

**AIR EMISSION PERMIT NO. 09900051- 001**

**IS ISSUED TO**

**MCNEILUS TRUCK AND MANUFACTURING, INC.**

McNeilus Composites Facility  
214 Industrial Park Drive  
Dexter, Mower County, MN 55926

The emission units, control equipment and emission stacks at the stationary source authorized in this permit are as described in the following permit application(s):

Permit Type	Application Date
Total Facility Operating Permit	June 14, 2002

This permit authorizes the Permittee to operate and construct the stationary source at the address listed above unless otherwise noted in Table A. The Permittee must comply with all the conditions of the permit. Any changes or modifications to the stationary source must be performed in compliance with Minn. R. 7007.1150 to 7007.1500. Terms used in the permit as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

**Permit Type:** Federal; Pt 70 (Limits to Avoid NSR)

**Issue Date:** May 30, 2003

**Expiration:** May 30, 2008  
All Title I Conditions do not expire.

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Ann M. Foss  
Major Facilities Section Manager  
Majors and Remediation Division

for Sheryl A. Corrigan  
Commissioner  
Minnesota Pollution Control Agency

## **TABLE OF CONTENTS**

**Notice to the Permittee**

**Permit Shield**

**Facility Description**

**Table A: Limits and Other Requirements**

**Table B: Submittals**

**Appendix I – Emission Factor Equation**

**Appendix II – Insignificant Activities**

**NOTICE TO THE PERMITTEE:**

Your stationary source may be subject to the requirements of the Minnesota Pollution Control Agency's (MPCA) solid waste, hazardous waste, and water quality programs. If you wish to obtain information on these programs, including information on obtaining any required permits, please contact the MPCA general information number at:

Metro Area	(651) 296-6300
Outside Metro Area	1-800-657-3864
TTY	(651) 282-5332

The rules governing these programs are contained in Minn. R. chs. 7000-7105. Written questions may be sent to: Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, Minnesota 55155-4194.

Questions about this air emission permit or about air quality requirements can also be directed to the telephone numbers and address listed above.

**PERMIT SHIELD:**

Subject to the limitations in Minn. R. 7007.1800, compliance with the conditions of this permit shall be deemed compliance with the specific provision of the applicable requirement identified in the permit as the basis of each condition. Subject to the limitations of Minn. R. 7007.1800 and 7017.0100, subp. 2, notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

**FACILITY DESCRIPTION:**

McNeilus Truck and Manufacturing, Inc. proposes to construct and operate a composites manufacturing facility. The facility will be located near Dexter, Minnesota. The Composites facility will manufacture glass fiber and resin composites to produce drum mixer/agitators and/or parts for concrete emplacement trucks. The composite components will be purchased from various manufacturers and shipped to the Composites facility for storage and processing. The facility will utilize several manufacturing processes to make composites (mechanical non-atomized, filament winding, and manual application). All of these processes generally share the same characteristics of bringing together a correct combination of resin, reinforcement material (glass fiber), filler, and additives to form a final product. The primary air emissions will be Volatile Organic Compounds and Hazardous Air Pollutants (HAPs). After assembly, the drum mixers will be shipped off-site for installation at truck manufacturing facilities.

The composites facility will be classified as a minor source under the Federal New Source Review Prevention of Significant Deterioration (PSD) regulations (40 CFR pt. 52). The composites facility will be a major source of (HAPs) (40 CFR pt. 63). It will be subject to subp. WWW. Hence, the composites facility will require a Title V Part 70 Operating Permit (40 CFR pt. 70).

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

05/30/03

Facility Name: McNeilus Composites Facility

Permit Number: 09900051 - 001

**Table A contains limits and other requirements with which your facility must comply. The limits are located in the first column of the table (What To do). The limits can be emission limits or operational limits. This column also contains the actions that you must take and the records you must keep to show that you are complying with the limits. The second column of Table A (Why to do it) lists the regulatory basis for these limits. Appendices included as conditions of your permit are listed in Table A under total facility requirements.**

**Subject Item: Total Facility**

<b>What to do</b>	<b>Why to do it</b>
<b>OPERATIONAL REQUIREMENTS</b>	hdr
Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.	Minn. R. 7011.0020
Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.	Minn. R. 7019.1000, subp. 4
Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.	Minn. R. 7011.0150
Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7030.0010 - 7030.0080
Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A).	Minn. R. 7007.0800, subp. 9(A)
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
<b>RECORDKEEPING</b>	hdr
Equipment Labeling: The Permittee shall permanently affix a unique station number to each station. The numbers shall correlate the station to the appropriate EU and GP numbers used in this permit. The number can be affixed by placard, stencil, or other means. The number shall be maintained so that it is readable and visible at all times from a safe distance.	Minn. R. 7007.0800, subp. 2
Record keeping: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include: all calibration and maintenance records; all data, assumptions, and calculations; a certified statement of compliance with the work practice requirements; and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A) and 40 CFR 63.5915.	Minn. R. 7007.0800, subp. 5(C); 40 CFR 63.5915
Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350 subp. 2), including records of the emissions resulting from those changes.	Minn. R. 7007.0800, subp. 5(B)
<b>REPORTING/SUBMITTALS</b>	hdr
Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3.	Minn. R. 7019.1000, subp. 3
At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.	

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

05/30/03

Facility Name: McNeilus Composites Facility

Permit Number: 09900051 - 001

Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2.  At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.	Minn. R. 7019.1000, subp. 2
Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.	Minn. R. 7019.1000, subp. 1
Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovering, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7019.1000, subp. 1
Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.	Minn. R. 7007.1150 through Minn. R. 7007.1500
Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H).	Minn. R. 7007.1400, subp. 1(H)
Emission Inventory Report: due 91 days after end of each calendar year following permit issuance (April 1). To be submitted on a form approved by the Commissioner.	Minn. R. 7019.3000 through Minn. R. 7019.3010
Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095
The Permittee shall comply with the Maximum Achievable Control Technology (MACT) Standard for Reinforced Plastics Composite Production (subpart WWWW).	40 CFR pt. 63
The Permittee shall not "construct" or "reconstruct" a major source of hazardous air pollutants as defined in 40 CFR section 63.2, without first obtaining a preconstruction permit.	40 CFR Sections 63.40 to 63.44; Minn. R. 7007.3010
For the first eleven months of operation, the Permittee shall equally prorate the 12-month rolling sum limits by the number of months operated.	Minn. R. 7007.0800, subp. 2

# TABLE A: LIMITS AND OTHER REQUIREMENTS

05/30/03

Facility Name: McNeilus Composites Facility

Permit Number: 09900051 - 001

**Subject Item:** GP 001 Composite Resin Applications

**Associated Items:** EU 001 Station 1 Area  
EU 002 Station 0 (R)  
EU 003 Station 0 (P/U)  
EU 004 Stations 2, 3, 4, 5, 6, and 7 Areas  
EU 005 Station 8 Area  
EU 006 Station 9 Area  
SV 001 Station 1 Area  
SV 002 Station 0 (R)  
SV 003 Station 0 (P/U)  
SV 004 Stations 2, 3, 4, 5, 6, and 7 Areas  
SV 005 Station 8 Area  
SV 006 Station 9 Area

What to do	Why to do it
LIMITS	hdr
<p>Volatile Organic Compounds: less than or equal to 95.0 tons/year using 12-month Rolling Sum to be calculated, by the 20th day of each month, for the previous 12-month period. All sources listed in GP001 (excluding fuel combustion) shall be included in the 12-month sum.</p> <p>All emission units included in GP 001 as allowed in this permit shall be included in this calculation. VOC contents for each VOC-containing material shall be determined as described under the Material Content requirement in GP 001. The calculation of VOCs used may be taken into account recovered/recycled VOCs as described under the Waste Credit requirement in GP 001.</p>	Title I Condition: Limit to avoid classification as major source under 40 CFR Section 52.21 and Minn. R. 7007.3000
<p>HAPs - Total: less than or equal to 95.0 tons/year using 12-month Rolling Sum to be calculated, by the 20th day of each month, for the previous 12-month period. All sources listed in GP001 (excluding fuel combustion) shall be included in the 12-month sum.</p> <p>All emission units included in GP 001 as allowed in this permit shall be included in this calculation. HAP contents for each HAP-containing material shall be determined as described under the Material Content requirement in GP 001.</p>	Minn. R. 7007.0800, subp. 2
<p>Corrosion Resistant Filament Winding processes shall not exceed 171 pounds of total organic hazardous air pollutants (including styrene, methyl methacrylate, and methylene chloride) per ton of resin and gelcoat using a 12-month rolling average.</p> <p>All emission units included in GP 001 as allowed in this permit shall be included in this calculation. HAP contents for each HAP-containing material shall be determined as described under the Material Content requirement in GP 001.</p>	40 CFR 63.5835
<p>Manual Tooling processes shall not exceed 123 pounds of total organic hazardous air pollutants (including styrene, methyl methacrylate, and methylene chloride) per ton resin and gelcoat using a 12-month rolling average.</p> <p>All emission units included in GP 001 as allowed in this permit shall be included in this calculation. HAP contents for each HAP-containing material shall be determined as described under the Material Content requirement in GP 001.</p>	40 CFR 63.5835
<p>Corrosion Resistant Mechanical Non-atomized Application processes shall not exceed 112 pounds of total organic hazardous air pollutants (including styrene, methyl methacrylate, and methylene chloride) per ton resin and gelcoat using a 12-month rolling average.</p> <p>All emission units included in GP 001 as allowed in this permit shall be included in this calculation. HAP contents for each HAP-containing material shall be determined as described under the Material Content requirement in GP 001.</p>	40 CFR 63.5835
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715, subp. 1(B)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

05/30/03

Facility Name: McNeilus Composites Facility

Permit Number: 09900051 - 001

Methyl ethyl ketone (MEK): less than or equal to 9.5 tons/year using 12-month Rolling Sum . Any MEK used in the cleaning of equipment is not included in this limit. All emission units included in GP 001 as allowed in this permit shall be included in this calculation. HAP contents for each HAP-containing material shall be determined as described under the Material Content requirement in GP 001.	Title I Condition: Limit to avoid NESHAP case-by-case determination under 40 CFR 63.43; Minn. R. 7007.3010
The Permittee shall not manufacture more than one complete drum assembly, per hour, in the facility.	Minn. R. 7007.0800, subp. 2
WORK PRACTICE STANDARDS	hdr
For closed molding operations using compression/injection molding, the Permittee shall uncover, unwrap, or expose only one charge per mold cycle per compression/injection molding machine.	40 CFR 63.5835
For cleaning operations, the Permittee shall not use cleaning solvents that contain hazardous air pollutants, except in the following instances: 1) styrene may be used as a cleaner in closed systems, and 2) organic HAP containing cleaners may be used to clean cured resin from application equipment. Application equipment includes any equipment that directly contacts resin.	40 CFR 63.5835
During materials storage operations, the Permittee shall keep the containers that store hazardous air pollutants closed or covered except during the addition or removal of materials.	40 CFR 63.5835
MONITORING	hdr
Material Content: VOC and HAPs contents in materials shall be determined by the Material Safety Data Sheet (MSDS) provided by the supplier for each material used. If a material content range is given on the MSDS, the highest number in the range shall be used in all compliance calculations. Other alternative methods approved by the MPCA may be used to determine the VOC and HAPs contents. The Commissioner reserves the right to require the Permittee to determine the VOC and/or HAP contents of any material, according to EPA or ASTM reference methods. If an EPA or ASTM reference method is used for material content determination, the data shall supercede the MSDS.	Minn. R. 7007.0800, subps. 4 and 5
Monthly Recordkeeping - VOC Emissions  By the 20th day of each month, the Permittee shall calculate and record the following: 1) The total purchase quantity of each VOC-containing material for the previous calendar month. This record shall also include the VOC content (in % by weight) of each VOC-containing material as determined by the Material Content requirement of this permit. 2) The VOC emissions for the previous month, based on purchase records. 3) The 12-month rolling sum VOC emissions for the previous 12-month period by summing the monthly VOC emissions data for the previous 12 months, based on purchase records.	Minn. R. 7007.0800, subps. 4 and 5
Waste Credit: If the Permittee elects to obtain credit for VOC shipped in waste materials, the Permittee shall either use item 1 or 2 to determine the VOC content for each credited shipment. 1) The Permittee shall analyze a composite sample of each waste shipment to determine the weight content of VOC, excluding water. 2) The Permittee may use supplier data for raw materials to determine the VOC content of each waste shipment, using the same content data used to determine the content of raw materials. If the waste contains several materials, the content of mixed waste shall be assumed to be the lowest VOC content of any of the materials.	Minn. R. 7007.0800, subps. 4 and 5
Monthly Recordkeeping - Total HAPs Emissions  By the 20th day of each month, the Permittee shall calculate and record the following: 1) The total purchase quantity of each HAP-containing material for the previous calendar month. This record shall also include the individual and total HAP content (in % by weight) of each HAP-containing material as determined by the Material Content requirement of this permit. 2) The individual and total emissions for the previous month, based on purchase records. 3) The 12-month rolling sum individual and total HAP emissions for the previous 12-month period by summing the monthly HAP emissions data for the previous 12 months, based on purchase records.	Minn. R. 7007.0800, subps. 4 and 5



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

05/30/03

Facility Name: McNeilus Composites Facility

Permit Number: 09900051 - 001

<p>Monthly Recordkeeping - Total VOCs and HAPs Emissions</p> <p>The following calculation procedures shall be used for each non-styrene containing product group:</p> <p>1. Bonding and Release Agents: available VOC and HAPs shall be determined based on the percent solids and percent volatiles indicated in the specific products' MSDS.</p> <p>2. Additives and Promoters: available VOC and HAPs shall be determined based on the percent solids and percent volatiles indicated in the specific products' MSDS. A 50 percent reduction is to be applied.</p>	<p>Minn. R. 7007.0800, subps. 4 and 5</p>
<p>Monthly Recordkeeping - Methyl Ethyl Ketone (MEK) Emissions</p> <p>By the 20th day of each month, the Permittee shall calculate and record the following:</p> <p>1) The total purchase quantity of each MEK-containing material for the previous calendar month. This record shall also include the MEK content (in % by weight) of each MEK-containing material as determined by the Material Content requirement of this permit.</p> <p>2) The MEK emissions for the previous month.</p> <p>3) The 12-month rolling sum MEK emissions for the previous 12-month period by summing the monthly MEK emissions data for the previous 12 months.</p>	<p>Minn. R. 7007.0800, subps. 4 and 5</p>
<p>Monthly Recordkeeping - Corrosion Resistant Filament Winding Total Organic HAPs Emissions</p> <p>By the 20th day of each month, the Permittee shall calculate and record the following:</p> <p>i) The total purchase quantity of each corrosion resistant filament winding neat resin plus and neat gel coat plus material, containing organic HAP(s), for the previous calendar month. Neat resin plus materials excludes any added filler, reinforcements, catalysts, or promoters. Neat gel coat plus materials excludes any catalysts or promoters. Bonding and release agents are also excluded from this calculation. This record shall also include the organic HAP(s) contents (in % by weight) of each material as determined by the Material Content requirement of this permit.</p> <p>ii) For each product from i) above, sum all of the individual organic HAP(s) contents (in % by weight).</p>	<p>Minn. R. 7007.0800, subps. 4 and 5; 40 CFR 63.5810</p>
<p>Continued</p> <p>iii) For each product from i) above, enter the sum of all the individual organic HAP(s) contents (from step ii) above) into the following emission rate (lbs/ton) equation:  <math display="block">\text{Organic EF} = ((0.2746 \times \% \text{ HAP}) - 0.0298) \times 2000</math></p> <p>iv) For each product from i) above, the 12-month rolling sum quantity usage (in tons) for the previous 12-month period by summing the monthly material quantity usage, for the previous 12 months.</p> <p>v) The average organic HAP emission factor (in lb/ton) using the equation found in Appendix I.</p> <p>vi) Compare the average organic HAP emission factor (from v above) with the 171 lb/ton emission limit.</p>	<p>Minn. R. 7007.0800, subps. 4 and 5; 40 CFR 63.5810</p>
<p>Monthly Recordkeeping - Manual Tooling Total Organic HAPs Emissions</p> <p>By the 20th day of each month, the Permittee shall calculate and record the following:</p> <p>i) The total purchase quantity of each manual tooling neat resin plus and neat gel coat plus material, containing organic HAP(s), for the previous calendar month. Neat resin plus materials excludes any added filler, reinforcements, catalysts, or promoters. Neat gel coat plus materials excludes any catalysts or promoters. Bonding and release agents are also excluded from this calculation. This record shall also include the organic HAP(s) contents (in % by weight) of each material as determined by the Material Content requirement of this permit.</p> <p>ii) For each product from i) above, sum all of the individual organic HAP(s) contents (in % by weight).</p>	<p>Minn. R. 7007.0800, subps. 4 and 5; 40 CFR 63.5810</p>

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

05/30/03

Facility Name: McNeilus Composites Facility

Permit Number: 09900051 - 001

Continued  iii) For each product from i) above, enter the sum of all the individual organic HAP(s) contents (from step ii) above)) into the following emission rate (lbs/ton) equation: Organic EF = ((0.2860 x % HAP) - 0.0529) x 2000  iv) For each product from i) above, the 12-month rolling sum material quantity usage (in tons) for the previous 12-month period by summing the monthly material quantity usage, for the previous 12 months.  v) The average organic HAP emission factor (in lb/ton) using the equation found in Appendix I.  vi) Compare average organic HAP emission factor (from v) above) with the 123 lb/ton emission limit.	Minn. R. 7007.0800, subps. 4 and 5; 40 CFR 63.5810
Monthly Recordkeeping - Corrosion Resistant Mechanical Non-atomized Application Total Organic HAP Emissions  By the 20th day of each month, the Permittee shall calculate and record the following:  i) The total purchase records of each corrosion resistant mechanical non-atomized neat resin plus and neat gel coat plus material, containing organic HAP(s), for the previous calendar month. Neat resin plus materials excludes any added filler, reinforcements, catalysts, or promoters. Neat gel coat plus materials excludes any catalysts or promoters. Bonding and release agents are also excluded from this calculation. This record shall also include the organic HAP(s) contents (in % by weight) of each material as determined by the Material Content requirement of this permit.  ii) For each product from i) above, sum all of the individual organic HAP(s) contents (in % by weight).	Minn. R. 7007.0800, subps. 4 and 5; 40 CFR 63.5810
Continued  iii) For each product from i) above, enter the sum of all the individual organic HAP(s) contents (from step ii) above) into the following emission rate (lb/ton) equation: Organic EF = ((0.1570 x % HAP) - 0.0165) x 2000  iv) For each product from i) above, the 12-month rolling sum material quantity usage (in tons) for the previous 12-month period by summing the monthly material quantity usage, for the previous 12 months.  v) The average organic HAP emission factor (in lb/ton) using the equation found in Appendix I.  vi) Compare average organic HAP emission factor (from v) above) with the 112 lb/ton emission limit.	Minn. R. 7007.0800, subps. 4 and 5; 40 CFR 63.5810
Monthly Recordkeeping - Drum Production  By the 20th day of the month, the Permittee shall prepare a report summarizing hourly production of complete drum assembly manufactured, at the facility, during the previous month.	Minn. R. 7007.0800, subps. 4 and 5
NOTIFICATION	hdr
Prior to construction or reconstruction of an "affected source" under the promulgated MACT standards, the Permittee must apply for and obtain an air emission permit.	40 CFR 63.5(b)(3)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

05/30/03

Facility Name: McNeilus Composites Facility

Permit Number: 09900051 - 001

**Subject Item:** EU 006 Station 9 Area**Associated Items:** GP 001 Composite Resin Applications

SV 006 Station 9 Area

What to do	Why to do it
For the styrene finished based product, the methyl methacrylate content shall not exceed 7 percent, by weight.	Minn. R. 7007.0800, subp. 2
Recordkeeping: For the product containing methyl methacrylate, record and maintain the MSDS content.	Minn. R. 7007.0800, subps. 4 and 5

## TABLE B: SUBMITTALS

05/30/03

Facility Name: McNeilus Composites Facility  
Permit Number: 09900051 - 001

Table B lists most of the submittals required by this permit. Please note that some submittal requirements may appear in Table A or, if applicable, within a compliance schedule located in Table C. Table B is divided into two sections in order to separately list one-time only and recurrent submittal requirements.

Each submittal must be postmarked or received by the date specified in the applicable Table. Those submittals required by parts 7007.0100 to 7007.1850 must be certified by a responsible official, defined in Minn. R. 7007.0100, subp. 21. Other submittals shall be certified as appropriate if certification is required by an applicable rule or permit condition.

Send any application for a permit or permit amendment to:

Permit Technical Advisor  
Permit Section  
Air Quality Division  
Minnesota Pollution Control Agency  
520 Lafayette Road North  
St. Paul, Minnesota 55155-4194

Also, where required by an applicable rule or permit condition, send to the Permit Technical Advisor notices of:

- accumulated insignificant activities,
- installation of control equipment,
- replacement of an emissions unit, and
- changes that contravene a permit term.

Unless another person is identified in the applicable Table, send all other submittals to:

Supervisor  
Compliance Determination Unit  
Air Quality Division  
Minnesota Pollution Control Agency  
520 Lafayette Road North  
St. Paul, Minnesota 55155-4194

Send submittals that are required to be submitted to the U.S. EPA regional office to:

Mr. George Czerniak  
Air and Radiation Branch  
EPA Region V  
77 West Jackson Boulevard  
Chicago, Illinois 60604

Send submittals that are required by the Acid Rain Program to:

U.S. Environmental Protection Agency  
Clean Air Markets Division  
1200 Pennsylvania Avenue NW (6204N)  
Washington, D.C. 20460

**TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS**

05/30/03

Facility Name: McNeilus Composites Facility

Permit Number: 09900051 - 001

<b>What to send</b>	<b>When to send</b>	<b>Portion of Facility Affected</b>
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility
Notification of compliance status	due 395 days after Startup, as specified in 40 CFR 63.9(h).	GP001
Notification of the Actual Date of Initial Startup	due 15 days after Initial Startup	GP001
Notification of the Date Construction Began	due 30 days after Start Of Construction	GP001
Notification of the date of Equipment Removal/Dismantlement	due 15 days after Equipment Removal and/or Dismantlement	GP001

**TABLE B: RECURRENT SUBMITTALS**

05/30/03

Facility Name: McNeilus Composites Facility

Permit Number: 09900051 - 001

What to send	When to send	Portion of Facility Affected
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Permit Issuance. The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. If no deviations have occurred, the Permittee shall submit the report stating no deviations (including both emission limits and work practice standards).	Total Facility
Compliance Certification	due 31 days after end of each calendar year following Permit Issuance (for the previous calendar year). To be submitted on a form approved by the Commissioner, both to the Commissioner and to the US EPA regional office in Chicago. This report covers all deviations (including both emission limits and work practice standards) experienced during the calendar year.	Total Facility

## APPENDIX MATERIAL

Facility Name: McNeilus Composites Facility

Permit Number: 09900051-001

### APPENDIX I – AVERAGE ORGANIC HAP EMISSIONS FACTOR EQUATION

Average Organic HAP Emissions factor =

$$\frac{\sum_{i=1}^n ((\text{Organic HAP EF}_i) \times \text{Material}_i)}{\sum_{i=1}^n (\text{Material}_i)}$$

where: Organic HAP EF = taken from monthly record keeping step iii), which includes the sum of %, by weight, of all the individual organic HAP(s).

Material = 12-month rolling sum of material usage taken from monthly record keeping step iv), in tons.

n = number of process streams where an organic HAP emission factor was calculated.

## APPENDIX II – INSIGNIFICANT ACTIVITIES

### Insignificant Activities and General Applicable Requirements

The table below lists the insignificant activities that are currently at the Facility and their associated general applicable requirements.

<b>Minn. R. 7007.1300, subp.</b>	<b>Rule Description of the Activity</b>	<b>General Applicable Requirement</b>
3(A)	Natural gas –combustion units (make-up air heaters, space heat).	Minn. R. 7011.0515 (PM and opacity)
3(D)(2)	Equipment venting PM/PM <sub>10</sub> inside a building, provided that emissions from the equipment are filtered through an air cleaning system and vented inside of the building 100% of the time. (Stations 2, 3, 4, 5, 6, and 7 processing/finishing operations)	Minn. R. 7011.0715 (PM and opacity)





**TECHNICAL SUPPORT DOCUMENT**  
**For**  
**DRAFT AIR EMISSION PERMIT NO. 09900051-001**

This Technical Support Document (TSD) is for all the interested parties of the draft permit. The purpose of this document is to set forth the legal and factual basis for the draft permit conditions, including references to the applicable statutory or regulatory provisions.

**1. General Information**

**1.1. Applicant and Stationary Source Location:**

Owner/Operator Address and Phone Number (list both if different)	Facility Address (SIC Code: 3087)
McNeilus Corporation P.O. Box 2566 Oshkosh, WI 54903 (920) 233-9592	McNeilus Corporation 214 Industrial Park Drive Dexter, MN 55926 Mower County

**1.2. Description Of The Facility**

McNeilus Truck and Manufacturing, Inc., proposes to construct and operate a composites manufacturing facility. The facility will be located near Dexter, Minnesota. The Composites facility will manufacture glass fiber and resin composites to produce drum mixer/agitators and/or parts for concrete emplacement trucks. The composite components will be purchased from various manufacturers and shipped to the Composites facility for storage and processing. The facility will utilize several manufacturing processes to make composites (mechanical non-atomized, filament winding, and manual application). All of these processes generally share the same characteristics of bringing together a correct combination of resin, reinforcement material (glass fiber), filler, and additives to form a final product. The primary air emissions will be Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs). After assembly, the drum mixers will be shipped off-site for installation at truck manufacturing facilities.

The composites facility will be classified as a minor source under the Federal New Source Review Prevention of Significant Deterioration (PSD) regulations (40 CFR pt. 52). The composites facility will be a major source of HAPs (40 CFR pt. 63). Hence, the composites facility will require a Title V Part 70 Operating Permit (40 CFR pt. 70).

**1.3. Description of the Activities Addressed by This Permit Action**

This permit authorizes the construction and operation of the composites manufacturing facility.

## 1.5 30-Day Public Comment

During the 30-day public comment period, there were no comments received.

During the 30-day public comment period, the reinforced plastics composites NESHAP was signed (2/28/03). As of this time, the NESHAP has not been published in the Federal Register. Hence, it is not effective. To address substantive changes between the draft 2001 NESHAP and the 2/28/03 NESHAP, a number of minor changes were made to the draft permit. Most of the changes were editorial to reflect the terminology used in the NESHAP. No emission limits or work practice standards were changed. Changes included the following:

- 1) Adding wording to the permit's record keeping, semiannual deviation report, and compliance certification to reflect NESHAP's requirements.
- 2) The draft 2001 NESHAP did not allow any HAPs in any cleaning materials. The 2003 NESHAP allows for limited usage of HAPs in cleaning materials. This revision is reflected in the permit's work practice standard. It is also noted that 40 CFR § 63.5790 includes a definition of affected source. The definition provides, in part, that "an affected source consists of all parts in the facility engaged in the following operations: . . . cleaning of equipment used in reinforced plastic composites manufacture . . . ." Hence, cleaning solutions are now covered by the NESHAP. Under the 2001 NESHAP, such cleaning solutions were not covered by the NESHAP. The facility application originally had a MEK PTE of greater than 10 tpy. Because this HAP exceeded the 10 tpy threshold and was not addressed by the reinforced plastics composites NESHAP, it was subject to a case-by-case NESHAP. Accordingly, the Permittee took a limit to avoid this Title III threshold for MEK. Under the 2003 NESHAP, any cleaning solution MEK is now covered as an affected source. However, any MEK materials used in additives, promoters, bonding and release agents are still not covered by the 2003 NESHAP. Hence, the MEK limit remains in the permit for any MEK materials found in additives, promoters, bonding and release agents.
- 3) A compliance status notification requirement was added based on the 2003 NESHAP.

It is noted that the Section 112 case-by-case citations were replaced by the citations found in the 2/28/03 NESHAP. If the NESHAP is not published in the Federal Register prior to the issuance of this permit, these citations will be replaced back to the case-by-case citation.

## 1.6 Facility Emissions:

Table 1. Total Facility Potential to Emit Summary

GP/E U No.	Emission Unit/Group Description	PM tpy	PM <sub>10</sub> Tpy	SO <sub>2</sub> tpy	NO <sub>x</sub> tpy	CO tpy	VOC Tpy	HAPs (total) tpy
GP001	Composites Processes*	---	---	---	---	---	95.0	95.0
IAs	Natural Gas Combustion	0.23	0.23	0.02	3.00	2.52	0.17	0.056

\*Limited Potential Emissions (individual lb/hr HAP emissions listed in Table 4 of Appendix)

	PM tpy	PM <sub>10</sub> tpy	SO <sub>2</sub> tpy	NO <sub>x</sub> tpy	CO tpy	VOC tpy	HAPs (total) tpy
Total Facility Limited Potential Emissions	0.23	0.23	0.02	3.00	2.52	95.17	95.06

Table 2. Emissions Associated with the Permit Construction

Pollutant	Limited Potential to Emit from the Construction (tpy)	NSR/NESHAP Threshold Level (tpy)	NSR/ MACT Review Required (Yes or No)
PM	0.23	250	No
PM <sub>10</sub>	0.23	250	No
SO <sub>2</sub>	0.02	250	No
NO <sub>x</sub>	3.0	250	No
VOC	95.17	250	No
CO	2.52	250	No
Lead	---	250	No
HAPs	95.06	25/10	Yes

Table 3. Facility (TF) and Permit Classification

<b>Classification (put x in appropriate box)</b>	<b>Major/Affected Source</b>	<b>*Synthetic Minor</b>	<b>*Minor</b>
PSD (list pollutant)	--	VOC	PM <sub>10</sub> , NO <sub>x</sub> , SO <sub>2</sub> , CO
NAAR (list pollutant) <b>Not Applicable</b>	-	-	-
Part 70 Permit Program (list pollutant)	HAPs	VOC	PM <sub>10</sub> , NO <sub>x</sub> , SO <sub>2</sub> , CO

\* Refers to potential emissions that are less than those specified as major by 40 CFR § 52.21, 40 CFR pt. 51 Appendix S, and 40 CFR pt. 70.

### **Regulatory Overview of Facility**

#### **Regulatory and/or Statutory Basis**

*Federal New Source Review:* Since the potential emissions of, at least, one criteria pollutant does not exceed 250 tpy, the source is considered non-major for Prevention of Significant Deterioration (PSD), 40 CFR § 52.21. The composites facility will be limited to 95.0 tpy VOC.

*Federal Part 70 Operating Program:* Because the facility is major for HAPs, it will require a Title V Part 70 Operating Permit (40 CFR pt. 70).

*Federal National Emission Standards for Hazardous Air Pollutants:* A proposed NESHAP for composites manufacturing facilities was published in the August 2, 2001, Federal Register. Any composites facility constructed after the NESHAP was proposed, on August 2, 2001, is required to meet the standards upon commencement of operation. The rule will be promulgated as 40 CFR pt. 63, Subpart WWWW, Reinforced Plastic Composites Production. At this time, U.S. Environmental Protection Agency (EPA) estimates the rule to be finalized in May 2003. Because the Composites facility will emit more than 25 tons per year for total HAPs, requirements of Subpart WWWW will apply to facility operations.

In subsequent discussion with EPA, some of the proposed WWWW emission standards have been slightly changed. The changes can be found in the Sept. 26, 2002, "Reinforced Plastic Composites MACT Standards Development Update" EPA presentation. These changes to the August 2, 2001, proposed rule are reflected in this permit.

*Minnesota Health Risk Values:* The Permittee has performed SCREEN3 modeling and determined that the predicted individual HAP emissions are below the Minnesota Health Risk Values.

*Minnesota Environmental Assessment Worksheet:* Minnesota rules require an environmental review if the potential emissions increase of any criteria pollutant exceeds 100 tpy. Hence, an Environmental Assessment Worksheet was not required.

## Regulatory Overview of Units Affected by the Modification

Table 4. Regulatory Overview

EU#	Applicable Regulations	Comments
GP001	40 CFR 63, subp. WWW	National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Reinforced Plastic Composites Production
GP001	Title I Condition	To avoid major sources status under 40 CFR § 52.21
GP001	Minn. R. 7011.0715, subp. 1(B)	Opacity shall not exceed 20%

### 3. Technical Information

#### Controls

This composites facility will not emit more than 100 tons per year of HAPs. As provided by the proposed rule, facilities which emit less than 100 tpy of HAPs are not required to add on controls to maintain 95 percent emission reductions. At the Permittee's request, a 95 tpy HAPs limit is also included in the permit.

#### Screen 3 Modeling

See the attached discussion pertaining to Screen 3 modeling found in Appendix 1.

#### MEK

It is noted that the MEK PTE, as based on its lb/hr emissions, would exceed 10 tpy. This issue was discussed with the EPA personnel who were developing this NESHAP. EPA provided that this NESHAP would only address resins, gelcoats, and cleaning solutions. Bonding & release agents as well as additives and promoters were not being addressed.

The Permittee identified 4 types of trade groups within the proposed facility. The following provides a description of the trade groups:

Styrene Based: These products are composite resin components that are based on styrene. Potential and actual emissions from all styrene-based products will be calculated using the Unified Emission Factor Equations in conjunction with the product application method (i.e., mechanical non-atomized, filament winding, and manual application) and specific styrene content.

Bonding & Release Agents: These products are used as mold release agents or bonding agents for individual component materials. For emission calculation purposes, it is assumed that 100 percent of the available HAP and VOC content is released during application. Emission calculations are specific to the HAP and VOC content percentages of each product based on the Material Safety Data Sheets and other manufacturer information where available. The available HAP and VOC content is determined based on percent solids and volatiles for each product.

Additives, Promoters: These products are individual components of composite resins (i.e., additives to the styrene-based products). The products consist of catalysts, promoters, resins, and other additives. Due to the rapid polymerization process of resin curing, the Permittee has estimated that at least 50 percent control is experienced during curing phase.

Styrene Based Finish: These final finish products can be described as a combination of styrene-based products and bonding and release agents. Emission calculations are based on both the Unified Emission Factor Equations and specific styrene content, and actual HAP content percentages.

The resins and gelcoats are found in the styrene based and styrene based finish trade groups.

For this facility, the unlimited MEK emissions would be major in itself. The MEK materials are not being addressed by the proposed NESHAP. The Minnesota Pollution Control Agency (MPCA) staff informed the Permittee that the MEK may be subject to its own case-by-case NESHAP determination. Accordingly, a limit was taken on the MEK to remain minor. This is the basis of the 9.5 tpy MEK limit.

### **Styrene Emission Factors**

In the permit, the styrene emission factors are taken from the Unified Emission Factors for Open Molding of Composites. These emission factors have been previously accepted by the MPCA.

These UEF emission factor equations are as follows:

<b>Unified Emission Factor Equations</b>	
<b>Process Description</b>	<b>Unified Emission Equation</b>
Filament Winding	$((0.2746 \times \% \text{ styrene}) - 0.0298) \times 2000$
Manual Tooling	$((0.2860 \times \% \text{ styrene}) - 0.0529) \times 2000$
Mechanical Non-atomized Application	$((0.1570 \times \% \text{ styrene}) - 0.0165) \times 2000$

It is noted that EPA has instructed that HAPs, other than styrene, be treated as styrene in the above UEF equations. For example, a product containing 40 percent styrene and 5 percent Methyl Methacrylate (MMA) would have a total organic HAP content of 45 percent. The value of 45 percent would then be entered into the UEF equation, as styrene.

### **Styrene Emission Limits**

The emission limits for the corrosion resistant filament winding, manual tooling, and corrosion resistant mechanical non-atomized application processes are taken from the Sept. 26, 2002 "Reinforced Plastic Composites MACT Standards Development Update" EPA presentation. Pertinent portions of this document are found in this TSD Appendix II.

## **Methyl Methacrylate (MMA)**

The MMA emission rate input into the SCREEN3 model was 5.51 lb/hr. That was based on a 5 percent MMA content. The 5.51 lb/hr emission rate results in a 381 ug/m<sup>3</sup> concentration. The MMA acute Health Risk value (HRV) is 700 ug/m<sup>3</sup>. Accordingly, the permit restricts the Station 9 product to be less than 7 percent MMA. The Permittee will also restrict the use of MMA, in the facility, to just this one product in Station 9. This will result the acute HRV to less than 700 ug/m<sup>3</sup>. A percent content was used rather than a lb/hr recordkeeping. A lb/hr recordkeeping, in this instance, was determined to be to cumbersome.

It is also noted that the MMA UEF equation is  $(0.75 \times \% \text{ MMA})$ . In other words, 75 percent of the MMA is emitted. For modeling, this provides a 25% conservatism.

## **NSPS Not Applicable**

As confirmed with EPA, the Subpart VVV, Standards of Performance for Polymeric Coating of Supporting Substrates Facilities is not applicable to this facility.

## **Proposed Maximum MACT Emission Limitations**

The proposed NESHAP has two options for NESHAP compliance. One option is a lb/ton 12-month rolling average. The Permittee choose, only, this option. The second option is for the percent styrene not to exceed a given limit for any product. Both MACT emission limitations are summarized below:

**Maximum MACT Emission Limitations**

<b>Process Description</b>	<b>lb styrene/ ton resin</b>	<b>% styrene content to not be exceeded (per product)</b>
Corrosion Resistant Filament Winding	171	42
Manual Tooling	123	40
Corrosion Resistant Mechanical Non-atomized Application	112	46.2

## **Drum Production Limitation**

The acute HRV is based on a 1-hour ambient standard. The SCREEN3 modeling was all based on the assumption of a 1 drum per hour production rate. This allowed for a more readily input of the facility throughput, in lb/hour, for the SCREEN3 modeling. The Permittee provided emissions based on a one drum production. Accordingly, a one drum per hour production limit was taken. The 1 drum per hour production assumption is conservative based on the estimated operation throughput rate. Hence, the modeling results will be conservative.



### **Painting/Coating Operations**

No painting operations will take place at the facility and no spray booths will be used. However, some stations may utilize soft-wall enclosures (i.e., hanging dividers) to isolate flow coat operations, which are classified as mechanical non-atomization. No atomizing spray guns will be used in the process. Additionally, no coating operations will be in a process, only the application of resin/polymer materials to form a product as described by the process definitions.

### **Work Practice Standards**

The permit contains three work practice standards that were found in Table 4 of the Proposed NESHAP.

### **Recordkeeping**

EPA instructed to treat MMA as styrene for demonstrating compliance with the proposed NESHAP. As previously discussed, MMA is added with the styrene in the recordkeeping provisions to demonstrate compliance.

### **Purchase versus Usage Records**

The NESHAP preamble provides that purchase records may be used to determine monthly consumption (p. 40337).

### **Startup, Shutdown, and Malfunction Plan**

The proposed NESHAP only requires a Startup, Shutdown, and Malfunction Plan for facilities with add-on controls.

### **Periodic Monitoring**

All record keeping will be based on purchase records compiled monthly.

### **Odors**

It is noted that it likely that there could be odors emitted with this type of facility. At this time, such odors are not subject to any state or federal regulation. Odors, truck traffic, etc. are considered to be local governmental concerns. The County and City officials were apprised of the possible odor concerns during the public comment period. The County and City officials were apprised that they would need to address any odor issues that could arise.

### **Insignificant Activity Listing**

Various processing/finishing operations such as, surface grinding, polishing, and cutting operations will occur at Stations 2, 3, 4, 5, 6, and 7. All finishing operations will be performed in controlled booths to capture particulate emissions. The exhaust will be filtered through an air cleaning system and vented inside of the building 100 percent of the time. Minn. R. 7007.1300, subp. 3, section D.

Several natural gas-fueled combustion sources such as make-up air heaters and air conditioning units will be located on-site. The total combined heat input rating will not exceed 7,200,000 Btu/hr. Minn. R. 7007.1300, subp. 4.

### **Effective NESHAP Date**

During the 45-day public review, the NESHAP was signed (4/21/03). There were apparent changes between the final NESHAP (2/28/03 - unsigned) and signed NESHAP (4/21/03 - signed). Hence, no revisions were necessary to the permit.

### **4. Conclusion**

Based on the information provided by McNeilus Corporation, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 09900051-001, and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Greg Berger, Bruce Braaten

Appendix I: SCREEN3 Modeling Analysis

Appendix II: Portions of the Sept. 26, 2002 "Reinforced Plastic Composites MACT Standards Development Update" EPA presentation.

Appendix III: Spreadsheet Calculations

## APPENDIX I

### SCREEN Model of Hazardous Air Pollutant Emissions for the Proposed Composites Manufacturing Facility in Dexter, Minnesota.

The following concerning the SCREEN3 modeling has been prepared by the Permittee.

The maximum potential short-term HAP emission impacts from the proposed composites facility were analyzed using the EPA's SCREEN3 dispersion model. Stack parameters and building dimensions were entered into the dispersion model to estimate maximum 1-hour and annual ambient impacts for comparison with the Minnesota Department of Health acute and chronic inhalation HRVs.

The proposed facility will have six exhaust stacks. Because the SCREEN3 model only allows one stack to be represented, the six facility stacks were evaluated using procedures specified in the EPA's Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised, October 1992, to determine the most conservative stack parameters for use in the model. In accordance with the screening procedures guide, the following equation is used to produce a "merged stack parameter":

$$M = h_s V T_s / Q$$

The stack with the lowest value of "M" is used as a representative stack in the dispersion modeling analysis. The user's guide states that stacks with dissimilar parameters should be merged with caution. If stack flow rates differ by more than 20 percent, the estimates of concentrations may be unacceptably high. Table 2 provides a summary of the stack parameters and the calculated "M" values.

**Table 2 – Merged Stack Parameters.**

Stack (No.)	Flowrate (CFM)	Dia. (in.)	Height (ft.)	T (°F)	Q (g/sec)	Hs (m)	V (m <sup>3</sup> /s)	Ts (K)	M
EF-1	20250	30.0	40	70	1	12.2	9.6	294.3	34285.7
EF-0(R)	20000	30.0	40	70	1	12.2	9.4	294.3	33862.5
EF-0(P/U)	3600	15.5	40	70	1	12.2	1.7	294.3	6095.2
<b>EF-6</b>	<b>10800</b>	<b>21.0</b>	<b>40</b>	<b>70</b>	<b>1</b>	<b>12.2</b>	<b>5.1</b>	<b>294.3</b>	<b>18285.7</b>
EF-8	2700	12.5	40	70	1	12.2	1.3	294.3	4571.4
EF-9	20000	30.0	40	70	1	12.2	9.4	294.3	33862.5

Two of the stack flow rates for the proposed facility, EF-0(P/U) and EF-8, vary by more than 80 percent. Therefore, these stacks were not chosen as representative stacks. The flow rate for Stack EF-6 also varies by more than 20 percent, however, Stack EF-6 was chosen as the representative stack to provide a conservative result with a large margin of confidence when comparing HAP impacts to HRVs. In order to further insure that a conservative emission scenario was represented in the model analysis, the maximum HAP emissions from the stacks were compared using the emission calculations attached to this letter. Table 3 summarizes the percent of total HAPs emitted for each stack and indicates if the stack has better or worse dispersion characteristics than the chosen representative stack, EF-6.

**Table 3 – Percent HAP Emissions per Stack.**

<b>Stack No.</b>	<b>Percent of Total HAPs</b>	<b>Dispersion Characteristics</b>
EF-1	6%	Better Than EF-6
EF-0(R)	5%	Better Than EF-6
EF-0(P/U)		Worse Than EF-6
<b>EF-6</b>	<b>55%</b>	<b>Chosen As Representative</b>
EF-8	1%	Worse Than EF-6
EF-9	26%	Better Than EF-6
Internally Vented Sources	7%	Assume Vented From EF-6

Based on the information presented in Table 3, the majority of HAP emissions will be vented from EF-6. Furthermore, only stacks EF-0(P/U) and EF-8 have dispersion characteristics that are worse than EF-6. The two stacks with worse dispersion characteristics represent about 3.5 percent of the HAP emissions. The remaining stacks all have dispersion characteristics better than EF-6 and represent about 35 percent of the HAP emissions. Therefore, the use of EF-6 as the representative stack venting all HAP emissions results in a conservative analysis that will overestimate the ambient impact from the proposed facility.

Stack parameters for EF-6, actual proposed building dimensions, and a unit emission rate of 1.0 gram per second were entered into the SCREEN3 dispersion model. An automated receptor distance array was chosen to obtain the overall maximum 1-hr ambient impact. The estimated 1-hr ambient impact was multiplied by a factor of 0.08 to obtain the estimated annual impact in accordance with the SCREEN3 Model User's Guide. The SCREEN3 model output file has been attached to this letter.

Based on the previously described emission calculation procedure and attached calculations, conservative maximum short-term emission rates for each individual HAP were determined and are presented in the following table.

**Table 4 – Individual HAP Emission Rates.**

<b>HAP</b>	<b>lb/hr @ 1 drum/hr</b>	<b>g/sec</b>
Styrene	33.7790	4.256
MEK	3.0552	0.385
Ethyl Benzene	0.1381	0.017
Toluene	0.0922	0.012
Xylene	0.9399	0.118
Methyl Methacrylate	5.5100	0.694

Table 5 presents a summary of the estimated ambient impacts of HAPs from the proposed facility when incorporating the short-term emission rates into the SCREEN3 model analysis.

**Table 5 – Estimated Ambient Impacts.**

HAP	Facility Emissions	Estimated Ambient Impacts		HRV		Target Endpoint
		1-hr	Annual	Acute	Chronic	
		g/sec	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	
Styrene	4.256	2,335	187	21,000	1,000	Eye & Respiratory
MEK	0.385	211	16.9	10,000	NA	Eye & Respiratory
Ethyl Benzene	0.017	9.33	0.746	10,000	NA	Reproductive & Dvlp.
Toluene	0.012	6.58	0.53	37,000	400	Eye & Respiratory
Xylene	0.118	64.7	5.18	22,000	NA	Eye & Respiratory
Methyl Methacrylate	0.694	381	30.5	700	NA	Upper & Lower Respiratory

As indicated in the above table, the estimated ambient HAP impacts from the SCREEN3 modeling analysis are below the HRV values for acute and chronic impacts. However, in order to accurately estimate the potential risk from the proposed project, HAPs with common target endpoints were grouped together to provide an overall hazard index for each endpoint. The following table summarizes the individual hazard quotients for each HAP and the overall hazard index for the given target endpoints.

**Table 6 – Hazard Indices.**

HAP	Hazard Quotient	
	Acute	Chronic
<i>Endpoint: Eye and Respiratory</i>		
Styrene	0.111	0.187
MEK	0.021	NA
Toluene	0.0002	0.001
Xylene	0.003	NA
Methyl Methacrylate	0.544	NA
<b>Total Hazard Index</b>	<b>0.679</b>	<b>0.188</b>
<i>Endpoint: Reproductive and Developmental</i>		
Ethyl Benzene	0.001	NA
<b>Total Hazard Index</b>	<b>0.001</b>	<b>NA</b>

Attachments:

SCREEN3 Output  
Maximum lb/hr Emission Calculations

Attachment 1: SCREEN3 Output

11/26/02

10:58:44

\*\*\* SCREEN3 MODEL RUN \*\*\*

\*\*\* VERSION DATED 96043 \*\*\*

Koala

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = POINT  
EMISSION RATE (G/S) = 1.00000  
STACK HEIGHT (M) = 12.2000  
STK INSIDE DIAM (M) = .5334  
STK EXIT VELOCITY (M/S)= 22.8098  
STK GAS EXIT TEMP (K) = 294.3000  
AMBIENT AIR TEMP (K) = 293.0000  
RECEPTOR HEIGHT (M) = .0000  
URBAN/RURAL OPTION = RURAL  
BUILDING HEIGHT (M) = 11.5800  
MIN HORIZ BLDG DIM (M) = 45.7200  
MAX HORIZ BLDG DIM (M) = 106.6800

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.  
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS  
ENTERED.

STACK EXIT VELOCITY WAS CALCULATED FROM  
VOLUME FLOW RATE = 10800.000 (ACFM)

BUOY. FLUX = .070 M\*\*4/S\*\*3; MOM. FLUX = 36.844 M\*\*4/S\*\*2.

\*\*\* FULL METEOROLOGY \*\*\*

\*\*\*\*\*

\*\*\* SCREEN AUTOMATED DISTANCES \*\*\*

\*\*\*\*\*

\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES  
\*\*\*

DIST (M)	CONC (UG/M**3)	U10M STAB	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	.0000	1	1.0	1.0	320.0	48.20	2.63 2.61	NO
100.	548.5	6	4.0	4.5	10000.0	13.31	4.07 7.99	SS
200.	380.0	6	4.0	4.5	10000.0	13.31	7.73 9.98	SS
300.	288.0	6	3.5	3.9	10000.0	13.98	11.23 10.66	SS
400.	231.2	6	3.5	3.9	10000.0	13.98	14.64 11.50	SS
500.	196.3	6	3.0	3.3	10000.0	15.22	17.97 11.90	SS
600.	173.1	6	3.0	3.3	10000.0	15.22	21.24 12.91	SS
700.	153.6	6	3.0	3.3	10000.0	15.22	24.46 13.88	SS
800.	136.8	6	3.0	3.3	10000.0	15.22	27.63 14.51	SS
900.	123.8	6	2.5	2.8	10000.0	17.55	30.78 14.71	SS
1000.	114.6	6	2.5	2.8	10000.0	17.55	33.88 15.55	SS

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:  
102. 548.6 6 4.0 4.5 10000.0 13.31 4.18 8.12 SS

DWASH= MEANS NO CALC MADE (CONC = 0.0)  
 DWASH=NO MEANS NO BUILDING DOWNWASH USED  
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED  
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED  
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3\*LB

\*\*\*\*\*  
 \*\*\* REGULATORY (Default) \*\*\*  
 PERFORMING CAVITY CALCULATIONS  
 WITH ORIGINAL SCREEN CAVITY MODEL  
 (BRODE, 1988)  
 \*\*\*\*\*

*** CAVITY CALCULATION - 1 ***		*** CAVITY CALCULATION - 2 ***	
CONC (UG/M**3)	= .0000	CONC (UG/M**3)	= .0000
CRIT WS @10M (M/S)	= 99.99	CRIT WS @10M (M/S)	= 99.99
CRIT WS @ HS (M/S)	= 99.99	CRIT WS @ HS (M/S)	= 99.99
DILUTION WS (M/S)	= 99.99	DILUTION WS (M/S)	= 99.99
CAVITY HT (M)	= 11.69	CAVITY HT (M)	= 11.58
CAVITY LENGTH (M)	= 56.52	CAVITY LENGTH (M)	= 40.27
ALONGWIND DIM (M)	= 45.72	ALONGWIND DIM (M)	= 106.68

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S. CONC SET = 0.0

\*\*\*\*\*  
 END OF CAVITY CALCULATIONS  
 \*\*\*\*\*

## Attachment 2: Maximum lb/hr Emission Calculations

Source	HAP	lb/hr
Station 0 Stack	Styrene	1.7568
EF-0(R)	MEK	0.0154
EF-0(P/U)	Xylene	0.2616
	Ethylbenzene	0.0611
	Toluene	0.0086
Station 1 Stack	Styrene	2.3870
EF-1	MEK	0.0132
Station 6 Stack	Styrene	23.4545
EF-6	MEK	0.3636
Station 8 Stack	Styrene	0.0414
EF-8	MEK	0.4400
	Xylene	0.0150
	Toluene	0.0660
Station 9 Stack	Styrene	5.9673
EF-9	Methyl Methacrylate	5.5100
Internally Vented	Styrene	0.1720
	MEK	2.2230
	Xylene	0.6633
	Ethyl Benzene	0.0770
	Toluene	0.0176
Total Facility HAP Emissions		<b>lb/drum</b>
	Styrene	33.7790
	MEK	3.0552
	Xylene	0.9399
	Ethyl Benzene	0.1381
	Toluene	0.0922
	Methyl Methacrylate	5.5100



**APPENDIX II:**

**Portions of the Sept. 26, 2002 “Reinforced Plastic Composites MACT Standards Development Update” EPA presentation.**

### **APPENDIX III: Spreadsheet Calculations**