 0.250 lb heavy ends byproduct per lb DPE product shall be applied to the recorded DPE product value. The source SN-15-18 shall be deemed in compliance whenever the resulting calculated byproduct flow does not exceed 69,630 lbs/week. The records (including byproduct calculation) shall be kept on site and made available to Department personnel upon request. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

Alternate Scenario - Compliance with Bromine emission limits during loss of Bromine Monitor

The following two conditions may be implemented instead of Specific Condition #141.

145a. The permittee shall perform a visual inspection to confirm pump activity of the pumps driving the scrubber media at SN-15-02 and SN-15-12 every three hours, to ensure that sufficient flow is maintained. Inspection results shall be recorded in a log. These records shall be kept on site and made available to Department personnel upon request. [Regulation No. 18 §18.1003 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

145b. The permittee shall measure and record the caustic concentration of the scrubber media used at least once per twelve-hour shift at SN-15-02. The caustic shall be replaced when the concentration falls below 5% strength. [Regulation No. 19 §19.703, 40 CFR Part 52, Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

NC-17 Flame Retardant Process

Tetrabromophthalic anhydryde (TBPA), ethylene-bis-tetrabromophthalimide (EBTBP), and a purified (higher grade) of EBTBP are made at the South Plant in what is known as the NC-17 Production Unit (formerly NC-16).

TBPA and EBTBP are marketed and sold as flame retardants. Additionally, TBPA is used as a raw material in the production of EBTBP. Under this permit, the permittee may produce products either separately or simultaneously.

This permitting action allows the West Plant product HP-7010 to be reworked, granulated, and packaged in the NC-17 process area of the South Plant. Existing equipment will be used to control associated emissions: the Weigh Hopper Filter (SN-16-27) and the Product Transfer and Storage Filter (SN-16-26).

Tetrabromophthalic Anhydride (TBPA)

Tetrabromophthalic anhydride is produced in a batch reaction process by brominating phthalic anydride in the presence of sulfuric acid and sulfur trioxide. The final product, a solid, is centrifuged, dried, and packaged for shipment or transported for production of EBTBP. Dust generated by these operations is controlled by fabric filters (SN-16-10, SN-16-11, and SN-16-29). Vapors generated are controlled by scrubbers (SN-16-01, SN-16-02, SN-16-13, and SN-16-24). Molten phthalic anhydride is stored in the Molten PA Storage Tank (SN-16-31).

Ethylene-bis-tetrabromophthalimide (EBTBP)

EBTBP and its higher grade equivalent are produced by reacting tetrabromophthalic anhydride with ethylene diamine in the presence of an acid. This reaction forms a solid complex, which is separated from the liquid, washed, and then dried. Emissions generated by the EBTBP process are controlled by scrubbers (SN-16-05, SN-16-06, and SN-16-25), by baghouses (SN-16-07, SN-16-08, SN-16-09, SN-16-12, SN-16-25, SN-16-26, and SN-16-27), or by carbon drums (SN-16-14 and SN-16-15). The higher grade EBTBP process is equipped with a vent gas oxidizer (SN-16-18) and a solvent recovery unit to control VOC emissions, and with three baghouses to control particulates (SN-16-19, SN-16-11, SN-16-22).

Compliance with permitted emission rates shall be demonstrated through stack testing, parametric monitoring, and record keeping requirements.

Specific Conditions

146. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 et seq. effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 38 – NC-17 Flame Retardant Process Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
16-01	TBPA Production: Packed Scrubber	PM_{10}	0.10	0.44
		SO_2	0.50	2.19
16-02	TBPA Production: Off Gas Scrubber	SO_2	0.40	1.75
		VOC	0.10	0.44
16-05	EBTBP Production: Packed Scrubber	VOC	0.10	0.44
16-06	EBTBP Production: Converter Scrubber	VOC	0.10	0.44
		PM_{10}	0.40	1.75
16-07	EBTBP Production: In-Process Storage Silo Vent Filter	PM_{10}	0.30	1.32
16-08	EBTBP Production: Product Transfer and Storage Fabric Filter	PM_{10}	0.30	1.32
16-10	Product Transfer and Storage Fabric Filter	PM_{10}	0.50	2.19
		SO_2	0.10	0.44
16-11	TBPA Production: Packaging Filter	PM_{10}	0.10	0.44
16-12	TBPA Weigh Hopper Filter	PM_{10}	0.10	0.44
16-13	TBPA Production: Vacuum Pump	SO_2	0.10	0.44
16-14	Ethylene Diamine Storage Tank	VOC	0.01	0.04
16-15	Propionic Acid Storage Tank	VOC	0.01	0.04
16-16	TBPA Neutralization Tank	SO_2	0.10	0.44
16-17	Ethylene Glycol Tank	VOC	0.02	0.09
16-18	Vent Gas Oxidizer	PM_{10}	0.05	0.22
		SO_2	0.07	0.31
		VOC	0.66	2.89
		CO	0.86	3.77
		NO_x	0.64	2.80
16-19	Charge Hopper Vent	PM_{10}	0.30	1.32
		SO2	0.10	0.44
16-20	Heat Exchange Heater	PM_{10}	0.04	0.18
		SO_2	0.06	0.27
		VOC	0.13	0.57
		CO	0.19	0.83
		NO_x	0.50	2.18
16-21	Product Storage Hopper	PM_{10}	0.20	0.88
		VOC	0.40	1.76
16-22	By-Product Powder Packaging	PM_{10}	0.01	0.04
		VOC	0.01	0.04
16-23	NC-16 Operation: Fugitive Emissions	PM_{10}	0.32	1.40
		SO_2	1.02	4.47
		VOC	6.60	28.53
16-24	Raw Material Unloading, Brinks (Limited Hours of Operation)	SO_2	1.80	1.58

SN-#	Description	Pollutant	lb/hr	tpy
16-25	Wet Scrubber	PM_{10} VOC	0.40 1.02	1.75 3.46
16-26	EBTBP or TBBPA Rework Transfer and Storage Filter	PM_{10}	0.30	1.32
16-27	Reactor Weigh Hopper Filter	PM_{10}	0.30	1.32
16-28	TBPA Neutralization Tank	SO_2	0.10	0.44
16-31	Molten Phthalic Anhydride Storage Tank	VOC	3.83	0.80

147. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 39 – NC-17 Flame Retardant Process Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
16-01	TBPA Production: Packed Scrubber	PM Phthalic Anhydride	0.10 0.10	0.44 0.44
16-02	TBPA Production: Off Gas Scrubber	Br_2	0.10	0.44
16-06	EBTBP Production: Converter Scrubber	PM	0.40	1.75
16-07	EBTBP Production: In-Process Storage Silo Vent Filter	PM	0.30	1.32
16-08	EBTBP Production: Product Transfer and Storage Fabric Filter	PM	0.30	1.32
16-10	Product Transfer and Storage Fabric Filter	PM	0.50	2.19
16-11	TBPA Production: Packaging Filter	PM	0.10	0.44
16-12	TBPA Weigh Hopper Filter	PM	0.10	0.44
16-17	Ethylene Glycol Tank	Ethylene Glycol	0.02	0.09
16-18	Vent Gas Oxidizer	PM Xylene + Ethyl Benzene	0.05 0.52	0.22 2.28
16-19	Charge Hopper Vent	PM	0.30	1.32
16-20	Heat Exchange Heater	PM	0.04	0.18
16-21	Product Storage Hopper	PM Xylene + Ethyl Benzene	0.20 0.28	0.88 1.23
16-22	By-Product Powder Packaging	PM Xylene + Ethyl Benzene	0.01 0.01	0.04 0.04

SN-#	Description	Pollutant	lb/hr	tpy
16-23	NC-16 Operation: Fugitive Emissions	PM Xylene + Ethyl Benzene Ethylene Glycol Br_2	0.32 2.70 0.41 0.34	1.40 11.80 1.80 1.49
16-25	Wet Scrubber	PM	0.40	1.75
16-26	EBTBP or TBBPA Rework Transfer and Storage Filter	PM	0.30	1.32
16-27	Reactor Weigh Hopper Filter	PM	0.30	1.32
16-31	Molten Phthalic Anhydride Storage Tank	Phthalic Anhydride	3.83	0.80

148. The following sources shall not exceed 5% opacity: SN-16-01, SN-16-02, SN-16-06 through SN-16-08, SN-16-10 through SN-16-12, SN-16-18 through SN-16-21, SN-16-22, SN-16-25 through SN-16-27, and SN-16-29. [Regulation No. 18 §18.501 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

149. The permittee shall monitor the scrubber fluid flow of the following sources on a three-hour basis. The recorded flow rates shall be made accessible for Department inspection upon request. [Regulation No. 19 §19.703, 40 CFR Part 52, Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 40 – NC-17 Flame Retardant Process Minimum Scrubbing Fluid Flow Rate

Source	Minimum Scrubbing Fluid Flow (gpm)
SN-16-01	6
SN-16-02	60
SN-16-05	4
SN-16-06	6
SN-16-13	4
SN-16-24	6 (water)
SN-16-25	25

150. The permittee shall replace the carbon canisters at SN-16-14, SN-16-15, and SN-16-22 at least once per year. A log of replacement dates (or notation on the drum) shall be maintained on site and made available to Department personnel upon request. [Regulation No. 19 §19.703, 40 CFR Part 52, Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

151. The permittee shall measure and record the pH of the scrubber media used for SN-16-01, SN-16-02, SN-16-05, SN-16-06, and SN-16-25 every three hours. The caustic pH records shall be kept on site and made available to Department personnel upon request. The caustic pH corresponding to the most recent satisfactory test event shall be established as the minimum for purposes of continuous compliance until the next test is performed. [Regulation No. 19

§19.703, 40 CFR Part 52, Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

152. Reserved.

153. SN-16-24 shall be limited to 1752 hours of operation per year. The permittee shall maintain accessible records of operating hours at the source, to be updated per event of operation. [Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

154. Only one of the sources SN-16-19 and SN-16-29 shall be operated at any given time. [Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

155. The combustion zone temperature of the Vent Gas Oxidizer, SN-16-18, shall be maintained at a minimum of 1000 ºF. Compliance with this condition shall be facilitated by maintaining a log of automatic shutdowns by the temperature interlock (block valve) system. Each log entry shall include an operator's statement reporting whether the interlock system performed as designed. Additionally, the permittee shall review the logs each six months and certify that the interlock has functioned correctly during that period. The running logs and 6-month certification shall be kept on site and made available to Department personnel upon request. [Regulation No. 19 §19.703, 40 CFR Part 52, Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

156. The permittee shall maintain readily accessible records of the dimensions and capacity of the phthalic anydride storage vessel, as required by §63.123(a). [Regulation No. 19 §19.304 and 40 CFR Part 63, Subpart G (see Appendix A)]

157. All equipment in phthalic anydride service must comply with the protocol for equipment leaks as outlined in Section 63.169(a) through (d). (This regulation outlines monitoring and maintenance standards for pumps, valves, connectors, and agitators in heavy liquid service; for instrumentation systems; and for pressure relief devices in liquid service). [Regulation No. 19 §19.304 and 40 CFR Part 63, Subpart H (see Appendix A)]

158. The permittee shall calculate emissions from SN-16-16 every 12 months. Pound per hour emissions shall be based upon worst-case conditions, and ton per year emissions upon a 12-month rolling period or assumed continuous usage. A copy of the calculations shall be kept on site and made available to Department personnel upon request. [Regulation No. 18 §18.1004 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

159. The permittee shall calculate VOC emissions from SN-16-21 every 12 months. Pound per hour emissions shall be based upon worst-case conditions, and ton per year emissions upon a 12-month rolling period or assumed continuous usage. A copy of the calculations shall be kept on site and made available to Department personnel upon request. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

160. The permittee shall conduct stack testing for SO_2 at SN-16-01 in 2002, at SN-16-02 in 2003, and SN-16-24 in the first calendar year it operates more than 25% per Plantwide Condition #18. A

proposed test method shall be submitted to the Compliance Inspector Supervisor at least 30 days in advance of planned testing. The method must receive Department approval prior to the testing event. [Regulation No. 19 §19.702 and 40 CFR Part 52, Subpart E]

Note: As of July 18, 2006, the facility is incompliance with this condition. The testing for 16-01 and 16-02 has been completed. The test at 16-24 has not been conducted because the source has not been operated.

161. The permittee shall conduct stack testing for Br_2 at SN-16-02 in calendar year 2002 and every five years thereafter. Testing shall be performed using EPA Reference Method 26A. Alternative test methods may be submitted to the Compliance Inspector Supervisor at least 30 days in advance of planned testing. These methods must receive Department approval prior to the testing event. [Regulation No. 18 §18.1002 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

162. The permittee shall conduct stack testing at SN-16-25 for VOC according to the following parameters. [Regulation No. 19 §19.702, 40 CFR Part 52, Subpart E, §18.10 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 41 – NC-17 Flame Retardant Process SN-16-25 Required Testing

Pollutant	EPA Reference Method	Schedule
VOC	25A	Within the calendar year it operates >25% of the time, and bi-annually thereafter.

163. The permittee shall unload the HP-7010 super sacks and operate the granulating and packaging procedures only when the pneumatic dust control systems are activated (the systems venting at the SN-16-27 and SN-16-26 filters). [Regulation No. 18 §18.1004 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

164. The permittee shall not operate the ethylene bis tetrabromopthalimide process while HP-7010 is being granulated and packaged. [Regulation No. 18 §18.1004 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

164a. The permittee shall not exceed a throughput of 18.25 million pounds per twelve consecutive months at PA Tank (T-9340) (SN-16-31). [Regulation No. 19 §19.705, 40 CFR 70.6, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

164b. The permittee shall maintain monthly records demonstrating compliance with Specific Condition #164a. Records shall be updated by the 15th day following the month to which the records pertain, made available to Department personnel upon request, and submitted in accordance with General Provision 7. [Regulation No. 19 §19.705 and Part 52, Subpart E]

Boilers

(SN-BH-01 and SN-BH-02)

There are two boilers at the Albemarle South facility. Each boiler has the capacity to produce 200,000 pounds of 225 psig steam per hour. This is equivalent to a heat input of 340 million BTU per hour. The boilers burn natural gas, which has been treated either in the sulfinol or the MDEA plants. They may also burn pipeline quality natural gas. They are not permitted to burn any other fuel.

Emissions generated by the two boilers are permitted under a single bubble. Compliance with permitted emission rates shall be demonstrated through stack testing, parametric monitoring, and record keeping requirements.

Specific Conditions

165. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 42 – Boilers Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
BH-01	#1 Boiler	PM_{10}	2.59	-
		SO_2	-	-
		VOC	1.87	-
		CO	13.60	-
		NO_x	47.60	-
BH-02	#2 Boiler	PM_{10}	2.59	-
		SO_2	-	-
		VOC	1.87	-
		CO	13.60	-
		NO_x	47.60	-
BH-01 and BH-02	Combined Boiler Emissions	PM_{10}	-	22.64
		SO_2	5.6	24.60
		VOC	-	16.38
		CO	-	119.20
		NO_x	-	417.00

166. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 43 – Boilers Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
BH-01	#1 Boiler	PM	3.40	-
BH-02	#2 Boiler	PM	3.40	-

SN-#	Description	Pollutant	lb/hr	tpy
BH-01 and BH-02	Combined Boiler Annual Emissions	PM	-	29.78

167. The following sources shall not exceed 5% opacity: SN-BH-01 and SN-BH-02. [Regulation No. 18 §18.501 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

168. The permittee may only burn the following fuels in the boilers: pipeline quality natural gas and process gas that has been treated by the sulfinol and MDEA plants. [Regulation No. 19 §19.705, and 40 CFR Part 70.6, A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

169. The permittee shall monitor and record the H_2S concentration and the combined gas flow to the boilers at least once every six hours. The measured concentration shall be used to determine the mass emission rate of SO_2 from the boilers assuming a 1:1 molar ratio of sulfur conversion at the boilers. A rolling 30-day average H_2S concentration may be used to calculate the lb/hr emissions for compliance demonstration with the 5.60 lb/hr emission limit of Specific Condition #165. A rolling 12-month total shall be used to calculate tpy for compliance demonstration with the combined 24.53 ton/yr value of Specific Condition #165. A shorter averaging period may be used in lieu of the rolling 30-day average (e.g., if all three-hour rolling averages as currently calculated are below the emission limit, a rolling 30-day average is not required).

    All records shall be updated by the 15th day following the month to which the records pertain. Records shall be kept on-site, made available to Department personnel, and otherwise kept in accordance with General Provision #7. [Regulation No. 19 §19.703, 40 CFR Part 52, Subpart E, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

170. The permittee shall perform stack testing on SN-BH-01 and SN-BH-02 in 2005 and every five years thereafter. The testing shall be performed while each boiler is operating within 10% of its design capacity. Hourly test results shall be combined for each pollutant to determine compliance with the emission bubble. Compounds and applicable test methods are listed below. [Regulation No. 19 §19.702 and 40 CFR Part 52, Subpart E]

Table 44 – Boilers Required Testing

Source	Compound	EPA Reference Method
SN-BH-01, SN-BH-02	SO_2*	6C
SN-BH-01, SN-BH-02	VOC	18 or 25A
SN-BH-01, SN-BH-02	CO	10B
SN-BH-01, SN-BH-02	NO_X	7E

* If sulfur dioxide testing is performed during combustion of sweetened gas, 5.6 lb/hr shall be the maximum compliant value for each boiler, instead of 2.8. However, 5.6 lb/hr is also the maximum compliant value for simultaneous emissions from both boilers.

NC-21 Flame Retardant Process

Benzene, 1,2-dichloroethane, and catalyst are added to the reactor. The reaction proceeds, with external heating to completion. Hydrogen chloride gas is produced, and exits the reactor. Hydrogen chloride is neutralized in a caustic scrubber which in turn vents through the incinerator (SN-21-01). Benzene emissions are minimized by vent gas condensers. The condensed gas outlet is routed to the incinerator.

After the reaction is complete, the reaction mass is neutralized. The product is isolated by distillation, and any excess benzene is recovered and recycled. The isolated product is stored in a liquid state, and used for internal and external markets.

All tank vents are routed to the incinerator. All storage vessels are operated under pressure, to minimize emissions. Tank truck loading and unloading operations are performed using closed domes.

Compliance with permitted emission rates shall be demonstrated through parametric monitoring and record keeping requirements.

Specific Conditions

171. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 45 – NC-21 Flame Retardant Process Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
21-01	Emission Control: Vent Gas Incinerator (FL-3671) (CD-21-01)	PM_{10}	0.10	0.44
		SO_X	0.01	0.04
		VOC	0.35	1.54
		CO	5.00	21.90
		NO_x	0.50	2.20
21-02	NC-21 Fugitive Emissions	VOC	3.50	15.30
21-03	Wastewater Effluent	VOC	0.01	0.01

172. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 46 – NC-21 Flame Retardant Process Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
21-01	Emission Control: Vent Gas Incinerator (FL-3671) (CD-21-01)	PM	0.10	0.44
		Benzene	0.35	1.54
		HCl	0.35	1.54
21-02	NC-21 Fugitive Emissions	Benzene	0.69	3.02
		HCl	0.05	0.22
		Ethylene Dichloride	0.09	0.40
21-03	Wastewater Effluent	Benzene	0.01	0.01

173. SN-21-01 shall not exceed 5% opacity. [Regulation No. 18 §18.501 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

174. The permittee is subject to all applicable provisions of the National Emission Standard for Equipment Leaks (Fugitive Emission Sources) of Benzene. [Regulation No. 19 §19.304 and 40 CFR Part 61 Subpart J (see Appendix A)]

175. The permittee is subject to all applicable provisions of the National Emission Standard for Equipment Leaks (Fugitive Emission Sources). This includes, but is not limited to, the reporting requirements of §61.247 and the performance standards contained in §61.242. [Regulation No. 19 §19.304 and 40 CFR Part 61 Subpart V (see Appendix A)]

176. The permittee is subject to all applicable provisions of the National Emission Standard for Benzene Waste Operations. Because current annual benzene waste quantity for the facility is between 1 Mg and 10 Mg per year, the facility is only subject to the record keeping requirements of 61.356(b) and the reporting requirements of 61.357(c). If the total annual benzene waste quantity becomes equal to or greater than 10 Mg/yr, 61.342(c) will become applicable to this process unit. [Regulation No. 19 §19.304 and 40 CFR Part 61 Subpart FF (see Appendix A)]

177. The permittee shall operate a system capable of monitoring and recording the flow rate of process gases to the Vent Gas Incinerator, and the temperature of its combustion zone. The system will also be capable of continuously converting the temperature and flow rates into calculated residence time to demonstrate compliance with 40 CFR Part 61 Subpart V, 61.242-11(c). A Preventive Maintenance Plan describing the methods used to monitor and control calibration drift and zero drift of components in the monitor system will be kept current and available on site for inspection. A formal RATA is not required since the monitoring system is not a CEM. [Regulation No. 18 §18.1003 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

178. The permittee shall calculate all emissions from the Vent Gas Incinerator (SN-21-01) on a semi-annual basis. Pound per hour emissions shall be based upon worst-case conditions, and ton per year emissions upon a 12-month rolling period or assumed continuous usage. A copy of the calculations shall be kept on site and made available to Department personnel upon request. [Regulation No. 18 §18.1004 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

179. The vent gas incinerator must provide a minimum residence time of 0.5 seconds when vent streams are being routed to the incinerator. The monitoring data required by the above condition, in conjunction with design data, shall be used to calculate residence time on a continuous basis. [Regulation No. 19 §19.304 and 40 CFR Part 61, Subpart V, 61.242-11(c)]

180. The permittee shall calculate benzene emissions from the wastewater effluent once per year. Pound per hour emissions shall be based upon worst-case conditions, and ton per year emissions upon a 12-month rolling period or assumed continuous usage. A copy of the calculations shall be kept on site and made available to Department personnel upon request. [Regulation No. 18 §18.1004 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

NC-22 Production

Bromine and polystyrene are reacted in an organic solvent, in the presence of a catalyst, to form brominated polystyrene. Bromine vapors from raw material storage are abated by the caustic scrubber (SN-TB-14). Under Scenario A, the brominated polystyrene product is centrifuged, the centrate passes through the Centrate Hold-up Drum (SN-TB-43), and the brominated polystyrene product (NC-22) is dried and collected for packaging by the Product Baghouse (SN-TB-04). Under Scenario B, the brominated polystyrene product is recovered by vaporization of the solvent and then the product is processed to its final configuration and packaged. Process water from the product recovery area is collected in the hold up drum (SN-TB-43) under Scenario B. Fugitive dust in the packaging area is collected in the packaging baghouse (SN-TB-08).

The co-product HBr produced from the reaction is absorbed in water and recycled at the South Plant. Before being recycled, aqueous HBr co-product is stored in a tank (HBr solution storage, SN-TB-42). Any HBr vapor not absorbed in the water is routed to a caustic scrubber. The vent stream from this caustic scrubber is routed to a solvent absorption/recovery unit (SN-TB-41) along with other vent streams from the process and storage areas. The primary function of the solvent absorption/recovery unit is to recover the organic solvent used in the process.

Compliance with permitted emission rates shall be demonstrated through stack testing, parametric monitoring, and record keeping requirements. While operating in this scenario Albemarle will continue to comply with the opacity limits set forth in Specific Condition #105 for the affected sources.

Specific Conditions

181.Reserved

181a. The permittee shall not exceed the emission rates set forth in the following table during NC-22 production under scenario A. [Regulation No. 19 §19.501 *et seq*. effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 47a – NC-22 Maximum Criteria Pollutant Emission Rates (Scenario A)

SN-#	Description	Pollutant	lb/hr	tpy
TB-04	Product Baghouse	PM_{10} VOC	0.90 0.21	4.00 0.92
TB-08	Dust Collector Baghouse	PM_{10}	0.30	1.40
TB-29	NC-22 Fugitive Emissions	VOC	1.33	5.76
TB-41	Carbon Bed Solvent Recovery Units	VOC	6.40	8.30
TB-43*	Centrate Hold Up Drum	VOC	0.63	1.10

* Emissions are based on maximum average hourly pump capacity.

181b. The permittee shall not exceed the emission rates set forth in the following table during NC-22 production under scenario B. [Regulation No. 19 §19.501 *et seq*. effective May

28, 2006, and 40 CFR Part 52, Subpart E]

Table 47b – NC-22 Maximum Criteria Pollutant Emission Rates (Scenario B)

SN-#	Description	Pollutant	lb/hr	tpy
TB-08	Dust Collector Baghouse	PM_{10}	0.30	1.40
TB-29	NC-22 Fugitive Emissions	VOC	1.37	5.90
TB-41	Carbon Bed Solvent Recovery Units	VOC	9.70	12.80

182. Reserved

182a. The permittee shall not exceed the non-criteria emission rates set forth in the following table during production under scenario A. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 48a – NC-22 Maximum Non-Criteria Pollutant Emission Rates (Scenario A)

SN-#	Description	Pollutant	lb/hr	tpy
TB-04	Product Baghouse	PM	0.90	4.00
		HBr	2.00	6.16
TB-08	Dust Collector Baghouse	PM	0.30	1.40
TB-14	Bromine Scrubber	Br_2	0.10	0.44
TB-29	NC-22 Fugitive Emissions	Ethylene Glycol	0.08	0.34
		Br_2+HBr	0.44	1.92
		HCl	0.06	0.24
TB-41	Carbon Bed Solvent Recovery Units	HCl	0.07	0.10
		HBr	0.02	0.02
TB-42*	HBr Solution Storage	HBr	0.25	0.40

* Emissions are based on maximum average hourly pump capacity.

182b. The permittee shall not exceed the non-criteria emission rates set forth in the following table during production under scenario B. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 48b – NC-22 Flame Retardant Maximum Non-Criteria Pollutant Emission Rates (Scenario B)

SN-#	Description	Pollutant	lb/hr	tpy
TB-08	Dust Collector Baghouse	PM	0.30	1.40
TB-14	Bromine Scrubber	Br_2	0.10	0.44
TB-29	NC-22 Fugitive Emissions	Ethylene Glycol	0.08	0.34
		Br_2+HBr	0.44	1.92
		HCl	0.06	0.24

SN-#	Description	Pollutant	lb/hr	tpy
TB-41	Carbon Bed Solvent Recovery Units	HCl HBr	0.07 0.04	0.15 0.05
TB-42*	HBr Solution Storage	HBr	0.25	0.40

* Emissions are based on maximum average hourly pump capacity.

183. The permittee shall maintain a carbon regeneration system at SN-TB-41 capable of completing a minimum of two regeneration for each bed for every 24-hour of bed/source operation. This minimum regeneration rate shall be sustained at all times during operation of the NC-22 process. The regeneration system shall be checked no less than once per week, to ensure that the regeneration rate is being met. Records of each inspection shall be maintained, kept on site, and made available to Department personnel upon request. [Regulation No. 19 §19.705, 40 CFR 70.6 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

183a. The permittee may use portable carbon totes instead of the carbon beds referred to in Specific Condition #183. The permittee shall maintain records documenting the amount of carbon contained in each tote and the corresponding maximum allowable operating time for the tote. These records shall also include for each carbon tote change-out, the amount of carbon in the tote, maximum allowable operating time, and actual operating time. These records shall be updated with each tote change-out, kept on site, and made available to Department personnel upon request. [Regulation No. 19 §19.705, 40 CFR 70.6 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

183b. The permittee, during periods of operation under Solvent Storage/Drying Only scenario, may elect to regenerate the carbon beds and/or change-out the carbon totes less frequently than otherwise required under Specific Condition #183 but no less frequent than 17 days. The permittee must first change-out or regenerate the adsorption system prior to initiating the alternate scenario and immediately following the period of operating under the alternate scenario. The permittee shall maintain records documenting the time starting and ending and the change-out or regeneration prior to and following use of the scenario. These records shall be updated with each use of the scenario, kept onsite, and made available to Department personnel upon request. [Regulation No. 19 §19.705, 40 CFR 70.6 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

184. The permittee shall not produce more than 1,251 batches of NC-22 per rolling 12-month period until such time that the first batch of NC-22 is produced under operating scenario B. Once scenario B is initiated, the permittee shall not produce more than 1,925 batches of NC-22 (total for both scenarios) per rolling 12-month period. A normalization factor of 1.54 shall be applied to all scenario A batches to show compliance with the 1,925 batch/yr limit.

185. The permittee shall maintain records of each batch produced. These records shall be kept on site and made available to Department personnel upon request. Each individual month's batch total and each month's twelve (12) month rolling total shall be updated by the 15th of the month following the month to which the records pertain. A report including each individual month batch total as well as a 12-month rolling total shall be submitted to the Department in

accordance with General Provision #7. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

186. The permittee shall perform a visual inspection of the pumps driving the scrubber media at SN-TB-14 at least once per batch, to ensure that sufficient flow is maintained. Inspection results shall be recorded in a log. These records shall be kept on site and made available to Department personnel upon request. [Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

NC-23 Production

Raw materials are received in the NC-23 process area via truck or railcar, and are stored in tanks, silos, or warehouses (packaged raw materials). VOC emissions from tanks are vented through a common header to a water scrubber designated as SN-23-03.

Tetrabromobisphenol-A (TBBPA) is produced by reacting bisphenol-A (BPA) with bromine in an ethanol solvent. TBBPA is used as a flame retardant. A liquid byproduct of this reaction is ethyl bromide (bromoethane).

Ethanol is recovered from the ethyl bromide and stored in tanks. The vapors are controlled by a recovery system, consisting of condensers, absorbers, and separators. TBBPA is a solid product. Dust generated by the handling and packaging of TBBPA is controlled by fabric filters. Unreacted solvent ethanol is reclaimed and returned to the process origin as a raw material. Brines containing high concentrations of bromides are generated and recycled to produce bromine (raw material). A byproduct stream consisting of TBBPA, underbrominated TBBPA, isomers, and degradation products is also produced. Caustic is added to the process recycle stream to prevent corrosion.

The silo emission bubble (SN-23-06, SN-23-07, and SN-23-08) includes source numbers assigned to three silo processes. Each silo vents to two identical fabric filter baghouses. This permit allows the facility to operate any of three silos at any given time. Fresh production can only be received by one silo at any given time.

Compliance with permitted emission rates shall be demonstrated through stack testing, parametric monitoring, and record keeping requirements.

Specific Conditions

187. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 49 – NC-23 Production Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
23-01	NC-23 Fugitive Emissions	VOC	1.12	4.91
23-02	Raw Material Unloading Baghouse	PM_{10}	0.10	0.44
23-03	Raw Material Scrubber	VOC	0.35	1.53
23-04	By-product Loading	VOC	0.44	1.93
23-05	Vent Absorber	VOC	2.9	12.7
23-06 23-07 23-08	Receiving Silo Baghouse Blending Silo Baghouse Discharging Silo Baghouse (emission bubble)	PM_{10} VOC	0.30 3.80	1.32 16.60
23-09	Product Packaging Baghouse	PM_{10}	0.10	0.44
23-10	Product Packaging Dust Collection	PM_{10}	0.10	0.44
23-11A	Product Loading Baghouse	PM_{10}	0.10	0.44

SN-#	Description	Pollutant	lb/hr	tpy
23-11B	Product Loading (Railcar)			
23-12A	Product Loading Baghouse	PM_{10}	0.10	0.44
23-12B	Product Loading (Truck)			
23-13	Floor Vacuum Baghouse	PM_{10}	0.10	0.44
23-14	Solvent Tote Bin	VOC	40.8	1.53

188. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 50 – NC-23 Production Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
23-01	NC-23 Fugitive Emissions	Br_2	0.22	0.97
		HBr	0.11	0.49
		Chloroethane	0.03	0.13
23-02	Raw Material Unloading Baghouse	PM	0.20	0.88
23-03	Raw Material Scrubber	HBr	0.35	1.5
23-05	Vent Absorber	Phenol	0.10	0.44
		Bromoform	0.43	1.89
		Acetaldehyde	0.10	0.44
		Chloroethane	0.49	0.36
23-06 23-07 23-08	Receiving Silo Baghouse Blending Silo Baghouse Discharging Silo Baghouse	PM	0.60	2.64
		HBr	0.22	0.96
		Acetaldehyde	0.10	0.44
		Chloroethane	0.60	1.32
23-09	Product Packaging Baghouse	PM	0.20	0.88
		HBr	0.01	0.01
23-10	Product Packaging Dust Collection	PM	0.20	0.88
23-11A	Product Loading Baghouse	PM	0.20	0.88
23-11B	Product Loading (Railcar)			
23-12A	Product Loading Baghouse	PM	0.20	0.88
23-12B	Product Loading (Truck)			
23-13	Floor Vacuum Baghouse	PM	0.20	0.88
23-15	Phenol Storage Tank (6,500 gal)	Emissions routed to SN-23-05		

189. The following sources shall not exceed 5% opacity: SN-23-02, SN-23-06 through SN-23-13 (Each "A" and "B" vent at SN-23-11 and SN-23-12 shall be considered separately). [Regulation No. 18 §18.501 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

190. The permittee shall be allowed to conduct receiving, blending, or discharge for packaging at any of the three silos associated with source numbers SN-23-06, SN-23-07, and SN-23-08 at any given time. [Regulation No. 19 §19.705, 40 CFR Part 70.6, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-31]

191. The permittee shall operate a continuous flow monitor alarm at SN-23-03 (Raw Material Scrubber). A record of the minimum flow set point value for the scrubber shall be maintained. The permittee shall also keep a log of all alarm incidents and subsequent corrective action. These records shall be maintained on site and made available to Department personnel upon request. The flow rate history and alarm monitoring shall be confirmed by the most recent satisfactory test for purposes of continuous compliance until the next test is performed.

192. The permittee shall operate a continuous flow monitor alarm at SN-23-05 (Vent Absorber (scrubber). A record of the minimum flow set point value for the scrubber shall be maintained. The permittee shall also keep a log of all alarm incidents and subsequent corrective action. These records shall be maintained on site and made available to Department personnel upon request. The flow rate history and alarm monitoring shall be confirmed by the most recent satisfactory test for purposes of continuous compliance until the next test is performed. [Regulation No. 19 §19.703, 40 CFR Part 52, Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

193. The permittee shall be limited to 96 total fills per day for the drums venting at SN-23-04. [Regulation No. 19 §19.705, 40 CFR Part 70.6, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

194. The permittee shall maintain daily records of drum fills at SN-23-04 in order to demonstrate compliance with the previous condition. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

195. The permittee shall conduct stack testing for VOC at SN-23-03, SN-23-05, and either SN-23-06, SN-23-07, or SN-23-08 (whichever process silo is in receiving mode) in 2005 and every five years thereafter. Testing shall be conducted using EPA Reference Method 18, and shall be coordinated in advance with the Compliance Inspector Supervisor. [Regulation No. 19 §19.702 and 40 CFR Part 52, Subpart E]

196. The permittee shall conduct stack testing for HBr at source SN-23-06, SN-23-07, or SN-23-08 (whichever process silo is in receiving mode) in 2005 and every five years thereafter. Testing shall be conducted using EPA Reference Method 26A, and shall be coordinated in advance with the Compliance Inspector Supervisor. [Regulation No. 18 §18.1002 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

196a. The permittee shall limit operation at the Solvent Tote Bin (SN-23-14) to 75 cleaning cycles per twelve consecutive months. As an alternative, the permittee may exceed 75 cycles per twelve months provided the permittee shows compliance with Specific Condition 187 VOC emission rates through calculations. Compliance shall be demonstrated by Specific Condition 196b. [Regulation No. 19 §19.705, A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311. and 40 CFR 70.6]

196b. The permittee shall keep monthly records of the number of cleaning cycles per month at the solvent tote bin (SN-23-14) along with a twelve month rolling total.

If 75 cycles per twelve months is exceeded the permittee shall demonstrate compliance with Specific Condition 187 through VOC calculations kept on-site. Calculations shall be based on actual solvent vapor pressure at actual temperatures during each operation of the source. Heating and recirculation emissions shall be calculated using the ideal gas law and principles of partial pressures at actual process parameters.

All records shall be updated by the 15th day following the month to which the records pertain. Records shall be kept on-site, made available to Department personnel, and otherwise kept in accordance with General Provision 7. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

196c. The permittee shall limit the NC-23 primary reactor throughput of ABRM1 to 1.752 million pounds per consecutive 12-month rolling period. [Regulation No. 18 §18.1004 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

196d. The permittee shall keep monthly records of the amount of ABRM1 added to the reactor along with a twelve month rolling total. All records shall be updated by the 15th day following the month to which the records pertain. Records shall be kept on-site, made available to Department personnel, and otherwise kept in accordance with General Provision 7. [Regulation No. 18 §18.1004 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Brine Management Process

The feed brine production system produces salt water from the Smackover Lime formation and pumps it to the plant, where the hydrogen sulfide and oil are removed. Brine is also purchased and is pumped to the plant where the hydrogen sulfide and oil are removed.

The feed brine system's main components are two above-ground fiberglass tanks. The bromine in the feed brine is removed in the bromine plant, and the debrominated brine becomes tail brine. The tail brine is neutralized in the neutralization tank, cooled by evaporative cooling in the cooling towers (SN-BT-21), and transferred into the fiberglass tail brine tank. From the tail brine tank, it is pumped through a system of pipelines and injected back into the Smackover Lime formation through the tail brine injection (recycle brine) system. Emissions from this process area have been calculated based upon maximum brine pump rates of system components. Compliance with permitted emission rates shall be demonstrated through process throughput restrictions and record keeping requirements.

Specific Conditions

197. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 51 – Brine Management Process Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
BT-01	Feed Brine Oil Separator/Surge Tank (V-3011)	VOC	0.01	0.05
BT-11	Neutralization Tank (T-3110)	VOC	0.01	0.05
BT-12	Tail Brine Line Vent	VOC	0.01	0.05
BT-13	Tail Brine Tank (T-3101)	VOC	0.01	0.05
BT-16	Brinefield Oil/Water Separator (T-7001)	VOC	30.00	1.80
BT-17	Brinefield Oil Storage Tank (T-7002)	VOC	16.40	1.70
BT-21	Four Tail Brine Cooling Towers (Y-3120, Y-3121, Y-3122,Y-3123)	PM_{10} VOC	4.12 3.37	18.09 14.72
BT-22	Brine Management, Fugitive Emissions Included in Ground Brine Ponds	VOC	0.02	0.09
BT-23	Line Vent	VOC	0.01	0.05
BT-24	Line Vent	VOC	0.01	0.05
BT-25	DRT Tail Brine Line Vent	VOC	0.01	0.05
BT-26	DRT Tail Brine Line Vent	VOC	0.01	0.05
BT-27	Tail Brine Line Vent	VOC	0.01	0.05
BT-28	Tail Brine Line Vent	VOC	0.01	0.05

198. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 52 – Brine Management Process Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
BT-01	Feed Brine Oil Separator/Surge Tank (V-3011)	H_2S	0.14	0.61
BT-11	Neutralization Tank (T-3110)	H_2S NH_3 Cl_2 or Halogens	0.01 0.20 0.03	0.05 0.90 0.13
BT-12	Tail Brine Line Vent	NH_3 Cl_2 or Halogens	0.01 0.01	0.05 0.05
BT-13	Tail Brine Tank (T-3101)	H_2S NH_3 Cl_2 or Halogens	0.01 0.02 0.01	0.05 0.09 0.05
BT-16	Brinefield Oil/Water Separator (T-7001)	H_2S	0.01	0.05
BT-17	Brinefield Oil Storage Tank (T-7002)	H_2S	0.01	0.05
BT-21	Four Tail Brine Cooling Towers (Y-3120, Y-3121, Y-3122, 6-3123)	PM NH_3 Cl_2 or Halogens	4.12 10.23 2.89	18.09 44.77 12.60
BT-22	Brine Management, Fugitive Emissions Included in Ground Brine Ponds	H_2S NH_3 Cl_2 or Halogens	0.02 0.02 0.02	0.09 0.09 0.09
BT-23	Line Vent	NH_3 Cl_2 or Halogens	0.01 0.01	0.05 0.05
BT-24	Line Vent	NH_3 Cl_2 or Halogens	0.01 0.01	0.05 0.05
BT-25	DRT Tail Brine Line Vent	NH_3 Cl_2 or Halogens	0.01 0.01	0.05 0.05
BT-26	DRT Tail Brine Line Vent	NH_3 Cl_2 or Halogens	0.01 0.01	0.05 0.05
BT-27	Tail Brine Line Vent	NH_3 Cl_2 or Halogens	0.01 0.01	0.05 0.05
BT-28	Tail Brine Line Vent	NH_3 Cl_2 or Halogens	0.01 0.01	0.05 0.05

199. The following sources shall not exceed 5% opacity: SN-BT-11, SN-BT-12, SN-BT-13, and SN-BT-21. [Regulation No. 18 §18.501 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

200. The rate of feed brine to be processed at SN-BT-01 shall be limited to 10,200 gallons of brine per minute. [Regulation No. 19 §19.705 et seq., 40 CFR Part 70.6, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

201. The rate of tail brine to be processed through the tail brine tank (BT-13) and the cooling towers (SN-BT-21) shall be limited to 10,600 gallons per minute, each. [Regulation No. 19 §19.705 et seq., 40 CFR Part 70.6, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

202. The annual throughput of petroleum liquids through the brinefield oil/water separator (SN-BT-16) and brinefield oil storage tank (SN-BT-17) shall not exceed 250,000 gallons per year per source, on a 12-month rolling total. [Regulation No. 19 §19.705 et seq., 40 CFR Part 70.6, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

203. The permittee shall keep readily accessible records on site which document the maximum design capacities of SN-BT-01, SN-BT-13, SN-BT-16, SN-BT-17, and SN-BT-21. [Regulation No. 18 §18.1004 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

204. The permittee shall keep readily accessible records on site which demonstrate compliance with annual throughput limits at SN-BT-16 and SN-BT-17. [Regulation No. 18 §18.1004 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Di-(methyl-thio)-toluene-diamine (DMTDA)

Toluene diamine (TDA) and methyl mercaptan (MeSH) are unloaded from tank cars, while chaser, solvent dimethyl formamide (DMF), and hydrogen peroxide (H_2O_2) are unloaded from tank trucks. Catalyst and product stabilizer are received in bags.

TDA and dimethyl disulfide (DMDS) are reacted with the catalyst to form di-(methyl-thio)-toluene-diamine. MeSH, a reaction byproduct, is combined with purchased MeSH and reacted with H2O2 to form DMDS, which can be recycled, disposed, or sold as product.

All vapors emitted from the process and storage areas are vented through a common header to a new thermal oxidizer (SN-DM-02). Insignificant amounts of particulate matter are emitted from the catalyst box and the product stabilizer hopper.

Compliance with permitted emission rates shall be demonstrated through stack testing, parametric monitoring, and record keeping requirements.

Specific Conditions

205. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 53 – DMTDA Process Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
DM-01	Ethylene Glycol Tank	VOC	0.03	0.11
DM-02	Thermal Oxidizer	PM_{10}	0.20	0.88
		SO_2	4.00	17.50
		VOC	0.10	0.44
		CO	0.10	0.44
		NO_X	0.31	1.40
DM-07	Fugitive Emissions	VOC	3.18	13.95

206. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 54 – DMTDA Process Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
DM-01	Ethylene Glycol Tank	Ethylene Glycol	0.03	0.11
DM-02	Thermal Oxidizer	PM	0.20	0.88
DM-03	Hydrogen Peroxide Tank I	H_2O_2	0.81	3.55
DM-06	Hydrogen Peroxide Tank II	H_2O_2	0.81	3.55
DM-07	Fugitive Emissions	Toluene Diamine	0.08	0.35
		Dimethyl Formamide	0.09	0.39
		Ethylene Glycol	0.41	1.80
		H_2O_2	0.49	2.20

207. SN-DM-02 shall not exceed 5% opacity. [Regulation No. 18 §18.501 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

208. The combustion zone temperature of the Thermal Oxidizer (SN-DM-02) shall be maintained at a minimum of 1200 °F. A temperature monitoring device operated in accordance with the manufacturer's specifications and recommendations for use shall be the compliance mechanism for this condition. [Regulation No. 19 §19.703, 40 CFR Part 52, Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

209. The permittee shall record the combustion zone temperature of SN-DM-02 at least once per 24 hours of operation. The record shall be kept on site and made available to Department personnel upon request. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

210. The permittee shall conduct stack testing on SN-DM-02 for the following compounds, using the test methods indicated. [Regulation No. 19 §19.702 and 40 CFR Part 52, Subpart E]

Table 55 – Required DMTDA Criteria Pollutant Tests Methods

Pollutant	EPA Reference Method
PM_{10}	5
SO_2	6C
VOC	18
CO	10B
NO_X	7E

The testing shall be conducted in 2005 and every five years thereafter, except for SO_2 testing, which shall be performed in 2002 and every two years thereafter. All particulate measured shall be assumed to be PM_{10}.

Maintenance and Support Facilities

Extraneous Water System

Process water from all plant operating units is routed to the Extraneous Water Treatment System prior to underground injection in three on-site Class I injection wells. This process water is collected in small unit sumps. Approximately 90% of the water is pumped from these unit sumps into the ADMA collection sump. From this sump, the water can be pumped to either extraneous water storage tanks, T-1305 or T-1300, or to the Extraneous Water Overflow Tank.

The Extraneous Water Overflow Tank is only used during excessive rainfall periods; it is normally empty. Normally, the flow is routed to T-1305, the small extraneous water storage tank. From there the water flows through the large extraneous water storage tank. Solids from these two tanks are sent to the drying bed for dewatering prior to disposal in Solid Waste Vault-2, (SWV-2). The water from the tanks continues on to the clarifier and three filter presses for further solids removal. The solids from the filter presses go directly to SWV-2. The water flows through the injection tank and a cartridge polishing filter prior to injection in one of three on-site Class-I injection wells.

The Extraneous Water Treatment System is being permitted under one emission bubble. Compliance with permitted emission rates shall be demonstrated through record keeping requirements.

Specific Conditions

211. The permittee shall not exceed the emission rates set forth in the following table. In order to demonstrate compliance with the emission limits, the permittee shall calculate annual emissions from the Extraneous Water System every six months. These calculations shall be kept on site and made available to Department personnel upon request. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 56 –Extraneous Water System Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
MS-01	Extraneous Water System	VOC	4.00	17.60

212. The permittee shall not exceed the emission rates set forth in the following table. In order to demonstrate compliance with the emission limits, the permittee shall calculate annual emissions from the Extraneous Water System every six months. These calculations shall be kept on site and made available to Department personnel upon request. [Regulation No. 18 §18.801, §18.1004, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311

Table 57 –Extraneous Water System Maximum Non- Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
MS-01	Extraneous Water System	Bromoform	0.53	2.32
		Chloroform	0.09	0.39
		1,1-DiChloroethane	0.09	0.39
		Toluene	0.25	1.10
		Acetaldehyde	0.28	1.23
		Methanol	0.98	4.28

Drying Bed

Solids from the Extraneous Water storage tanks and unit sumps are deposited on the Drying Bed for dewatering prior to disposal in the Solid Waste Vault #2. The water drained from the solids is pumped on level control back to the Extraneous Water storage tanks. The Drying Bed is approximately 100 ft by 300 ft in size.

Compliance with permitted emission rates shall be demonstrated through record keeping requirements.

Specific Conditions

213. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 58 – Drying Bed Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
MS-02	Drying Bed	VOC	0.10	0.44

214. Records of solids transferred from the drying bed (SN-MS-02) to the landfill (SN-MS-06) shall be maintained and updated on a monthly basis. These records shall be kept on site and made available to Department personnel upon request. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

215. The permittee shall calculate annual emissions from the Drying Bed every six months. These calculations shall be kept on site and made available to Department personnel upon request. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

French Drain Sumps

Albemarle Corporation operates a system of sumps at the South Plant to collect contaminated groundwater at the plant site. The constituent concentration and pump rates of these sumps vary with hydrology. The recovered groundwater is recycled to the Bromine Process for bromide ion recovery through a process tank. These sumps are being permitted as a bubble. This tank is an insignificant source in the Bromine Process.

Compliance with permitted emission rates shall be demonstrated through record keeping requirements.

Specific Conditions

216. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 59 – French Drain Sumps Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
MS-03	French Drain Sump Bubble	VOC	0.30	1.32

217. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 60 – French Drain Sumps Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
MS-03	French Drain Sump Bubble	Br_2	2.70	11.83

218. Records of water quantity recovered from the sumps (SN-MS-03) shall be maintained on site, updated monthly, and made available to Department personnel upon request. Recovered water shall be limited to 82.0 million gallons per year from all sumps in the aggregate. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

Plantwide Refrigerant Fugitive Emissions

VOC and Non-VOC/Non-HAP refrigerants may be used in the various heat exchange processes at Albemarle. Refrigerant may be emitted from fittings, seals, and other refrigeration system components. The permitted hourly emission rate shown here is an annual-average based on annual refrigerant emissions estimates. Compliance is demonstrated based on work practices, mass balances, and recordkeeping according Plantwide Condition #12.

219. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 61 – Plantwide Refrigerant Fugitive Criteria Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
MS-12	Plantwide Fugitive Refrigerant Emissions	VOC	1.06	4.64

220. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 62 – Plantwide Refrigerant Fugitive Non-Criteria Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
MS-12	Plantwide Fugitive Refrigerant Emissions	Non-VOC/Non-HAP Refrigerant	1.06	4.64

221. Reserved.

222. Reserved.

223. Reserved.

Carpenter's Shop

Albemarle Corporation operates an on-site carpenter's shop which makes shelves, cabinets, decks, and any other wood forms necessary to support the chemical manufacturing process operations at the facility.

This operation is subject to all applicable requirements of 40 CFR Part 63, Subpart JJ, National Emission Standards for Wood Furniture Manufacturing Operations.

Compliance with permitted emission rates shall be demonstrated through record keeping requirements.

Specific Conditions

224. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 63 – Carpenter' Shop Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
MS-05	Carpenter's Shop Fugitives	VOC	0.67	2.20

225. Monthly record keeping of the finishing materials and adhesives used in the Carpenter's Shop (SN-MS-05) shall be maintained on site to demonstrate that the facility meets the criteria for an incidental furniture manufacturer. Monthly usage shall be limited to 100 gallons of solvent-based finishing materials and adhesives per month. [Regulation No. 19 §19.304 and 40 CFR Part 63, Subpart JJ, §63.800 (see Appendix A)]

South Landfill

The South Landfill is used mainly for disposal of plant trash and molten sulfur from the DECTP process. Fugitive particulate emissions from this area are estimated to be de minimis. Sulfur disposal will result in emissions of VOC and SO_2.

Specific Conditions

226. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 64 – South Landfill Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
MS-06	South Landfill	SO_2 VOC	0.50 7.00	0.17 2.40

227. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 65 – South Landfill Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
MS-06	South Landfill	Toluene	5.00	1.70

228. Monthly records of sulfur disposed in the South Landfill (SN-MS-06) shall be maintained, kept on site, and made available to Department personnel upon request. Yearly disposal, on a 12-month rolling total, shall not exceed 24 million pounds per year. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

Gasoline Storage Tank

Albemarle Corporation maintains a 3100 gallon gasoline storage tank on the South Plant. This tank is filled periodically by a local vendor. The gasoline is used for plant vehicles and equipment.

Specific Conditions

229. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 66 – Gasoline Storage Tank Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
MS-07	Gasoline Storage Tank	VOC	47.7	1.0

230. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 67 – Gasoline Storage Tank Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
MS-07	Gasoline Storage Tank	Benzene	0.50	0.10
		Hexane	0.80	0.10
		Toluene	0.70	0.10
		Xylene	0.30	0.10
		Ethyl Benzene	0.10	0.10
		Iso-octane	0.40	0.10

231. The gasoline storage tank shall be limited to 200,000 gallons throughput per rolling 12 months. [Regulation No. 19 §19.705, 40 CFR Part 70.6, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

232. Records shall be maintained to demonstrate compliance with the gasoline storage tank throughput limit. The records shall be updated monthly, kept on site, and made available to

Department personnel upon request. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

Solid Waste Vault No. 2

The Solid Waste Vault No. 2 (SWV-2) is an on-site solid waste landfill. This landfill receives solids from the Drying Bed, the Extraneous Water Filter presses, and numerous solid waste collection points throughout the process units. VOC and particulate emissions from this area are estimated to be de minimis under Group A Number 13 of the Department's Insignificant Activities List.

Outfall 002 Bioreactor

The Outfall 002 Bioreactor is a 30,000 gallon per day package sewage treatment plant, which treats effluents from numerous septic tanks located throughout the plant. The treatment system includes an aeration basin clarifier and chlorine contact chamber. The chlorinator uses swimming pool chlorine tablets for chlorination. This source emits trace amounts of chlorine and methane, and is considered insignificant under Group A Number 13.

PSV-1 Sumps and PSV-1 Leachate Tank

PSV-1 is a closed on-site landfill. This landfill is designed with both primary and secondary liners which underlay the waste. Liquid which collects on top of these liners drains to two in-ground open top collection sumps, one for the primary liner, and one for the secondary liner. The liquid collected in these sumps is pumped to the PSV-1 Leachate Tank, T-9590. The PSV-1 Leachate Tank is an API tank with a nominal capacity of 43,000 gallons. The liquid collected in this tank is trucked off-site for disposal. The liquid which collects in the sumps and tank is essentially water with very little contamination. All three of these sources, PSV-1 Primary Liner Sump, PSV-1 Secondary Liner Sump, and PSV-1 Leachate Tank, are insignificant sources under Group A Number 13.

Cooling Towers

The cooling towers on the plant site are treated with a combination of sodium bromide and chlorine. These two chemicals are added simultaneously into a static in-line mixer. The sodium bromide and chlorine react to form sodium chloride and hyperbromus acid. Air emissions for this treatment are estimated to be de minimis under Group A Number 13.

95ND141/Stabrom 909 Production at NC-14

Albemarle will either receive sodium hypochlorite in the process area, or manufacture it between batches in the product reactor. If Albemarle manufacturers sodium hypochlorite, it will feed aqueous sodium hydroxide solution to the reactor while gaseous chlorine is bubbled through it. The Caustic Scrubber (SN-TB-14) controls emissions from this process. Finished batches of sodium hypochlorite are pumped to a storage tank for later use. If Albemarle uses purchased sodium hypochlorite it will also be stored in this same tank. The sodium hypochlorite storage tank vents water vapor, nitrogen, and oxygen to the atmosphere.

The inorganic acid used in the process is received in the process area and stored on-site. It is a white crystal with no observed dusting tendencies. Bleach is fed directly to the process, as are bromine, sodium hydroxide, and sodium bromide. Equivalent liquid products can be produced from these new materials.

During these production processes Br_2, BrCl, and Cl_2 may be vented from the reactors to the reactive caustic scrubber (SN-TB-14). Particulate emissions are not expected but quantified for the inorganic acid weighing vessel (SN-TB-40). Oxygen, nitrogen, and water vapor vent from the product storage due to loading and unloading of the product solution and due to breathing losses from daily temperature fluctuations.

Specific Conditions

233. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 68 – 95ND141/Stabrom 909 Production Maximum Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr*	tpy*
SN-TB-14	Caustic Scrubber	Br_2 BrCl Cl_2	0.10 0.10 0.10	0.44 0.44 0.44
SN-TB-29	Fugitive Emissions	Br_2 BrCl Cl_2	0.10	0.44

* Includes emission estimates for the proposed production scenario only. If methyl-bromide is being produced, these limits may be additive with the new limits listed for the two sources under the other scenarios.

234. The permittee shall conduct initial stack testing for SN-TB-14 within 1500 operating hours following permit issuance of operation of the 95ND141/Stabrom 909 Production Scenario, and every 8760 operating hours thereafter of operation of this scenario. The permittee shall use Method 26A to verify compliance with the Br_2, BrCl, and Cl_2 emission rates set forth in Specific Condition #233. [Regulation No. 18 §18.1002 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Alternate Control Device for SN-BR-12

The permittee may operate the Caustic Drum, SN-BR-15, as an alternative control device during periods when the Bromine Area Scrubber, SN-BR-12, is out of service. The following conditions must be met:

235. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 69 – Alternate Control Device Emissions for SN-BR-12

SN-#	Description	Pollutant	lb/hr*	tpy*
SN-BR-15	Caustic Drum	Br_2+ Cl_2	1.6	0.1

236. SN-BR-15 shall not exceed 5% opacity. [Regulation No. 18 §18.501 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

237. The permittee shall take immediate corrective action when visible emissions are detectable from SN-BR-15 and shall not operate the source until it is capable of meeting opacity requirements. Records shall be kept of any upset conditions at SN-BR-15 and submitted in accordance with Plantwide Condition 10. [Regulation No. 18 §18.1002 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

238. The permittee shall not operate SN-BR-15 more than 120 hours per twelve consecutive months and shall only operate the source during scheduled plant shutdowns or emergency situations where the Bromine Area Scrubber, SN-BR-12, is out of service. [Regulation No. 18 §18.1002 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

239. The permittee shall keep records demonstrating compliance with Specific Condition #238. Records shall be updated monthly by the fifteenth day following the month to which the records pertain. The records shall include a twelve month rolling total. Records shall be made available to Department personnel upon request, and otherwise submitted in accordance with General Provision #7. [Regulation No. 18 §18.1002 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Generator Usage

In addition to generators that may be classified as insignificant under ADEQ's insignificant activities list, the permittee may operate diesel, gasoline, butane, propane, or natural gas-fired generators for the purpose of auxiliary power generation.

Specific Conditions

240. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 70 – Electric Generators Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
SN-MS-08	Electric Generators	PM_{10}	3.0	1.4
		VOC	8.1	13.2
		SO_2	2.8	1.3
		NO_X	41.6	19.0
		CO	162.5	19.0

241. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 71 – Electric Generators Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
SN-MS-08	Electric Generators	PM	3.0	1.4

242. The permittee shall not exceed 20% opacity at SN-MS-08. Compliance shall be demonstrated by the use of diesel, gasoline, or butane only. [Regulation No. 19 §19.503 and 40 CFR Part 52, Subpart E]

243. The permittee shall not produce more than a total of 64,500 kW-hrs of electrical power annually. The sum of all generators shall not exceed a total rated power output of 1000 kW using diesel fuel. A maximum of 275.5 kW within the overall 1000 kW limit may be fueled by gasoline or butane. [Regulation No. 19 §19.705, 40 CFR 70.6, and A.C.A§ 8-4-203 as referenced by §8-4-304 and §8-4-311]

244. The permittee shall maintain monthly records of electrical production demonstrating compliance with Specific Condition #243. As an alternative, the permittee may perform monthly calculations using appropriate AP-42 emission factors to verify compliance with the emission rate in Specific Condition #240. Records shall be updated monthly by the fifteenth day following the month to which the records pertain. The records shall include a twelve month rolling total. Records shall be made available to Department personnel upon request, and otherwise submitted in accordance with General Provision #7. [Regulation No. 19 §19.705, 40 CFR 70.6, and A.C.A§ 8-4-203 as referenced by §8-4-304 and §8-4-311]

NaBr Production in NC-14 Reactor

In this alternate operating scenario, the permittee produces NaBr in either a batch or continuous process in the NC-14 Reactor. The associated area scrubber, SN-TB-03, will be used for emission control.

Specific Conditions

245. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 72 – NaBr Production Alternate Scenario Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
SN-TB-03	Area Scrubber	Br_2+HBr	0.10	0.44

246. The permittee shall conduct initial stack testing for SN-TB-03 within 1500 hours of operation of the NaBr Production Scenario, and every 8760 operating hours thereafter of operation of this scenario. The permittee shall use Method 26A to verify compliance with the Br_2 and HBr emission rates set fourth in Specific Condition #245. [Regulation No. 18 §18.1002 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

EtBr at NC-14

Under an alternate operating scenario, Albemarle may produce ethyl bromide (EtBr) at the NC-14 production unit. EtBr may be produced using equipment already in place that is permitted under the MeBr production scenario.

The permittee will operate this scenario under the same emission limits as it would under the MeBr scenario with some exceptions. Permitted emission limits at the spent sulfuric acid tank (SN-TB-12) are increased as a result of the scenario. The permittee may also operate a new source, the Raw Material Recovery/ Disposal (SN-TB-37). At this source effluent from the EtBr trial production scenario is loaded into trucks and introduced into the NC-23 process or neutralized and disposed in the extraneous water system.

Specific Conditions

247. During EtBr production the permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 73 – EtBr Alternate Operating Scenario Criteria Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
TB-03	Area Process Scrubber (Ethyl Bromide Recovery Unit)	VOC	10.7	7.5
TB-12	Spent Sulfuric Acid Storage	VOC	0.53	0.38
TB-29	NC-14 Fugitive Emissions	VOC	3.47	2.4
TB-30	Ethanol Storage Tank	VOC	11.3	6.3
TB-37	Raw Material Recovery	VOC	1.34	0.94

248. During EtBr production the permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 74 – EtBr Alternate Operating Scenario Non-Criteria Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
TB-12	Spent Sulfuric Acid Storage	H_2SO_4	0.01	0.01
TB-29	NC-14 Fugitive Emissions	Br_2 + HBr	0.46	0.32
TB-37	Raw Material Recovery	HBr	0.10	0.10

249. The permittee shall not exceed 5% opacity at SN-TB-37. [Regulation No. 18 §18.501 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

250. The permittee shall not operate the EtBr scenario more than 1400 hours per 12 consecutive months. [Regulation No. 19 §19.705, 40 CFR 70.6, and A.C.A§ 8-4-203 as referenced by §8-4-304 and §8-4-311]

251. The permittee shall keep monthly records to demonstrate compliance with Specific Condition #250. Records shall be updated by the 15th day of the month following the month to which the

records pertain. A twelve month rolling total shall be kept. Records shall be kept on-site and made available to Department personnel upon request. Records shall be submitted in accordance with General Provision 7. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

252. The permittee shall comply with all applicable provisions §60.482-1 (General), §60.482-2 (Pumps in light liquid service), §60.482-3 (Compressors), §60.482-4 (Pressure relief devices in gas /vapor service), §60.482-5 (Sampling connection systems), §60.482-6 (Open-ended valves or lines), §60.482-7 (Valves in gas vapor service and in light liquid service), §60-482-8 (Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and connectors), §60.482-9 (Delay of repair requirements), §60.481-10 (Closed vent systems and control devices), §60.483-1 (Allowable percentage of valves leaking), §60.483-2 (Alternate standards of valves - Skip period leak detection and repair), §60.485 (Test methods and procedures), §60.486 (Recordkeeping), and §60.487 (Reporting). [Regulation No. 19 §19.304 and 40 CFR 60, Subpart VV]

Oil Separator Tank – T-292

Albemarle is allowed the flexibility to heat -treat the contents of SN-BT-29 (T-292). The tank has been removed from the Insignificant Activities list and listed as a permitted source.

Specific Conditions

253. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 75 – Oil Separator Tank Maximum Criteria Pollutant Emission Rates

SN	Description	Pollutant	lb/hr	tpy
BT-29	Oil Separator Tank (T-292)	VOC	30.00	1.95

254. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 76 – Oil Separator Tank Maximum Non-Criteria Pollutant Emission Rates

SN	Description	Pollutant	lb/hr	tpy
BT-29	Oil Separator Tank (T-292)	H_2S	0.01	0.05
		Benzene	3.87	0.04
		Toluene	1.34	0.02
		Xylene	0.28	0.01
		Hexane	3.12	0.04

255. The permittee shall not exceed 10 batches per twelve consecutive months at SN-BT-29. [Regulation No. 19 §19.705, 40 CFR 70.6, and A.C.A§ 8-4-203 as referenced by §8-4-304 and §8-4-311]

256. The permittee shall keep monthly records of batch throughput at SN-BT-29. Records shall be updated by the 15th day of the month following the month to which the records pertain. A twelve month rolling total shall be kept. Records shall be kept on-site and made available to Department personnel upon request. Records shall be submitted in accordance with General Provision #7. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

257. Reserved

HCl Loading Operation Scenarios

Albemarle has two options for handling the displaced vapors from the loading of the HCl co-product into tanker trucks. The controlled loading operation ultimately results in the displaced vapors to be routed to the Vent Gas Incinerator (SN-21-01) for the NC-21 flame retardant process.

The second option, an uncontrolled HCl loading operation, involves benzene being recovered and recycled from the co-product HCl stream through the use of a distillation column. After being purified, the benzene concentration in the co-product HCl stream will be 30 ppmw or less. The co-product stream can either be routed to intermediate storage or be loaded out via tank truck. Benzene recovered in the distillation column is condensed and combined with other recovered benzene streams for reuse in the NC-21 process unit. The displaced vapors from the trucks are emitted to the atmosphere.

Albemarle has the option of installing the distillation column or not. Specific Conditions #258 through #261 only apply if the distillation column is operated (second option).

Specific Conditions

258. The permittee shall not exceed the emission rates set forth in the following table. Compliance with this condition shall be demonstrated through compliance with Specific Conditions #260 and #261. [Regulation No. 19 §19.501 et seq. effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 77 – HCl Loading Operation Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
21-04	HCl Loading Operation (Option #2)	VOC	0.8	0.2

259. The permittee shall not exceed the non-criteria emission rates set forth in the following table. Compliance with this condition shall be demonstrated through compliance with Specific Conditions #260 and #261. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 78 – HCl Loading Operation Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
21-04	HCl Loading Operation (Option #2)	Benzene	0.80	0.20
		HCl	0.30	0.10

260. The facility shall use a method approved by the Department to test the HCl co-product stream to demonstrate benzene concentration does not exceed 30 ppmw. This testing shall be performed in accordance with Plantwide Condition #3 and then once every quarter for the first two years after which time the testing shall be performed once every five years coinciding with the submittal of the Title V Renewal application. Each quarterly test must be performed at least 30 days after the previous quarterly test. Within 30 days after testing, a copy of the testing information shall be sent to the address below.

Arkansas Department of Environmental Quality
Air Division
Attn.: Air Enforcement
Post Office Box 8913
Little Rock, AR 72219

[Regulation No. 18 §18.1002 and A.C.A. §8-4-203 as referenced by §8 4 304 and §8 4 311]

261. The permittee shall calculate benzene and HCl emissions from the HCl Loading operations once per year. Pound per hour emissions shall be based upon worst-case conditions, and ton per year emissions upon a 12-month period. A copy of the calculations shall be kept on site and made available to Department personnel upon request. [Regulation No. 18 §18.1004 and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

262. The permittee shall route all displaced gas from HCl loading operations to SN-21-01 if the concentration of benzene in the co-product stream is greater than 30 ppmw or if the distillation column at SN-24-01 is not installed. As of July 27, 2004, this distillation column has not been installed. [Regulation No. 18 §18.1004 and A.C.A. §8-4-203 as referenced by §8 4 304 and §8 4 311]

NC-24 Production

The NC-24 process produces two isomers of a desired alkyl bromide product by reacting the base hydrocarbon oelfin with HBr. The HBr comes from South Plant facilities. The olefin is stored under pressure with emissions routed to a flare (SN-AD-26). The reaction takes place in a continuously operated reactor where the reactants are added and the crude product is withdrawn simultaneously. As a continuous reactor under pressure, the reactor has no normal vent during the reaction process.

The crude product contains a mixture of HBr and the two alkyl bromide isomers. The organic product is washed with water in the Wash Column (SN-24-01) to remove the residual HBr. HBr is preferentially absorbed into the aqueous phase forming an aqueous acid stream. The organic product retained in the wash water acid is recovered in the Acid Stripper by routing the stripper overheads back to the Wash Column. The organic product is dewatered in the Organic Dryer, and residual organic or acid in the dryer over heads are recovered in the Wash Column. The stripped acid will be stored in the Wash Water Tank (SN-CB-10) before being used elsewhere at the South Plant. The dewatered crude product will be sent downstream for further processing.

After being dewatered, the crude product is fed to two distillation columns in series. The back-end processes operate with two Refrigerated Vent Condensers (SN-TB-25) used to recover product and raw material. The two columns are designed to separate the two alkyl bromide isomers into two distinct product streams and one organic waste stream. One of the isomers is blended with a small amount of 1,2-epoxybutane, and both isomers are stored before being loaded for sale. The organic waste is drummed and will be shipped off-site for processing. Emissions from all of the product purification, storage, and loading operation will be routed to the Refrigerated Vent Condensers (SN-TB-25).

NC-24 Production Alternate Scenario –Periods of No Reaction

When the reactor loses the reaction, the raw material vapors (propylene and hydrogen bromide) may build up and must be vented before re-initiating the reaction. The vapors are vented to the Wash Column (SN-24-01), which absorbs the hydrogen bromide just as in the primary operating scenario. Propylene will pass through the wash column unaffected.

The process will be controlled such that the flaring (SN-AD-26) and depressurization of the reactor will not occur at the same time. The pressure control valve on the NC-24 reactor is designed to allow no more than 48.5 lb/hr of VOC which is the same rate VOC would otherwise be routed to the flare in the primary operating scenario.

Specific Conditions

263. The permittee shall not exceed the emission rates set forth in the following table. [Regulation No. 19 §19.501 *et seq.* effective May 28, 2006, and 40 CFR Part 52, Subpart E]

Table 79 – NC-24 Production Maximum Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
24-01	Wash Column (Primary Operating Scenario)	VOC	48.50	8.80
24-01	Wash Column (Alternate Scenario)	VOC	48.50	0.60
24-02	NC-24 Fugitives	VOC	1.10	4.80
AD-26	ADMA Flare**	PM_{10}	0.80	0.10
		SO_2	0.10	0.10
		VOC	48.50	0.60
		CO	18.90	0.30
		NO_X	3.50	0.10
TB-25	Refrigerated Vent Condensers	VOC	43.50	4.60

** SN-AD-26 is not operated as an emergency control device in this scenario. Therefore, the operation of this source does not need to be reported as an upset condition as is required under the Alkyl Amines Process (Specific Conditions #61 and #62)

264. The permittee shall not exceed the non-criteria emission rates set forth in the following table. [Regulation No. 18 §18.801, effective February 15, 1999, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Table 80 – NC-24 Production Maximum Non-Criteria Pollutant Emission Rates

SN-#	Description	Pollutant	lb/hr	tpy
24-01	Wash Column*** (Primary Operation Scenario)	HBr	0.10	0.50
		Acetone	0.10	0.10
		HCl	0.10	0.50
24-01	Wash Column*** (Alternate Scenario)	HBr	0.10	0.50
		Acetone	0.01	0.01
		HCl	0.10	0.50
24-02	NC-24 Fugitives	HBr	0.10	0.40
		Acetone	0.10	0.10
		HCl	0.10	0.10
		Ethyl Glycol	0.20	0.50
		1,2-Epoxybutane	0.10	0.10
AD-26*	Emergency Flare**	PM	0.80	0.10
TB-25*	Refrigerated Vent Condensers	HBr	0.10	0.10
		Acetone	0.10	0.10
		HCl	0.10	0.10
		1,2-Epoxybutane	1.30	0.10

* This source is used in other production/operating scenarios. The emission limits listed above are only applicable to NC-24 production.

** SN-AD-26 is not operated as an emergency control device in this scenario. Therefore, the operation of this source does not need to be reported as an upset condition as is required under the Alkyl Amines Process (Specific Conditions #61 and #62)

*** The limits are the total emissions between the two operating scenario.

265. The permittee shall demonstrate compliance with the hourly emission limits for SN-24-01 by maintaining a daily average chilled water flow of 1,500 lb/hr or greater and a daily average chilled water temperature of 60 °F or less. [Regulation No. 19 §19.705, 40 CFR Part 70.6, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

266. The permittee shall demonstrate compliance with the hourly emission limits for SN-TB-25 by maintaining a daily average glycol coolant temperature less than or equal to 40 °F while receiving vapors from the process. [Regulation No. 19 §19.705, 40 CFR Part 70.6, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

267. The permittee shall maintain daily records which demonstrate compliance with the minimum flow rate of water and maximum temperatures specified in Specific Conditions #265 and #266. These records shall be kept onsite and be made available to Department personnel upon request. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

268. The permittee shall not produce more than 1,500,000 gallons per year of NC-24 product. [Regulation No. 19 §19.705, 40 CFR Part 70.6, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

269. The permittee shall not use more than 50,000 gallons per year of 1,2-Epoxybutane products. [Regulation No. 19 §19.705, 40 CFR Part 70.6, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

270. The permittee shall maintain monthly records demonstrating compliance with Specific Conditions #268 and #269. Records shall be updated by the 15th day following the month to which the records pertain, made available to Department personnel upon request, and otherwise in accordance with General Provision 7. [Regulation No. 19 §19.705, Regulation No. 18 §18.1004, 40 CFR Part 52, Subpart E, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

271. The permittee shall maintain records of each raw material venting event to SN-AD-26. These records shall contain the date, time, duration of each event, and total duration per rolling twelve month period. If the total duration exceeds 24 hours in any twelve (12) month period, then the permittee shall calculate the emissions for each event in order to demonstrate compliance with the limits in Specific Conditions #263 and #264. These records shall be updated following each event, kept onsite and made available to Department personnel upon request. Specific Conditions #61 and #62 of the ADMA section of this permit do not apply during the NC-24 alternate operating scenario. [Regulation No. 19 §19.705, Regulation No. 18 §18.1004, 40 CFR Part 52, Subpart E, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

272. The permittee shall maintain records of each raw material venting event to SN-24-01. These records shall contain the date, time, duration of each event, and total duration per rolling twelve month period. The permittee shall calculate the VOC, HBr, and HCl emissions for each event in order to demonstrate compliance with the limits in Specific Conditions #263 and #264. These records shall be updated following each event, kept onsite and made available to Department

personnel upon request. [Regulation No. 19 §19.705, Regulation No. 18 §18.1004, 40 CFR Part 52, Subpart E, and A.C.A §8-4-203 as referenced by §8-4-304 and §8-4-311]

Section V: COMPLIANCE PLAN AND SCHEDULE

Albemarle 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: PLANT WIDE CONDITIONS

1. The permittee will notify the Director in writing within thirty (30) days after commencing construction, completing construction, first placing the equipment and/or facility in operation, and reaching the equipment and/or facility target production rate. [Regulation No. 19 §19.704, 40 CFR Part 52, Subpart E, and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

2. If the permittee fails to start construction within eighteen months or suspends construction for eighteen months or more, the Director may cancel all or part of this permit. [Regulation No. 19 §19.410(B) and 40 CFR Part 52, Subpart E]

3. The permittee must test any equipment scheduled for testing, unless stated in the Specific Conditions of this permit or by any federally regulated requirements, within the following time frames: (1) New Equipment or newly modified equipment within sixty (60) days of achieving the maximum production rate, but no later than 180 days after initial start-up of the permitted source or (2) operating equipment according to the time frames set forth by the Department or within 180 days of permit issuance if no date is specified. The permittee must notify the Department of the scheduled date of compliance testing at least fifteen (15) days in advance of such test. The permittee will submit the compliance test results to the Department within thirty (30) days after completing the testing. [Regulation No. 19 §19.702 and/or Regulation No. 18 §18.1002 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]

4. The permittee must provide: [Regulation No. 19 §19.702 and/or Regulation No. 18 §18.1002 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]

   a. Sampling ports adequate for applicable test methods;

   b. Safe sampling platforms;

   c. Safe access to sampling platforms; and

   d. Utilities for sampling and testing equipment.

5. The permittee must operate the equipment, control apparatus and emission monitoring equipment within the design limitations. The permittee will maintain the equipment in good condition at all times. [Regulation No. 19 §19.303 and A.C.A. §8-4-203 as referenced by A.C.A. §8-4-304 and §8-4-311]

6. This permit subsumes and incorporates all previously issued air permits for this facility. [Regulation No. 26 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

7. The permittee shall submit, on a semiannual basis, a compliance certification statement for all emitted contaminants at all permitted storage vessels at the facility.

The statement shall provide confirmation that all vessels have been operated in the manner outlined in the Title V permit application and subsequent submittals. A summary sheet of vessel parameters is included in Appendix B. Any deviation from submitted parameters, provided permitted emissions are not exceeded, shall be clearly documented with supporting calculations and attached to the statement. Any parameter deviations which will result in emission increases must be requested and permitted in advance. [Regulation No. 19 §19.705 and 40 CFR 52, Subpart E]

8. For any source which this permit requires periodic emission calculations, and where worst-case operating parameters and throughput have not been exceeded during the recorded period, the permittee may substitute the following: 1) a photocopy of the original worst-case emission calculations originally submitted in the Title V application, and 2) a cover letter certifying that the submitted worst-case parameters and throughput have not been exceeded. [Regulation No. 19 §19.705, and 40 CFR 52, Subpart E]

9. Any annual records or annual emission calculations required by this permit shall be based upon a 12-month rolling total. [Regulation No. 19 §19.705, and 40 CFR 52, Subpart E]

10. The permittee shall conduct weekly observations of visible emissions for all sources assigned an opacity limit. [Regulation No. 19 §19.705, and 40 CFR 52, Subpart E]

    The visible emission observations shall be used as a method of compliance verification for the opacity limits assigned. The observations shall be conducted by personnel familiar with the facility's visible emissions. If during the 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. The records shall 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:

    a. the date and time of each observation/reading.

b. any observance of visible emissions appearing to be above permitted limits, or any Method 9 reading which indicates exceedance.

c. the cause of any observed exceedance of opacity limits, corrective action taken, and results of the reassessment.

d. The name of the person conducting the observation/reading.

11. No record keeping or parametric monitoring shall be required for any permit condition during any period of time when an affected source is not in operation. The shutdown period for the source must be clearly indicated in any required records or reports. [Regulation No. 19 §19.705, 40 CFR Part 52, Subpart E]

12. Where no more stringent federal regulation applies, the permittee will be found in compliance with fugitive emissions limits in this permit when equipment in the affected unit is operated and maintained consistent with good industry practices, where no more stringent federal regulation applies (e.g., NSPS or MACT), and if the permittee calculates all fugitive emissions for each process area once every five years. The results of these calculations shall be summarized and included in each Title V renewal application. The fugitive emissions may be calculated using usage data (for ancillary chemicals, such as refrigerants and heat transfer fluids), monitoring data with EPA stratified factors, and EPA average SOCMI factors with component counts. Other methods may also be used if prior approval is received from the Department. [Regulation No. 19 §19.705 and 40 CFR Part 52, Subpart E]

13. Any sources identified as subject to specific Subparts of 40 CFR Parts 60, 61, and 63 must also comply with all applicable requirements of the General Provisions contained in Subpart A of each respective Part. [Regulation No. 19 §19.304]

14. The permittee shall fully comply with all applicable requirements of the *National Emission Standard for Asbestos*. [Regulation No. 19 §19.304 and 40 CFR Part 61, Subpart M]

15. For all processes proposed to be permitted at this facility, Albemarle may propose emission rate ranges in the air permit application. The upper end of these ranges may be significantly higher than the anticipated emissions from the affected sources. Provided no regulatory restrictions prevent the upper end of the proposed ranges from being incorporated into a final air permit, ADEQ shall state the ranges in the permit, and establish the upper ends as limits in the final air permit. Albemarle shall identify, in each application, sources it desires to be subject to this condition, and agrees to test each of these sources within ninety (90) days of permit issuance. Provided that the results of the testing, for each source, indicates that emissions are below the upper end of the established ranges, Albemarle may, at its discretion, submit an appropriate air permit application to establish emission rates reflecting the results of the testing. [Regulation No. 19 §19.702, 40 CFR Part 52 Subpart E,

16. The permittee shall comply with all emission rates in the permit, and show compliance through the required testing, operating parameters monitoring, or any other associate permit

requirements. [Regulation No. 18 §18.801, Regulation No. 19 §19.401, and A.C.A. §8 4 203 as referenced by A.C.A. §8 4 304 and §8 4 311]

In the event the initial stack test for any constituent at any new or modified source demonstrates that unanticipated emissions are present or exceed the applicable emission limitations, the permittee shall not be considered to be in violation of the permit limits, provided that:

a. the permittee files an excess emission report which complies with the applicable requirements of Regulation 18 and/or Regulation 19;

b. the permitted emission rates were established based on the published emission factors or industry-specific test data;

c. the excess emissions do not exceed any threshold established in Regulation 18, or Regulation 19 for a de minimis change, the permittee submits an application for a minor modification of its permit within sixty (60) days of the filing of the excess emissions report; and

d. the permittee pays permit fees based upon the modified emission rates from the date of initial operation of the new or modified source.

17. The permittee shall comply with all non criteria emission rates in the permit and show compliance through the required testing, operating parameters monitoring, or any other associated permit requirements. [Regulation No. 18 §18.801 and A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

    Certain emission rates listed in this permit were developed using estimates or published emission factors. For emission limits based on published emission factors or industry specific test data, a change in emission factors that affects the estimated emission rates shall not be considered a violation of the permit limits.

    This condition does not apply to criteria pollutants or PM. This condition does not apply to pollutants for which test data is already available, or pollutant emission rates established to comply with an NSPS or NESHAP standard. This condition does not apply to sources constructed or modified before May 1, 2000.

18. Stack testing requirements may be waived for any source which has not operated at least 25% of the twelve-month period prior to a scheduled test. In order for this waiver to be applied, the permittee must submit a written request to the Department at least thirty days in advance of the scheduled test. The request must include records of operating hours for the source in question. [Regulation No. 19 §19.702, 40 CFR Part 52, Subpart E]

19. During any required stack testing event, the affected source shall be operated within 10 percent of the rated throughput capacity. If 90 percent of the rated throughout capacity can not be achieved, the permittee shall thenceforth be limited to 10 percent above the actual tested throughput. [Regulation No. 19 §19.702, 40 CFR Part 52 Subpart E]

20. Where applicable, the permittee must prepare and implement a Startup, Shutdown, and Malfunction Plan (SSM). If the Department requests a review of the SSM, the permittee will make the SSM available for review. The permittee must keep a copy of the SSM at the source's location and retain all previous versions of the SSM plan for five years. [Regulation No. 19 §19.304 and 40 CFR 63.6(e)(3)]

Acid Rain (Title IV)

21. The Director prohibits the permittee to cause any emissions exceeding any allowances the source lawfully holds under Title IV of the Act or the regulations promulgated under the Act. No permit revision is required for increases in emissions allowed by allowances acquired pursuant to the acid rain program, if such increases do not require a permit revision under any other applicable requirement. This permit establishes no limit on the number of allowances held by the permittee. However, the source may not use allowances as a defense for noncompliance with any other applicable requirement of this permit or the Act. The permittee will account for any such allowance according to the procedures established in regulations promulgated under Title IV of the Act. [Regulation No. 26 §26.701 and 40 CFR 70.6(a)(4)]

Title VI Provisions

22. The permittee must comply with the standards for labeling of products using ozone-depleting substances. [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.

23. The permittee must comply with the standards for recycling and emissions reduction, except as provided for MVACs in Subpart B. [40 CFR Part 82, Subpart F]

    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.

24. 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.

25. 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.

26. The permittee can switch from any ozone-depleting substance to any alternative listed in the Significant New Alternatives Program (SNAP) promulgated pursuant to 40 CFR Part 82, Subpart G, "Significant New Alternatives Policy Program".

Permit Shield

27. Compliance with the conditions of this permit shall be deemed compliance with all applicable requirements, as of the date of permit issuance, included in and specifically identified in following table of this condition. The permit specifically identifies the following as applicable requirements based upon the information submitted by the permittee in an application dated September 10, 2004.

Table 81 – Applicable Regulations

Source No.	Regulation	Description
Facility	Arkansas Regulation 19	Compilation of Regulations of the Arkansas State Implementation Plan for Air Pollution Control
Facility	Arkansas Regulation 26	Regulations of the Arkansas Operating Air Permit Program
Facility	40 CFR Part 61, Subpart M	National Emission Standard for Asbestos

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Source No.	Regulation	Description
DECTP Process	40 CFR Part 61, Subpart FF	National Emission Standards for Benzene Waste Operations
All sources or units subject to a 40 CFR Part 64 standard	40 CFR Part 63, Subpart A	National Emission Standards for Hazardous Air Pollutants for Source Categories, General Provisions
AB-15	40 CFR Part 63, Subpart F	National Emission Standards for Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry
AB-15	40 CFR Part 63, Subpart G	National Emission Standards for Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater
AB-15	40 CFR Part 63, Subpart H	National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks
TB-03	40 CFR Part 60, Subpart Kb	Standards of Performance for Volatile Organic Liquid Storage Vessels
TB-29	40 CFR Part 60, Subpart VV	Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry
TB-03	40 CFR Part 63, Subpart F	National Emission Standards for Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry
TB-11		
TB-17		
TB-25	40 CFR Part 63, Subpart G	National Emission Standards for Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater
TB-29		
TB-30		
TB-31		
TB-32		
TB-34	40 CFR Part 63, Subpart H	National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks
TB-35		
WW-01		
NC-14 Process	40 CFR Part 82, Subpart A	Protection of Stratospheric Ozone, Production and Consumption Controls
NC-14 Process	40 CFR Part 82, Subpart E	Protection of Stratospheric Ozone, The Labeling of Products Using Ozone-Depleting Substances
NC-17 CMPU	40 CFR Part 63, Subpart F	National Emission Standards for Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry
NC-17 CMPU	40 CFR Part 63, Subpart G	National Emission Standards for Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater
NC-17 CMPU	40 CFR Part 63, Subpart H	National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks
21-01 21-02	40 CFR Part 61, Subpart A	National Emission Standards for Hazardous Air Pollutants, General Provisions
21-01 21-02	40 CFR Part 61, Subpart J	National Emission Standards for Equipment Leaks (Fugitive Emission Sources) of Benzene
21-01 21-02	40 CFR Part 61, Subpart V	National Emission Standards for Equipment Leaks (Fugitive Emission Sources)

Source No.	Regulation	Description
21-01 21-02	40 CFR Part 61, Subpart Y	National Emission Standards for Benzene Emissions from Benzene Storage Vessels
21-01 21-02	40 CFR Part 61, Subpart FF	National Emission Standards for Benzene Waste Operations
MS-05	40 CFR Part 63, Subpart JJ	National Emission Standards for Wood Furniture Manufacturing Operations
Facility	40 CFR Part 82, Subpart E	Protection of Stratospheric Ozone, The Labeling of Products Using Ozone-Depleting Substances
MCPU's: DECTP DMTDA NC-12 NC-15 NC-17 NC-21 NC-23	40 CFR Part 63, Subpart FFFF	National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing and Miscellaneous Coating Manufacturing; Compliance Date: May 10, 2008
CB-04 All Ethylene Glycol Storage	40 CFR Part 63, Subpart EEEE	National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline)
BH-01, BH-02, AD-16, AD-32, 15-14 16-20 16-30	40 CFR Part 63, Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Industrial/Commercial/Institutional Boilers and Process Heaters

28. The permittee shall document that all reciprocating internal combustion engines (RICE) are less than 500 brake horsepower or are exempt from 40 CFR Part 63, Subpart ZZZZ per §63.6590(b)(3) or are subject only to the initial notification requirement per §63.6590(b)(1). The permittee shall not begin construction, installation, and/or operation of a RICE subject to any standards or requirements beyond the initial notification requirement under 40 CFR Part 63, Subpart ZZZZ without first submitting and obtaining approval from ADEQ for a permit modification that addresses applicable requirements and compliance. [Regulation No. 19, §19.304 and 40 CFR Part 63, Subpart ZZZZ]

Section VII: INSIGNIFICANT ACTIVITIES

The following sources are insignificant activities. Any activity that has a state or federal applicable requirement is a significant activity even if this activity meets the criteria of §304 of Regulation 26 or listed in the table below. Insignificant activity determinations rely upon the information submitted by the permittee in an application dated September 10, 2004.

Table 82 - Insignificant Activities

Insignificant Source					
SN	**Description**	**Category**	**Pollutant**	**Estimated Losses**	
				lb/hr	**ton/yr**
BR-05	Recovered Groundwater Storage Tank, T-3045	A13	VOC Bromoform Ethylene Dibromide Ethylene Dichloride Toluene Br_2	<0.01 <0.01 <0.01 <0.01 <0.01 <0.01	<0.01 <0.01 <0.01 <0.01 <0.01 <0.01
BR-07	Sulfuric Acid Storage Tank, T-3000	B21	H_2SO_4 Water Vapor	<0.01 N/A	<0.01 N/A
BR-10	Chilled H_2O Storage Tank, T-3047	B21	Water Vapor	N/A	N/A
BR-13	Centrate Storage Tank T-3065 (Sodium Bromide)	B21	Water Vapor	N/A	N/A
ED-04	Recycle Sodium Bromide Tank T-4071A	B21	Water Vapor	N/A	N/A
BR-16	C-12 Olefin Storage (up to 10,000 gal total capacity)	A3	VOC	Trace	0.07
-	Hot Water Tank B-3010	B21	Water Vapor	N/A	N/A
SL-03	Sulfinol Storage Sump (S-1901)	A3	Sulfolane DIPA	<0.01 <0.01	<0.01 <0.01
SL-04	MDEA Storage Tank (T-5001)	A3	MDEA	<0.01	<0.01
SR-03	Molten Sulfur Pit and Loadout	A13	H_2S SO_2	0.22 0.42	0.96 1.80
CB-03	NaOH Storage Tank	B21	Water Vapor	N/A	N/A
CB-05	$CaBr_2$ Storage Tank	B21	Water Vapor	N/A	N/A
CB-06	$CaBr_2$ Storage Tank	B21	Water Vapor	N/A	N/A
CB-07	Product Rundown Tank	B21	Water Vapor	N/A	N/A
CB-08	Product Rundown Tank	B21	Water Vapor	N/A	N/A
CB-09	Slurry Feed Tank	B21	Water Vapor	N/A	N/A
CB-10	Wash Water Tank	A13	VOC HCl HBr Acetone	<0.10 <0.10 <0.10 <0.10	<0.10 <0.10 <0.10 <0.10
CB-11	Acid Storage Tank	B21	Water Vapor	N/A	N/A
CB-12	Product Storage Tank	B21	Water Vapor	N/A	N/A
CB-13	Product Storage Tank	B21	Water Vapor	N/A	N/A
CB-14	Product Storage Tank	B21	Water Vapor	N/A	N/A
CB-15	Product Storage Tank	B21	Water Vapor	N/A	N/A
CB-19	Ammonium Hydroxide Storage Bins	B21	NH_4OH	Trace	Trace
CB-20	Formic Acid Storage Bins	A13	Formic Acid	Trace	<0.01

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Insignificant Source					
SN	**Description**	**Category**	**Pollutant**	**Estimated Losses**	
				lb/hr	**ton/yr**
-	DECTP Process Sewers	A13	VOC Toluene Naphthalene Methyl Naphthalene HCl POM	Trace Trace Trace Trace Trace Trace	Minimal Minimal Minimal Minimal Minimal Minimal
DE-05	Pressure Vessel	A13	No Emissions	N/A	N/A
N/A	Sulfuric Acid Tote Bin	B24/43	H_2SO_4 SO_2	<0.01 <0.01	<0.01 <0.01
DE-27	Sodium Sulfite Storage Tank	B21	No Emissions	N/A	N/A
AD-16	Natural Gas-Fired Heater < 10 MMBtu/hr	A1	PM/PM_{10} SO_2 VOC CO NO_X	0.03 0.01 0.16 0.24 0.28	0.14 0.05 0.75 1.06 1.23
AD-31	Liquid Hydrogen Pressurized Tank	B21	No Emissions	N/A	N/A
AD-32	Natural Gas-Fired Heater < 10 MMBtu/hr	A1	PM/PM_{10} SO_2 VOC CO NO_X	0.04 0.01 0.03 0.38 0.45	0.16 0.01 0.14 1.66 1.97
AD-38	Alcohol Addition System	A13	VOC	0.005	0.02
AB-17	T-703 Ethylene Glycol Storage Tank	A3	Ethylene Glycol	0.001	0.001
AB-18	Alkyl Bromide Waste Water	A13	VOC $MeCl_2$ HAP	0.08 0.01	0.34 0.06
DB-02	Raw Materials Storage Tank	A3	VOC	0.1	0.44
DB-03	Sulfuric Acid Storage Tank	B21	H_2SO_4	0.01	0.04
DB-11	Slurry Feed Tank	B21	Water Vapor	N/A	N/A
DB-12	Slurry Feed Tank	B21	Water Vapor	N/A	N/A
TB-08	Polymer Transfer	A13	PM PM_{10}	0.03 0.02	0.14 0.07
TB-13	Refrigerant Storage Tank	A3	Ethylene Glycol	<0.01	<0.01
TB-26	Sulfuric Acid Storage Tank Alternate Use: Ethylene Glycol Storage	A3	VOC H_2SO_4 Ethylene Glycol	0.01 0.01 0.01	0.04 0.05 0.04
TB-27	Refrigerant Storage Tank	A3	Ethylene Glycol	<0.01	<0.01
TB-36	Water Scrubber Tank	A3	VOC	0.04	0.03
TB-40	Raw Material Weigh Vessel	A13	PM/PM_{10}	0.10	0.44
TB-44	Heating System Expansion Tank	A13	VOC	<0.01	<0.01
--	Bleach/Product Storage and Mix Tanks (3)	B21	Water Vapor	N/A	N/A
--	Hot Water Tank 67-65-1	A13	Methanol	<0.01	0.02
--	Area Safety Relief Knockout Pot D-9505	A13	Non-VOC Caustic	N/A	N/A
--	Antifoam Storage Tank, T-95107	A13	Org. Liqs., 3.5 psia	N/A	N/A

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SN	**Description**	**Category**	**Pollutant**	**Estimated Losses**	
				lb/hr	**ton/yr**
--	Hot Water Tank, T-602	A13	VOC	<0.01	0.02
15-14	2 Natural Gas Process Heaters	A1	PM/PM_{10} SO_2 VOC CO NO_X	0.02 0.01 0.02 0.18 0.30	0.09 0.04 0.09 0.79 1.31
--	Pressurized Ethylene Glycol Storage Tank, (D-9972)	A13	None	N/A	N/A
16-09	EBTBP Ambient Dust Collector SF9398	A13	PM/PM_{10}	0.1	0.3
16-30	Indirect-Fired Gas Heater	A1	PM/PM_{10} SO_2 VOC CO NO_X	0.1 0.1 0.1 0.2 0.4	0.5 0.5 0.1 0.8 1.8
16-32	Sulfuric Acid Tank , T-9315	B21	$H_2SO_4 + SO_3$	<0.1	<0.1
16-33	Molten Sulfur Tank, T-9365	A13	H_2S SO_2	0.10 0.19	0.43 0.81
16-34	Sulfuric Acid Tank, T-9358	B21	$H_2SO_4 + SO_3$	<0.1	<0.1
--	Ethylene Glycol Tanks, T-93952, T-9393, T-9351, T-9359, T-9392	A3	Ethylene Glycol	<0.01	<0.01
--	Tempered Water Tank, T-9368	B21	Water Vapor	N/A	N/A
--	Hot Oil Expansion Tank / Heat Transfer fluid Tank, T-9354	A2	VOC	Trace	0.95
--	Hot Oil Surge Tank, D-3490	A13	VOC	Trace	<0.01
--	Boiler Water Treatment Chemical Storage Tanks	B21	N/A	N/A	N/A
--	Sodium Sulfate Tank	B21	None	N/A	N/A
--	Boiler Dearator	B21	None	N/A	N/A
--	Caustic Tote Bin	B21	None	N/A	N/A
BT-02	Purchased Brine Surge Tank, T-3017	A13	VOC H_2S	0.01 0.01	0.05 0.05
BT-03	Brine/Oil Separator OS-3002	A13	VOC H_2S	0.01 0.02	0.05 0.09
BT-04	Feed Brine Pump Suction Header Vent	A13	VOC H_2S	0.01 0.01	0.05 0.05
BT-05	Overflow Line Vent	A13	VOC H_2S	0.01 0.01	0.05 0.05
BT-06	Overflow Line Vent	A13	VOC H_2S	0.01 0.01	0.05 0.05
BT-07	Feed Brine Pump Suction Header Vent	A13	VOC H_2S	0.01 0.01	0.05 0.05
BT-08	Brine/Oil Separator Outlet Line Vent	A13	VOC H_2S	0.01 0.01	0.05 0.05
BT-09	Overflow Line Vent	A13	VOC H_2S	0.01 0.01	0.05 0.05
BT-10	Brine/Oil Separator Outlet Line Vent (OS-3002)	A13	VOC H_2S	0.01 0.01	0.05 0.05

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				lb/hr	**ton/yr**
BT-14	Vacuum Pump Vent	A13	VOC H_2S	0.01 0.01	0.05 0.05
BT-15	Overflow Line Vent	A13	VOC H_2S	0.01 0.01	0.05 0.05
BT-18	Brine Underflow Line Vent	A13	VOC H_2S	0.01 0.01	0.05 0.05
BT-19	Brine Underflow Line Vent	A13	VOC H_2S	0.01 0.01	0.05 0.05
BT-20	Brine Underflow Line Vent	A13	VOC H_2S	0.01 0.01	0.05 0.05
DM-04	Catalyst Box	A13	PM/PM_{10}	0.06	0.23
DM-05	Stabilizer Hopper	A13	PM/PM_{10}	0.03	0.13
DM-08	Bleach Storage Tank (6,000 gallons)	B21	Water Vapor Nitrogen Oxygen	N/A	N/A
--	Solid Waste Vault No. 2	A13	PM/PM_{10} VOC	Trace Trace	Trace Trace
--	Outfall 002 Bioreactor	A13	Chlorine ^{HAP}	Trace	Trace
--	PSV-1 Sumps	A13	VOC	0.34	1.51
MS-09	Diesel fuel Storage Tanks (up to 10,000 gallons total capacity)	A3	VOC	N/A	0.12
MS-10	Gasoline Storage Tanks (up to 2,000 gallons total capacity)	A13	VOC HAPs	N/A N/A	1.30 0.07
MS-11	Cooling Towers (Maintenance/Support Facilities)	A13	PM/PM_{10} Chlorine ^{HAP}	0.75 Trace	3.29 Trace
--	Drinking Water Treatment and Distribution	A13	N/A	N/A	N/A
--	Quality Control Laboratory	A5	N/A	N/A	N/A
--	Paved Plant Roads and Parking Lot	B74	N/A	N/A	N/A
--	Unpaved Plant Roads	B74	PM PM_{10}	N/A N/A	3.50 1.07
--	Building Air Conditioning System	B2	N/A	N/A	N/A
--	Filter Aid Tanks T-1306 and T-1307	B21	Water Vapor	N/A	N/A
--	Sulfuric Acid Tank	B21	Water Vapor	N/A	N/A
--	A-12 Emergency Systems Generators – Phone System and Admin Bldg Backup, Emergency Fire Pumps (2), Potable Water Supply Backup, Material Analyzer Backup, Outfall Flow Monitor Battery Backup	A12	N/A	N/A	N/A

Insignificant Source					
SN	**Description**	**Category**	**Pollutant**	**Estimated Losses**	
				lb/hr	**ton/yr**
Totals for Category A1			PM	0.19	0.89
			PM_{10}	0.19	0.89
			SO_2	0.13	1.05
			VOC	.31	1.08
			CO	1.00	4.31
			NO_X	1.43	6.31
Totals for Category A2			VOC	N/A	0.95
Totals for Category A3			VOC	0.22	0.80
			H_2SO_4	0.01	0.05
			Sulfolane	0.01	0.01
			DIPA	0.01	0.01
			MDEA	0.01	0.01
			Any Single HAP	0.04	0.07
			Total HAP	0.04	0.07
Totals for Category A13			VOC	0.94	4.82
			PM	1.07	4.54
			PM_{10}	1.06	4.46
			SO_2	0.61	2.61
			H_2S	0.47	2.13
			Br_2	0.01	0.01
			HCl	<0.10	<0.10
			HBr	<0.10	<0.10
			Acetone	<0.10	<0.10
			Formic Acid	Trace	0.01
			Any Single HAP	0.01	0.06
			Total HAP	0.06	0.12

Pursuant to §26.304 of Regulation 26, the Department determined the emission units, operations, or activities contained in Regulation 19, Appendix A, Group B, 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. Any terms or conditions included in this permit which specify and reference Arkansas Pollution Control & Ecology Commission Regulation No. 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.[40 CFR 70.6(b)(2)]

2. 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. [40 CFR 70.6(a)(2) and §26.701(B) of the Regulations of the Arkansas Operating Air Permit Program (Regulation 26), effective August 10, 2000]

3. The permittee must submit a complete application for permit renewal at least six (6) months before permit expiration. Permit expiration terminates the permittee's right to operate unless the permittee submitted a complete renewal application at least six (6) months before permit expiration. If the permittee submits a complete application, the existing permit will 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. [Regulation No. 26 §26.406]

4. 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, the permit incorporates both provisions into the permit, and the Director or the Administrator can enforce both provisions. [40 CFR 70.6(a)(1)(ii) and Regulation No. 26 §26.701(A)(2)]

5. The permittee must maintain the following records of monitoring information as required by this permit. [40 CFR 70.6(a)(3)(ii)(A) and Regulation No. 26 §26.701(C)(2)]

    a. The date, place as defined in this permit, and time of sampling or measurements;

    b. The date(s) analyses performed;

    c. The company or entity performing 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. The permittee must retain the records of all required monitoring data and support information for at least five (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. [40 CFR 70.6(a)(3)(ii)(B) and Regulation No. 26 §26.701(C)(2)(b)]

7. The permittee must submit reports of all required monitoring every six (6) months. If permit establishes no other reporting period, the reporting period shall end on the last day of the anniversary month of the initial Title V permit. The report is due within thirty (30) days of the end of the reporting period. Although the reports are due every six months, each report shall contain a full year of data. The report must clearly identify all instances of deviations from permit requirements. A responsible official as defined in Regulation No. 26 §26.2 must certify all required reports. The permittee will send the reports to the address below: [40 C.F.R. 70.6(a)(3)(iii)(A) and §26.701(C)(3)(a) of Regulation #26]

8. The permittee will report to the Department all deviations from permit requirements, including those attributable to upset conditions as defined in the permit.

   a. For all upset conditions (as defined in Regulation 19.601), the permittee will make an initial report 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:

      i. The facility name and location,

      ii. The process unit or emission source deviating from the permit limit,

      iii. The permit limit, including the identification of pollutants, from which deviation occurs,

      iv. The date and time the deviation started,

      v. The duration of the deviation,

      vi. The average emissions during the deviation,

      vii. The probable cause of such deviations,

      viii. Any corrective actions or preventive measures taken or being taken to prevent such deviations in the future, and

      ix. The name of the person submitting the report.

   The permittee will make a full report in writing to the Department within five (5) business days of discovery of the occurrence. The report must include, in addition to the information

required by the initial report, a schedule of actions taken or planned to eliminate future occurrences and/or to minimize the amount the permit's limits were exceeded and to reduce the length of time the limits were exceeded. The permittee 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 the report will serve as both the initial report and full report.

b. For all deviations, the permittee will report such events in semi-annual reporting and annual certifications required in this permit**.** This includes all upset conditions reported in 8a. above. The semi-annual report must include all the information as required in the initial and full report required in 8a**.** {40 CFR 70.6(a)(3)(iii)(B), Regulation No. 26 §26.701(C)(3)(b), Regulation No. 19 §19.601 and §19.602]

9. If any provision of the permit or the application thereof to any person or circumstance is held invalid, such invalidity will 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. [40 CFR 70.6(a)(5), §26.701(E) of Regulation No. 26, and A.C.A. §8-4-203, as referenced by §8-4-304 and §8-4-311]

10. The permittee must comply with all conditions of this Part 70 permit. Any permit noncompliance with applicable requirements as defined in Regulation No. 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, for permit modification; or for denial of a permit renewal application. [40 CFR 70.6(a)(6)(i) and Regulation No. 26 §26.701(F)(1)]

11. 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 to maintain compliance with the conditions of this permit. [40 CFR 70.6(a)(6)(ii) and Regulation No. 26 §26.701(F)(2)]

12. The Department may modify, revoke, reopen and reissue the permit or terminate the permit for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. [40 CFR 70.6(a)(6)(iii) and Regulation No. 26 §26.701(F)(3)]

13. This permit does not convey any property rights of any sort, or any exclusive privilege. [40 CFR 70.6(a)(6)(iv) and Regulation No. 26 §26.701(F)(4)]

14. The permittee must 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 must also furnish to the Director copies of records required by the permit. For information the permittee claims confidentiality, the Department may require the permittee to furnish such records directly to the Director along with a claim of confidentiality. [40 CFR 70.6(a)(6)(v) and Regulation No. 26 §26.701(F)(5)]

15. The permittee must pay all permit fees in accordance with the procedures established in Regulation No. 9. [40 CFR 70.6(a)(7) and Regulation No. 26 §26.701(G)]

16. No permit revision shall be required, under any approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes provided for elsewhere in this permit. [40 CFR 70.6(a)(8) and Regulation No. 26 §26.701(H)]

17. If the permit allows different operating scenarios, the permittee will, contemporaneously with making a change from one operating scenario to another, record in a log at the permitted facility a record of the operational scenario. [40 CFR 70.6(a)(9)(i) and Regulation No. 26 §26.701(I)(1)]

18. The Administrator and citizens may enforce under the Act all terms and conditions in this permit, including any provisions designed to limit a source's potential to emit, unless the Department specifically designates terms and conditions of the permit as being federally unenforceable under the Act or under any of its applicable requirements. [40 CFR 70.6(b) and Regulation No. 26 §26.702(A) and (B)]

19. Any document (including reports) required by this permit must contain a certification by a responsible official as defined in Regulation No. 26 §26.2. [40 CFR 70.6(c)(1) and Regulation No. 26 §26.703(A)]

20. The permittee must allow an authorized representative of the Department, upon presentation of credentials, to perform the following: [40 CFR 70.6(c)(2) and Regulation No. 26 §26.703(B)]

    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 required 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 assuring compliance with this permit or applicable requirements.

21. The permittee will submit a compliance certification with the terms and conditions contained in the permit, including emission limitations, standards, or work practices. The permittee must submit the compliance certification annually within 30 days following the last day of the anniversary month of the initial Title V permit. The permittee must also submit the compliance certification to the Administrator as well as to the Department. All compliance certifications required by this permit must include the following: [40 CFR 70.6(c)(5) and Regulation No. 26 §26.703(E)(3)]

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. Nothing in this permit will alter or affect the following: [Regulation No. 26 §26.704(C)]

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. This permit authorizes only those pollutant-emitting activities addressed in this permit. [A.C.A. §8-4-203 as referenced by §8-4-304 and §8-4-311]

APPENDIX A

Applicable Federal Regulations

40 CFR Part 60 Subpart Kb
40 CFR Part 60 Subpart VV

40 CFR Part 61 Subpart J
40 CFR Part 61 Subpart M
40 CFR Part 61 Subpart V
40 CFR Part 61 Subpart Y
40 CFR Part 61 Subpart FF

40 CFR Part 63 Subpart F
40 CFR Part 63 Subpart G
40 CFR Part 63 Subpart H
40 CFR Part 63 Subpart I
40 CFR Part 63 Subpart JJ
40 CFR Part 63 Subpart EEEE
40 CFR Part 63 Subpart FFFF
40 CFR Part 63 Subpart DDDDD

40 CFR Part 82 Subpart A
40 CFR Part 82 Subpart E

APPENDIX B

Storage Vessel Parameter Summary Form

APPENDIX C

APPENDIX D