

AIR EMISSION PERMIT NO. 14100059- 001
IS ISSUED TO

New Flyer Industries Limited

for it's facility

NEW FLYER USA, INC.
240th Street and Glen Carlson Drive
St. Cloud, Stearns County, Minnesota 56301

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	07/17/98

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: State ; Syn Min PSD/NSR

Issue Date: October 27, 1998

Expiration: This permit is non-expiring.
All Title I Conditions do not expire.

Michael J. Sandusky
Division Manager
Air Quality Division

for Peder A. Larson
Commissioner
Minnesota Pollution Control Agency

MLB:lao

TABLE OF CONTENTS

Notice to the Permittee

Permit Shield

Facility Description

Table A: Limits and Other Requirements

Table B: Submittals

Appendix I: Modeling Parameters

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.

FACILITY DESCRIPTION:

New Flyer Industries Limited plans to construct a new facility in St. Cloud, Minnesota. The United States operations will be called New Flyer USA, Inc. The proposed facility will produce a maximum of 1,000 bus coaches per year for public transport in cities throughout the United States. In addition to producing new complete buses from parts, the plant will be capable of finishing up to 1000 partially manufactured buses from the New Flyer Industries, Winnipeg facility.

The plant will consist of two manufacturing lines: complete-build and finishing. The main activities that result in air emissions include power wash frame cleaning, frame priming, coating or painting, adhesive application, gun cleaning, ovens for drying, bus engine testing, and an emergency generator.

The permit contains limits that are under the major source thresholds in 40 CFR § 52.21, 40 CFR pt. 70, and 40 CFR pt. 63, so the facility is considered a minor source under the New Source Review program, Part 70 permitting program, and the National Emissions Standards for Hazardous Air Pollutants for Source Categories. Without these limits, the facility would be a major source for all programs and a case-by-case Maximum Achievable Control Technology (MACT) determination would be required by Section 112(g)(2)(B) of the Act. Any relaxation of these limits that allows that facility to become major would require the facility to comply with 40 CFR § 52.21 and 40 CFR § 63.40 to 60.44 (Minn. R. 7007.3010), as applicable.

The permit contains requirements that limit the emissions of Volatile Organic Compounds (VOC), Hazardous Air Pollutants (HAP), and Particulate Matter and Particulate Matter less than 10 microns (PM/PM₁₀). The permit also contains requirements to control PM and PM₁₀ emissions from the various spray booths and sanding operations.

The Permittee completed a Risk Management Screening Analysis (RMSA) that evaluated incremental human health inhalation risks resulting from the facility's potential air emissions. This permit contains restrictions on lead, PM₁₀, antimony, benzene, toluene, and xylenes that the Permittee has accepted as a result of the RMSA. The permit also prohibits usage of chromium- or nickel-containing materials. A copy of the RMSA Decision Memorandum can be found in the Technical Support Document for this permit. The modeling parameters can be found in Appendix I of this permit.

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/27/98

Facility Name: New Flyer USA Inc - St Cloud

Permit Number: 14100059 - 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
What to do	Why to do it
MODELING AND EMISSION FACTOR REQUIREMENTS	hdr
Parameters Used in Modeling: The parameters used in the modeling performed for determining emission and/or usage limits for this facility are listed in Appendix I of this permit. If the Permittee intends to change any of these parameters, the Permittee must submit the revised parameters to the Commissioner and receive written approval before making any changes. The revised parameter information submittal must include: the locations, heights and diameters of the stacks; locations and dimensions of nearby buildings; velocity and temperatures of the gases emitted; and the emission rates. The plume dispersion characteristics due to the parameter revisions must equal or exceed the dispersion characteristics modeled for this permit, and the Permittee shall demonstrate this in the proposal. If the information does not demonstrate equivalent or better dispersion characteristics, or if a conclusion cannot readily be made about the dispersion, the Permittee must remodel.	Minn. R. 7009.0020; Minn. R. 7007.0800, subp. 2
Parameters Used in Modeling (continued): Re-modeling can be done using a more refined model than the original screen model. Pollutant Emission Rates: If the Permittee proposes to emit any pollutant in addition to those listed in Appendix I of this permit, or proposes to increase the emission rate of any pollutant listed in Appendix I, the Permittee shall first use the New Flyer Risk Management Screening Analysis (RMSA) report as a template for recalculating the risk due to the change in emissions. The Permittee shall submit a report to the MPCA of the proposed change and demonstrate that the recalculated risk for all pollutants emitted from the facility does not exceed the acceptable risk criteria used in the New Flyer RMSA report. The Permittee must receive written approval from the MPCA before making any changes.	Minn. R. 7009.0020; Minn. R. 7007.0800, subp. 2
Parameters Used in Modeling (continued): For changes that do not involve an increase in an emission rate and that do not require a permit amendment, the proposal must be submitted as soon as practicable, but no less than 60 days before making the change to any parameter. For changes involving increases in emission rates and that require a minor permit amendment, the proposal must be submitted as soon as practicable, but no less than 60 days before making the change to any parameter. For changes involving increases in emission rates and that require a permit amendment other than a minor amendment, the proposal must be submitted with the permit amendment application.	Minn. R. 7009.0020; Minn. R. 7007.0800, subp. 2
The Permittee shall submit an Emission Factor Development Proposal for Hexamethylene-1,6 diisocyanate (HDI) to the MPCA, as required in Table B of this permit. The submittal shall contain a plan describing the methods that will be used to develop an emission factor (e.g., performance testing, engineering analysis, etc.) and a schedule by when the factor shall be submitted to the MPCA for review and approval.	Minn. R. 7007.0800, subp. 2
GENERAL REQUIREMENTS	hdr
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
Monitoring Equipment: Install or make needed repairs to monitoring equipment within 60 days of issuance of the permit if monitoring equipment is not installed and operational on the date the permit is issued.	Minn. R. 7007.0800, subp. 4(D)
Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment (any requirements applying to continuous emission monitors are listed separately in this permit).	Minn. R. 7007.0800, subp. 4(D)
Operation of Monitoring Equipment: Unless otherwise noted in Tables A or B, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.	Minn. R. 7007.0800, subp. 4(D)

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/27/98

Facility Name: New Flyer USA Inc - St Cloud

Permit Number: 14100059 - 001

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
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. 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.	Minn. R. 7019.1000, subp. 3
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 discovery, 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
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
Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated, unless otherwise noted in Table A.	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)
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
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)
Record keeping: 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)
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 original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).	Minn. R. 7007.0800, subp. 5(C)

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/27/98

Facility Name: New Flyer USA Inc - St Cloud

Permit Number: 14100059 - 001

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 federally enforceable.	Minn. R. 7030.0010 - 7030.0080
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
Inspections: Upon presentation of credentials and other documents as may be required by law, allow the Agency, or its representative, to enter the Permittee's premises to have access to and copy any records required by this permit, to inspect at reasonable times (which include any time the source is operating) any facilities, equipment, practices or operations, and to sample or monitor any substances or parameters at any location.	Minn. R. 7007.0800, subp. 9(A)
Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095
The construction authorization expires 18 months after permit issuance. The Permittee must keep a record of the dates of installation and start-up on site. The Permittee may apply for an extension of the construction authorization deadline by following the Administrative Amendment provisions in Minn. R. 7007.1400.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/27/98

Facility Name: New Flyer USA Inc - St Cloud

Permit Number: 14100059 - 001

Subject Item: GP 001 Facility Emission Limits

Associated Items: EU 001 Power Wash Booth
EU 002 Primer Booth
EU 003 Adhesive Application
EU 004 Undercoat Booth
EU 005 Floor Prep
EU 006 Paint Prep
EU 007 Base Coat/Prime Booth
EU 008 Topcoat Booth
EU 009 Touch-up Booth
EU 010 Touch-up Booth
EU 011 Topcoat Booth
EU 012 Touch-up Booth
EU 013 Gun Cleaning

What to do	Why to do it
A. LIMITS	hdr
Volatile Organic Compounds: less than or equal to 95.0 tons/year using 12-month Rolling Sum . For the first 12 months after startup, the Permittee shall calculate and record the applicable limit as of month "n" using the following formula: Limit = 7.9(n) Where n = number of months since startup of any emission unit in GP 001.	Title I Condition: Limit to avoid classification as a major source under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2
HAPs - Total: less than or equal to 24.0 tons/year using 12-month Rolling Sum . This is a limit on HAP dispensed minus HAP recycled as waste. No credit is given for either transfer efficiency or the spray booth filters. For the first 12 months after startup, the Permittee shall calculate and record the applicable limit as of month "n" using the following formula: Limit = 2.0(n) Where n = number of months since startup of any emission unit in GP 001.	Title I Condition: Limit to avoid 40 CFR Sections 63.40 to 63.44; to avoid major source classification under 40 CFR Section 70.2
HAP-Single: less than or equal to 9.0 tons/year using 12-month Rolling Sum . This is a limit on HAP dispensed minus HAP recycled as waste. No credit is given for either transfer efficiency or the spray booth filters. For the first 12 months after startup, the Permittee shall calculate and record the applicable limit as of month "n" using the following formula: Limit = 0.75(n) Where n = number of months since startup of any emission unit in GP 001.	Title I Condition: Limit to avoid 40 CFR Sections 63.40 to 63.44; to avoid major source classification under 40 CFR Section 70.2
Lead: less than or equal to 1.0 tons/year using 12-month Rolling Sum (usage). For the first 12 months after startup, the Permittee shall calculate and record the applicable limit as of month "n" using the following formula: Limit = 0.083(n) Where n = number of months since startup of any emission unit in GP 001. (The limit is on the weight of elemental lead itself. Lead compounds are limited under the HAP-Single limit.)	Minn. R. 7009.0020
Antimony: less than or equal to 5.50 tons/year using 12-month Rolling Sum (usage). For the first 12 months after startup, the Permittee shall calculate and record the applicable limit on tons per year as of month "n" using the following formula: Limit = 0.458(n) Where n = number of months since startup of any emission unit in GP 001. (The limit is on the weight of elemental antimony itself. Antimony compounds are limited under the HAP-Single limit.)	Minn. R. 7007.0800, subp. 2
Barium Sulfate: less than or equal to 0.24 tons/year, based on a 12-month Rolling Sum (usage). For the first 12 months after startup, the Permittee shall calculate and record the applicable limit in tons per year as of month "n" using the following formula: Limit = 0.02(n) Where n = number of months since startup of any emission unit in GP 001.	Minn. R. 7007.0800, subp. 2
Benzene: less than or equal to 0.24 tons/year using 12-month Rolling Sum (usage). For the first 12 months after startup, the Permittee shall calculate and record the applicable limit on tons per year as of month "n" using the following formula: Limit = 0.02(n) Where n = number of months since startup of any emission unit in GP 001.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/27/98

Facility Name: New Flyer USA Inc - St Cloud

Permit Number: 14100059 - 001

Chromium: The Permittee shall not use paint or other coating materials that contain chromium or chromium compounds. The Permittee shall keep records of all coating material contents. Coating material contents shall be determined as described under the Determination of Material Content For Emission Calculations requirement in GP 001.	Minn. R. 7007.0800, subps. 2 and 5
Nickel: The Permittee shall not use paint or other coating materials that contain nickel or nickel compounds. The Permittee shall keep records of all coating material contents. Coating material contents shall be determined as described under the Determination of Material Content For Emission Calculations requirement in GP 001.	Minn. R. 7007.0800, subps. 2 and 5
Toluene: less than or equal to 30.0 lbs/hour based on a weekly block average, but not to exceed 9.0 tons/year per the HAP-Single limit. No credit is provided from toluene shipped as waste.	Minn. R. 7007.0800, subp. 2
Xylenes (mixed isomers): less than or equal to 10.0 lbs/hour based on a weekly block average, but not to exceed 9.0 tons/year per the HAP-Single limit. No credit is provided from xylenes shipped as waste.	Minn. R. 7007.0800, subp. 2
B. MONITORING	hdr
Determination of Material Content For Emission Calculations: VOC, HAP, and metal contents in all materials shall be determined by the Environmental Data Sheet (EDS) or the Material Safety Data Sheet (MSDS) provided by the supplier for each material used, except as specified below. If the EDS or MSDS provides a material content range, the highest number in the range shall be used in all calculations. Alternative methods approved by the MPCA may be used to determine material VOC, HAP, and metal contents. In addition, the Commissioner reserves the right to require the Permittee to determine the VOC, HAP, and metal 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 obtained shall supersede the EDS or MSDS.	Title I Condition: Monitoring to avoid classification as a major source under 40 CFR Sections 52.21 and to avoid 40 CFR Sections 63.40 to 63.44; to avoid major source classification under 40 CFR Section 70.2; Minn. R. 7007.0800, subp. 4
Determination of VOC and HAP Content in Shipped Wastes: If the Permittee elects to obtain credit for VOC and/or HAP in shipped waste, the Permittee shall use either method 1 or 2 to determine the VOC and HAP content in shipped wastes. 1) The Permittee or the company receiving the waste shall analyze a sample of each container of waste using a gas chromatograph or other method approved by the Commissioner, to determine weight content of VOC and each individual HAP. 2) If the waste is not composed of more than one raw material (coatings, solvents, etc.), the Permittee may use MSDS or EDS for the raw materials, to determine the VOC and each individual HAP content of the waste.	Title I Condition: Monitoring to avoid classification as a major source under 40 CFR Sections 52.21 and to avoid 40 CFR Sections 63.40 to 63.44; to avoid major source classification under 40 CFR Section 70.2; Minn. R. 7007.0800, subp. 5
Determination of Material Content For Usage Calculations: Antimony, Barium Sulfate, Benzene, and Lead contents for each material shall be determined as described under the Determination of Material Content For (for VOC, HAPs, and metals) Emission Calculations requirement in GP 001.	Minn. R. 7009.0020; Minn. R. 7007.0800, subp. 4
C. RECORDKEEPING	hdr
Calculation of Mass of Shipped VOCs and HAPs - If the Permittee elects to obtain credit for VOC and HAP contained in shipped waste, calculate and record the mass of shipped VOCs, individual HAP, and total HAPs using billing records and analyses or MSDS/EDS, as appropriate. If a range of values is given, use the minimum values. Calculations and recordings shall be made by the fifteenth day of the month following the month that an analysis (or billing) is received. Emission credits for shipped VOCs and HAPs shall be applied to the monthly emission calculation for the month that contains the calculation and recording deadline. All records, including analyses and billings, shall be dated.	Title I Condition: Recordkeeping to avoid classification as a major source under 40 CFR Sections 52.21 and to avoid 40 CFR Sections 63.40 to 63.44; to avoid major source classification under 40 CFR Section 70.2; Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/27/98

Facility Name: New Flyer USA Inc - St Cloud

Permit Number: 14100059 - 001

<p>Recordkeeping - VOC Emissions: for all VOC dispensed, calculate and record as follows:</p> <p>1) For units EU 007, 008, 009, 010, 011, and 012, a daily paint mix system report shall be generated that calculates the tons of VOC dispensed;</p> <p>2) For units EU 001, 002, 003, 004, 005, 006, and 013, a weekly log shall be kept that records the amount, product type, and VOC content of each material used. The log shall also record the calculated tons of VOC dispensed. The log shall be completed by each Monday for the previous week. VOC content shall be determined as prescribed in the Determination of Material Content For Emission Calculations requirement in GP 001.</p> <p>By the 15th day of each month, calculate and record the VOC emissions for the previous month (by summing all daily and weekly VOC emission data, and subtracting any VOC shipped as waste) and the previous 12-month period (by summing monthly VOC emissions data for the previous 12 months).</p>	<p>Title I Condition: Recordkeeping to avoid classification as a major source under 40 CFR Sections 52.21; to avoid major source classification under 40 CFR Section 70.2; Minn. R. 7007.0800, subp. 5</p>
<p>Recordkeeping - Single HAP Emissions: for each HAP dispensed, calculate and record as follows:</p> <p>1) For units EU 007, 008, 009, 010, 011, and 012, a daily paint mix system report shall be generated that calculates tons of each HAP dispensed;</p> <p>2) For units EU 001, 002, 003, 004, 005, 006, and 013, a weekly log shall be kept that records the amount, product type, and each HAP content of each material used. The log shall record the calculated tons of each HAP dispensed and shall be completed by each Monday for the previous week. HAP content shall be determined as prescribed in the Determination of Material Content For Emission Calculations requirement in GP 001.</p> <p>By the 15th day of each month, calculate and record single HAP emissions for the previous month (by summing all daily and weekly single HAP emissions for the month, and subtracting any single HAP shipped as waste), and the previous 12-month period (by summing all monthly single HAP emissions for the previous 12 months).</p>	<p>Title I Condition: Recordkeeping to avoid 40 CFR Sections 63.40 to 63.44; to avoid major source classification under 40 CFR Section 70.2; Minn. R. 7007.0800, subp. 5</p>
<p>Recordkeeping - Total HAP Emissions:</p> <p>By the 15th day of each month:</p> <p>1) Calculate and record total HAP emissions for the previous month by summing all single HAP emissions data for the month;</p> <p>2) Calculate and record total HAP emissions for the previous 12-month period by summing all monthly total HAPs emissions data for the previous 12 months.</p>	<p>Title I Condition: Recordkeeping to avoid 40 CFR Sections 63.40 to 63.44; to avoid major source classification under 40 CFR Section 70.2; Minn. R. 7007.0800, subp. 5</p>
<p>Recordkeeping - Antimony, Barium Sulfate, Benzene, and Lead Usage: Calculate and record Antimony, Barium Sulfate, Benzene, and Lead dispensed, using the following records:</p> <p>1) For units EU 007, 008, 009, 010, 011, and 012, a daily paint mix system report shall be generated that calculates the tons of each pollutant dispensed;</p> <p>2) For units EU 001, 002, 003, 004, 005, 006, and 013, a weekly log shall be kept that records the amount, product type, and content of each material for each pollutant. The log shall be completed each Monday and record the calculated tons of Antimony, Barium Sulfate, Benzene, and Lead dispensed during the previous week.</p> <p>By the 15th day of each month, calculate and record the Antimony, Barium Sulfate, Benzene, and Lead Usage for the previous month (by summing all daily and weekly emissions data for each pollutant for the month) and for the previous 12-month period.</p> <p>No credit is given for pollutants shipped off-site in waste.</p>	<p>Minn. R. 7009.0020; Minn. R. 7007.0800, subp. 5</p>
<p>Recordkeeping -- Operating Hours When Using Xylenes- and Toluene-Containing Materials: Once each day separately record the number of operating hours that xylenes-containing materials and toluene-containing materials were used in any emission unit in GP 001. By Monday of each week, separately calculate and record the total operating hours that xylenes-containing materials and toluene-containing materials were used in any emission unit in GP 001 during the previous week.</p>	<p>Minn. R. 7007.0800, subp. 5</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/27/98

Facility Name: New Flyer USA Inc - St Cloud

Permit Number: 14100059 - 001

<p>Recordkeeping -- Xylenes and Toluene Emissions: By Monday of each week, calculate and record Toluene and Xylenes average hourly emission rate for the previous week as follows:</p> <p>1) For units EU 007, 008, 009, 010, 011, and 012, a daily paint mix system report shall be generated that calculates the tons of toluene and xylenes dispensed;</p> <p>2) For units EU 001, 002, 003, 004, 005, 006, and 013, a weekly log shall be kept that records the amount, product type, and toluene and xylene content of each material. It shall also show the calculated tons of toluene and xylenes dispensed and shall be completed by Monday for the previous week;</p> <p>3) The average hourly emission rates of Toluene and Xylenes shall be determined and recorded using the daily and weekly records listed above divided by the number of operating hours during the recording period.</p> <p>Toluene and xylenes shipped as waste are not included in the toluene and xylenes hourly emission calculations.</p>	<p>Minn. R. 7007.0800, subp. 5</p>
--	------------------------------------

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/27/98

Facility Name: New Flyer USA Inc - St Cloud

Permit Number: 14100059 - 001

Subject Item: GP 002 Industrial Process Equipment Requirements

Associated Items: EU 001 Power Wash Booth
 EU 002 Primer Booth
 EU 003 Adhesive Application
 EU 004 Undercoat Booth
 EU 005 Floor Prep
 EU 006 Paint Prep
 EU 007 Base Coat/Prime Booth
 EU 008 Topcoat Booth
 EU 009 Touch-up Booth
 EU 010 Touch-up Booth
 EU 011 Topcoat Booth
 EU 012 Touch-up Booth
 EU 013 Gun Cleaning

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to meet the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735. This standard applies individually to each emission unit in GP 002. Other permit requirements (e.g., control requirements and coating usage limits) are more restrictive, for particulate matter emissions, than this rule. See GP 003, GP 004, EU 002, EU 004, and EU 006 for periodic monitoring requirements for particulate matter emissions.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity . This standard applies individually to each emission unit in GP 002. See GP 003 and EU 006 for periodic monitoring requirements for opacity.	Minn. R. 7011.0715, subp. 1(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/27/98

Facility Name: New Flyer USA Inc - St Cloud

Permit Number: 14100059 - 001

Subject Item: GP 003 Panel Filter Requirements**Associated Items:** CE 001 Mat or Panel Filter

CE 002 Mat or Panel Filter

CE 003 Mat or Panel Filter

CE 004 Mat or Panel Filter

CE 005 Mat or Panel Filter

CE 006 Mat or Panel Filter

CE 007 Mat or Panel Filter

CE 008 Mat or Panel Filter

What to do	Why to do it
Operate and maintain control equipment to achieve a control efficiency for Particulate Matter < 10 micron: greater than or equal to 94.0 percent control efficiency	Title I Condition: to avoid classification as a major source under 40 CFR Sections 52.21; to avoid major source classification under 40 CFR Section 70.2; Minn. R. 7009.0020; Minn. R. 7007.0800, subp. 14
Operate and maintain control equipment to achieve a control efficiency for Total Particulate Matter: greater than or equal to 94.0 percent control efficiency	Title I Condition: to avoid classification as a major source under 40 CFR Sections 52.21; Minn. R. 7007.0800, subp. 14
Operate and maintain control equipment to achieve a control efficiency for lead, antimony, and barium sulfate: greater than or equal to 94 percent control efficiency	Minn. R. 7009.0020; Minn. R. 7007.0800, subps. 2 and 14
Operation and Maintenance of Panel Filter: The Permittee shall operate and maintain each panel filter according to the control equipment manufacturer's specifications. The Permittee shall maintain the pressure differential across each filter within the range established during the initial performance test.	Title I Condition: to avoid classification as a major source under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2; Minn. R. 7009.0020; Minn. R. 7007.0800, subp. 14
Pressure Drop Monitoring: The pressure drop shall be monitored continuously by the paint booth control system when each booth is in operation. The paint booth monitoring system shall signal operators when the pressure drop across the filters is outside the prescribed range.	Title I Condition: to avoid classification as a major source under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2; Minn. R. 7009.0020; Minn. R. 7007.0800, subp. 4
Inspections: Once each operating day, the Permittee shall visually inspect the condition of the panel filters, including but not limited to, alignment, saturation, tears, and holes. The Permittee shall maintain a daily written record of filter inspections and maintenance.	Title I Condition: to avoid classification as a major source under 40 CFR Section 52.21; Minn. R. 7009.0020; Minn. R. 7007.0800, subp. 4
Corrective Actions: If the pressure drop across a panel filter is outside the range prescribed in the performance test or if the filters are found to need repair during the visual inspection, the Permittee shall follow the Operation and Maintenance plan for the panel filter and take corrective actions as soon as possible to restore the pressure differential to within the prescribed range. The Permittee shall keep a record of the type and date of any corrective action taken for each panel filter, as soon as possible after completion of any corrective action.	Title I Condition: to avoid classification as a major source under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2; Minn. R. 7009.0020; Minn. R. 7007.0800, subp. 2
Initial Performance Test: due 180 days after Initial Startup to measure control efficiency for PM10 on 4 representative units.	Title I Condition: to avoid classification as a major source under 40 CFR Sections 52.21; to avoid major source classification under 40 CFR Section 70.2; Minn. R. 7009.0020; Minn. R. 7017.2020, subp. 1
Initial Performance Test: due 180 days after Initial Startup to measure control efficiency for lead, antimony, and barium sulfate on 4 representative units.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Initial Performance Test (see Table B for additional performance test requirements).	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/27/98

Facility Name: New Flyer USA Inc - St Cloud

Permit Number: 14100059 - 001

Subject Item: GP 004 Coating Usage Limits**Associated Items:** EU 007 Base Coat/Prime Booth

EU 008 Topcoat Booth

EU 009 Touch-up Booth

EU 010 Touch-up Booth

EU 011 Topcoat Booth

EU 012 Touch-up Booth

What to do	Why to do it
Material Usage: less than or equal to 0.2305 tons/day (calculated daily) total GP 004 coatings usage.	Minn. R. 7009.0020
Solids Content: less than or equal to 85 percent by weight for all coatings used in GP 004 emission units.	Minn. R. 7009.0020
<p>Determination of Solids Content of Coatings: Solids content shall be determined by the Environmental Data Sheet (EDS) or the Material Safety Data Sheet (MSDS) provided by the supplier for each material used, except as specified below. If the EDS or MSDS provides a material content range, the highest number in the range shall be used in all calculations.</p> <p>In addition, the Commissioner reserves the right to require the Permittee to determine the solids content of any material, according to EPA or ASTM reference methods. If an EPA or ASTM reference method is used for solids content determination, the data obtained shall supersede the EDS or MSDS.</p> <p>Maintain a log of the solids content data of each coating used. Solids content data shall be entered into the log prior to the use a coating.</p>	Minn. R. 7007.0800, subps. 4 and 5
Recordkeeping - Coating Usage Per Day: Using the daily paint mix system report (referenced under GP 001), once each day calculate the tons of coating used by the GP 004 emission units during the previous day. Record all calculations upon completion of the calculation.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/27/98

Facility Name: New Flyer USA Inc - St Cloud

Permit Number: 14100059 - 001

Subject Item: EU 002 Primer Booth**Associated Items:** CE 001 Mat or Panel Filter

GP 001 Facility Emission Limits

GP 002 Industrial Process Equipment Requirements

SV 001

SV 002

What to do	Why to do it
Material Usage: less than or equal to 0.991 tons/day (calculated daily) total coatings usage.	Minn. R. 7009.0020; Minn. R. 7007.0800, subp. 2
Solids Content: less than or equal to 90.7 percent by weight as applied, for all coatings used at this emission unit.	Minn. R. 7009.0020; Minn. R. 7007.0800, subp. 2
<p>Determination of Solids Content of Coatings: Solids content shall be determined by the Environmental Data Sheet (EDS) or the Material Safety Data Sheet (MSDS) provided by the supplier for each material used, except as specified below. If the EDS or MSDS provides a material content range, the highest number in the range shall be used in all calculations.</p> <p>In addition, the Commissioner reserves the right to require the Permittee to determine the solids content of any material, according to EPA or ASTM reference methods. If an EPA or ASTM reference method is used for solids content determination, the data obtained shall supersede the EDS or MSDS.</p> <p>Maintain a log of the solids content data of each coating used, showing the calculated solids content of the coating, as applied. Solids content data for a coating shall be entered into the log prior to use of the coating.</p>	Minn. R. 7007.0800, subps. 4 and 5
Recordkeeping - Coating Usage Per Day: the Permittee shall maintain a log that records the gallons and the (calculated) tons of each coating material used at EU 002. The log shall be updated at the end of each shift and each calendar day, and shall show the sum of coatings used (in tons) for the entire calendar day. Record all calculations upon completion of the calculation.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/27/98

Facility Name: New Flyer USA Inc - St Cloud

Permit Number: 14100059 - 001

Subject Item: EU 004 Undercoat Booth**Associated Items:** CE 002 Mat or Panel Filter

GP 001 Facility Emission Limits

GP 002 Industrial Process Equipment Requirements

SV 003

SV 004

What to do	Why to do it
Material Usage: less than or equal to 0.120 tons/day (calculated daily) total coatings usage.	Minn. R. 7009.0020; Minn. R. 7007.0800, subp. 2
Solids Content: less than or equal to 61.3 percent by weight for all coatings used at this emission unit.	Minn. R. 7009.0020; Minn. R. 7007.0800, subp. 2
<p>Determination of Solids Content of Coatings: Solids content shall be determined by the Environmental Data Sheet (EDS) or the Material Safety Data Sheet (MSDS) provided by the supplier for each material used, except as specified below. If the EDS or MSDS provides a material content range, the highest number in the range shall be used in all calculations.</p> <p>In addition, the Commissioner reserves the right to require the Permittee to determine the solids content of any material, according to EPA or ASTM reference methods. If an EPA or ASTM reference method is used for solids content determination, the data obtained shall supersede the EDS or MSDS.</p> <p>Maintain a log of the solids content data of each coating used. Solids content data for a coating shall be entered into the log prior to use of the coating.</p>	Minn. R. 7007.0800, subps. 4 and 5
Recordkeeping - Coating Usage Per Day: the Permittee shall maintain a log that records the total tons of coating material used at EU 004 each calendar day. The Permittee shall weigh the coating containers before and after each day of operation to determine the net coating usage per calendar day. Record all calculations upon completion of the calculation.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/27/98

Facility Name: New Flyer USA Inc - St Cloud

Permit Number: 14100059 - 001

Subject Item: EU 006 Paint Prep**Associated Items:** CE 010 Bag filter on sander

GP 001 Facility Emission Limits

GP 002 Industrial Process Equipment Requirements

SV 005

What to do	Why to do it
Production Limit: not to exceed 4.0 coaches per calendar day.	Minn. R. 7009.0020 and Minn. R. 7009.0080; Minn. R. 7007.0800, subp. 2
Recordkeeping - Coach Production: The Permittee shall maintain a log of the number of coaches processed through EU 006 each calendar day. The log shall be updated at the end of each shift.	Minn. R. 7009.0020 and Minn. R. 7009.0080; Minn. R. 7007.0800, subp. 5
Operate and maintain control equipment to achieve a control efficiency for Particulate Matter < 10 micron: greater than or equal to 99.0 percent control efficiency	Title I Condition: to avoid classification as a major source under 40 CFR Sections 52.21; to avoid major source classification under 40 CFR Section 70.2; Minn. R. 7009.0020
Operate and maintain control equipment to achieve a control efficiency for Total Particulate Matter: greater than or equal to 99.0 percent control efficiency	Title I Condition: to avoid classification as a major source under 40 CFR Sections 52.21
Operation and Maintenance of Panel Filter: The Permittee shall operate the bag filter at all times the sanding at EU 006 is in operation. The Permittee shall operate and maintain the bag filter according to the control equipment manufacturer's specifications.	Title I Condition: to avoid classification as a major source under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2; Minn. R. 7009.0020
Monitoring: The Permittee shall check the bag filter color indicator on a daily basis and clean out the bag when the indicator color is red. The Permittee shall maintain a written log of the inspections, bag cleaning, and any corrective action taken. Records shall be written after completion of each indicator check, bag cleaning, and corrective action.	Title I Condition: to avoid classification as a major source under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2; Minn. R. 7009.0020; Minn. R. 7007.0800, subps. 4 and 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/27/98

Facility Name: New Flyer USA Inc - St Cloud

Permit Number: 14100059 - 001

Subject Item: EU 014 Standby Diesel Generator**Associated Items:** SV 024

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input . Potential to emit for this unit, using the AP-42 emissions factor, is 0.29 lb/MMBtu.	Minn. R. 7011.2300, subp. 2
Sulfur Content of Fuel: less than 0.5 percent by weight	Minn. R. 7007.0800, subp. 2
Fuel Restriction: EU 014 fuel is restricted to distillate fuel oil.	Minn. R. 7007.0800, subp. 2
Recordkeeping - Hours of Operation: The Permittee shall record the number of hours the unit was operated at the end of each period of operation.	Minn. R. 7007.0800, subp. 5
Fuel Supplier Certification: obtain and maintain a fuel supplier certification for each shipment of diesel fuel, certifying that the sulfur content does not exceed 0.5% by weight.	Minn. R. 7007.0800, subps. 4 and 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/27/98

Facility Name: New Flyer USA Inc - St Cloud

Permit Number: 14100059 - 001

Subject Item: EU 015 Bus Engine Testing**Associated Items:** SV 025

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input . Potential to emit for this unit, using the AP-42 emissions factor, is 0.29 lb/MMBtu.	Minn. R. 7011.2300, subp. 2
Sulfur Content of Fuel: less than 0.5 percent by weight	Minn. R. 7007.0800, subp. 2
Fuel Restriction: EU 015 fuel is restricted to distillate fuel oil.	Minn. R. 7007.0800, subp. 2
The Permittee shall not operate more than two bus engines per hour at any time. The Permittee shall maintain a written log of the number of bus engines operating during each hour, updated at the end of each shift.	Minn. R. 7005.0100, subp. 35a
Fuel Supplier Certification: obtain a fuel supplier certification for each shipment of diesel fuel, certifying that the sulfur content does not exceed 0.5% by weight.	Minn. R. 7007.0800, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/27/98

Facility Name: New Flyer USA Inc - St Cloud

Permit Number: 14100059 - 001

Subject Item: EU 016 grit blasting -- not vented

What to do	Why to do it
This is an enclosed process that shall not be vented outside or inside the facility when the process is in operation. If the Permittee proposes to vent this process, the Permittee must determine the impact due to the venting on the assumptions used in the dispersion modeling in Appendix I of this permit. Any venting of the process would be considered a modification.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/27/98

Facility Name: New Flyer USA Inc - St Cloud
Permit Number: 14100059 - 001

Subject Item: CE 009 Solvent recovery

Associated Items: EU 013 Gun Cleaning

What to do	Why to do it
Control Equipment Operation: The operation of CE 009 is not required in order for the gun cleaning operation to meet applicable emission limits in GP 002. In addition, no emissions credit is applied to the annual facility Emissions Inventory calculations for the recovered solvent.	Minn. Stat. 116.07, subd. 4a

TABLE B: SUBMITTALS

10/27/98

Facility Name: New Flyer USA Inc - St Cloud
Permit Number: 14100059 - 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

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS

10/27/98

Facility Name: New Flyer USA Inc - St Cloud

Permit Number: 14100059 - 001

What to send	When to send	Portion of Facility Affected
Hexamethylene-1,6 diisocyanate (HDI) Emission Factor Submittal	due 180 days after Permit Issuance	Total Facility
Performance Test Notification (written)	due 30 days before Initial Performance Test	GP003
Performance Test Plan	due 30 days before Initial Performance Test	GP003
Performance Test Report - Microfiche Copy	due 105 days after Initial Performance Test	GP003
Performance Test Report	due 45 days after Initial Performance Test	GP003
Testing Frequency Plan	due 60 days after Initial Performance Test to measure control efficiency for PM10, lead, antimony, and barium sulfate. The Plan shall specify a testing frequency based on the initial test results and MPCA guidance. Future performance tests at year (12-month), 36-month, or 60-month intervals, or as applicable, shall be required upon MPCA approval of the Plan.	GP003

TABLE B: RECURRENT SUBMITTALS

10/27/98

Facility Name: New Flyer USA Inc - St Cloud

Permit Number: 14100059 - 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.	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. This report covers all deviations experienced during the calendar year.	Total Facility
Emissions 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.	Total Facility

APPENDIX I: MODELING PARAMETERS

Facility Name: New Flyer Industries

Permit Number: 14100059-001

Building Parameters:

The facility was characterized as a single area source having dimensions of 356.6 meters by 115.8 meters (i.e., building dimensions). The source release height was taken as 9.144 meters, which is the approximate roof height of the building.

Pollutant	HAP	Potential Emissions		Pollutant	HAP	Potential Emissions	
		tpy	lb/h			tpy	lb/h
CO		17.3963	14.6314	Carbon black		0.0387	0.0088
Lead Compounds	Y	0.0150	0.06608	Chromium VI	Y	0	0
NOx		30.4648	71.874	Chrysene		1.36E-06	4.20E-06
PM		12.342	5.179	Cobalt	Y	1.19E-04	2.70E-05
PM-10		12.342	5.179	Copper		1.47E-04	3.37E-05
SOx		0.9668	3.4748	Cumene	Y	61.6393	14.0729
VOC		4772.2	1093.707	Dibenz[a,h]anthracene		1.94E-06	6.99E-06
				Dichlorobenzene		0.00021	4.75E-05
Acetaldehyde	Y	0.00228	9.13E-03	Diesel emissions			
Acetone		31.3278	7.1525	Ethyl benzene	Y	217.4455	49.6451
Acrolein	Y	0.000275	1.10E-03	Formaldehyde	Y	0.01651	0.01697
Antimony	Y	0.1114	12.42	Hexamethylene diisocyanate	Y	34.8867	7.965
Arsenic	Y	3.47E-05	7.92E-06	n-Hexane	Y	31.4197	7.2695
Barium		7.63E-04	1.74E-04	Indeno[1,2,3-CD]pyrene		1.43E-06	4.53E-06
Barium sulfate		0.08	4.641	Manganese	Y	0.03407	8.02E-03
Benzene (@0.1% of naphtha)	Y	0.24	1.0369	Mercury	Y	4.51E-05	1.03E-05
Benzo[a]anthracene		5.31E-06	2.01E-05	Methyl alcohol	Y	6.1102	1.395
Benzo[b]flouranthene		6.07E-07	1.25E-06	Methylene bisphenyl isocyanate (MDI) (Open Process Formula)	Y	3.58E-04	8.18E-05
Benzo[k]flouranthene		7.73E-07	4.27E-06	Methylcyclohexane		9.53964	2.178
Benzo[a]pyrene		7.67E-07	2.28E-06	Methyl ethyl ketone	Y	458.1951	104.6108
Beryllium	Y	2.08E-06	4.75E-07	Methyl isobutyl ketone	Y	9	63.4575
1,3-Butadiene	Y	0.000116	4.65E-04	Naphthalene		3.58E-04	1.03E-03
2-Butoxy ethanol		1.1589	0.2646	Nickel compounds	Y	0	0
Cadmium	Y	1.91E-04	4.36E-05	Phosphoric acid		0.376246	0.085901

	HAP	Potential Emissions			HAP	Potential Emissions	
--	-----	---------------------	--	--	-----	---------------------	--

APPENDIX I: MODELING PARAMETERS

Pollutant		tpy	lb/h		Pollutant		tpy	lb/h
Polyisocyanate prepolymer		1.8156	0.4146		Ethane		0.538	0.123
Propylene glycol monomethyl ether					Ethyl acetate		0.2022	0.0462
Selenium		4.16E-06	9.50E-07		Ethyl alcohol		0.0111	0.0025
Toluene	Y	9	30		Ethyl-3-ethoxy-propanoate		8.23878	1.881
Vanadium		3.99E-04	9.11E-05		Fluoranthene		2.32E-05	9.07E-05
Xylenes	Y	9	10		Fluorene		8.74E-05	5.72E-04
Zinc compounds		25.654	5.8572		Glycol ester of hydrogenated rosin			
					n-Heptane		9.53964	2.178
Non-COCs					oxo-Heptyl acetate			
Acenaphthene		4.54E-06	1.70E-05		Hexane Isomers		0.4186	0.0956
Acenaphthylene		1.54E-05	6.02E-05		oxo-Hexyl acetate		433.62	99
Acetylacetone		105.37	24.057		Hydrocarbon resin			
Aliphatic amine		0.326	0.0744		Iron oxide		1.297	0.296
Aliphatic amine resin					Isopropyl alcohol		376.2192	85.895
Aliphatic hydrocarbons		3208.788	732.6		Lead chromate molybdate sulfate			
Alkyl polyoxyethylene glycol ether		12.5423	2.8635		Magnesium oxide		5.081	1.16
Aluminum oxide		0.1133	0.0259		Magnesium resinate			
Amorphous silica					1-Methoxy-2-propylacetate		216.81	49.5
Anthracene		9.16E-06	1.32E-05		Methyl (n-amyl) ketone		1813.32	414
Aromatic naphtha		285.1557	65.1041		3-Methylchloroanthrene		3.12E-07	7.13E-08
Benzo[g,h,i]-perylene		1.66E-06	5.87E-06		2-Methyl naphthalene		4.16E-06	9.50E-07
Benzotriazole UV absorbent		0.5687	0.1294		Mica		1.2315	0.2812
Butane		0.364	0.083		Molybdenum		1.91E-04	4.36E-05
2-Butoxyethyl acetate					Naphtha		453.33	103.5
Butyl acetate					Naphtha (stoddard solvent)		453.33	103.5
n-Butyl acetate		906.6805	207.0047		Nonylphenoxypoly (ethyleneoxy) ethanol		12.5423	2.8635
n-Butyl alcohol					Pentane		0.451	0.103
Calcium carbonate		20.33	4.64		Petroleum distillate		10.4191	2.3788
Calcium oxide					Petroleum resins			
7,12-Dimethyl benz[a]anthracene		2.78E-06	6.34E-07		Phenathrene		9.04E-05	3.51E-04
Diethylene triamine					Phenol-formaldehyde polymer			
Epoxy resin					Polyamide resin			
Ethoxylated lauryl alcohol		71.1114	16.2355		Polychloroprene		8.6108	1.9659

APPENDIX I: MODELING PARAMETERS

	HAP	Potential Emissions			HAP	Potential Emissions	
Pollutant		tpy	lb/h			tpy	lb/h
Propane		0.278	0.063	Titanium dioxide		45.3348	10.35
Propylene		0.00768	0.0199	1,2,4-Trimethylbenzene		256.3693	58.5318
Pyrene		1.51E-05	2.83E-04	Trisodium phosphate		0.162351	0.711097
Quartz		1.0799	0.2461	Vinyl resin			
Sodium acid pyrophosphate		0.752488	0.171801	VM&P naphtha		50.73	1.583
Styrene-butadiene polymer				Zinc resinate			
Talc							

TECHNICAL SUPPORT DOCUMENT
For
AIR EMISSION PERMIT NO. 14100059-001

This technical support document is for all the interested parties of the permit. The purpose of this document is to set forth the legal and factual basis for the permit conditions, including references to the applicable statutory or regulatory provisions. No comments were received on the draft permit during the public notice.

1. General Information

1.1. Applicant and Stationary Source Location:

Owner and Operator Address and Phone Number (list both if different)	Facility Address (SIC Code: 3713)
Owner: New Flyer Industries Limited 711 Kernaghan Avenue Winnipeg, Manitoba, Canada R2C 3T4 Bob Douglas: 204-224-1251	New Flyer USA, Inc. 240th St & Glen Carlson Dr St. Cloud, MN 56301 Stearns County

1.2. Description of the facility:

New Flyer Industries Limited plans to construct a new facility in St. Cloud, Minnesota. The United States operations will be called New Flyer USA, Inc. The proposed facility will produce a maximum of 1,000 bus coaches per year for public transport in cities throughout the United States. In addition to producing new complete buses from parts, the plant will be capable of finishing up to 1000 partially manufactured buses from the New Flyer Industries, Winnipeg facility.

The plant will consist of two manufacturing lines: complete-build and finishing. The main activities that result in air emissions include power wash frame cleaning, frame priming, coating or painting, adhesive application, gun cleaning, ovens for drying, bus engine testing, and an emergency generator.

The permit contains requirements that limit the emissions of volatile organic compounds (VOC), hazardous air pollutants (HAP), and particulate matter and particulate matter less than 10 microns (PM/PM₁₀). The permit also contains requirements to control PM and PM₁₀ emissions from the various spray booths and sanding operations.

The Permittee completed a Risk Management Screening Analysis (RMSA) that evaluated incremental human health inhalation risks resulting from the facility's potential air emissions. This was completed because an Environmental Assessment Worksheet (EAW) was required under Minn. R. ch. 4410 (with the City of St. Cloud as

the Responsible Government Unit or GRU). The information was supplied to the City of St. Cloud during the EAW comment period. This permit contains restrictions on lead, PM₁₀, antimony, barium sulfate, benzene, toluene, and xylene that the Permittee has accepted as a result of the RMSA. The permit also prohibits usage of chromium- or nickel-containing materials. A copy of the RMSA Decision Memorandum can be found in Attachment 3 of this Technical Support Document with additional background information in the MPCA files.

1.3. Permit Application Materials:

The Permittee submitted several permit applications as follows (with dates as marked, NOT as received by MPCA):

Submittal	Dated	Key Info
Original Application	July 9, 1998	Background discussion, MSDS
Second Application	July 28, 1998	
Third Application	August 17, 1998	Additional MSDS, MDI calculations, vendor info for panel filters and spray guns
Fourth Application	August 24, 1998	Background discussion, MSDS, MDI calculations, vendor info for panel filters, sanding controls, and spray guns
Fifth Application	September 4, 1998	Most complete spreadsheets for spray booths and combustion, Form CD-01

In addition to these applications, there was supplemental information submitted in the form of faxes and additional mailings. The August 24th application replaced the three previous applications. The September 4th application contains additional material but does not completely replace the previous one. For example, the September 4 application contains the most up-to-date calculation spreadsheets, but does not contain the background information that is contained in the August 24th submittal. Ideally, only the final complete version would be filed, but this is not feasible in this case. The fourth and fifth permit applications will be kept in the MPCA Air Quality Division (AQD) files.

1.4. Facility Emissions:

See Attachment 1 of this Technical Support Document (TSD) for further details on the emissions from specific emissions units (Form GI-07).

Table 1. Total Facility Potential to Emit (PTE) Summary and Attainment Status:

Pollutant	Potential to Emit (Tons/year =TPY)	Attainment or Unclassified? (Yes or No)
Particulate Matter (PM)	12.342	Not Applied
Particulate Matter less than 10 micron (PM ₁₀)	12.342	Yes
Sulfur Dioxide (SO ₂)	0.9634	Yes
Nitrogen Oxides (NO _x)	30.46	Yes
Volatile Organic Compounds (VOCs)/Ozone	97.451	Yes
Carbon Monoxide (CO)	17.394	Yes
Lead	0.0150	Yes
Chromium Compounds	0.000243	Not Applied
Antimony	0.0828	Not Applied
Benzene	0.242	Not Applied
Nickel Compounds	0.0003642	Not Applied
Hazardous Air Pollutants -- Single* (other than those specifically limited)	9.0	Not Applied
Hazardous Air Pollutants -- Total	24.0	Not Applied

*Some HAPs have unlimited PTEs less than 9 tpy. For example, Acetaldehyde has a PTE of 0.0016 tons per year. See Attachment 1 of this TSD for these HAPs.

Table 2. Facility (TF) and Permit Classification

Classification (put x in appropriate box)	Major/Affected Source	*Minor with Limits	*Minor
PSD (Prevention of Significant Deterioration)		X	
NAAR (Nonattainment Area Review)	NA	NA	NA
Part 70 Permit Program		X	
Part 63 NESHAPs (National Emissions Standards for Hazardous Air Pollutants for Source Categories)		X	

* Refers to potential emissions that are less than those specified as major by 40 CFR 52.21, 40 CFR pt. 51 Appendix S, 40 CFR pt. 70, and 40 CFR pt. 63.

2. Regulatory Overview of Facility

The permit contains limits that are under the major source thresholds in 40 CFR § 52.21, 40 CFR pt. 70, and 40 CFR pt. 63, so the facility is considered a minor source under the New Source Review program (PSD and NAAR), Part 70 permitting program, and the National Emissions Standards for Hazardous Air Pollutants for Source Categories (NESHAPs). Without these limits, the facility would be a major source for all programs and a case-by-case Maximum Achievable Control Technology (MACT) determination would be required by Section 112(g)(2)(B) of the Act. Any relaxation of these limits that allows that facility to become major would require the facility to comply with 40 CFR § 52.21 and 40 CFR § 63.40 to 60.44 (Minn. R. 7007.3010), as applicable. In addition, the permit contains limits based on dispersion modeling for PM₁₀ and several air toxics. Any proposed changes to any of the modeled parameters requires re-modeling and possibly a permit amendment.

See Attachment 2 of this TSD for the specific permit limits and their basis (Form CD-01).

Table 3. Regulatory Overview

EU, GP, or SV*	Applicable Regulations	Comments:
GP001**	40 CFR § 52.21 & 40 CFR § 70.2	Prevention of Significant Deterioration (PSD) and the Part 70 Operating Permit Program. Limits taken to avoid PSD and Part 70 for all noncombustion emissions of VOC and PM/PM ₁₀ .
	40 CFR § 63.40 to 64.44, 40 CFR § 70.2	National Emissions Standards for Hazardous Air Pollutants for Source Categories (NESHAPs) and the Part 70 Operating Permit Program. Limits taken to avoid the NESHAP and Part 70 permitting programs on all noncombustion emission of HAPs -- both total and individual HAPs.
	Minn. R. ch. 7009	Ambient Air Quality Standards. The permit contains limits on lead and PM/PM ₁₀ derived from computer dispersion modeling.
	Minn. R. 7007.0800, subp. 2	Limits to protect human health and the environment. Limits on air toxics (chromium, nickel, antimony, barium sulfate, benzene, toluene and xylene) based on computer dispersion modeling.
GP002***	Minn. R. 7007.0715, subp. 1(A) and 1(B)	Standards of Performance for New Industrial Process Equipment. Booths EU007-EU012 also contain burners so that the booths themselves can be used as ovens to dry/cure

EU, GP, or SV*	Applicable Regulations	Comments:
		the buses (due to the large product). Even though ovens are typically considered direct heating equipment, the industrial process equipment standard is more applicable to the booths general function. Other limits on particulate emissions (and the corresponding monitoring and recordkeeping) ensure that this standard is met. See EU and GP 003 limits.
GP003 (Panel Filters)	40 CFR § 52.21; 40 CFR § 70.2; Minn. R. ch 7009; Minn. R. 7007.0800, subp. 2 Minn. R. ch. 7017	PSD, Part 70, Ambient Air Quality Standards, and Limits to protect human health and the environment. Control efficiency and other operating parameter requirements to limit PM/PM ₁₀ , lead, antimony, and barium sulfate PTE. Performance Tests. Test in accordance with the rules using EPA approved test methods.
GP004	Minn. R. ch. 7009	Ambient Air Quality Standards for PM ₁₀ . The permit contains limits on coating usage and solids content in order to limit PM/PM ₁₀ emissions. Limits derived from computer dispersion modeling.
EU002 EU004	Minn. R. ch. 7009	Ambient Air Quality Standards for PM ₁₀ . The permit contains limits on coating usage and solids content in order to limit PM/PM ₁₀ emissions. Limits derived from computer dispersion modeling.
EU006	Minn. R. ch. 7009	Ambient Air Quality Standards for PM ₁₀ . The permit contains limits on the number of buses per day that can be processed at this unit in order to limit PM/PM ₁₀ emissions. Limits derived from computer dispersion modeling.
EU014 EU015	Minn. R. 7011.2300 Minn. R. 7007.0800, subp. 2	Standards of Performance for Stationary Internal Combustion Engines. Fuel limited to distillate fuel oil (diesel) only. Sulfur content of fuel limited to 0.5 percent by weight. Due to only burning distillate fuel oil, the hourly PTE of EU014 and EU015 is less than the allowable under the generally applicable requirements, so no additional monitoring is required. For example, the PTE for EU014 is 0.29 lb/MMBtu. The rule limit is 0.5 lb/MMBtu.
EU015	Minn. R. 7005.00100, subp. 35a	Limit on the number of bus engines that can be tested in any given hour. This was the number the Permittee used to calculate the PTE of the process, but since there was some

EU, GP, or SV*	Applicable Regulations	Comments:
		uncertainty in the assumption, it is listed in the permit and the Permittee must keep records to show the assumption is valid.
EU016	Minn. R. 7007.0800, subp. 2	This process is an enclosed operation that is not vented, either inside or outside the building. The permit documents this as part of the process design and states that if the Permittee wishes to vent this process, that this would be considered a modification.
CE009	Minn. Stat. 116.07, subd. 4a	Solvent recovery unit used to recycle gun cleaning solvent, it is not used to meet any applicable requirements or for emissions inventory. The permit contains a description of the process.
CE010	40 CFR § 52.21; 40 CFR § 70.2; Minn. R. ch. 7009	PSD, Part 70, Ambient Air Quality Standards, and Limits to protect human health and the environment. Control efficiency and other operating requirements to limit PM/PM ₁₀ PTE of the sanding operation at EU006.

*EU = emission unit, SV = stack/vent, GP = group, CE = control equipment

**all noncombustion equipment

***all process equipment

3. Technical Information

A. Monitoring, Recordkeeping, and Reporting for Facility Wide Limits

Rolling Limits:

The permit establishes limits on emissions of VOC, lead, antimony, barium sulfate, and benzene, from all noncombustion processes. These limits are all rolling limits due to substantial and unpredictable variations in operation. Records can be generated on a daily basis for the materials dispensed from the central paint stores (used at EUs 007-012). This area will be using a computer tracking system. The remaining operations do not have central dispensing and often use small containers of many types of materials. It is not reasonable to track these operations daily, since this would result in great inaccuracies; therefore, these operations will generate weekly logs of material usage.

VOC, Total and Single HAP Limits:

When calculating emissions for the VOC, Total HAP and Single HAP limits of 95.0, 24.0 and 9.0 tpy, credit can be taken for waste materials collected and shipped off-site (dispensed - waste = emissions). Since this is done at most monthly, calculating emissions more frequently than monthly would result in large spikes (while waste is accumulating) and dips (when waste is shipped) -- resulting in possible paperwork violations and days with negative emissions. For these reasons, 12 month rolling limits are reasonable for this facility, for these limits. These limits will encourage the facility to ship waste at least monthly. By the 15th of the month, the information will be compiled and the previous monthly emissions will be calculated.

No credit is given for transfer efficiencies or control efficiencies when calculating particulate HAP emissions (e.g., dispensed - waste = emissions).

Lead, Antimony, Barium Sulfate, and Benzene Limits:

Some of the 12-month rolling limits do not give credit for waste shipped off-site. Specifically, lead, antimony, barium sulfate, and benzene. The main reason is that these materials are present in such low quantities that it is unlikely they would be detected in any waste analysis. Rather than complicate the permit with the option of waste credit when it would have little benefit, this was not allowed.

Non-rolling Limits:

Both toluene and xylene have hourly emission limits based on the a Risk Management Screening Analysis (RMSA). These limits are not driven by federal air quality regulations. All materials used are assumed to be emitted. As stated previously, records can be generated on a daily basis for the materials dispensed from the central paint stores (used at EUs 007-012). This area will be using a computer tracking system. The remaining operations do not have central dispensing and often use small containers of many types of materials. It is not reasonable to track these operations daily, since this would result in great inaccuracies; therefore, these operations will generate weekly logs of material usage. A log will be kept that shows the hours of operation for the week. These weekly records will be compiled to calculate the weekly average pounds/hour. In addition, both of these chemicals are limited on a 12-month rolling sum basis as Single HAPs.

The hourly emissions limits do not allow credit for waste recovered due to the difficulty of determining the amount and content of waste collected on a weekly basis.

B. Control Equipment Monitoring**Spray Booth Filters:**

These filters are used to limit the PTE of PM/PM₁₀, lead, antimony, and barium sulfate. The control equipment manufacturer has stated in written documentation that the filters should achieve a control efficiency of 99% under certain operating conditions; however, MPCA experience has shown that most panel filters cannot achieve this level of control for PM₁₀. The company proposed a 94% efficiency and will confirm this with performance testing at 4

representative booths (4 of 8 booths). Testing will be done according to EPA approved test methods and a test frequency plan shall be submitted after the initial testing. The filter manufacturer information is in the permit application materials.

The panel filters will be equipped with a pressure drop monitoring system that has an audible alarm that sounds if the pressure drop is outside the prescribed range. Because the facility is not yet built, it is not possible to determine the operating pressure drop ranges at this time. When the panel filters are tested as required by the permit, the pressure drop range will be determined. Under Minnesota testing rules (Minn. R. 7017.2025), any operating conditions during the performance test must be maintained in order to assume the results of the test are valid.

Typically, MPCA permits (and the control equipment performance standard in Minn. R. 7011), do not require pressure drop monitoring for panel filters, but instead require physical daily inspections of the filters. MPCA staff experience has been that that visual inspections of the filter condition is more meaningful than a pressure drop reading. For these reasons, this permit contains the normal inspections and recordkeeping requirements, but also includes the Permittee's proposed pressure drop monitoring system. However, the Permittee is not required to generate any daily records of the pressure drop since the daily inspections are adequate to reasonably ensure that the panel filters are operating properly.

Sanding Bag Filter:

The sanding operation that occurs at EU006 is controlled using a cartridge bag filter. This filter is similar to a baghouse, but on a much smaller scale (e.g., like a dust collector in a wood shop). It is not equipped with a pressure drop gauge, and since it is vented indoors, visible emissions checks are not feasible or reliable. The unit is equipped with a red/green indicator that shows when the filter needs to be cleaned. This is the parameter that will be monitored daily to ensure that the filter is operating properly.

C. Monitoring for Coating Usage Limits (used to limit PM/PM₁₀ emissions)

The proposed coating usage limits on EUs 002 & 004, and GP 004 (EUs 007-012) are based on the computer dispersion modeling and the PM₁₀ Minnesota Ambient Air Quality Standards (MAAQS). The permit limits the weight of coating used per day and the solids content by weight. With the other permit limits regarding the control equipment (assuming transfer efficiencies provided by the gun manufacturers: 50% for non-flat surfaces and 75% for flat surfaces), these limits result in PTEs that show modeled compliance with the PM₁₀ MAAQS.

For GP 004, as stated previously, daily tracking will be done using the computer tracking system. For EU 002, a manual log will be used to record the volume of coatings used. This will then be converted to tons per day using the materials densities from the MSDS or EDS. For EU 004, materials are dispensed out of a large container that takes several days, if not weeks, to empty. Volume measurement is not possible; therefore, the Permittee shall directly weigh the container at the beginning and end of each day to calculate the weight in tons used per calendar day.

D. Monitoring for Production Limits on EU 006

The Paint Prep operation at EU 006 has a sanding operation that is controlled with a bag filter. See Control Equipment Monitoring section for information on the bag filter monitoring. In addition to controls, this operation has a limit on the number of buses that can go through the sanding process on a calendar day basis. These 2 limits together limit the PM/PM₁₀ PTE of this process such that the limited PTE shows modeled compliance with the PM₁₀ MAAQS. The Permittee must keep a daily log of the buses sanded per day.

E. Risk Management Screening Analysis -- background and results

MPCA's Risk Management Screening Analysis (RMSA) is a risk analysis focusing on incremental human health inhalation risks resulting from expected New Flyer ambient air emissions. Based on quantitation of human health inhalation carcinogenic and non-carcinogenic risks for the project as currently modeled and proposed, MPCA staff find that there does not appear to be a potential for significant incremental human health inhalation risks.

This finding relies on the Permittee taking permit emission limits for chemicals with potentially significant emission risk levels. In addition, the RMSA Memorandum in Attachment 3 recommends that New Flyer be required to develop an emission factor for hexamethylene diisocyanate (HDI) which takes into account its polymerization reaction. This permit condition can be found at the Total Facility level in Table A of the permit.

One issue raised in Attachment A is that this permit has limits (caps) on total VOC and HAP emissions, so the facility could have greater or lesser inhalation risks than calculated in the RMSA since it could use chemicals of greater or lesser toxicity so long as it does not exceed the permit limits. In order to maintain an acceptable level of inhalation risk, the RMSA Memorandum in Attachment 3 of the TSD recommends that the permit require New Flyer to re-model and re-calculate risks resulting from any changes to the emission rates of non-limited chemicals. This permit condition can be found at the Total Facility level in Table A of the permit.

F. Emission Calculations

Attachment 1 of this TSD contains Form GI-07 which shows the unlimited and limited PTE for each permitted emissions unit at this facility. Attachment 6 contains the emissions calculations and supporting documentation provided by the Permittee and completed by MPCA staff.

In addition to the permitted units, the facility will have several operations that qualify as Insignificant Activities (IA) under Minn. R. 7007.1300. These IA emissions were included when determining applicability for the facility and can be found in Attachment 4 of this TSD.

Attachment 5 shows how the proposed permit limits will meet the various general applicable requirements that apply to the operations at this facility.

G. Speciation of Mixtures

For the RMSA, MPCA requested that the Permittee speciate chemical mixtures as much as possible. For example, stoddard solvent or naphtha may be a component in a coating used by the Permittee. Both stoddard solvent or naphtha contain many compounds which may have toxicity data. For air permitting purposes, MPCA asked EPA if these mixtures needed to be speciated for applicability. For example, if naphtha contains some percentage of benzene, does that benzene “count” when deciding on applicability of the regulations? EPA answered in an e-mail and the answer was “yes”. A copy of this response can be found in Attachment 7 of this TSD. [MPCA did request that EPA put this policy decision in a more formal memo that would be distributed to all state agencies.]

At this stage, the company completed their PTE calculations by making assumptions about the contents of the petroleum distillate mixtures. These assumptions were supplied by MPCA based on looking through the literature and MSDSs located in the MPCA library. The documents indicated that these mixtures contain small amounts of benzene, cumene, xylene, and toluene, all of which are HAPs. The contents vary depending on the mixture, but the thresholds for them being reported on the MSDS are 1% for cumene, xylene, and toluene, and 0.1% for benzene. Therefore, the Permittee used these thresholds as the maximum contents for these HAPs in their PTE calculations.

Both MPCA and Braun contacted the New Flyer suppliers to determine if the MSDS already speciated this information. The rules that govern MSDS are somewhat confusing on this issue, and it seems that for some mixtures, some suppliers may be speciating, but others are not. New Flyer suppliers indicated that they require *their* suppliers to speciate as much as possible; therefore, the current MSDS should contain adequate information for the permit tracking requirements. However, if New Flyer were to change suppliers, this may no longer be the case and the Permittee would need to make inquiries and perhaps make reasonable assumptions about HAP contents of mixtures.

H. Deviations from Delta Guidance

In general, the permit meets the MPCA Delta Guidance for ordering and grouping of requirements. One item that deviates from guidance is the use of a group for the industrial process equipment rule requirements. In general, limits that apply to individual pieces of equipment and that must be tracked at the unit level should not be listed as a group, or GP. In this instance, the permit has other limits, listed elsewhere in the permit at the EU level, on the various units that ensure that the applicable requirement will be met. Therefore, no additional tracking is necessary at the GP (GP 002).

4. Conclusion

Based on the information provided by New Flyer Industries the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 14100059-001 and this technical support document, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Peggy L. Bartz, Marshall Cole, Stuart Arkley

Staff Members on RMSA Team (contacts for Attachment 3): Kari Palmer and David Belluck

Attachments:

1. Form GI-07 (Emissions Summary)
2. Form CD-01 (Permit Requirements)
3. Risk Management Screening Analysis
4. Emissions From Insignificant Activities
5. PTE and General Applicable Requirements
6. PTE Calculations
7. Mixture Speciation

Attachment 1
Form GI-07: Potential to Emit Summary

Attachment 2
Form CD-01: Permit Requirements

Attachment 3
Risk Management Screening Analysis

This attachment contains a copy of the Risk Manager Decision Memorandum. Copies of the spreadsheets can also be found the paper copy of the TSD (modeled rates, hazard quotients, and hazard indices - chronic and acute).

RISK MANAGER DECISION MEMORANDUM FOR NEW FLYER USA, INC. ST. CLOUD, MINNESOTA BUS MANUFACTURING FACILITY

STAFF FINDINGS AND RECOMMENDATIONS

MPCA's Risk Management Screening Analysis (RMSA) is a risk analysis focusing on incremental human health inhalation risks resulting from expected New Flyer ambient air emissions. Based on quantitation of human health inhalation carcinogenic and non-carcinogenic risks for the project as currently modeled and proposed, MPCA staff find that there does not appear to be a potential for significant incremental human health inhalation risks.

This finding relies on the permittee taking permit emission limits for chemicals with potentially significant emission risk levels. In addition, staff recommends that New Flyer be required to develop an emission factor for hexamethylene diisocyanate (HDI) which takes into account its polymerization reaction.

PURPOSE OF THE RISK MANAGER DECISION MEMORANDUM

The Risk Manager Decision Memorandum (RMDM) is prepared by MPCA staff for the RMSA Risk Manager, usually a management level individual appointed by the MPCA Executive Team to coordinate and facilitate project development. The RMDM evaluates and summarizes the RMSA, allowing the risk manager to focus on the risk management decision. The memo provides MPCA staff with a structured approach to present the strengths and weaknesses of the risk analysis in a logical and transparent form. The memo provides the project Risk Manager with staff recommendations regarding the proposed facility's potential to pose significant human health risks via the inhalation route. This memo facilitates the making of informed risk management decisions and provides documented closure to the risk analysis. Staff findings and recommendations are based solely on toxicology and risk assessment principles and guidelines which are standard to the risk assessment and toxicology professions.

PROJECT OVERVIEW

New Flyer USA, Inc. has proposed to construct and operate a bus manufacturing facility in St. Cloud, Minnesota that would employ approximately 850 full time employees. New Flyer has retained Braun Intertec to provide technical assistance in the preparation of an air permit application, EAW, and data for inclusion in MPCA's Risk Management Screening Analysis (RMSA). The RMSA only considers incremental human health inhalation risks resulting from facility air emissions. It does not consider non-inhalation exposures to humans or ecological risks. The New Flyer RMSA primarily uses information provided by New Flyer and their consultants to develop Chemicals of Potential Concern (COPC) and Chemicals of Concern (COC) lists, emission rates, dispersion modeling inputs, and toxicity data.

RMSA EVALUATION CRITERIA

A. CHEMICALS OF POTENTIAL CONCERN LIST

1. COPC identification (e.g. comprehensive literature review, review of existing facility chemical usage and emission patterns, etc.).

Permittees are required by MPCA to conduct a comprehensive, common sense review of available literature and industry knowledge concerning known or expected emissions from their facility or similar facilities. To the best of MPCA's knowledge, New Flyer reviewed emissions from its operational facility in Winnipeg, Canada, MSDS documents for chemicals it plans to use at its St. Cloud facility, consulted U.S. government documents which list emission rates for certain types of activities (e.g. natural gas combustion and diesel emissions) and conducted an Internet search for bus manufacturing in Canada and Europe. MPCA did not receive information from New Flyer indicating they had reviewed Canadian toxics release inventory (i.e. NPRI) data, peer reviewed published literature, general government reports on vehicle assembly, or emissions from similar facilities.

2. COPC list validation.

Limited data were obtained from the open literature and government publications (e.g. EPA contacts did not provide any documentation) by MPCA staff to validate the comprehensiveness of COPC information supplied by New Flyer. MPCA was able to check New Flyer's submitted documentation for translation and transcription errors on COPC chemical identities. MPCA did a limited review of toxicological and chemical fate data provided by New Flyer. The limited validation work performed by MPCA staff indicates that New Flyer submitted a credible COPC list.

MSDS documents supplied by New Flyer provided the majority of chemicals found on the COPC list. The inability of the permittee to locate data in open literature and government documents concerning known or expected emissions from bus assembly facilities reduces confidence in the COPC list. Overall, MPCA finds the COPC list to be of acceptable quality for use in the RMSA.

3. Identification of complex mixture components and formulations (e.g. naphtha, all chrome as Chrome +6, all nickel compounds as refinery dust or subsulfide).

Many different types of chemical products and formulations are used by industry to produce their products. Each formulation has its own unique chemical and toxicological properties which must be evaluated as part of a risk analysis. Some chemicals, such as chromium, have different forms which have very different toxic effects and risks to humans. The following chemical speciation or formulation issues were identified as potentially important by MPCA staff:

***NICKEL COMPOUNDS.** MPCA received no written chemical speciation data from New Flyer. New Flyer took a zero emission limit for nickel compounds, resulting in a zero cancer risk hazard quotient. If New Flyer had not taken the permit limit, MPCA would have used the

IRIS/CALEPA cancer toxicity value for this chemical which would have resulted in significant cancer risk.

*BENZENE IN NAPHTHA. Published literature indicates that commercial naphtha has several volatile HAPs including benzene, toluene and xylene. MPCA telephone conversations with New Flyer's supplier (i.e. PPG) of naphtha containing formulations indicates that benzene levels in their naphtha formulations will not exceed 0.1%. MPCA also received confirmation from EPA that any hazardous air pollutants (HAPs) that are components in mixtures must count towards permitting applicability. MPCA requested that EPA write a policy memo on this issue and make it available nationally.

MPCA identified numerous chemical mixtures on New Flyer's COPC list. For each mixture or formulation, New Flyer was asked to provide chemical identities and percent composition data. Mixtures and formulations on the final COPC list include isocyanates (hexamethylene diisocyanate (HDI), methylene bisphenyl isocyanate (MDI), and polyisocyanate prepolymer could be composed of a combination of several isomers), nickel compounds (could contain carcinogenic and non-carcinogenic compounds), nickel antimony titanate pigment yellow (uncertain environmental fate chemistry), zinc compounds (uncertain environmental fate chemistry), naphtha (contains many VOCs in unidentified percentages and is also known as aliphatic hydrocarbons and petroleum distillates), and lead chromate molybdate sulfate (uncertain environmental fate chemistry). All identified technical issues concerning emissions and toxicity of these mixtures or formulations have been considered in the RMSA.

4. Chemical reaction and fate data.

Chemicals used in industrial processes when exposed to air, reducing environments, or the presence of other chemicals can change into less toxic, equally toxic, or more toxic chemicals. These must be considered as part of the RMSA evaluation process. Issues identified by MPCA staff include:

*ISOCYANATES: Insufficient technical data was provided to validate the assumption that non-MDI isocyanates have the same emission properties as MDI. According to New Flyer's written submissions, it is their opinion that MDI and other isocyanate compounds will almost completely polymerize at their site of use, resulting in very low emissions. New Flyer provided quantitative methods to calculate an emission rate for MDI based on the high polymerization assumption. Such data was not provided to calculate similar emissions for other isocyanates used by New Flyer. Therefore, there is suggestive evidence that MDI and other New Flyer isocyanates should have limited emissions due to on-site polymerization, but, compelling evidence to support limited isocyanate emissions was only provided for MDI. Lacking further technical submissions on this issue, MPCA will fully evaluate the Braun submission on the non-MDI isocyanates as presented and factor them into the risk management decision.

B. CHEMICALS OF CONCERN LIST

1. Acceptability of COC list.

MPCA staff finds that the COC list, composed of chemicals which have both calculated emission rates and toxicity values, was acceptable for use in the RMSA. Chemicals which have either an emission rate or a toxicity value have had a limited qualitative evaluation by MPCA staff as part of the RMSA.

C. EMISSION RATES

1. Emission rate evaluation

New Flyer supplied emission calculations as part of their air quality permit application. Emission rates for all listed COCs were found to be acceptable following review by MPCA staff. The emissions calculations are conservative, perhaps overestimating actual emissions from the facility once it is operational. Emission calculations were based on three types of data sources.

MSDS AND EDS BASED EMISSIONS ESTIMATES: The majority of the emissions were calculated using a mass balance approach and vendor provided Material Safety Data Sheets (MSDSs). The company obtained more specific Environmental Data Sheets (EDSs) for some coatings and adhesives. In general, the MSDSs are less accurate than the EDSs. An MSDS typically contains content ranges for each pollutant while an EDS provides an actual percentage for each pollutant (which always falls at or below the MSDS range). Emission calculations based on MSDS and EDS documents were reviewed by MPCA staff and were found to be acceptable.

AP-42 BASED EMISSIONS ESTIMATES: The fuel calculations followed the standard practice of using EPA published emissions factors from AP-42. These calculations were reviewed by MPCA staff and were found to be acceptable.

ENGINEERING CALCULATION BASED EMISSION ESTIMATES: For MDI, an isocyanate, New Flyer provided an engineering calculation and background information. For the remaining isocyanates, New Flyer was unable to perform the calculation, so it was assumed that 100 percent of the isocyanates used were emitted. These calculations were reviewed by MPCA staff and were found to be acceptable.

2. Calculating emissions from chemical formulations.

Chemical formulations can be very complex, containing numerous individual chemicals and compounds. Each must be evaluated in order to develop meaningful emission rates. The following chemical formulations and their constituents were found to be of potential significance by MPCA staff:

***NAPHTHA.** EPA has stated that components of mixtures do count towards applicability and companies should make reasonable efforts to estimate HAP contents. In calculating HAP emission rates, MPCA will count HAPs in mixtures into its total HAP emission rates. Literature indicates that naphtha can contain xylene, toluene, cumene, and benzene. New Flyer assumed conservative percentages of each of these pollutants (1% for noncarcinogens and 0.1% for

carcinogens). Based on MPCA discussions with PPG, New Flyer should be able to use the PPG MSDS or EDS information for future permit tracking rather than these assumed contents.

D. DISPERSION MODELING

The air dispersion modeling analysis was done with a screening level model that used worst case meteorology and a simplified representation of the source. The screening approach was taken because stack by stack emission rates and stack parameters were not known precisely, and the screening approach was a way to get the job done quickly without these data. Since it is a screening analysis, the results are expected to overestimate the concentrations that would be predicted by a refined dispersion modeling analysis. The amount of overestimation is not known. Given the likely overestimation of predicted pollutant concentrations, the model results are acceptable and can be used for setting permit limits and other regulatory purposes.

E. TOXICITY VALUES

1. Sources of toxicity values.

Toxicity values were primarily taken from EPA's Integrated Risk Information System (IRIS) and Health Effects Assessment Summary Tables (HEAST) and from the Minnesota Department of Health's draft Health Risk Values (HRVs). Additional toxicity values for chemicals with high emission rates or hazard potential were obtained from California EPA's Air Resources Board (CARB) and the Agency for Toxic Substances and Disease Registry's (ATSDR) Minimal Risk Levels (MRLs).

2. Acceptability of toxicity values.

MPCA has confidence in the acceptability of the toxicity values used in the RMSA. Because a barium sulfate toxicity value was not available, a barium HEAST value was used as a surrogate value. This toxicity value was derived using methods different from those currently used to derive IRIS toxicity values. However, EPA and the permittee did not provide substitute values.

F. RISK CHARACTERIZATION

1. Non-cancer risks.

Based on removal of certain COPCs from use at the proposed facility or use limits, there are no calculated significant non-cancer human health inhalation risks from the proposed St. Cloud facility.

This would not have been the case if the permittee had not provided documentation indicating that isocyanates such as MDI, HDI, and polyisocyanate prepolymer almost completely polymerize at the site of use, thus resulting in no significant emissions. An open process formula provided by New Flyer was used to recalculate the MDI emission rate, which results in a HQ indicating no significant risk for MDI. If a mass balance approach for isocyanates were used, the following hazard quotients would be calculated for isocyanates at the New Flyer facility: MDI

(mass balance approach, chronic HQ = 16.2), HDI (mass balance approach, chronic HQ = 971.6), and polyisocyanate prepolymer (mass balance approach, chronic HQ = 3.1).

MPCA staff recommends that New Flyer be required to develop an emission factor for HDI which takes into account its polymerization reactions. This resulting emission factor must indicate that the actual emission of HDI will not exceed health risk levels.

Limits were taken on barium sulfate (chronic HQ prior to limit = 5.2), antimony (chronic HQ prior to limit = 34.8), toluene (acute HQ prior to limit = 1.3), and xylenes (acute HQ prior to limit = 5.7).

2. Cancer risks.

Based on removal of certain COPCs from use at the proposed facility or use limits, there are no calculated significant human health cancer inhalation risks from the proposed St. Cloud facility.

This would not have been the case if the permittee had not taken zero permitted emission limits for chromium (chronic HQ prior to limit = 4347.0) and nickel compounds (chronic HQ prior to limit = 252.6). However, Braun Intertec has indicated that New Flyer intends to ask for a permit amendment to change the nickel limit. They disagree with the use of a California EPA toxicity value and feel that the HRV and IRIS numbers would not apply to the specific nickel compounds used at the New Flyer facility.

3. Qualitative evaluation of chemicals lacking toxicity values and/or emission rates.

MPCA performed a limited qualitative review of the 53 COPCs which could not be quantitatively evaluated. Interpretation of the information provided by Braun Intertec and Intertox indicates that the chemicals fell into some of the following categories. Some chemicals may have more than one effect.

Effect	# of chemicals
No specific inhalation information provided/available	19
Asphyxiant	2
Cardiac effects	3
Central nervous system affects	12
Irritation of eyes, nose, and/or throat	12
Narcotic effects	1
Nuisance dust	3
PAHs	8
Pneumoconiosis	2
Possible carcinogens	3

4. Uncertainties in RMSA findings.

There are numerous uncertainties in the RMSA. These include:

- Only incremental human health inhalation risks were evaluated.
- Bioaccumulative chemicals were not evaluated quantitatively.
- Limited qualitative analysis was performed on non-quantitated COPCs.
- No definitive emission rates from MDI, HDI, and polyisocyanate prepolymer were calculated because of data gaps.
- Use of surrogate toxicity values (e.g. barium sulfate, nickel compounds) when compound/species specific data not available.
- Screening level emission modeling provides conservative estimates of chemical releases to air.
- Emission rates are rough estimates of projected emissions from proposed facility.
- Limited data on product formulations used in bus production could result in unquantified chemical releases.
- Model uncertainties are discussed by USEPA (Federal Register, Vol. 61, No. 156, August 12, 1996, 10.1 Accuracy and Uncertainty of Models, 41858-41859).
- Toxicity value uncertainty is addressed by toxicity value source documents.
- Chemicals identified in MSDSs provided by permittee may not address all chemicals or compounds found in actual formulations used at the proposed facility.

5. Risk implications of using a flexible CAP (e.g. increased risks without reporting or reanalysis of risks).

New Flyer's draft permit requests "...flexible cap limitations." If flexible cap limitations are granted, the St. Cloud facility could have greater or lesser inhalation risks than calculated in the RMSA since it could use chemicals of greater or lesser toxicity so long as it does not exceed its cap. In order to maintain an acceptable level of inhalation risk, MPCA would need to require

New Flyer to re-model and re-calculate risks resulting from any changes to the emission rates of non-limited chemicals. Draft permit language addresses this issue.

6. Risks not evaluated in RMSA.

- Contaminants released to environment from warranty maintenance work.

Buses that have been on the street for some time can have significant amounts of contaminant containing dirt attached to the body of the bus. At the time of maintenance, these dirt entrained chemicals could be dislodged. In addition, maintenance activities could use the same or different chemicals as found in the RMSA. These potential risks were not evaluated.

- Background risks

Background risks from this proposed facility have not been calculated. It is possible that background risks alone or in combination with inhalation or total incremental facility risks could represent significant human health risk.

- Indirect exposures (i.e. dermal, ingestion)

Indirect exposures, that is non-inhalation exposures, have not been calculated for this facility. It is possible that indirect risks alone or in combination with inhalation or background risks could represent significant human health risk.

- Multipathway risk evaluation.

A multipathway risk assessment has not been conducted for this facility. Standard methodologies exist for evaluating all reasonable environmental release and exposure pathways. For non-volatile contaminants non-inhalation routes are typically the major pathways. Risks evaluated using methods other than a multipathway risk assessment can significantly underestimate risks.

- Cumulative risks.

The risks from a proposed facility (incremental risks) added to existing risks at the receptor location (background risks) provide the total or cumulative risk to persons at the receptor location. The RMSA only evaluates incremental human health inhalation risks from the facility and does not consider other non-inhalation risks or background risks. Based on these facts, all incremental risks from this facility added to background risks would result in higher calculated risk levels. Background risks alone or in combination with incremental risks may or may not result in a finding of significant risks.

- Ecological risks

Ecological risks from this facility have not been calculated. It is possible that emissions of bioaccumulative, bioconcentrating or environmentally stable chemicals could result, alone or in combination with background ecological risks, in significant ecological risks.

8. Acceptability of RMSA inhalation risk findings.

Incremental inhalation risks from the proposed facility have received adequate review by MPCA as part of the RMSA. A more refined analysis could result in findings of greater or lesser risks. MPCA has confidence in the acceptability of the incremental human health inhalation risk findings.

MPCA RISK MANAGER FINDINGS AND RECOMMENDATIONS

Based on the data, assumptions, and proposed permit limits presented in the RMSA, MPCA finds that there should be no significant incremental human health inhalation risks from the proposed New Flyer facility. MPCA cannot make any technically defensible statement of human health risks associated with non-inhalation routes of exposure, background or cumulative risks, or ecological risks at this time. MPCA finds the RMSA analysis to be of acceptable quality for risk management decision-making.

Risks from this facility could increase over currently calculated risks when the facility is operational due to the complex nature of bus manufacturing, the use of currently unidentified replacement materials for many chemicals removed from the COPC list in order to reduce calculated risks to acceptable levels, and the uncertainty regarding the final use of specific materials such as paints and coatings. MPCA recommends that emission permit limits and chemical monitoring be required once the facility is operational. MPCA also recommends that risk recalculation requirements be required should New Flyer change chemical use patterns in the future.

The following signature indicates that I concur with staff findings and recommendations as further expressed in the MPCA Risk Manager Findings and Recommendations section of this memo.

_____signed 9/18/98_____
Signature of Risk Manager (Ann Foss)

Attachment 4
Emissions from Insignificant Activities

Attachment 4: Emissions from Insignificant Activities

The Permittee has stated that the following insignificant activities (required to be listed per Minn. R. 7007.1300, subp. 3) will be located at the facility: Natural Gas Space Heaters, Welding, Grinding, and Grit Blasting.

The natural gas space heaters are not reasonably expected to contribute significantly to the potential emissions from the facility and are not estimated here.

Grit Blasting is listed in the permit as EU016. This operation occurs in an enclosed vessel and is not reasonably expected to have any emissions. The permit states this and says that if the facility later wishes to vent this operation, it would be considered a modification.

Welding Emissions:

Using AP-42 emissions factors (Tables 12.19-1 and 12.19-2, 5th ed.) and estimates of the potential quantity of welding wire usage, the PTE of welding is as follows (see the permit application for specific calculations):

Pollutant	PTE in pounds/hour	PTE in tons/year
PM	0.127	0.556
PM10 (assumed to = PM)	0.127	0.556
Chromium Compounds	2.47E-5	1.08E-4
Cobalt Compounds	2.37E-5	1.04E-4
Manganese Compounds	0.008	0.034
Nickel Compounds	2.49E-5	1.09E-4

Grinding Emissions:

Grinding emissions were calculated assuming 10% of the frame weight needs to be ground and using an emissions factor from AP-42 for gray iron cleaning and finishing (Table 12.10-1, 5th ed.). There is no other emission factor that seems to apply to this operation, so this factor is reasonable for estimating emissions from an insignificant activity. The PTE is estimated as follows (see the permit application for specific calculations):

Pollutant	PTE in pounds/hour	PTE in tons/year
PM	0.0325	0.01625
PM10 (assumed to = PM)	0.0324	0.01625

Adding these potentials to the remaining potential emissions (including permit limits as applicable), the facility will remain below the applicable thresholds for 40 CFR § 52.21 & 40 CFR § 70.2, and 40 CFR § 63.40 to 64.44. The IA potential emissions were included in the dispersion modeling and the RMSA.

Attachment 5
PTE and General Applicable Requirements

Attachment 5: PTE and General Applicable Requirements

The operations at this facility are subject to the following applicable requirements (often referred to as General Applicable Requirements or GARs):

Process	Rule	Limit and PTE
EU 001	Industrial Process Equipment Rule (Minn. R. 7011.0715, subp. 1(A))	Rule limit based on air flow. Applicable limit at maximum air flow is 10.46 lb/hr. This operation is a cleaning process and by design is not expected to have any particulate matter emissions. Design based PTE for PM = 0 lb/hr.
EU 002	same	Rule limit based on air flow. Applicable limit at maximum air flow is 16.72 lb/hr considering SV 001 and SV 002. This operation is the primer booth. Design based PTE for PM = 2.246 lb/hr.
EU 003	same	Rule limit based on air flow. Applicable limit at maximum air flow is 10.46. This process involves an adhesive applied using a roll-on technique and by design is not expected to have any particulate matter emissions. Design based PTE for PM = 0 lb/hr.
EU 004	same	Rule limit based on air flow. Applicable limit at maximum air flow is 16.72 lb/hr considering SV 003 and SV 004. This operation is the undercoat booth. Design based PTE for PM = 0.0916 lb/hr.
EU 005	same	Rule limit based on air flow. Applicable limit at maximum air flow is 10.64 lb/hr. This operation is a floor prep and by design is not expected to have any particulate matter emissions. Design based PTE for PM = 0 lb/hr at SV 005.
EU 006	same	Rule limit based on air flow. Applicable limit at maximum air flow is 10.64 lb/hr. This operation is a paint prep process that involves hand sanding. Design based PTE for PM = 0.0244 lb/hr at SV 005.
EU 007	same	Rule limit based on air flow. Applicable limit at maximum air flow is 22.36 lb/hr considering SV 005 - SV 007. This operation is the basecoat/prime booth. Design based PTE for PM = 0.245 lb/hr total.
EU 008	same	Rule limit based on air flow. Applicable limit at maximum air flow is 22.36 lb/hr considering SV 008 - SV 010. This operation is the topcoat booth. Design based PTE for PM = 0.245 lb/hr total.
EU 009	same	Rule limit based on air flow. Applicable limit at maximum air flow is 25.73 lb/hr considering SV 011 - SV 014. This operation is a touch-up booth. Design based PTE for PM = 0.245 lb/hr total.
EU 010	same	Rule limit based on air flow. Applicable limit at

Attachment 5: PTE and General Applicable Requirements

Process	Rule	Limit and PTE
		maximum air flow is 25.73 lb/hr considering SV 015 - SV 018. This operation is a touch-up booth. Design based PTE for PM = 0.245 lb/hr total.
EU 011	same	Rule limit based on air flow. Applicable limit at maximum air flow is 14.72 lb/hr considering SV 019 - SV 020. This operation is a topcoat booth. Design based PTE for PM = 0.245 lb/hr total.
EU 012	same	Rule limit based on air flow. Applicable limit at maximum air flow is 14.72 lb/hr considering SV 021 - SV 022. This operation is a touch-up booth. Design based PTE for PM = 0.245 lb/hr total.
EU 013	same	Rule limit based on air flow. Applicable limit at maximum air flow is 1.15 lb/hr. This operation is a cleaning process and by design is not expected to have any particulate matter emissions. Design based PTE for PM = 0 lb/hr.
EU014	Stationary Internal Combustion Engines, Minn. R. 7011.2300, subp. 1 Stationary Internal Combustion Engines, Minn. R. 7011.2300, subp. 2	This operation is a stand-by diesel generator set. Opacity limit. Rule limit for SO ₂ based on heat input of engine. Applicable limit at maximum BTU is 2.1 lb/hr. Design based PTE for SO ₂ = 1.015 lb/hr (using AP-42 emission factor).
EU 015	Stationary Internal Combustion Engines, Minn. R. 7011.2300, subp. 1 Stationary Internal Combustion Engines, Minn. R. 7011.2300, subp. 2	This operation is bus engine emissions from running the engines on the manufacturing line --each bus engine is run for less than an hour. Opacity limit. Rule limit for SO ₂ based heat input of engine. Applicable limit at maximum BTU is 2.1 lb/hr. Design based PTE for SO ₂ = 1.218 lb/hr (using AP-42 emission factor).
EU 016	none	This process is not vented and has no emissions.

Background calculations for the above table

STATIONARY INTERNAL COMBUSTION ENGINES

Minn. R. 7011.2300 contains limits on sulfur dioxide emissions from stationary engines. The SO₂ potential to emit was compared to the rule limit.

Emergency Diesel Generator Set

SO₂ limit = (0.5 lb/MMBtu) x (3.5 MMBtu/hr) = 1.75 lb/hr of SO₂

Limit converted to tpy = 1.75 lb/hr x 8760 hr/yr / 2000 lb/ton = 7.665 tpy of SO₂

Bus engine emissions from manufacturing line

Attachment 5: PTE and General Applicable Requirements

$$\text{SO}_2 \text{ limit} = (0.5 \text{ lb/MMBtu}) \times (4.2 \text{ MMBtu/hr}) = 2.1 \text{ lb/hr of SO}_2$$

$$\text{Limit converted to tpy} = 2.1 \text{ lb/hr} \times 8760 \text{ hr/yr} / 2000 \text{ lb/ton} = 9.198 \text{ tpy of SO}_2$$

INDUSTRIAL PROCESS EQUIPMENT RULE

Minn. R. 7011.0730 and 7011.0735 (Tables 1 and 2) contain PM limits for industrial process equipment constructed after 1969. The PM potential to emit was compared to the limits in Table 1 and Table 2. The following spreadsheet shows all the emission units and stack/vents, listing the limits according to Tables 1 and 2. Sample calculations for EU 002 are below. Other calculations are similar.

Using Table 1:

Process weight = power wash + coating

$$\text{Power wash} = 3.5 \text{ gal/min} \times 64 \text{ oz/gal} \times 60 \text{ min/hr} \times 1 \text{ lb/16 oz} = 840 \text{ lb/hr}$$

$$\text{Coating} = 16 \text{ oz/min} \times 60 \text{ min/hr} \times 1 \text{ lb/16 oz} = 60 \text{ lb/hr}$$

$$\text{Total} = 840 \text{ lb/hr} + 60 \text{ lb/hr} = 900 \text{ lb/hr}$$

$$\text{PM Emission Limit} = 3.59 \times (900/2000)^{0.62} = 2.188 \text{ lb/hr of PM}$$

$$\text{Convert to tpy} = 2.188 \text{ lb/hr} \times 8760 \text{ hr/yr} / 2000 \text{ lb/ton} = 9.58 \text{ tpy of PM}$$

Using Table 2:

$$\text{Total Air flow} = 16,000 \text{ cfm at } 70^\circ\text{F at SV 001} + 16,000 \text{ cfm at } 70^\circ\text{F at SV 002}$$

$$\text{Corrected air flow} = 32000 (459.67 + 68) / (70 + 459.67) = 31,879.17 \text{ cfm}$$

(assumed 1 atm for pressure and that moisture content was not a factor)

$$\text{PM Emission Limit} = 1.7627 \times 31,879.17^{-0.3241} = 0.0612 \text{ grains/dscf of PM}$$

$$\begin{aligned} \text{Limit converted to lb/hr} &= 0.0612 \text{ gr/dscf} \times (1 \text{ lb/7000gr}) \times (15939.69 \text{ cf/min}) \times (60 \text{ min/hr}) = \\ &16.72 \text{ lb/hr of PM} \end{aligned}$$

$$\text{Limit converted to tpy} = 16.72 \text{ lb/hr} \times 8760 \text{ hr/yr} / 2000 \text{ lb/ton} = 73.22 \text{ tpy of PM}$$

Attachment 5: PTE and General Applicable Requirements

Allowable per the Industrial Process Equipment Rule, Minn. R. 7011.0730 and .0735

* the most lenient limit applies, therefore Table 2 results apply to all EUs / SVs

* assumed that stack pressure was ambient and that moisture content of exhaust gases was not a factor

EU	SV	Process Wt (lb/hr)	Airflow (cfm)	Gas temp. (deg. F)	Corrected CFM	Table 1 (lb/hr)	Table 1 (g/sec)	Table 1 (tpy)	Table 2 (gr/dscf)	Table 2 (lb/hr)	Table 2 (g/sec)	Table 2 (tpy)
1	1	see EU 2										
2	1	840	16000	70	15939.59	2.10	0.26	9.18	0.0766	10.46	1.32	45.83
	2	60	16000	70	15939.59	0.41	0.05	1.79	0.0766	10.46	1.32	45.83
TOTAL		900	32000	70	31879.17	2.19	0.28	9.58	0.0612	16.72	2.11	73.22
3	3	see EU 4										
4	3	n/a	16000	70	15939.59	n/a	n/a	n/a	0.0766	10.46	1.32	45.83
	4	n/a	16000	70	15939.59	n/a	n/a	n/a	0.0766	10.46	1.32	45.83
TOTAL		n/a	32000	70	31879.17	n/a	n/a	n/a	0.0612	16.72	2.11	73.22
5	5	see EU 7										
6	6	see EU 7										
7	5	0	17330	100	16339.13	0.00	0.00	0.00	0.0760	10.64	1.34	46.60
	6	0	17330	100	16339.13	0.00	0.00	0.00	0.0760	10.64	1.34	46.60
	7	120	17330	100	16339.13	0.63	0.08	2.75	0.0760	10.64	1.34	46.60
TOTAL		120	51990	100	49017.39	0.63	0.08	2.75	0.0532	22.36	2.82	97.93
8	8	120	17330	100	16339.13	0.63	0.08	2.75	0.0760	10.64	1.34	46.60
	9	120	17330	100	16339.13	0.63	0.08	2.75	0.0760	10.64	1.34	46.60
	10	120	17330	100	16339.13	0.63	0.08	2.75	0.0760	10.64	1.34	46.60
TOTAL		120	51990	100	49017.39	0.63	0.08	2.75	0.0532	22.36	2.82	97.93
9	11	120	16000	100	15085.18	0.63	0.08	2.75	0.0780	10.08	1.27	44.16
	12	120	16000	100	15085.18	0.63	0.08	2.75	0.0780	10.08	1.27	44.16
	13	120	16000	100	15085.18	0.63	0.08	2.75	0.0780	10.08	1.27	44.16
	14	120	16000	100	15085.18	0.63	0.08	2.75	0.0780	10.08	1.27	44.16
TOTAL		120	64000	100	60340.70	0.63	0.08	2.75	0.0497	25.73	3.24	112.70
10	15	120	16000	100	15085.18	0.63	0.08	2.75	0.0780	10.08	1.27	44.16
	16	120	16000	100	15085.18	0.63	0.08	2.75	0.0780	10.08	1.27	44.16
	17	120	16000	100	15085.18	0.63	0.08	2.75	0.0780	10.08	1.27	44.16
	18	120	16000	100	15085.18	0.63	0.08	2.75	0.0780	10.08	1.27	44.16
TOTAL		120	64000	100	60340.70	0.63	0.08	2.75	0.0497	25.73	3.24	112.70
11	19	120	14000	100	13199.53	0.63	0.08	2.75	0.0814	9.21	1.16	40.35

Attachment 5: PTE and General Applicable Requirements

EU	SV	Process Wt (lb/hr)	Airflow (cfm)	Gas temp. (deg. F)	Corrected CFM	Table 1 (lb/hr)	Table 1 (g/sec)	Table 1 (tpy)	Table 2 (gr/dscf)	Table 2 (lb/hr)	Table 2 (g/sec)	Table 2 (tpy)
	20	120	14000	100	13199.53	0.63	0.08	2.75	0.0814	9.21	1.16	40.35
TOTAL		120	28000	100	26399.06	0.63	0.08	2.75	0.0650	14.72	1.85	64.46
12	21	120	14000	100	13199.53	0.63	0.08	2.75	0.0814	9.21	1.16	40.35
	22	120	14000	100	13199.53	0.63	0.08	2.75	0.0814	9.21	1.16	40.35
TOTAL		120	28000	100	26399.06	0.63	0.08	2.75	0.0650	14.72	1.85	64.46
13	23	n/a	1350	70	1344.90	n/a	n/a	n/a	0.1000	1.15	0.15	5.05
14	24	n/a	3400	980	1246.17	n/a	n/a	n/a	0.1000	1.07	0.13	4.68
15	25	n/a	8800	100	8296.85	n/a	n/a	n/a	0.0946	6.73	0.85	29.48

Attachment 6
PTE Calculations -- Permittee's and MPCA's calculations

The Permittee's calculations are included at the end of this Attachment (paper copy only). What follows are the MPCA calculations that supplement the Permittee's.

EU 001: Power Wash booth, see Permittee's calculations for unlimited PTE. Due to process design, only emits volatiles. Unit is limited by facility wide limits for VOC, HAPs, lead, antimony, barium sulfate, benzene, toluene, and xylene.

EU 002: Primer Booth, see Permittee's calculations for unlimited PTE. This operation emits a small amount of MDI. These calculations can found after the spreadsheets. Unit is limited by facility wide limits for VOC, HAPs, lead, antimony, barium sulfate, benzene, toluene, and xylene. For particulate matter, limited PTE is as follows:

Transfer Efficiency: 50% (painting of frame materials w/HVLP gun)

Control Efficiency: 94%

Limits: 0.991 tons/day of coating materials
maximum of 90.7% solids by weight

$$PM_{10}PTE = (0.991 \text{ tons Coating} / \text{day}) * (0.907 \text{ tons Solids} / \text{tons Coating}) * (1 - 0.5) * (1 - 0.94)$$

$$PM_{10}PTE = (0.027 \text{ tons PM}_{10} \text{ emitted} / \text{day}) * 365 \text{ days} / \text{year} = 9.84 \text{ tpy PM}_{10}$$

$$PM_{10}PTE = (0.027 \text{ tons PM}_{10} \text{ emitted} / \text{day}) * (\text{day} / 24 \text{ hours}) * (2000 \text{ lb} / \text{ton}) = 2.246 \text{ lb PM}_{10} / \text{hr}$$

EU 003: Adhesive Application, see Permittee's calculations for unlimited PTE. Due to process design (no spraying), only emits volatiles. Unit is limited by facility wide limits for VOC, HAPs, lead, antimony, barium sulfate, benzene, toluene, and xylene.

EU 004: Undercoat Booth, see Permittee's calculations for unlimited PTE. Permittee's calculations assume a transfer efficiency of 90%, so they underestimate the unlimited PTE (permit assumes 75% transfer). Unit is limited by facility wide limits for VOC, HAPs, lead, antimony, barium sulfate, benzene, toluene, and xylene. For particulate matter, limited PTE is as follows:

Transfer Efficiency: 75% (painting of flat surfaces using HVLP gun)

Control Efficiency: 94%

Limits: 0.120 tons/day of coating materials
maximum of 61.3% solids by weight

$$PM_{10}PTE = (0.120 \text{ tons Coating} / \text{day}) * (0.613 \text{ tons Solids} / \text{tons Coating}) * (1 - 0.75) * (1 - 0.94)$$

$$PM_{10}PTE = (0.0011 \text{ tons PM}_{10} \text{ emitted} / \text{day}) * 365 \text{ days} / \text{year} = 0.401 \text{ tpy PM}_{10}$$

$$PM_{10}PTE = (0.0011 \text{ tons PM}_{10} \text{ emitted} / \text{day}) * (\text{day} / 24 \text{ hours}) * (2000 \text{ lb} / \text{ton})$$

$$PM_{10}PTE = 0.0916 \text{ lb PM}_{10} / \text{hr}$$

EU 005: Floor Prep, see Permittee's calculations for unlimited PTE. This operations involves adhesive application using rollers, so PM is emitted. Unit is limited by facility wide limits for VOC, HAPs, lead, antimony, barium sulfate, benzene, toluene, and xylene.

EU 006: Paint Prep, see Permittee's calculations for unlimited PTE. This operation involves hand sanding and wiping using rags. Unit is limited by facility wide limits for VOC, HAPs, lead, antimony, barium sulfate, benzene, toluene, and xylene. For particulate matter, limited PTE is as follows:

Particulate Generated from Sanding: 14.613 lbs/bus, based on historical data from Canadian New Flyer facility (sanding material was collected and weighed after 20 buses)

Control Efficiency: 99%

Limits: 4 buses per day can be sanded

$$PM10PTE = (14.61lbPM10generated / bus) * (4buses / day) * (1day / 24hrs)(1 - 0.99)$$

$$PM10PTE = 0.0244lbPM10 / hr$$

$$PM10PTE = (0.0244lbPM10 / hr) * (8760hr / year) * (ton / 2000lb) = 0.1067tpyPM10$$

EU 007-012, or GP 004: Main Spray Booths, see Permittee's calculations for unlimited PTE from coating and natural gas combustion. Group is limited by facility wide limits for VOC, HAPs, lead, antimony, barium sulfate, benzene, toluene, and xylene. For particulate matter, limited PTE is as follows:

Transfer Efficiency: 75% (painting of flat surfaces w/HVLP gun)

Control Efficiency: 94%

Limits: 0.2305 tons/day of coating materials
maximum of 85% solids by weight

$$PM10PTE = (0.2305tonsCoating / day) * (0.85tonsSolids / tonsCoating) * (1 - 0.75) * (1 - 0.94)$$

$$PM10PTE = (0.002939tonsPM10emitted / day) * 365days / year = 1.075tpyPM10$$

$$PM10PTE = (0.002939tonsPM10emitted / day) * (day / 24hours) * (2000lb / ton)$$

$$PM10PTE = 0.245lbPM10 / hr$$

The group emissions could be emitted by any combination of the booths. For the pounds per hour PTE (to compare with allowable emissions), it is assumed that the maximum pounds per hour could be emitted by any one of the booths, or 0.245 lb/hr from any booth.

EU013: Gun Cleaning, see Permittee's calculations for unlimited PTE. Due to process design, only emits volatiles. Unit is limited by facility wide limits for VOC, HAPs, lead, antimony, barium sulfate, benzene, toluene, and xylene.

EU014: Standby Diesel Generator, see Permittee's calculations for unlimited PTE. No permit limits other than fuel type, sulfur content, sulfur emission limit, and hours tracking.

EU015: Bus Engines Run During Manufacturing, see Permittee's calculations for unlimited PTE -- same limits as EU014. PTE calculations assume that no more than 2 bus engines are run at any given time, and that no engine is run for more than 1 hour (capacity to make 2000 buses/year). The one hour per bus assumption is very conservative based on actual practice at the Winnipeg facility (typically run the engines for 15 minutes). The 2 buses per hour

assumption has been made into a permit limit because it was used in the short term PM10 modeling.

EU016: Grit blasting, Permittee's original calculations are included in this attachment, but they are not correct. The process, by design, cannot be vented; therefore, no emissions are expected from the operation. The permit states that any venting of this process would be considered a modification.

Permittee's Spreadsheets

Permittee's MDI Calculations

Permitttee's Calculations Showing Proposed Permit Limits from RMSA
(antimony, toluene, xylene, lead, chromium, barium sulfate, benzene, methyl
isobutyl ketone, and PM₁₀)

Attachment 7
Mixture Speciation

This attachment contains an EPA e-mail on the speciation of mixtures and a copy of a material safety data sheet for VM&P naphtha, the only mixture with a CAS number for which MPCA was able to find an MSDS (from Genium Publishing).

From: KIRT COX[SMTP:COX.KIRT@EPAMAIL.EPA.GOV]
Sent: Tuesday, September 01, 1998 3:58 PM
To: HITTE.STEVE@EPAMAIL.EPA.GOV;
PATE.NANCY@EPAMAIL.EPA.GOV
Cc: MEYER.JAN@EPAMAIL.EPA.GOV
Subject: FW: Solvent Mixtures and NESHAPs -Forwarded -Reply

Nancy,

This is primarily a section 112 issue, rather than a Title V call, but I presume that the identical criteria apply for both. The following is the way that the determination works for Title V.

A source is major on the basis of having the potential to emit 10 tpy of any individual pollutant on the list in section 112(b) of the Act, or 25 tpy of any combination of those pollutants. Emissions estimation might be more difficult as a result of the particular mixtures of chemicals being used, just as it might be more difficult as a result of the type of production process used, but this is irrelevant to the basic issue of whether a source has the potential to emit these chemicals, and, thus, to whether the source is "major."

Neither section 112 or Title V require a source to do the impossible, so this is not the real issue. We can certainly be confident that neither program allows a source to ignore emissions if they are difficult to quantify. The real issue is the precision with which the quantification is done. The source in question has, or probably could fairly readily acquire, estimates of the ranges of HAP content for these naphtha mixtures. If the source is unable to estimate where it falls in these ranges, I would recommend that it choose a conservative value and make its case to the state as to why this is reasonable. Good professional judgment and reasonable projections are the essential elements of this process.

Kirt