

INITIAL TITLE V AIR PERMIT APPLICATION REVIEW

Revised 7/12/99

APPLICANT:	SITE LOCATION:	COUNTY:	
Wright Chemical Corporation	Riegelwood	Columbus	
TECHNICAL CONTACT:	PHONE:	RESPONSIBLE OFFICIAL:	TITLE:
Anthony Smith	910-655-2263 ext. 204	Thomas H. Wright, III	Owner
REVIEW ENGINEER:	SIGNATURE:	DATE:	
Peter Lloyd/Judy Lee		7/25/03	
REGIONAL CONTACT:	REGIONAL OFFICE:	SIC CODE:	
Dean Carroll	Wilmington	2869	
APPLICATION NUMBER:	EXISTING PERMIT NUMBER:	NEW PERMIT NUMBER:	
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I. Introduction

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

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

II. Background Information

The DRAFT Title V operating permit replaces an existing Air Quality Construction and Operation Permit No. 01394R29 which was issued on April 2, 2002 and is currently scheduled to expire on January 1, 2004.

Pursuant to 15A NCAC 2Q .0506 Wright Chemical Corporation submitted its initial Title V application to the Division of Air Quality on December 13, 1996. The application was considered complete for processing on August 8, 2002. The DRAFT permit is required to go to public notice pursuant to 15A NCAC 2Q .0521.

III. Facility Description

Wright Chemical Corporation operates a synthetic organic chemical manufacturing facility. The facility includes a formaldehyde chemical manufacturing process unit (CMPU), a formaldehyde drum and tank truck loading operation, a special projects CMPU, a dry projects CMPU, a hexamine (hexamethylenetetramine) CMPU, a hexamine milling and bagging operation, a specialty chemicals CMPU, cooling towers and storage tanks. Formaldehyde is produced from methanol at this facility. The formaldehyde can be sold as a product or used as feedstock for hexamine production. The special projects, and dry projects CMPUs also uses formaldehyde to produce formaldehyde based products. Hexamine is produced at this facility from the reaction of formaldehyde and ammonia. The specialty chemicals CMPU produces silanes and other specialty chemicals. The facility also operates a fuel oil-fired boiler to produce process steam.

IV. Statement of Compliance

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

V. Summary of Emission Sources and Control Devices

The following table identifies all emission sources and associated control devices for which the Initial Title V Operating Permit is being issued.

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
Formaldehyde CMPU			
NESHAP ES-002-01	Formaldehyde CMPU consisting of three reactors, ambient air blowers, four product recovery absorption columns	CD-002-01a or CD-002-01b	One electrically heated catalytic oxidizer or one scrubber (200 gallons per minute liquid injection rate)
NESHAP S1, S2, and S3	Three methanol storage tanks (28,000 gallon capacity each)		
NESHAP ES-004	Six formaldehyde storage tanks: Tank ID Nos. 3, 6, 7, 8, 9, and 10 (100,000; 12,000; 12,000; 12,000; 30,000; and 100,000 gallon capacity, respectively)	NA	NA
NESHAP ES-002-02	Formaldehyde Transfer Racks for truck loading and unloading equipped with a submerged loading boom and a vapor balance system	CD-002-01b	One scrubber (200 gallons per minute liquid injection rate)
NESHAP ES-002-03	Formaldehyde Drum Filling		
Special Projects CMPU			
ES-002-05a	One reactor (5000 gallon capacity)	CD-002-05a	One condenser
ES-002-05b	One reactor (6000 gallon capacity)	CD-002-05b	One condenser
ES-002-05c	One reactor (5000 gallon capacity)	CD-002-05c	One condenser
Dry Projects CMPU			

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES-014	Two rotary vacuum dryers for the production of Dowicil; <u>or</u>	CD-014a, CD-014c, and CD-014b	One emission control condenser (180 square feet of surface area) installed on one vacuum system with one precondenser and a post condenser
	Two rotary vacuum dryers for the production of formaldehyde-based products	CD-001-02b, CD-014a, CD-014c, CD-014d, and CD-014b	One natural gas/LPG-fired catalytic oxidizer installed on one emission control condenser (180 square feet of surface area) installed on one vacuum system with two precondensers and a post condenser
Hexamine CMU			
NESHAP ES-001-02	<u>Primary Operating Scenario</u> One Hexamine production facility consisting of miscellaneous tanks, one reactor, one evaporator, two crystallizers, one distillation column, and one centrifuge; <u>or</u>	CD-001-02b, CD-001-02f, and CD-001-02a	One natural gas/LPG-fired catalytic oxidizer, one packed tower counter flow air scrubber (30 gallons per minute liquid injection rate), and one Hexamine cyclonic packed tower scrubber (66 inches in diameter, 275 gallons per minute liquid injection rate) in series
	<u>Alternative Operating Scenario</u> One Hexamine production facility consisting of miscellaneous tanks, one reactor, one evaporator, two crystallizers, and one centrifuge	CD-001-02b and CD-001-02f respectively	One natural gas/LPG-fired catalytic oxidizer and one packed tower counter flow air stripper (30 gallons per minute liquid injection rate) in series
NESHAP ES-001-04	One Hexamine dryer	CD-001-02d	One bagfilter (7,200 square feet of filter area)
NESHAP ES-001-05	Granular Hexamine pneumatic transfer system for transport of granular Hexamine from the Hexamine CMU dryer and screen to the granular bagging operation	CD-001-02d	One bagfilter (7,200 square feet of filter area)
ES-001-06	Pneumatic free-flow product transfer system	CD-001-02c	One cartridge filter (2,400 square feet of filter area)
ES-001-07	Free-flow (pulverized) Hexamine bagging operation	CD-001-02e	One water wash dust booth (100 gallons per minute liquid injection rate)
Milling Operation			

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES-001-03	Milling operation	CD-001-02b, CD-001-03a, and CD-001-03b	One natural gas/LPG-fired catalytic oxidizer [bypassed during Hexamine milling] installed on two product transfer bagfilters (1,143 square feet of filter area each)
ES-001-03b	Paraformaldehyde and Hexamine bagging operation (5000 lb/hr) and associated fugitive dust control system	CD-001-03c	One fabric filter (1,379 square feet of filter area)
Specialty Chemicals CMPU			
ES-126b	Five reactors, Nos. 1-5 located in Building 026 (30, 300, 50, 500, and 500 gallon capacities, respectively)	CD-126b and CD-126d or CD-126c and CD-126d	One venturi scrubber (165 gallons per minute liquid injection rate) and one auxiliary flare in series or one venturi packed tower scrubber (58 gallons per minute liquid injection rate) and one auxiliary flare in series [Auxiliary flare is only used during the production of sulfur containing compounds]
ES-126c	Six reactors, Nos. 6-11 located in Building 126 (200, 100, 100, 100, 500, and 500 gallon capacities, respectively), and research and development equipment		
ES-126a	Drum loading and unloading, and waste water neutralization system and associated emission collection system	CD-126a	One packed bed scrubber (55 gallons per minute liquid injection rate)
Other			
ES-001-01	One No. 2/No. 6 fuel oil-fired Boiler (24.0 million Btu per hour maximum heat input)	NA	NA
NESHAP ES-003-03	Cooling tower	NA	NA
NESHAP ES-003-05	Cooling tower	NA	NA
NESHAP ES-003-06	Cooling tower	NA	NA
NESHAP ES-005	Wastewater treatment pond and associated wastewater streams	NA	NA

*Wright Chemical has no sources with “no applicable requirements.”

VI. Emission Source-by-Source Evaluation

A. One No. 2 fuel oil-fired boiler (ID No. 1)

1. Description

This boiler provides process heat through indirect heat transfer while burning No. 6 fuel oil as the primary fuel and No. 2 fuel oil as the back up fuel. The applicant reported the boiler began operation in 1989 and is thus subject to a 20 percent opacity standard. The boiler was manufactured before June 1989 and is not subject to NSPS Subpart Dc.

2. Applicable Regulatory Requirements

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

Regulated Pollutant	Limits/Standards	Applicable Regulation
Particulate matter	0.480 pounds per million Btu heat input	15A NCAC 2D .0503
Sulfur dioxide	2.3 pounds per million Btu heat input	15A NCAC 2D .0516
Visible emissions	20 percent opacity	15A NCAC 2D .0521
TAPs	Control of Toxic Air Pollutants - <i>State Enforceable Only</i> (see Section VII. Multiple Emission Sources)	15A NCAC 2D. 1100

a. 2D .0503 "Particulates from Fuel Burning Indirect Heat Exchangers"

i. Regulatory Analysis

This boiler is subject to 2D .0503 since No. 6 and No. 2 fuel oil are burned for the primary purpose of producing heat by indirect heat transfer. The allowable emission rate is a function of maximum, plant-wide, indirect-fired heat exchanger heat input from fossil fuels and is calculated by the following equation:

$$E = 1.090(Q)^{0.2594}$$

where, E = allowable particulate emission rate in pounds per million Btu, and
Q = maximum heat input rate in million Btu per hour

The maximum heat input of all indirect-fired heat exchangers at the site when the boiler was installed (Q = 24.0 million Btu per hour) is used to calculate the allowable emission limit (E = 0.480 pounds per million Btu) for this boiler.

The applicant estimated the particulate emissions using AP-42 emission factors (10/96). The emission rate used by the applicant for No. 6 fuel oil combustion, 3.68 lb/hr is slightly lower than the rate calculated during this review, 3.8 lb/hr, using revised AP-42 emission factors including condensible particulate matter. The potential emission rate for filterable particulate matter calculated during this review is 3.6 lb/hr. Based on the maximum heat input rate of the boiler, 24.0 MMBtu/hr, and the potential hourly emission rate for filterable particulate matter the heat input based emission rate is 0.150 lb/MMBtu indicating compliance with this requirement.

Particulate emissions from No. 2 fuel oil combustion are estimated to be 0.3 lb/hr based on revised AP-42 emission factors and will also be in compliance with allowable emission rate.

ii. Testing

Stack testing is not required to ensure compliance with this regulation. However, the test method condition will be put in the permit in the event that DAQ or EPA finds that due to improper operation, violations, etc. source testing is required.

iii. Monitoring Requirements

The boiler failed a stack test for particulate matter in September 1996 at an average heat input rate of 18.8 MMBtu/hr. The boiler was retested for particulate matter on January 22, 1998 demonstrating compliance with the emission standard while

operating at approximately 5 MMBtu/hr while combusting No. 6 fuel oil. Based on these results, the current permit contains a condition restricting operation of the boiler not to exceed 8.2 MMBtu/hr while firing No. 6 fuel-oil. This requirement condition will be included in the Title V permit to ensure compliance with the emission limit. In addition, the Permittee will be required to monitor the daily consumption of No. 6 fuel oil in the boiler, the daily hours of operation of the boiler while firing No. 6 fuel oil and calculate the daily average heat input rate to the boiler while firing No. 6 fuel oil.

Since potential emissions are less than allowables while firing No. 2 fuel oil, no monitoring is required.

iv. Recordkeeping/Reporting Requirements

The Permittee will be required to keep daily records of the monitoring required above for firing No. 6 fuel oil. Any exceedance of allowable heat input rate while firing No. 6 fuel oil will be required to be reported to the Regional Office within 7 days and the permittee will be required to conduct a stack test to demonstrate compliance with at the higher heat input rate within 60 days of the exceedance.

Since potential emissions are less than allowables, no recordkeeping or reporting is required for firing No. 2 fuel oil.

b. 2D .0516 "Sulfur Dioxide Emissions from Combustion Sources"

i. Regulation Requirements

This boiler is a source of emissions from combustion which discharges through a stack and is therefore subject to 2D .0516(a). Allowable emissions from this source while firing No. 6 or No. 2 fuel oil shall not exceed 2.3 pounds per million Btu heat input.

The applicant estimated sulfur dioxide emissions from No. 6 fuel oil combustion based on a sulfur content of 2.1 % by weight. Based on the maximum heat input rate of the boiler, 24.0 MMBtu/hr, and the hourly emission rate for No. 6 fuel oil with 2.1 % sulfur content, 53 lb/hr, the heat input based emission rate is 2.21 lb/MMBtu. The hourly emission rate for No. 2 fuel oil with a 0.5 % sulfur content is 12 lb/hr which corresponds to a heat input based emission rate is 0.50 lb/MMBtu. Compliance with this regulation is indicated since the estimated emissions are less than the allowable.

ii. Testing

Stack testing is not required to ensure compliance with this regulation. However, the test method condition will be put in the permit in the event that DAQ or EPA finds that due to improper operation, violations, etc. source testing is required.

iii. Monitoring/Recordkeeping Requirements

Since potential sulfur dioxide emissions while burning No. 6 fuel oil are based on a sulfur content of 2.1% sulfur, the permittee will be required to monitor the sulfur content of the No. 6 fuel oil combusted. To ensure compliance, the Permittee will be required to monitor the sulfur content of the No. 6 fuel oil by using fuel oil supplier certification per shipment received. The results of the fuel oil supplier certifications shall be recorded in a logbook (written or electronic format) on a quarterly basis and include the following information:

- A. the name of the fuel oil supplier;
- B. the maximum sulfur content of the fuel oil received during the quarter;
- C. the method used to determine the maximum sulfur content of the fuel oil; and
- D. a certified statement signed by the responsible official that the records of fuel oil supplier certification submitted represent all of the No. 6 fuel oil fired during the reporting period.

Since the maximum sulfur content of No. 2 fuel oil is 0.5%, no monitoring will be required for No. 2 fuel oil combustion.

iv. Reporting Requirements

The Permittee will be required to submit a summary report of the No. 6 fuel oil supplier certifications semiannually. No reporting will be required for the combustion of No. 2 fuel oil.

c. 2D .0521 "Control of Visible Emissions"

i. Regulation Analysis

This boiler was established after July 1, 1971 and is subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute period averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. Compliance with this regulation is indicated because the latest inspection report did not cite any opacity exceedances.

ii. Testing

Stack testing is not required to ensure compliance with this regulation. However, the test method condition will be put in the permit in the event that DAQ or EPA finds that due to improper operation, violations, etc. source testing is required.

iii. Monitoring and Recordkeeping Requirements

To assure compliance, once a day the Permittee will be required to observe the emission points of the boiler for any visible emissions above normal. The Permittee will be required to establish "normal" for the source in the first 30 days following permit issuance. If visible emissions from this source are observed to be above normal, the Permittee will be deemed to be in noncompliance with 15A NCAC 2D .0521 unless a Method 9 test is performed demonstrating that the percent opacity from the emission points of the boiler is below 20% opacity. The results of the monitoring shall be maintained in a logbook (written or electronic format) on-site. The logbook shall record the following:

- A. the date and time of each recorded action;
- B. the results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and
- C. the results of any corrective actions performed.

No monitoring is required for when firing of No. 2 fuel oil in the boiler.

iv. Reporting Requirements

The Permittee will be required to submit a summary report of the observations semiannually. All instances of deviations from the requirements of this permit must be clearly identified. No reporting will be required for the combustion of No. 2 fuel oil.

B. Formaldehyde CMPU (ID No. ES-002-01)

1. Description

40 CFR Part 63 Subpart F provides that the provisions of Subparts F, G, and H apply to chemical manufacturing units that meet the criteria specified in 63.100(b)(1) through (3). The formaldehyde CMPU contains emission points that are subject to 40 CFR Part 63 Subpart G (HON). Five kinds of emission points are regulated: process vents, storage vessels, transfer racks, wastewater streams, and equipment leaks. For each emission point, except equipment leaks, requirements are based on the "group" status of the point. Group 1 points are required to be controlled. Group 2 points are not required to be controlled but may be subject to monitoring, recordkeeping, or reporting requirements. The compliance date for the equipment leak provisions was October 1994. The compliance date for the process vent, storage vessel, transfer rack, and wastewater provisions was April 22, 1997.

The formaldehyde CMPU consists of three reactors, ambient air blowers, and four product recovery absorption columns. Emissions from the formaldehyde CMPU are controlled by an electrically heated catalytic oxidizer (ID No. CD-002-01a) or a scrubber with a 200 gallons per minute liquid injection rate (ID No. CD-002-01b). The scrubber is used only in the event that the oxidizer is not operational and has not demonstrated compliance with MACT requirements. Consequently operation of the scrubber will only be allowed under an approved start-up, shut-down and malfunction plan. Additionally, emissions from the three methanol storage tanks (ID Nos. S1, S2, and S3) are routed to the catalytic oxidizer (ID No. CD-002-01a). The applicant reported VOCs, including hazardous air pollutants (HAPs: methanol and formaldehyde), as the only regulated emissions from this source. This process is subject to 40 CFR Part 63 Subpart G (HON). The emission point associated with this process is classified as a Group 1 process vent. This process is also subject to the leak detection and repair program (LDAR) under 40 CFR Part 63 Subpart H.

2. Applicable Regulatory Requirements

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

Regulated Pollutant	Limits/Standards	Applicable Regulation
HAPs	98% reduction or 20 ppm or TRE > 1.0	15A NCAC 2D .1111 40 CFR Part 63 Subpart G
HAPs	LDAR program and equipment specifications (see Section VII. Multiple Emission Sources)	15A NCAC 2D .1111 40 CFR Part 63 Subpart H
VOC	work practice standards (see Section VII. Multiple Emission Sources)	15A NCAC 2D .0958
Visible emissions	40 percent opacity	15A NCAC 2D .0521
TAPs	Control of Toxic Air Pollutants - <i>State Enforceable Only</i> (see Section VII. Multiple Emission Sources)	15A NCAC 2D. 1100

a. 2D .1111 "Maximum Achievable Control Tecnology"
40 CFR Part 63.113 "Process Vent Provisions - Reference Control Technology"

i. Regulation Requirements

The Group 1 process vents include all vents with a flow rate of at least 0.18 scfm (0.005 scmm), a HAP concentration of at least 50 ppm, and a total resource effectiveness (TRE) of ≤ 1.0 . Group 1 process vents are required to be controlled. The exhaust from the formaldehyde CMPU to catalytic oxidizer (ID No. CD-002-01a) is a Group 1 process vent. The applicant is complying with this requirement by using the catalytic oxidizer to reduced to reduce HAP emissions by 98%. A performance test performed on 1/21,22/98 demonstrated a 99.9% control efficiency demonstrating compliance with this requirement.

ii. Testing

The permittee will be required to conduct performance tests in accordance with 63.116 to demonstrate compliance with this requirement as requested by the permitting authority in writing. For all performance tests the permittee is required by 63.117(a) to keep up-to-date and readily accessible records of the parameter monitoring results averaged over the test period and the percent reduction of organic HAP or TOC achieved by the incinerator determined as specified in 63.116(c), or the concentration of organic HAP or TOC determined as specified in 63.116(c). The permittee is also required by 63.117(a)(3) to include these data for any subsequent performance tests in the next Periodic Report as specified in 63.152(c).

iii. Monitoring Requirements

40 CFR 63.114 requires the permittee to continuously monitor the gas stream temperature immediately before and after the catalyst bed. The permittee was required by 63.114(e) to establish a range that indicates proper operation of the control device. The current permit lists the established ranges for the inlet (350 - 900 F) and outlet temperatures (600 - 1,150 F) which will be incorporated in the Title V permit.

In addition, the permittee is required by 63.114(d) to perform monitoring to ensure the process vent stream does not bypass the control device. The current permit requires a lock and key or other similar device be maintained on each of the oxidizer diversion stacks. The permittee will be required to perform a visual inspection of the seal or closure mechanism at least monthly.

iv. Recordkeeping and Reporting Requirements

63.118(a) requires the permittee to keep up-to-date and readily accessible records of:

- A. Continuous records of parameters monitored under 63.114(a). The permittee will be required to keep continuous records of the upstream and downstream temperatures.
- B. Records of the daily average values of parameters determined according to 63.114(a). The permittee will be required to keep records of the daily average upstream temperature, downstream temperature, and daily average temperature difference across the catalyst bed for each operating day. If all recorded values during an operating day are within the range established in the permit, a statement to this effect can be recorded instead of the daily average.
- C. Records of the monthly visual inspections of the lock and key or similar devices maintained on each oxidizer diversion stack and the duration of all periods that the key is checked out or emissions are otherwise diverted from the oxidizer.

The permittee will also be required to keep records of periods start-up, shut-down and malfunction when the scrubber (ID No. CD-002-01b) is used to control emissions from the formaldehyde CMPU instead of the catalytic oxidizer (ID No. CD-002-01a). Addition requirements associated with the operation and maintenance of the scrubber will be incorporated into the permit as part of the start-up, shut-down and malfunction plan.

63.118(f) requires the permittee to submit periodic reports according to the schedule in 63.152. These reports are due within 60 days after the end of each 6 month period. The applicable reporting periods for this affected source are July through December and January through June. The periodic reports are required to include:

- A. The daily average values of monitored parameters for all operating days outside the established range. The Permittee will be required to report all daily average upstream temperatures and temperature differences that are outside the ranges established in the permit.
- B. The Duration of periods for each excursion due to insufficient data defined 63.152(c)(2)(ii)(A)(2), (3), and (4). Loss of any 15-minute period in an operating hour constitutes an invalid hour and days when at least 75% of the operating hours are not valid are considered insufficient monitoring data.
- C. All periods when the key is checked out or emissions are otherwise diverted from the oxidizer.

63.152(c)(2)(ii)(B) allows one excused excursion per reporting except as provided in 63.152(c)(2)(ii)(C), however, 63.152(c)(2)(iii) requires data to be reported for excused and unexcused excursions.

The permittee will also be required to comply with all other applicable recordkeeping and reporting requirements in 40 CFR Part 63 Subpart A, 63.151 and 63.152.

d. 2D .0521 “Control of Visible Emissions”

i. Regulation Analysis

The permittee did not list 2D .0521 as an applicable requirement for the formaldehyde CMPU, however, the current operating permit lists this regulation as applicable requirement and it will be included in the Title V permit. This source was manufactured as of July 1, 1971. Per this regulation, visible emissions shall not be more than 40 percent opacity when averaged over a six-minute period except that one six-minute period averaging not more than 90 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. Compliance with this regulation is indicated because the latest inspection report did not cite any opacity exceedances.

ii. Monitoring Requirements/Recordkeeping/Reporting

To assure compliance with this requirement, once a month the Permittee will be required to observe the emission points of this source for any visible emissions above normal. The Permittee will be required to establish “normal” for the source in the first 30 days following permit issuance. If visible emissions from this source are observed to be above normal, the Permittee shall either: (a) be deemed to be in noncompliance with 15A NCAC 2D .0521 or (b) demonstrate that the percent opacity from the emission points of the emission source in accordance with 15A NCAC 2D .0501(c)(8) is below the opacity limit. If the demonstration in (b) above cannot be made, the Permittee will be deemed to be in noncompliance with 15A NCAC 2D .0521.

The results of the monitoring shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall record the following:

- A. the date and time of each recorded action;
- B. the results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and
- C. the results of any corrective actions performed.

The Permittee will be required to submit a summary report of the observations by January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

C. Three methanol storage tanks (28,000 gallon capacity each, ID Nos. S1, S2, and S3)

1. Description

40 CFR Part 63 Subpart F provides that the provisions of Subparts F, G, and H apply to chemical manufacturing units that meet the criteria specified in 63.100(1) through (3). The methanol storage tanks contain emission points that are subject to 40 CFR Part 63 Subpart G (HON). The methanol storage tanks store raw material used in the formaldehyde CMPU. Emissions from the storage tanks are routed to the formaldehyde CMPU which is primarily controlled by an electrically heated catalytic oxidizer (ID No. CD-002-01b). The methanol storage tanks are classified as a Group 1 tanks. The tanks are also subject to the leak detection and repair program (LDAR) under 40 CFR Part 63 Subpart H. 63.110 exempts affected Group 1 and Group 2 storage tanks from 40 CFR 60 subpart Kb which is reflected in the current permit for the methanol storage tanks.

2. Applicable Regulatory Requirements

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

Regulated Pollutant	Limits/Standards	Applicable Regulation
HAPs	Route methanol storage tank emissions to process	15A NCAC 2D .1111 40 CFR Part 63 Subpart G
HAPs	Leak Inspection Provisions	15A NCAC 2D .1111 40 CFR Part 63 Subpart G
HAPs	LDAR program and equipment specifications (see Section VII. Multiple Emission Sources)	15A NCAC 2D .1111 40 CFR Part 63 Subpart H
TAPs	Control of Toxic Air Pollutants - <i>State Enforceable Only</i> (see Section VII. Multiple Emission Sources)	15A NCAC 2D. 1100

a. 2D .1111 “Maximum Achievable Control Technology”
40 CFR Part 63.119 “Storage Vessel Provisions - Reference Control Technology”

i. Regulation Requirements

Group 1 storage tanks include tanks in organic HAP service from 75 to 151 m³ (20,000 to 40,000 gal) storing a liquid with a vapor pressure \leq 13.1 kPa (98.3 mm Hg) [63.119]. The permittee has elected to comply with this provision by routing the emissions to the catalytic oxidizer as allowed under 63.119(f). The methanol vapors are recycled and/or consumed in the same manner as the liquid methanol fed to the process. The catalytic oxidizer must be operated at all times and emissions routed to the unit, except:

- A. during periods of startup, shutdown, and malfunction as allowed in 63.102(a)(1),
- B. the liquid level in the storage vessel is not increased, or
- C. the total aggregate amount of time during which the emissions bypass the catalytic oxidizer during the calendar year for all reasons (with exceptions specified in 63.119(f)(3)(iii)) does not exceed 240 hours. No additional monitoring, recordkeeping, or reporting beyond that specified for the catalytic oxidizer are required.

ii. Monitoring/Recordkeeping/Reporting Requirements

The permittee will be required to keep readily accessible records showing the dimensions of the storage vessels and an analysis showing the capacity of the storage vessel. For periods that emissions from the methanol storage tanks bypass the catalytic oxidizer, the permittee will be required to readily accessible records of:

- A. the reason it was necessary to bypass the unit,
- B. the duration of the period the process was bypassed, and
- C. documentation or certification of compliance with the applicable provisions of 63.119(f)(i)-(iii) allowing the process to be bypassed.

In addition, as specified in the current operating permit, the permittee will be required to report semiannually the information associated with periods that emissions from the methanol storage tanks bypass the catalytic oxidizer.

b. 2D .1111 "Maximum Achievable Control Tecnology"
40 CFR Part 63.148 "Leak Inspection Provisions"

i. Regulation Requirements

The requirements for leak inspections apply to each vapor collection system, closed-vent system, fixed roof, cover, or enclosure required to comply with Subpart G. Closed-vent systems that are also subject to 63.172 of Subpart H are exempt from this requirement.

- A. Except as provided in 63.148(g) [unsafe to inspect] and (h) [difficult to inspect] Except as provided in 63.148(g) [unsafe to inspect] and (h) [difficult to inspect], each vapor collection system and closed vent system shall be inspected according to the procedures and schedule specified in 63.148 (b)(3), each vapor collection system and closed vent system shall be inspected according to the procedures and schedule specified in 63.148 (b)(1) and (2), and 63.148(c).
- B. A leak is indicated by an instrument reading of 500 ppm or greater above background or by visual inspection.
- C. When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 63.148(d)(3) and 63.148(e). A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.
- D. For each vapor collection system or closed-vent system that contains by-pass lines that could divert a vent stream away from the control device and to the atmosphere, the Permittee shall comply with the provisions of either 63.148(f)(1) or (2).

ii. Recordkeeping Requirements

The Permittee shall comply with all applicable recordkeeping requirements of 63.148(i) including:

- A. Identification of all parts of the vapor collection system, closed-vent system, fixed roof, cover, or enclosure that are designated as unsafe to inspect, an explanation of why the equipment is unsafe to inspect, and the plan for inspecting the equipment.
- B. Identification of all parts of the vapor collection system, closed-vent system, fixed roof, cover, or enclosure that are designated as difficult to inspect, an explanation of why the equipment is difficult to inspect, and the plan for inspecting the equipment.
- C. For each vapor collection system or closed-vent system that contains by-pass lines that could divert a vent stream away from the control device and to the atmosphere, the Permittee shall comply with the applicable recordkeeping provisions of 63.148(i)(3)(i) and (ii).
- D. The information specified under 63.148(i)(4) for each leak inspection during which a leak is detected.
- E. For each inspection conducted according to the procedures of 63.148(c) during which no leaks are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.
- F. For each visual inspection conducted according to the procedures of 63.148(b) during which no leaks are detected, a record that the inspection was performed, the date of the inspection, and a statement t Identification of all parts of the vapor collection system, closed-vent system, fixed roof, cover, or enclosure that are designated as unsafe to inspect, an explanation of why the equipment is unsafe to inspect, and the plan for inspecting the equipment.
- G. Identification of all parts of the vapor collection system, closed-vent system, fixed roof, cover, or enclosure that are designated as difficult to inspect, an explanation of why the equipment is difficult to inspect, and the plan for inspecting the equipment.
- H. For each vapor collection system or closed-vent system that contains by-pass lines that could divert a vent stream away from the control device and to the atmosphere, the Permittee shall comply with the applicable recordkeeping provisions of 63.148(i)(3)(i) and (ii).
- I. The information specified under 63.148(i)(4) for each leak inspection during which a leak is detected.

- J. For each inspection conducted according to the procedures of 63.148(c) during which no leaks are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.
- K. For each visual inspection conducted according to the procedures of 63.148(b) during which no leaks are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks were detected.

iii. Reporting Requirements

The Permittee shall comply with all applicable reporting requirements of 63.148(j). The Permittee shall submit the following information with the reports required by 63.182(b) and Subpart H;

- A. The information specified in 63.148(i)(4) for inspections during which a leak is detected.
- B. Reports of all periods recorded under 63.148(i)(3)(ii) in which the seal mechanism is broken, the bypass line valve position has changed, or the key to unlock the bypass line valve was checked out.

D. Six formaldehyde storage tanks (ID No. ES-004)

Tank ID Nos. 3, 6, 7, 8, 9, and 10 (100,000; 12,000; 12,000; 12,000; 30,000; and 100,000 gallon capacity, respectively)

1. Description

40 CFR Part 63 Subpart F provides that the provisions of Subparts F, G, and H apply to chemical manufacturing units that meet the criteria specified in 63.100(b)(1) through (3). The formaldehyde storage tanks are subject to 40 CFR Part 63 Subpart G (HON). The formaldehyde storage tanks store aqueous formaldehyde solutions which are used as a saleable product or raw materials for other processes at the facility. All storage tanks in organic HAP service that are not Group 1 storage tanks are Group 2 storage tanks. The vapor pressure of the formaldehyde solution is less than 13.1 kPa (98.3 mm Hg). The formaldehyde storage tanks are classified as Group 2 tanks. All of the Group 2 storage tanks are \$ 10,000 gallons. 63.110 exempts affected Group 1 and Group 2 storage tanks from 40 CFR 60 subpart Kb requirements.

2. Applicable Regulatory Requirements

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

Regulated Pollutant	Limits/Standards	Applicable Regulation
HAPs	Keep readily accessible records of dimensions and capacity	15A NCAC 2D .1111 40 CFR Part 63 Subpart G
HAPs	LDAR program and equipment specifications (see Section VII. Multiple Emission Sources)	15A NCAC 2D .1111 40 CFR Part 63 Subpart H
TAPs	Control of Toxic Air Pollutants - <i>State Enforceable Only</i> (see Section VII. Multiple Emission Sources)	15A NCAC 2D. 1100

- a. 2D .1111 "Maximum Achievable Control Technology"
40 CFR Part 63.119 "Storage Vessel Provisions - Reference Control Technology"

i. Monitoring/Recordkeeping/Reporting Requirements

The permittee will be required to keep readily accessible records showing the dimensions of the storage vessels and an analysis showing the capacity of the storage vessel.

E. Formaldehyde transfer racks with vapor balance system (ID No. ES-002-02)

1. Description

The formaldehyde transfer rack is used exclusively for loading and unloading an aqueous formaldehyde solution (formaldehyde, water and methanol). The loading rack is equipped with submerged boom loading and a vapor balance system. Displaced vapors are ducted to a scrubber with a 200 gallons per minute liquid injection rate (ID No. CD-002-01b). The rack weighted average vapor pressure of the liquid is 20-25 mmHg (2.67-3.33 kPa). Under Subpart F, 63.100(f)(8), HON requirements do not apply to transfer operations that use vapor balance during all transfer operations.

2. Applicable Regulatory Requirements

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

Regulated Pollutant	Limits/Standards	Applicable Regulation
HAPs	Keep readily accessible records	15A NCAC 2D .1111 40 CFR Part 63 Subpart G
VOC	Submerged loading	15A NCAC 2D .0948
TAPs	Control of Toxic Air Pollutants - <i>State Enforceable Only</i> (see Section VII. Multiple Emission Sources)	15A NCAC 2D. 1100

a. 2D .1111 "Maximum Achievable Control Technology"

40 CFR Part 63.126 "Transfer Operations Provisions - Reference Control Technology"

i. Monitoring/Recordkeeping/Reporting Requirements

For each Group 2 transfer rack, the permittee is only required to maintain records specified in 63.130(f) in a readily accessible location on site. The permittee will be required to record, update annually, and maintain:

- A. an analysis demonstrating the design and actual annual throughput of the transfer rack,
- B. an analysis documenting the weight percent organic HAPs in the liquid loaded, and
- C. documentation that only organic HAP s with a partial pressure less than 10.3 kPa are transferred.

b. 2D .0948 "VOC Emissions from transfer operations"

i. Regulation Requirements

The owner or operator of a facility shall not load in any one day more than 20,000 gallons of volatile organic compounds with a vapor pressure of 1.5 pounds per square inch or greater under actual conditions into any tank-truck or railroad tank car form any loading operation unless the loading uses submerged loading through boom loaders that extend down into the compartment being loaded. The formaldehyde transfer rack uses submerged loading for all transfer operations in compliance with this requirement.

ii. Monitoring/Recordkeeping/Reporting Requirements

Since submerged loading is used for all transfer operations, no monitoring, recordkeeping or reporting is required to demonstrate compliance with this requirement.

F. Formaldehyde drum filling

1. Description

40 CFR Part 63 Subpart F provides that the provisions of Subparts F, G, and H apply to chemical manufacturing units that meet the criteria specified in 63.100(b)(1) through (3). The formaldehyde drum filling operations CMU contain emission points that are subject to 40 CFR Part 63 Subpart G (HON). This operation fills 55 gallon drums with aqueous formaldehyde solution (formaldehyde, water and methanol) at a maximum rate of 11 drums per hour. Emissions from this operation are captured by a hood system and ducted a scrubber with a 200 gallons per minute liquid injection rate (ID No. CD-002-01a). The average vapor pressure of the liquid is 20-25 mmHg (2.67-3.33 kPa). The permittee stated that this emission source is an affected source under 40 CFR Subpart G as a transfer operation. Since the vapor pressure of the formaldehyde is # 10.3 kPa it is considered to be a Group 2 transfer operation. There are no federally enforceable emission requirements that apply to this source, however the permittee is required maintain records specified in 63.130(f). This source is subject to state enforceable only toxic air pollutant requirements

2. Applicable Regulatory Requirements

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

Regulated Pollutant	Limits/Standards	Applicable Regulation
HAPs	Keep readily accessible records of an analysis demonstrating the design and actual throughput	15A NCAC 2D .1111 40 CFR Part 63 Subpart G
HAPs	LDAR program and equipment specifications (see Section VII Multiple Emission Sources)	15A NCAC 2D .1111 40 CFR Part 63 Subpart H

TAPs	Control of Toxic Air Pollutants - <i>State Enforceable Only</i> (see Section VII Multiple Emission Sources)	15A NCAC 2D. 1100
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- a. 2D .1111 "Maximum Achievable Control Tecnology"
40 CFR Part 63.126 "Transfer Operations Provisions - Reference Control Technology"

- i. Monitoring/Recordkeeping/Reporting Requirements

For each Group 2 transfer rack, the permittee is only required to maintain records specified in 63.130(f) in a readily accessible location on site. The permittee will be required to record, update annually, and maintain:

- A. an analysis demonstrating the design and actual annual throughput of the transfer rack,
- B. an analysis documenting the weight percent organic HAPs in the liquid loaded, and
- C. documentation that only organic HAP s with a partial pressure less than 10.3 kPa are transferred.

G. Special Projects CMPU (ID No. ES-002-05)

- 1. Description

The special projects CMPU consists of three reactors (ID Nos. ES-002-05a, ES-002-05b, and ES-002-05c; 5000, 6000, and 5000 gallons respectively) which are exhausted through water cooled condensers (ID Nos. CD-002-005a, CD-002-05b, and CD-002-05c). These reactors produce formaldehyde based products including Flockwright, a paint flocculant, and Rezwright, a cardboard adhesive. The applicant reported VOC, including formaldehyde and methanol (HAPs), as the only regulated pollutants emitted from this source. This source is not subject to the HON because it does not manufacture a product listed in 40 CFR Subpart F, 63.100(b)(1). There are no federally enforceable requirements that apply to this source, however, this source is subject to state enforceable only toxic air pollutant requirements

- 2. Applicable Regulatory Requirements

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

Regulated Pollutant	Limits/Standards	Applicable Regulation
VOC	Work practice standards (see Section VII Multiple Emission Sources)	15A NCAC 2D .0958
TAPs	Control of Toxic Air Pollutants - <i>State Enforceable Only</i> (see Section VII Multiple Emission Sources)	15A NCAC 2D. 1100

H. Dry Projects CMPU (ES-014)

- 1. Description

The dry projects CMPU consists of two rotary vacuum dryers (ES-014) which can be configured in two arrangements. In the first arrangement, the dryers are exhausted to a vacuum system with one pre-condenser (ID No. CD-014c) and one post condenser (ID No. CD-014b) then to an emissions control condenser (ID No. CD-014a) with 180 square feet of surface area. In the second arrangement, the dryers are exhausted to a vacuum system with two pre-condensers (ID Nos. CD-014c and CD-014d) and one post condenser (ID No. CD-014b) then to a natural gas/LPG-fired (hexamine) catalytic oxidizer (ID No. CD-001-2d). This process is used to produce Dowicil and other formaldehyde based products including paraformaldehyde. The applicant reported VOC, including dichloropropene, and methylene chloride (HAP) as the only regulated pollutants emitted from this source. The production of paraformaldehyde will also result in formaldehyde emissions. This source is not subject to the HON because it does not manufacture a product listed in 40 CFR Subpart F, 63.100(b)(1). There are no federally enforceable requirements that apply to this source, however, this source is subject to state enforceable only toxic air pollutant requirements

- 2. Applicable Regulatory Requirements

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

Regulated Pollutant	Limits/Standards	Applicable Regulation
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Visible emissions	20 percent opacity	15A NCAC 2D .0521
TAPs	Control of Toxic Air Pollutants - <i>State Enforceable Only</i> (see Section VII Multiple Emission Sources)	15A NCAC 2D. 1100

a. 2D .0521 “Control of Visible Emissions”

i. Regulation Analysis

The rotary vacuum dryers were manufactured after July 1, 1971. Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that one six-minute period averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. Compliance with this regulation is indicated because the latest inspection report did not cite any opacity exceedances.

ii. Monitoring Requirements/Recordkeeping/ Reporting

To assure compliance with this requirement, once a month the Permittee will be required to observe the emission points of this source for any visible emissions above normal. The Permittee will be required to establish “normal” for the source in the first 30 days following permit issuance. If visible emissions from this source are observed to be above normal, the Permittee shall either: (a) be deemed to be in noncompliance with 15A NCAC 2D .0521 or (b) demonstrate that the percent opacity from the emission points of the emission source in accordance with 15A NCAC 2D .0501(c)(8) is below the opacity limit. If the demonstration in (b) above cannot be made, the Permittee will be deemed to be in noncompliance with 15A NCAC 2D .0521.

The results of the monitoring shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall record the following:

- A. the date and time of each recorded action;
- B. the results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and
- C. the results of any corrective actions performed.

The Permittee will be required to submit a summary report of the observations by January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

I. Hexamine CMPU (ES-001-02)

1. Description

40 CFR Part 63 Subpart F provides that the provisions of Subparts F, G, and H apply to chemical manufacturing units that meet the criteria specified in 63.100(b)(1) through (3). The hexamine CMPU contains emission points that are subject to 40 CFR Part 63 Subpart G (HON). The hexamine CMPU (ID No. ES-001-02) consists of miscellaneous tanks, one reactor, one evaporator, two crystallizers, one distillation column and one centrifuge. Emissions from this process are controlled by one hexamine cyclonic packed tower scrubber (66 inches in diameter, 275 gallons per minute liquid injection rate), one packed tower counter flow air scrubber (30 gallons per minute liquid injection rate), and finally by one natural gas/LPG-fired catalytic oxidizer. In an alternative arrangement, the distillation column and hexamine cyclonic packed tower scrubber are not used and the counter flow air scrubber is converted to an air stripper. The hexamine CMPU also includes: a Hexamine dryer (ID No. ES-001-04) controlled by one bagfilter (7,200 square feet of filter area, ID No. CD-001-02d); a granular Hexamine pneumatic transfer system (ID No. ES-001-05) controlled by one bagfilter (7,200 square feet of filter area, ID No. CD-001-02d); a pneumatic free-flow product transfer system (ID No. ES-001-06) controlled by one cartridge filter (2,400 square feet of filter area, ID No. CD-001-02c); and a free-flow (pulverized) Hexamine bagging operation (ID No. ES-001-07) controlled by one water wash dust booth (100 gallons per minute liquid injection rate, ID No. CD-001-02e). The applicant reported VOC, NO_x, and HAP emissions including formaldehyde, methanol, and ammonia as the regulated emissions from the catalytic oxidizer. In addition to the oxidizer stack, the applicant reported fugitive VOC and formaldehyde emissions from the process and particulate emissions from the bagfilters. This process is subject to 40 CFR Part 63 Subpart G (HON). The emissions exhausted to the catalytic oxidizer associated with this process is classified as a Group 1 process vent. This process is also subject to the leak detection and repair program (LDAR) under 40 CFR Part 63 Subpart H.

2. Applicable Regulatory Requirements

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

Regulated Pollutant	Limits/Standards	Applicable Regulation
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HAPs	98% reduction or 20 ppm or TRE > 1.0	15A NCAC 2D .1111 40 CFR Part 63 Subpart G
HAPs	LDAR program and equipment specifications (see Section VII Multiple Emission Sources)	15A NCAC 2D .1111 40 CFR Part 63 Subpart H
Particulate Matter	$E = 4.10 \times P^{0.67}$ Where: E = allowable emission rate in pounds per hour P = process weight in tons per hour	15A NCAC 2D .0515
Visible emissions	40 percent opacity 20 percent opacity	15A NCAC 2D .0521
VOC	Work practice standards (see Section VII Multiple Emission Sources)	15A NCAC 2D .0958
TAPs	Control of Toxic Air Pollutants - <i>State Enforceable Only</i> (see Section VII Multiple Emission Sources)	15A NCAC 2D. 1100

a. 2D .1111 "Maximum Achievable Control Technology"
40 CFR Part 63.113 "Process Vent Provisions - Reference Control Technology"

i. Regulation Requirements

The Group 1 process vents include all vents with a flow rate of at least 0.18 scfm (0.005 scmm), a HAP concentration of at least 50 ppm, and a total resource effectiveness (TRE) of <= 1.0. Group 1 process vents are required to be controlled. The exhaust from the hexamine CMPU to catalytic oxidizer (ID No. CD-002-01b) is a Group 1 process vent. The applicant is complying with this requirement by using the catalytic oxidizer to reduced to reduce HAP emissions by 98%. A performance test performed on 10/29/99 demonstrated a 98.4% control efficiency demonstrating compliance with this requirement.

ii. Monitoring Requirements

40 CFR 63.114 requires the permittee to continuously monitor the gas stream temperature immediately before and after the catalyst bed. The permittee was required to establish a range that indicates proper operation of the control device. The installation of the hexamine catalytic oxidizer was permitted as a pollution control project to exclude the modification from review under the NSR program. The hexamine catalytic oxidizer consists of an ammonia catalyst bed followed by a VOC catalyst bed. The ammonia catalyst bed was installed by the permittee to mitigate NO_x emissions which would have been produced from ammonia oxidation in the VOC catalyst bed. The applicant has stated that VOHAPs are oxidized in the ammonia catalyst bed so there is little organic material actually entering the VOC catalyst bed. As a result there is no temperature rise across the VOC catalyst bed so no temperature rise should be specified in the permit for the hexamine catalytic oxidizer. During the performance test, a temperature drop was actually observed supporting the applicants proposal. The current permit lists the established ranges for the inlet temperature range to the VOC catalyst bed which will be incorporated in the Title V permit. The temperature rise across the VOC catalyst bed will not be a requirement in the permit.

In addition, the permittee is required to perform monitoring to ensure the process vent stream does not bypass the control device. To comply with this requirement, the permittee will be required to secure the bypass line valve in the nondiverting position with a car-seal or a lock-and-key type configuration. The permittee will be required to perform a visual inspection of the seal or closure mechanism at least monthly.

iii. Recordkeeping and Reporting Requirements

The permittee will be required to keep continuous records of the upstream and downstream temperatures, the daily average upstream temperature, and daily average temperature difference across the catalyst bed for each operating day. If all recorded values during an operating day are within the range established in the permit, a statement to this effect can be recorded instead of the daily average. The permittee will be required to report all daily average upstream temperatures and temperature differences that are outside the ranges established in the permit and all operating days when insufficient monitoring data were collected. Loss of any 15-minute period in an operating hour constitutes an invalid hour and days when at least 75% of the operating hours are not valid are considered insufficient monitoring data. The permittee will also be required to keep records that monthly inspections of the sealed valve were performed and record and report all monthly inspections that show the valves were moved to the diverting position or the seal has been changed.

b. 2D .0515 "Particulates from Miscellaneous Industrial Processes"

i. Regulation Analysis

This regulation limits particulate matter emissions for process rates up to 30 tons per hour according to the following equation:

$$E = 4.10(P)^{0.67}$$

where, E = allowable emission rate for particulate matter (pounds per hour)
P = process throughput rate (tons per hour)

The process throughput rate of the hexamine CMPU was reported by the applicant as 9,643 lb/hr of formaldehyde plus 3,643 lb/hr of ammonia for a total process rate of 13,286 lb/hr or 6.64 tons per hour. Based on this process rate the maximum allowable particulate emission rate is 14.58 lb/hr. Particulate emissions from the hexamine CMPU occur primarily from the hexamine dryer and granular hexamine pneumatic transfer system which are controlled by the bagfilter. The applicant reported particulate emissions from the bagfilter at 0.45 lb/hr which demonstrates compliance with this requirement.

ii. Monitoring and Recordkeeping Requirements

Compliance with this requirement is demonstrated based on the use of a bagfilter to control particulate emissions. To ensure compliance with this requirement the permittee will be required to control particulate matter emissions from the hexamine dryer and granular hexamine pneumatic transfer system with the bagfilter. The Permittee will be required to perform inspections and maintenance as recommended by the manufacturer. In addition to the manufacturer's inspection and maintenance recommendations, or if there is no manufacturer's inspection and maintenance recommendations, as a minimum, the inspection and maintenance requirement shall include the following:

- A. a monthly visual inspection of the system ductwork and material collection unit for leaks; and
- B. an annual internal inspection of the bagfilter's structural integrity.

The Permittee will be considered to be in noncompliance with 15A NCAC 2D .0515 if the ductwork and bagfilter are not inspected and maintained.

The results of inspection and maintenance shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall record the following:

- A. the date and time of each recorded action;
- B. the results of each inspection;
- C. the results of any maintenance performed on the bagfilters; and
- D. any variance from manufacturer's recommendations, if any, and corrections made.

ii. Reporting Requirements

The permittee will be required to submit the results of any maintenance performed on the bagfilters within 30 days of a written request by the DAQ. The permittee will also be required to submit a summary report of monitoring and recordkeeping activities postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of the permit must be clearly identified.

c. 2D .0521 "Control of Visible Emissions"

i. Regulation Analysis

The hexamine CMPU (ID No. ES-001-02) was manufactured as of July 1, 1971. Per this regulation, visible emissions shall not be more than 40 percent opacity when averaged over a six-minute period except that one six-minute period averaging not more than 90 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. Visible emissions from the Hexamine dryer (ID No. ES-001-04) controlled by one bagfilter (7,200 square feet of filter area, ID No. CD-001-02d); granular Hexamine pneumatic transfer system (ID No. ES-001-05) controlled by one bagfilter (7,200 square feet of filter area, ID No. CD-001-02d); pneumatic free-flow product transfer system (ID No. ES-001-06) controlled by one cartridge filter (2,400 square feet of filter area, ID No. CD-001-02c); and the free-flow (pulverized) Hexamine bagging operation (ID No. ES-001-07) controlled by one water wash dust booth (100 gallons per minute liquid injection rate, ID No. CD-001-02e) shall not be more than 20 percent opacity when averaged over a six-minute period except that one six-minute period averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. Compliance with this regulation is indicated because the latest inspection report did not cite any opacity exceedances.

ii. Monitoring Requirements/Recordkeeping/ Reporting

To assure compliance with this requirement, once a month the Permittee will be required to observe the emission points of this source for any visible emissions above normal. The Permittee will be required to establish "normal" for the source in the first 30 days following permit issuance. If visible emissions from this source are observed to be above normal, the

Permittee shall either: (a) be deemed to be in noncompliance with 15A NCAC 2D .0521 or (b) demonstrate that the percent opacity from the emission points of the emission source in accordance with 15A NCAC 2D .0501(c)(8) is below the opacity limit. If the demonstration in (b) above cannot be made, the Permittee will be deemed to be in noncompliance with 15A NCAC 2D .0521.

The results of the monitoring shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall record the following:

- A. the date and time of each recorded action;
- B. the results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and
- C. the results of any corrective actions performed.

The Permittee will be required to submit a summary report of the observations by January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

J. Milling Operation (ES-001-03)

1. Description

The milling operation was originally permitted in revision 25 to state operating permit. The milling operation is used to process (pulverization and pneumatic transport) hexamine and paraformaldehyde. The milling operation is controlled by two bagfilters (ID Nos. CD-001-03a and CD-001-03b respectively, 1143 square feet of filter area each) which control the particulate matter emissions. Pneumatic transport air from both product collection systems are recirculated except for a slip stream that is ducted to the hexamine scrubbers and catalytic oxidizer. The catalytic oxidizer is primarily for the control of formaldehyde emissions and may be bypassed during hexamine milling operations. The milling operation also includes a Hexamine and paraformaldehyde bagging operation (ID No. ES-001-03b) and associated fugitive dust control system where products are collected by using one bagfilter (1,379 square feet of filter area, ID No. CD-001-03c). Based on the application and original review for state operating permit revisions, particulate matter and formaldehyde (during paraformaldehyde processing) are the only emissions from the milling operation collection systems.

2. Applicable Regulatory Requirements

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

Regulated Pollutant	Limits/Standards	Applicable Regulation
Particulate Matter	$E = 4.10 \times P^{0.67}$ Where: E = allowable emission rate in pounds per hour P = process weight in tons per hour	15A NCAC 2D .0515
Visible emissions	20 percent opacity	15A NCAC 2D .0521
TAPs	Control of Toxic Air Pollutants - <i>State Enforceable Only</i> (see Section VII Multiple Emission Sources)	15A NCAC 2D .1100

a. 2D .0515 “Particulates from Miscellaneous Industrial Processes”

i. Regulation Analysis

This regulation limits particulate matter emissions for process rates up to 30 tons per hour according to the following equation:

$$E = 4.10(P)^{0.67}$$

where, E = allowable emission rate for particulate matter (pounds per hour)
P = process throughput rate (tons per hour)

The maximum process throughput rate for the hexamine or paraformaldehyde collection systems is 3000 lb/hr or 1.5 tons per hour. Based on this process rate the maximum allowable particulate emission rate is 5.38 lb/hr. The estimated particulate emissions rates from the collection systems are each less than 0.001 lb/hr based on a bagfilter outlet grain loading of 0.015 grains per cubic foot, a scrubber efficiency of 99.7% and a catalytic oxidizer efficiency of 99% indicating compliance with this requirement.

The maximum process throughput rate for the for the paraformaldehyde and hexamine bagging operation is 5000 lb/hr or 2.5 tons/hr. Based on this process rate the maximum allowable particulate emission rate is 7.6 lb/hr. The estimated particulate emissions rate from the bagging operation is 0.51 lb/hr based on a bagfilter outlet grain loading of 0.015 grains per cubic foot indicating compliance with this requirement.

ii. Monitoring and Recordkeeping Requirements

Compliance with this requirement is demonstrated based on the use of bagfilters to control particulate emissions. To ensure compliance with this requirement the permittee will be required to control particulate matter emissions from the product collection systems with the bagfilters. The Permittee will be required to perform inspections and maintenance as recommended by the manufacturer. In addition to the manufacturer's inspection and maintenance recommendations, or if there is no manufacturer's inspection and maintenance recommendations, as a minimum, the inspection and maintenance requirement shall include the following:

- A. a monthly visual inspection of the system ductwork and material collection unit for leaks; and
- B. an annual internal inspection of the bagfilter's structural integrity.

The Permittee will be considered to be in noncompliance with 15A NCAC 2D .0515 if the ductwork and bagfilter are not inspected and maintained.

The results of inspection and maintenance shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall record the following:

- A. the date and time of each recorded action;
- B. the results of each inspection;
- C. the results of any maintenance performed on the bagfilters; and
- D. any variance from manufacturer's recommendations, if any, and corrections made.

ii. Reporting Requirements

The permittee will be required to submit the results of any maintenance performed on the bagfilters within 30 days of a written request by the DAQ. The permittee will also be required to submit a summary report of monitoring and recordkeeping activities postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of the permit must be clearly identified.

c. 2D .0521 "Control of Visible Emissions"

i. Regulation Analysis

The hexamine and paraformaldehyde milling and collection systems and the bagging operations were manufactured after July 1, 1971. Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that one six-minute period averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. Compliance with this regulation is indicated because the latest inspection report did not cite any opacity exceedances.

ii. Monitoring Requirements/Recordkeeping/ Reporting

To assure compliance with this requirement, once a month the Permittee will be required to observe the emission points of this source for any visible emissions above normal. The Permittee will be required to establish "normal" for the source in the first 30 days following permit issuance. If visible emissions from this source are observed to be above normal, the Permittee shall either: (a) be deemed to be in noncompliance with 15A NCAC 2D .0521 or (b) demonstrate that the percent opacity from the emission points of the emission source in accordance with 15A NCAC 2D .0501(c)(8) is below the opacity limit. If the demonstration in (b) above cannot be made, the Permittee will be deemed to be in noncompliance with 15A NCAC 2D .0521.

The results of the monitoring shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall record the following:

- A. the date and time of each recorded action;
- B. the results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and
- C. the results of any corrective actions performed.

The Permittee will be required to submit a summary report of the observations by January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

K. Specialty Chemical CPU

1. Description

The specialty chemicals CPU consists of four process units as follows:

- a. Five reactors, Nos. 1-5 located in Building 026 (ID No. ES-126b; 30, 300, 50, 500, and 500 gallon capacities each) controlled with one venturi scrubber (ID No. CD-126b, 165 gallons per minute liquid injection rate) and one auxiliary flare (ID No. CD-126d) in series or one venturi scrubber (ID No. CD-126c) and one auxiliary flare (ID No. CD-126d) in series.
 - b. Six reactors, Nos. 6-11 located in Building 126 (ID No. ES-126c, 200, 100, 100, 100, 500, and 500 gallon capacities each) and research and development equipment controlled with one venturi scrubber (ID No. CD-126c) and one auxiliary flare (ID No. CD-126d) in series or one venturi scrubber (ID No. CD-126b, 165 gallons per minute liquid injection rate) and one auxiliary flare (ID No. CD-126d) in series.
 - c. Emission collection system for drum loading and unloading, and waste water neutralization system (ID No. ES-126a) controlled with One packed bed scrubber (ID No. CD-126a, 55 gallons per minute liquid injection rate)
- The specialty chemicals CMPI is used to produce chlorosilanes, specialty chemicals including Bis(3-triethoxysilylpropyl)tetrasulfide. The applicant reported emissions of VOC as well as HCl from the production of chlorosilanes, H₂S, and SO₂ from the production of specialty chemicals. These emissions sources are not subject to the HON.

2. Applicable Regulatory Requirements

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

Regulated Pollutant	Limits/Standards	Applicable Regulation
Visible emissions	20 percent opacity	15A NCAC 2D .0521
TAPs	Control of Toxic Air Pollutants - <i>State Enforceable Only</i> (see Section VII Multiple Emission Sources)	15A NCAC 2D .1100

a. 2D .0521 "Control of Visible Emissions"

i. Regulation Analysis

The permittee did not list 2D .0521 as an applicable requirement for the production of chlorosilanes or specialty chemicals, however, any visible emissions from the associated emissions sources would be subject to this regulation. The applicant did not report the manufacture date for the associated equipment so the more stringent standard will be applied (assumes equipment was manufactured after July 1, 1971). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that one six-minute period averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. Compliance with this regulation is indicated because the latest inspection report did not cite any opacity exceedances.

ii. Monitoring/Recordkeeping/Reporting Requirements

To assure compliance with this requirement, once a month the Permittee will be required to observe the emission points of this source for any visible emissions above normal. The Permittee will be required to establish "normal" for the source in the first 30 days following permit issuance. If visible emissions from this source are observed to be above normal, the Permittee shall either: (a) be deemed to be in noncompliance with 15A NCAC 2D .0521 or (b) demonstrate that the percent opacity from the emission points of the emission source in accordance with 15A NCAC 2D .0501(c)(8) is below the opacity limit. If the demonstration in (b) above cannot be made, the Permittee will be deemed to be in noncompliance with 15A NCAC 2D .0521.

The results of the monitoring shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall record the following:

- A. the date and time of each recorded action;
- B. the results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and
- C. the results of any corrective actions performed.

The Permittee will be required to submit a summary report of the observations by January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

L. **Three Cooling Towers (ID Nos. ES-003-03, ES-003-05, ES-003-06)**

1. Description

40 CFR Part 63 Subpart F provides that the provisions of Subparts F, G, and H apply to chemical manufacturing units that meet the criteria specified in 63.100(b)(1) through (3). The cooling towers (ID Nos. ES-003-03, ES-003-05, and ES-003-06) contain emission points that are subject to 40 CFR Part 63 Subpart G (HON). The cooling towers cool process water containing formaldehyde, methanol, ammonia, hexamine, and trace organics. The cooling towers are HON Group 2 sources with total resource effectiveness values

greater than 4.0. The applicant reported emissions of VOC, formaldehyde, methanol, and aggregate HAPs as regulated pollutants from these sources. The applicant also listed vapor phase hexamine emissions from this source which is regulated as VOC (hexamine is not a HAP).

2. Applicable Regulatory Requirements

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

Regulated Pollutant	Limits/Standards	Applicable Regulation
HAPs	TRE > 1.0	15A NCAC 2D .1111 40 CFR Part 63 Subpart G
HAPs	Leak Inspection Provisions	15A NCAC 2D .1111 40 CFR Part 63 Subpart G
HAPs	LDAR program and equipment specifications (see Section VII Multiple Emission Sources)	15A NCAC 2D .1111 40 CFR Part 63 Subpart H
TAPs	Control of Toxic Air Pollutants - <i>State Enforceable Only</i> (see Section VII Multiple Emission Sources)	15A NCAC 2D. 1100

a. 2D .1111 "Maximum Achievable Control Technology"
40 CFR Part 63.113 "Process Vent Provisions - Reference Control Technology"

i. Regulation Requirements

Based on the application the cooling towers are considered process vents under the HON. The applicant has elected to demonstrate compliance with this requirement by maintaining a total resource effectiveness (TRE) index value greater than 1.0. As a process vents with a TRE index value greater than 1.0 the cooling towers are required to comply with the provisions for Group 2 process vents. The applicant reported the TRE index value for the cooling towers to be greater than 4.0 and will be required to to comply with the provisions for calculation of TRE index in 63.115.

ii. Monitoring/Recordkeeping/Reporting Requirements

The applicant reported the TRE index value for the cooling towers to be greater than 4.0 and will be required to to comply with the reporting and recordkeeping provisions in 63.117(b), 63.118(c), and 63.118(h). 63.117(b) requires the permittee to maintain records and submit as part of the Notification of Compliance Status, measurements, engineering assessments, and calculations performed to determine the TRE index value of the vent stream. Documentation of engineering assessments shall include all data, assumptions, and procedures used as specified in 63.115(d)(1). 63.118(c) requires the permittee to keep up-to-date, readily accessible records of:

- A. any process changes as defined in 63.115(e), and
 - B. any recalculation of the TRE index value pursuant to 63.115(e).
- 63.118(h) requires that whenever a process change, as defined in 63.115(e) is made that causes a Group 2 process vent with a TRE index value greater than 4.0 to become a Group 2 process vent with a TRE index value less than 4.0, the permittee shall submit a report within 180 calendar days after the process change. The report may be submitted as part of the periodic report and shall include:
- A. a description of the process change,
 - B. the results of the recalculation of the TRE index value required under 63.115(e), and
 - C. a statement that the permittee will comply with the requirements specified in 63.113(d).
- The sources is not subject to monitoring or any other provisions of 63.114 through 63.118.

M. Wastewater treatment pond and associated wastewater streams (ID No. ES-005)

1. Description

40 CFR Part 63 Subpart F provides that the provisions of Subparts F, G, and H apply to chemical manufacturing units that meet the criteria specified in 63.100(b)(1) through (3). Wastewater streams and operations associated with affected sources are subject to 40 CFR Part 63 Subpart G (HON). All tanks, piping, and treatment units handling wastewater at this facility are enclosed. The wastewater treatment pond is the only significant emission source associated with waste water from the facility. The applicant reported that the wastewater streams and treatment pond contain formaldehyde (650 ppm) and hexamine (8,900 ppm). Formaldehyde is the only HAP detected in the wastewater and the total HAP concentration of the waste water is less than 10,000 ppm. The wastewater streams and operations are Group 2 wastewater streams. The applicant reported emissions of VOC and formaldehyde as regulated pollutants from this sources.

2. Applicable Regulatory Requirements

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

Regulated Pollutant	Limits/Standards	Applicable Regulation
HAPs	Recordkeeping	15A NCAC 2D .1111 40 CFR Part 63 Subpart G

a. 2D .1111 “Maximum Achievable Control Technology”
40 CFR Part 63.132 “Process Wastewater Provisions - General”

i. Regulation Requirements

Based on the application the wastewater streams are considered considered Group 2 wastewater streams. The Permittee will be required to determine whether wastewater streams are Group 1 or Group 2 according to 40 CFR 63.132(c).

ii. Monitoring/Recordkeeping/Reporting Requirements

40 CFR 63.132(a)(3) requires the Permittee to comply with the applicable recordkeeping and reporting requirements in 63.146 and 63.147. 63.146(b)(2) requires the Permittee to submit the information specified in Table 15 of Subpart G with the initial notification. The permit will require that records of this information be maintained and readily accessible. 63.147(f) requires the Permittee to keep records of documentation of how process knowledge was used to determine the annual average concentration/or the annual average flow rate of wastewater streams.

VII. Multiple Emissions Source Evaluation

The following emissions standard are applicable to multiple emission units within the facility.

Regulated Pollutant	Limits/Standards	Applicable Regulation
HAPs	LDAR program and equipment specifications	15A NCAC 2D .1111 40 CFR Part 63 Subpart H
VOC	Work practice standards	15A NCAC 2D .0958
TAPs	Control of Toxic Air Pollutants - <i>State Enforceable Only</i>	15A NCAC 2D. 1100
Odor	Control and Prohibition of Odorous Emissions	15A NCAC 2D .1806

A. 15A NCAC 2D .1111 and 40 CFR Part 63 Subpart H - LEAK DETECTION AND REPAIR PROGRAM AND EQUIPMENT SPECIFICATIONS

1. Applicable Regulatory Requirements

40 CFR Part 63 Subpart F provides that the provisions of Subparts F, G, and H apply to chemical manufacturing units that meet the criteria specified in 63.100(b)(1) through (3). Consequently for the emissions units subject to Subpart G described above, the Permittee shall also comply with the requirements of 40 CFR Part 63 Subpart H (40 CFR Parts 63.160- 63.182). As indicated in 40 CFR 63.160, “The provisions of this subpart apply to pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, instrumentation systems, and control devices or closed vent systems required by this subpart that are intended to operate in organic hazardous air pollutant service 300 hours or more during the calendar year within a source subject to the provisions of a specific subpart in 40 CFR part 63 that references this subpart.”

a. Standards - General

- i. Compliance with these requirements will be determined by review of records required by 63.181, reports required by 63.182, review of performance test results and inspections.
- ii. Each piece of equipment in a process unit to which this subpart applies shall be identified so that it can be readily distinguished from equipment that is not subject to this subpart.
- iii. When each leak is detected as specified 63.163 and 63.164; 63.168 and 63.169; and 63.172 through 63.174, a weatherproof, readily visible identification marked with the equipment identification number shall be attached to the leaking equipment. The identification may be removed according to the procedures in 63.162(f)(2) and (3) as applicable.
- iv. In all cases where the provisions of this subpart require an owner or operator to repair leaks by a specified time after the leak is detected, it is a violation of this subpart to fail to take action to repair the leaks within the specified time. If action is taken to repair the leaks within the specified time, failure of that action to successfully repair the leak is not a violation of this subpart. However, if the repairs are unsuccessful, a leak is detected and the owner or operator shall take further action as required by applicable provisions of this subpart.

b. Pumps in Light Liquid Service

- i. The Permittee shall comply with all applicable requirements of 63.163. To ensure compliance for all pumps in light liquid service associated with the affected source, as a minimum, the Permittee shall monitor on a monthly basis each pump in light liquid service to detect leaks by the method specified in 63.180(b). A leak is determined by an instrument reading of 1000 ppm or greater (processes at this facility do not handle polymerizing monomers, 5000 ppm leak threshold, or have pumps in food/medical service, 2000 ppm leak threshold). Repair is not required unless an instrument reading of 2000 ppm or greater is detected.
 - ii. When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 63.163(c)(3) and 63.171. A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.
 - iii. If, calculated on a 6-month rolling average, the greater of either 10 percent of the pumps or three pumps in a process unit leak, the Permittee shall implement a quality improvement program for pumps that complies with the requirements of 63.176. The percent of leaking pumps shall be calculated according to the requirements in 63.163(d).
- c. Compressors
- i. The Permittee shall comply with all applicable requirements of 63.164. Each compressor shall be equipped with a seal system that includes a barrier fluid system meeting the requirements of 63.164(b) and (c), and that prevents leakage of process fluid to the atmosphere except as provided by 63.164(h) and (i).
 - ii. Each barrier fluid system shall be equipped with a sensor that will detect failure of the seal system, barrier fluid system or both. Each sensor shall be observed daily or equipped with an alarm according to 63.164(e). A leak is determined if the sensor indicates failure of the seal system, barrier fluid system or both.
 - iii. When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 63.163(c)(3) and 63.171. A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.
- d. Pressure Relief Devices in Gas/Vapor Service
- i. The Permittee shall comply with all applicable requirements of 63.165. Each pressure relief device in gas/vapor service shall be operated with an instrument reading of less than 500 ppm above background as measured by the method specified in 63.180(c) except as provided in 63.165(b).
 - ii. After each pressure release, the pressure relief device shall be returned to a condition indicated by an instrument reading of less than 500 ppm above background as soon as practicable, but no later than 5 calendar days after each pressure release except as provided in 63.171. The pressure relief device shall be monitored no later than 5 calendar days after the pressure release and returning to organic HAP service.
- e. Sampling Connection Systems
- i. The Permittee shall comply with all applicable requirements of 63.166. Each sampling connection system shall be equipped with a closed-purge, closed-loop, or closed vent system meeting the requirements of 63.165(b). Gases displaced during filling of the sample container are not required to be collected or captured.
- f. Open-ended Valves or Lines
- i. The Permittee shall comply with all applicable requirements of 63.167. Each open-ended valve or line shall be equipped with a cap, blind flange, or a second valve operated in accordance with 63.167(b) and (c), except as provided in 63.167(d) and (e). The cap, blind flange, or a second valve shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line, or during maintenance or repair.
- g. Valves in Gas/Vapor Service and In Light Liquid Service
- i. The Permittee shall comply with all applicable requirements of 63.168. The Permittee shall monitor all valves to detect leaks by the method specified in 63.180(b) at the intervals specified in 63.168(d) except as provided in 63.168(h) and (i). A leak is determined by an instrument reading of 500 ppm or greater.
 - ii. At process units with 2 percent or greater leaking valves the Permittee shall monitor each valve once per month. At process units with less than 2 percent leaking valves, the Permittee shall monitor each valve once each quarter. At process units with less than 1 percent leaking valves, the Permittee may monitor each valve once every 2 quarters. At Process units with less than 0.5 percent leaking valves, the Permittee may monitor each valve once per 4 quarters. Percent leaking valves shall be determined according to 63.168(e).
 - iii. When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 63.171. A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.
 - iv. When a leak has been repaired it shall be monitored at least once within the first three months after its repair as specified in 63.168(f)(3).
- h. Pumps, Valves, Connectors, Agitators in Heavy Liquid Service; Instrumentation Systems; and Pressure Relief Devices in Liquid Service.
- i. The Permittee shall comply with all applicable requirements of 63.169. Pumps, valves, connectors, agitators in heavy liquid service; instrumentation systems; and pressure relief devices in liquid service shall be monitored within 5 calendar days by the method specified in 63.180(b) if evidence of a potential leak to the atmosphere is found by visual, audible, olfactory, or any other detection method. If the potential leak is repaired according to 63.168(c) and (d), it is not necessary to monitor the system for leaks by the method specified in 63.180(b).
 - ii. If an instrument reading of 10,000 ppm or greater for agitators, 2000 ppm or greater for pumps, or 500 ppm or greater for valves, connectors, instrumentation systems, and pressure relief devices is measured, a leak is detected.
 - iii. When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 63.171. A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.

- i. Surge Control Vessels and Bottoms Receivers.
 - i. The Permittee shall comply with all applicable requirements of 63.170. Each surge control vessel or bottoms receiver that is not routed back to the process and meets the conditions specified in table 2 or 3 of 40 CFR 63 Subpart H shall be equipped with a closed vent system that routes vented organic vapors back to the process or to a control device that complies with the requirements of 63.172 or 63.119(b) or (c) of Subpart G.
- j. Closed Vent Systems and Control Devices.
 - i. The Permittee shall comply with all applicable requirements of 63.172 for closed-vent systems and control devices used to comply with the provisions of Subpart H.
 - ii. Recovery or recapture devices (e.g. condensers and absorbers) shall be designed and operated to recover at least 95 percent of the organic HAP or VOC vented to them or reduce the exit concentration to an exit concentration of 20 ppmv, whichever is less stringent
 - iii. Enclosed combustion devices shall be designed and operated to reduce the organic HAP or VOC emissions vented to them with an efficiency of 95 percent or greater, or to an exit concentration of 20 ppmv, whichever is less stringent, or to provide a minimum residence time of 0.50 seconds at a minimum temperature of 760 C.
 - iv. The Permittee shall monitor all control devices used to comply with the provisions of 63 Subpart H to ensure that they are operated and maintained in conformance with their design.
 - v. Except as provided in 63.172(k) and (l), each closed-vent system shall be inspected according to the procedures and schedule specified in 63.172(f)(1) and (f)(2).
 - vi. Each closed-vent system shall be inspected according to the procedures in 63.182(b).
 - vii. A leak is indicated by an instrument reading of 500 ppm or greater above background or by visual inspection.
 - viii. When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 63.171, except as provided in 63.172(i). A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.
 - ix. For each closed-vent system that contains bypass lines that could divert a vent stream away from the control device and to the atmosphere, the Permittee shall comply with the provisions of 63.172(j)(1) or (j)(2), except as provided in 63.172(j)(3).
 - x. Whenever organic HAP emissions are vented to a closed-vent system or control device used to comply with 40 CFR 63 Subpart H, such system or control device shall be operating.
- k. Agitators in Gas/Vapor Service and In Light Liquid Service.
 - i. The Permittee shall comply with all applicable requirements of 63.173 except as provided in 63.173(d), (e), (f), (g), (h), and (i). Each agitator shall be monitored monthly to detect leaks by the method specified in 63.180(b). A leak is detected if an instrument reading of 10,000 ppm or greater is measured.
 - ii. Each agitator shall be checked by visual inspection each calendar week for indications of liquids dripping from the agitator. A leak is detected if indications of liquids dripping from the agitator are detected.
 - iii. When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 63.171, except as provided in 63.172(i). A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.
- l. Connectors in Gas/Vapor Service and in Light Liquid Service
 - i. The Permittee shall comply with all applicable requirements of 63.174 except as provided in 63.174(f), (g), (h), and (j). The Permittee shall monitor all connectors in gas/vapor and light liquid service, except as provide in 63.174(f) through (h) at the intervals specified in 63.174(b). The connectros shall be monitored to detect leaks by the method specified in 63.180(b). A leak is detected if an instrument reading of 500 ppm or greater is measured. The Permittee shall monitor connectors once per year if the percent leaking connectors in the process unit was 0.5 percent or greater during the last required monitoring period. The Permittee shall monitor connectors once every 2 years if the percent leaking connectors in the process unit was less than 0.5 percent during the last required monitoring period. The Permittee may monitor connectors once every 4 years if the percent leaking connectors calculated for a process unit in a biennial leak detection and repair program is less than 0.5 percent. If a process unit using a 4-year monitoring interval program has 0.5 percent or greater but less than 1 percent leaking connectors, the Permittee shall increase monitoring frequency to once every 2 years. If a process unit using a 4-year monitoring interval program has 1 percent or greater leaking connectors, the Permittee shall increase monitoring frequency to one time per year. The percent leaking connectors shall be calculated as specified in 63.174(1) and (2).
 - ii. Except as provided in 63.174(c)(ii), each connector that has been opened or has otherwise had the seal broken shall be monitored for leaks when it is reconnected or within 3 months after being returned to organic HAP service. If a leak is detected it shall be repaired according to the provisions of paragraph (iii) and 63.174(d) unless it is determined to be nonrepairable as provided in 63.174(c)(i).
 - iii. When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in 63.171, except as provided in 63.172(i). A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.

2. Recordkeeping

The Permittee shall comply with all applicable recordkeeping requirements as prescribed in 63.181 including:

- a. A list of identification numbers for equipment subject to 40 CFR 63 Subpart H as required by 63.181(b)(1).
- b. A list of identification numbers for equipment that the Permittee elects to equip with a closed-vent system and control device under the provisions of 63.163(g), 63.164(h), 63.165(c), or 63.173(f).
- c. A list of identification numbers for pressure relief devices subject to the provisions in 63.165(d).
- d. Identification of screwed connectors subject to the requirements 63.174(c).

- e. The information required under 63.181(b)(6) for each dual mechanical seal system.
- f. The information required under 63.181(b)(7) pertaining to all pumps subject to 63.163(j), valves subject to 63.168(h) and (i), agitators subject to 63.173(h) through (j), and connectors subject to 63.174(f) and (g).
- g. A list of valves removed from and added to the process unit as described in 63.168(e)(1).
- h. A list of connectors removed from and added to the process unit as described in 63.174(i)(1) and documentation of the integrity of the weld from any removed connectors as required in 63.174(j).
- i. The information required under 63.181(b)(9) for batch process units.
- j. For visual inspections of equipment subject to the provisions of 49 CFR 63 Subpart H, the Permittee shall document that the inspection was conducted and the date of the inspection.
- k. When a leak is detected as specified in 63.163 and 63.164; 63.168 and 63.169 and 63.172 through 63.174, the information required under 63.181(d) shall be recorded.
- l. The information required under 63.181(e) for batch processes the Permittee elects to pressure test to demonstrate compliance.
- m. The dates, results and other information required under 63.181(f) of each compliance test for compressors subject to 63.164(i) and monitoring following a pressure release for each pressure release device subject to 63.165(a) and (b).
- n. Records of the information required under 63.181(g) for closed-vent systems and control devices subject to 63.172.
- o. The information required under 63.181(h) or process units subject to the requirements of 63.175 and 63.176 for quality improvement programs.
- p. The information required under 63.181(i) for equipment in heavy liquid service.
- q. Identification of equipment in organic HAP service less than 300 hours per year within a process unit subject to 40 CFR 63 Subpart H.

All records and information required under 63.181 shall be maintained in a manner that can be readily accessed at the plant site. A condition will also be added requiring the Permittee to identify all HAP emission points, including those subject to and emission points not subject to 40 CFR 63 Subparts F, G, and H. Such information shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative of DENR upon request. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .1111 if this record is not maintained or unavailable for review.

3. Reporting

The Permittee shall comply with all of the applicable reporting requirements under 63.182. At a minimum the periodic reports shall include:

- a. The number of valves for which leaks were detected as described in 40 CFR 63.168(b), the percent leakers, and the total number of valves monitored;
- b. The number of valves for which leaks were not repaired as required in 40 CFR 63.168(f), identifying the number of those that are determined nonrepairable;
- c. The number of pumps for which leaks were detected as described in 40 CFR 63.163(b), the percent leakers, and the total number of pumps monitored;
- d. The number of pumps for which leaks were not repaired as required in 40 CFR 63.163(c);
- e. The number of compressors for which leaks were detected as described in 40 CFR 63.164(f);
- f. The number of compressors for which leaks were not repaired as required in 40 CFR 63.164(g) of this subpart;
- g. The number of agitators for which leaks were detected as described in 40 CFR 63.173(a) and (b);
- h. The number of agitators for which leaks were not repaired as required in 40 CFR 63.173(c);
- i. The number of connectors for which leaks were detected as described in 40 CFR 63.174(a), the percent of connectors leaking, and the total number of connectors monitored;
- j. The number of connectors for which leaks were not repaired as required in 40 CFR 63.174(d), identifying the number of those that are determined nonrepairable;
- k. The facts that explain any delay of repairs and, where appropriate, why a process unit shutdown was technically infeasible.
- l. The results of all monitoring to show compliance with 40 CFR 63.164(i), 40 CFR 63.165(a), and 40 CFR 63.172(f) conducted within the semiannual reporting period.
- m. If applicable, the initiation of a monthly monitoring program under 40 CFR 63.168(d)(1)(i), or a quality improvement program under either 40 CFR 63.175 or 40 CFR 63.176.
- n. If applicable, notification of a change in connector monitoring alternatives as described in 40 CFR 63.174(c)(1) of this subpart.
- o. If applicable, the compliance option that has been selected under 40 CFR 63.172(n).

In addition to the information specified above, the Permittee shall submit a summary report of monitoring and record keeping activities. Periodic reports shall be submitted by January 30 of each calendar year for the preceding six-month period from July through December and by July 30 of each calendar year for the preceding six-month period from January through June. All instances of deviations from the requirements of this permit must be clearly identified.

B. 2D .0958 "Work Practices for Volatile Organic Compounds"

1. Regulation Analysis

This regulation applies to sources that use volatile organic compounds as industrial chemical reactants and emissions of VOCs are greater than 15 pounds per day. This rule requires the permittee to:

- i. store all material, including waste material, containing volatile organic compounds in containers covered with tightly fitting lids that are free of cracks, holes, or other defects, when not in use,
- ii. clean up spills as soon as possible following proper safety procedures,
- iii. store wipe rags in closed containers,
- iv. not clean sponges, fabric, wood, paper products, and other absorbent materials,

- v. drain solvents used to clean supply lines and other coating equipment into closable containers and close containers immediately after each use,
- vi. clean mixing, blending, and manufacturing vats and containers by adding cleaning solvent, closing the vat or container before agitating the cleaning solvent. The spent cleaning solvent shall then be poured into a closed container.

When cleaning parts with a solvent containing a volatile organic compound, the Permittee is required to:

- i. flush parts in the freeboard area,
- ii. take precautions to reduce the pooling of solvent on and in the parts,
- iii. tilt or rotate parts to drain solvent and allow a minimum of 15 seconds for drying or until all dripping has stopped, whichever is longer,
- iv. not fill cleaning machines above the fill line,
- v. not agitate solvent to the point of causing splashing. [15A NCAC 2D .0958(d)]

Compliance with this regulation is indicated because the latest inspection report did not cite any violations.

b. **Monitoring Requirements/Recordkeeping/Reporting**

To assure compliance with this requirement, once a month the Permittee will be required to perform a visual inspection of all operations and processes utilizing volatile organic compounds and shall immediately initiate any required corrective actions to meet these requirements. The inspection shall be conducted during normal operations. If the required inspections are not conducted the permittee shall be deemed in noncompliance with this requirement. The results of the inspections will be maintained in a logbook on-site and made available to an authorized representative upon request. The logbook shall record the date and time of each inspection and the results of each inspection noting whether or not noncompliant conditions were observed and whether or not corrective actions were taken to restore compliance. The permittee will be required to submit semi-annual summary reports including all instances of deviations from these requirements.

C. 15A NCAC 2D .1100 Control of Toxic Air Pollutants - State Enforceable Only

This facility is subject to the North Carolina Toxic Air Pollutant Control Program. The Permit conditions from the existing State construction and operation permit will be placed in the Title V permit as State Enforceable Only requirements. In addition to the requirements of the specific condition 10 in the current state operating permit, the requirements in condition 12, for the production of Dowicil in the Dry Products CMPU, specific condition 13b, and 14 ensuring proper operation of emission control equipment will be added to this part of the permit.

D. 15A NCAC 2D .1806 Control and Prohibition of Odorous Emissions - State Enforceable Only

The Permittee shall not operate the facility without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility's boundary.

VIII. MACT Applicability and Requirements

Based on a review of the facility's current operations and emission sources, the facility is subject to 40 CFR Part 63, Subparts F, G, and H: National Emissions Standard for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry for Applicability and Standards, Process Vents, Storage Vessels, Transfer Operations, and Wastewater and Equipment Leaks.

IX. Permit Shield (including non-applicable requirements)

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

X. General Conditions

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

XI. Insignificant Activities

The insignificant activities listed in the application have been reviewed and modified to reflect the new NC regulations. Because an emission source or activity is insignificant does not mean that the emission source or activity is exempted from any applicable requirement or that the owner or operator of the source is exempted from demonstrating compliance with any applicable requirement.

XII. Public Notice

Pursuant to 15A NCAC 2Q .0521, a notice of the draft Title V Operating Permit shall be placed in a newspaper of general circulation in the area where the facility is located. The notice will provide for a 30 day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA.

XIII. Recommendations

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

DRAFT