

AIR EMISSION PERMIT NO. 13100005-004

IS ISSUED TO

MULTEK FLEXIBLE CIRCUITS INC. –SHELDAHL ROAD

East and West Buildings
1150 Sheldahl Road and 805 North Highway 3
Northfield, Dakota County, Minnesota 55057-0170

The emission units, control equipment and emission stacks at the stationary source authorized in this permit reissuance are as described in the Permit Applications Table.

This permit supersedes Air Emission Permit No. 13100005-003 and authorizes the Permittee to operate 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 are as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Unless otherwise indicated, all the Minnesota rules cited as the origin of the permit terms are incorporated into the SIP under 40 CFR § 52.1220, and as such as are enforceable by U.S. Environmental Protection Agency (EPA) Administrator or citizens under the Clean Air Act.

Permit Type: Federal Permit; Part 70/Limits to Avoid NSR

Issue Date: September 30, 2011

Expiration: September 30, 2016
All Title I Conditions do not expire.

Don Smith, P.E., Manager
Air Quality Permits Section
Industrial Division

for Paul Aasen
Commissioner
Minnesota Pollution Control Agency

Permit Application Table

Permit Type	Application Date	Permit Action
Total Facility Operating Permit Reissuance	10/08/2009	004
Supplemental Submittals	01/19/2010	004

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NOTICE TO THE PERMITTEE:

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

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

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

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

PERMIT SHIELD:

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

FACILITY DESCRIPTION:

The Permittee owns and operates a flexible printed circuit fabrication facility and manufactures specialty electronic products such as flexible printed circuitry, flexible composite laminates, and specialty engineering products. The stationary source consists of two buildings on either side of a county road called the East and West facilities. They are considered one stationary source under all air regulations. The types of processes at the facility include mixing, laminating, screen printing, plating, etching, stripping, material handling, and combustion of natural gas.

The main emissions are Volatile Organic Compounds (VOC) and Hazardous Air Pollutants (HAP), with lesser amounts of Particulate Matter, Particulate Matter Less than 10 microns, Particulate Matter Less than 2.5 microns (PM/PM₁₀/PM_{2.5}) and various other pollutants from the combustion of natural gas. The Facility currently has two scrubbers for controlling ammonia and a catalytic oxidizer for controlling VOC emissions from the laminators.

This permit carries forward limits on the emissions from the facility to avoid major source classification for New Source Review (40 CFR § 52.21). The Facility is a major source under the federal operation permits program (40 CFR § 70.2) and the National Emissions Standards for Hazardous Air Pollutants program (NESHAPs, 40 CFR § 63.2).

TABLE A: LIMITS AND OTHER REQUIREMENTS

A-1

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

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
SOURCE-SPECIFIC REQUIREMENTS	hdr
Permit Appendices: This permit contains 5 appendices as listed in the permit Table of Contents. The Permittee shall comply with all requirements contained in the appendices.	Minn. R. 7007.0800, subp. 2
This permit establishes limits on the facility to keep it a minor source under New Source Review. The Permittee cannot make any change at the source that would make the source a major source under New Source Review until a permit amendment has been issued. This includes changes that might otherwise qualify as insignificant modifications and minor or moderate amendments.	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000
The Permittee shall not emit thiourea. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7007.0800, subp. 2
The Permittee shall not emit methylene chloride. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7007.0800, subp. 2
The facility currently uses ozone-depleting substances as defined in 40 CFR pt. 82. Sections 601-618 of the 1990 Clean Air Act Amendments and 40 CFR pt. 82 may apply to your facility. Read Sections 601-618 and 40 CFR pt. 82 to determine all the requirements that apply to your facility.	40 CFR pt. 82
Potential to Emit from Insignificant Activities, Volatile Organic Compounds: less than or equal to 45.0 tons/year	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000
Insignificant Activity Evaluation: Prior to installing, changing, or modifying any Insignificant Activity, the Permittee shall update the Emissions Calculations - Insignificant Sources spreadsheet to show the revised combined PTE of all insignificant activities. For VOC emissions, the total must be less than the Insignificant Activities limit given above. Any change or activity that would make the total greater than this number cannot be made without first applying for and obtaining a major permit amendment.	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000
OPERATIONAL REQUIREMENTS	hdr
The Permittee shall comply with National Primary and Secondary Ambient Air Quality Standards, 40 CFR pt. 50, and the Minnesota Ambient Air Quality Standards, Minn. R. 7009.0010 to 7009.0080. Compliance shall be demonstrated upon written request by the MPCA.	40 CFR pt. 50; Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subp. 7(A), 7(L), & 7(M); Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080
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
Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated.	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. At a minimum, the O & M plan shall identify all air pollution control equipment and control practices and shall include a preventative maintenance program for the equipment and practices, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment and practices to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment and practices, and the records kept to demonstrate plan implementation.	Minn. R. 7007.0800, subps. 14 and 16(J)
Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.	Minn. R. 7019.1000, subp. 4
Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.	Minn. R. 7011.0150

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-2**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7030.0010 - 7030.0080
Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A).	Minn. R. 7007.0800, subp. 9(A)
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
PERFORMANCE TESTING	hdr
Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A and/or B. For permit 13100005-004, additional performance testing requirements can be found in GP 005 and CE 002 of Table A.	Minn. R. ch. 7017; 40 CFR Subpart 63.7(b)
Performance Test Notifications and Submittals: Performance Tests are due as outlined in Table A of the permit. Performance Test Notification (written): due 60 days before each Performance Test Performance Test Plan: due 30 days before each Performance Test Performance Test Pre-test Meeting: due 7 days before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Compact Disc Copy: due 105 days after each Performance Test The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018 or as allowed by the MPCA Electronic Submittal Policy of March 3, 2010.	Minn. R. 7017.2018; Minn. R. 7017.2030, subps. 1-4, Minn. R. 7017.2035, subps. 1-2
Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as stated in the MPCA's Notice of Compliance letter granting preliminary approval. Preliminary approval is based on formal review of a subsequent performance test on the same unit as specified by Minn. R. 7017.2025, subp. 3. The limit is final upon issuance of a permit amendment incorporating the change.	Minn. R. 7017.2025, subp. 3
MONITORING REQUIREMENTS	hdr
Monitoring Equipment Calibration: The Permittee shall calibrate all required monitoring equipment at least once every 12 months unless specified otherwise (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 and/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)
RECORDKEEPING	hdr
Recordkeeping: Retain all records at the stationary source, unless otherwise specified within this permit, 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)
Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350, subp. 2), including records of the emissions resulting from those changes.	Minn. R. 7007.0800, subp. 5(B)
If the Permittee determines that no permit amendment or notification is required prior to making a change, the Permittee must retain records of all calculations required under Minn. R. 7007.1200. For expiring permits, these records shall be kept for a period of five years from the date the change was made or until permit reissuance, whichever is longer. The records shall be kept at the stationary source for the current calendar year of operation and may be kept at the stationary source or office of the stationary source for all other years. The records may be maintained in either electronic or paper format.	Minn. R. 7007.1200, subp. 4
REPORTING/SUBMITTALS (see Table B for additional requirements)	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-3**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

<p>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.</p> <p>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.</p>	Minn. R. 7019.1000, subp. 3
<p>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.</p> <p>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.</p>	Minn. R. 7019.1000, subp. 2
<p>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.</p>	Minn. R. 7019.1000, subp. 1
<p>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:</p> <ol style="list-style-type: none"> 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
<p>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.</p>	Minn. R. 7007.1150 - 7007.1500
<p>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).</p>	Minn. R. 7007.1400, subp. 1(H)
<p>Emission Inventory Report: due on or before April 1 of each calendar year following permit issuance, to be submitted on a form approved by the Commissioner.</p>	Minn. R. 7019.3000 - 7019.3100
<p>Emission Fees: due 60 days after receipt of an MPCA bill.</p>	Minn. R. 7002.0005 - 7002.0095

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-4**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

Subject Item: GP 001 Total Facility VOC Limit

What to do	Why to do it
<p>GP 001 consists of the following emissions units: 001, 002, 006, 008, 012, 014-018, 020-027, 038, 042, 043, 046-054, 057-062, 065-071, 074, 075, 077-085, 088, 089, 091, 092, 098, 099, 102-105, 110, 116, 118-121, 124-130.</p> <p>Within GP 001, the following units are currently part of the Laminating Area: 015, 016, 017, 020, 023, 024, 025, 026, 027, 080, 081, 082, 083, 084, 087, 088, 089, 091, 119, and 130.</p> <p>Within GP 001, the following units are currently Wet Processes: 038, 042, 043, 046, 092, 098, 099, 102, 120, 124, 127-129.</p>	Associated Items
EMISSIONS AND OPERATING LIMITS	hdr
<p>Volatile Organic Compounds: less than or equal to 200.0 tons/year using 12-month Rolling Sum to be calculated by the 15th day of each month for the previous 12-month period as described later in this permit.</p> <p>All emission units listed in GP 001 shall be included in this calculation. VOC contents for each VOC-containing material shall be determined as described under the Material Content requirement in GP 001. The calculation of VOCs used may take into account recovered/recycled VOCs as described under the Waste Credit requirement in GP 001.</p>	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000
<p>VOC PreCap: All VOC-emitting equipment, with the exception of those units identified as insignificant activities in this permit, are subject to the VOC limit above. If the Permittee replaces any existing VOC-emitting equipment, adds new VOC-emitting equipment (that is not considered an insignificant activity under Minn. R. 7007.1300 subpart 2 and/or 3 or Minn. R. 7008.4000 and 7008.4110) or modifies the existing equipment, such equipment is subject to this permit limit as well as all of the requirements of GP 001. Prior to making such a change, the Permittee shall apply for and obtain the appropriate permit amendment, as applicable.</p>	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000
<p>VOC PreCap Continued: For the changes described above, the Permittee is not required to complete VOC calculations described in Minn. R. 7007.1200, subp. 2, as all VOC equipment at the facility is either covered by the precap limit or the insignificant activities cap. A permit amendment will still be needed regardless of the emissions increase if the change will be subject to a new applicable requirement or requires revisions to the limits or monitoring and recordkeeping in this permit.</p>	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000
The Permittee shall vent emissions from all laminator tunnel exhausts, including existing, modified, or new laminators, to a catalytic oxidizer meeting the permit requirements of CE 002.	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735. This applies separately to each piece of industrial process equipment in GP 001 that is not subject to a different Minn. R. ch. 7011 standard listed elsewhere in this permit.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity. This applies separately to each piece of industrial process equipment in GP 001 that is not subject to a different Minn. R. ch. 7011 standard listed elsewhere in this permit.	Minn. R. 7011.0715, subp. 1(B)
The Permittee shall keep the door(s) to each laminator closed at all times that laminator is operating using VOC and/or organic HAP-containing materials, except as required for operator access, adhesive transfer, and material handling. During these activities, to the extent possible, the Permittee shall limit the amount of time that the doors are open. The Permittee shall comply with the singage requirements that appear later in GP 001.	Minn. R. 7007.0800, subp. 2
MONITORING AND RECORDKEEPING	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-5**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

<p>Material Usage Recordkeeping</p> <p>1). Laminating: On each operating day, for VOC-containing materials, the Permittee shall record and maintain:</p> <p>a) the quantity of each material mixed, based on mixing, dispensing, or usage logs.</p> <p>b.) the quantity of each material used on the laminators and that are not mixed based on dispensing or usage logs.</p> <p>The records shall include the material specification number, the mass or volume of material, and the laminator upon which the materials are used.</p> <p>2). Wet Processes: Each time a container of VOC-containing materials is either purchased or delivered, the Permittee shall record the size (mass or volume) of the container and the material specification number. When the material is received, it is considered "used" for the purposes of VOC usage records.</p>	<p>Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800. subps. 4 and 5</p>
<p>Material Usage Recordkeeping Continued</p> <p>3). For all other VOC-containing materials: The Permittee shall calculate, record, and maintain monthly usage records showing the quantity of each material used. This shall be based on written usage or dispensing logs, or purchase/delivery records. The record shall include the material specification number and the mass or volume of material.</p>	<p>Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Minn. R. 7007.0800. subps. 4 and 5</p>
<p>Fuel Records</p> <p>The Permittee shall keep records of fuel purchases for the Facility on a monthly basis.</p>	<p>Minn. R. 7007.0800, subps. 4 and 5</p>
<p>Records of Materials Mixed to be shipped Off-site: On a monthly basis the Permittee shall document and record each material processed in the mixing room to be shipped off-site. The record shall include the specification number and quantity (either mass or volume). This shall be completed by the 15th day of each calendar month for the previous calendar month.</p>	<p>Minn. R. 7007.0800, subps. 4 and 5</p>
<p>Material Specifications: For each VOC-containing material purchased for use on-site or VOC-containing material mixed on-site, the Permittee shall assign a material specification number and shall document and record the maximum VOC content as well as any other data needed to convert the usage records into a weight value in "tons" (e.g., density in lb/gal). This record shall be updated prior to beginning use of any new material.</p>	<p>Minn. R. 7007.0800, subps. 4 and 5</p>
<p>Monthly Recordkeeping -- VOC Emissions.</p> <p>By the 15th of the month, the Permittee shall calculate and record the following:</p> <p>1) The total usage of VOC containing materials for the previous calendar month using the usage, purchase, and delivery records. This record shall also include the VOC contents of each material as determined by the Material Content requirement of this permit.</p> <p>2) The VOC emissions for the previous month using the formulas specified in Appendix I of this permit.</p> <p>3) The 12-month rolling sum VOC emissions for the previous 12-month period by summing the monthly VOC emissions data for the previous 12 months.</p>	<p>Minn. R. 7007.0800, subps. 4 and 5</p>
<p>Material Content: The VOC content of materials shall be determined by the Material Safety Data Sheet (MSDS) provided by the supplier for each material used. If a material content range is given on the MSDS, the highest number in the range shall be used in all permit calculations. Other alternative methods approved by the MPCA may be used to determine the VOC contents. The Commissioner reserves the right to require the Permittee to determine the VOC 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 MSDS.</p>	<p>Minn. R. 7007.0800, subps. 4 and 5</p>
<p>Maximum Contents of Materials: The Permittee assumed certain worst-case contents of materials and maximum usage rates when determining the short term potential to emit of units in GP001. These assumptions are listed in Appendix IV of this permit. Changing to a material that has a higher content of any of the given pollutants or increasing the usage rate is considered a change in method of operation that must be evaluated under Minn. R. 7007.1200, subp. 3 to determine if a permit amendment or notification is required under Minn. R. 7007.1150.</p>	<p>Minn. R. 7005.0100, subp. 35a</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-6**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

<p>Waste Credit: If the Permittee elects to obtain credit for VOC shipped in waste materials, the Permittee shall use either Option 1 or 2 to determine the VOC content for each credited shipment, except for determining credit from the waste flammable liquid stream. The Permittee may determine the VOC content for each shipment of the waste flammable liquid stream according to the "Waste Flammable Liquid Stream Waste Credit" requirement below. The Permittee shall maintain documentation of the option used for each waste stream.</p> <p>Option 1: The Permittee shall analyze a composite sample of each waste shipment to determine the weight content of VOC.</p> <p>Option 2: The Permittee may use supplier data for raw materials to determine the VOC contents of each waste shipment, using the same content data used to determine the content of raw materials. If the waste contains several materials, the content of mixed waste shall be assumed to be the lowest VOC content of any of the materials.</p>	Minn. R. 7007.0800, subps. 4 and 5
<p>Waste Flammable Liquid Stream Waste Credit:</p> <p>This option is for the waste flammable liquid stream only. If the Permittee chooses to use this option, the waste flammable liquid stream must consist only of: cleanup solution (toluene/acetone), waste MEK/ethyl acetate, and residual solvent adhesive only.</p> <p>If the Permittee elects to obtain credit for VOC shipped in waste materials using this option, the Permittee shall assume that the waste flammable liquid stream contains 70% VOC by weight or the Permittee shall comply with one of the other options listed in the "Waste Credit" requirement of this permit.</p>	Minn. R. 7007.0800, subps. 4 and 5
<p>Signage</p> <p>The Permittee shall post signs on all doors of the laminators stating that the doors must remain closed while the laminators are in operation except as required for operator access, adhesive transfer, and material handling.</p> <p>The O&M Plan for the laminators shall include operator training on the requirement to keep the doors to the laminator areas closed whenever possible.</p>	Minn. R. 7007.0800, subps. 4 and 5
REPORTING (See Table B)	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-7**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

Subject Item: GP 002 Natural Gas Boilers: Pre-Jan. 31, 1977**Associated Items:** EU 001 Boiler 0-8985

EU 008 Boiler 958

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.60 lbs/million Btu heat input . This limit applies separately to each indirect heating unit in GP 002. The potential to emit of each unit is 0.0075 lb/MMBtu based on the allowable fuel.	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20.0 percent opacity except for one six-minute period per hour of not more than 60.0 percent opacity. This limit applies separately to each indirect heating unit in GP 002.	Minn. R. 7011.0510, subp. 2
Fuel Type: natural gas only.	Minn. R. 7005.0100, subp. 35a

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-8**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

Subject Item: GP 003 Natural Gas: Jan. 31, 1977 or later**Associated Items:** EU 002 Boiler H1390

EU 006 Boiler 15772

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.40 lbs/million Btu heat input . This limit applies separately to each indirect heating unit in GP 003. The potential to emit of each unit is 0.0075 lb/MMBtu based on the allowable fuel.	Minn. R. 7011.0515, subp. 1
Opacity: less than or equal to 20.0 percent opacity except for one six-minute period per hour of not more than 60.0 percent opacity. This limit applies separately to each indirect heating unit in GP 003.	Minn. R. 7011.0515, subp. 2
Fuel Type: natural gas only.	Minn. R. 7005.0100, subp. 35a

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-9**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

Subject Item: GP 004 Emergency Generators**Associated Items:** EU 085 Backup Generator

EU 103 Backup Generator

What to do	Why to do it
Opacity: less than or equal to 20.0 percent opacity once operating temperatures have been attained. This limit applies separately to each generator in GP 004.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.50 lbs/million Btu heat input . This limit applies separately to each generator in GP 004. The potential to emit of each unit is 0.0006 lb/MMBtu based on the allowable fuel.	Minn. R. 7011.2300, subp. 2
Fuel Type: natural gas only.	Minn. R. 7005.0100, subp. 35a
Recordkeeping -- Hours of Operation: The Permittee shall maintain documentation on-site of the hours of operation for each calendar year, and documentation that each unit in GP 004 is an emergency generator by design that qualifies under the U.S. EPA memorandum entitled "Calculating Potential to Emit (PTE) for Emergency Generators" dated September 6, 1995, limiting operation to 500 hours per year.	Minn. R. 7007.0800, subps. 4 and 5
At the time of issuance of permit 13100005-004, EUs 085 and 103 are considered existing affected sources under 40 CFR pt. 63, subp. ZZZZ as defined at 40 CFR Section 63.6590(a)(1)(i). However, these units meet the criteria in 40 CFR Section 63.6590(b)(3), so no limits, recordkeeping, or notifications from 40 CFR pt, 63, subp. ZZZZ apply to these units.	40 CFR Section 63.6590(a)(1)(i) and (b)(3); Minn. R. 7011.8150

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-10**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

Subject Item: GP 005 Subpart JJJJ NESHAP**Associated Items:** CE 002 Catalytic Afterburner w/Heat Exchanger

EU 014 Equipment Cleaning

EU 015 Laminator #2, Slot Exhaust

EU 016 Bulk Solvent Dispensing Scale

EU 017 Cowles Mixer

EU 018 Drum Dryer

EU 020 No. 1 Daymax Mixer

EU 021 Pail Liner Dryer

EU 022 Rag Dryer

EU 023 Laminator #5, Slot Exhaust

EU 024 No. 2 Daymax Mixer

EU 025 Laminator #1

EU 026 Laminator #1, Enclosure

EU 027 39" Laminator, Slot Exhaust

EU 081 Laminator #10

EU 082 Laminator #2

EU 083 Laminator #5

EU 084 39" Laminator

EU 088 No. 4 Daymax Mixer

EU 089 PAPI Dispensing Station

EU 091 No. 3 Daymax Mixer

EU 119 Hi Vispersater

EU 130 Mixer - Ross

What to do	Why to do it
See CE 002, Catalytic Oxidizer, for additional 40 CFR Part 63 Subpart JJJJ Requirements	hdr
The Permittee has chosen to comply with the "95% reduction" organic HAP limit. The Permittee has chosen to comply with the limit using a capture system and control device and using the intermittently-controlled workstations option. If the Permittee wishes to change the limit or the method of compliance they must first apply for the appropriate amendment to incorporate such changes.	Minn. R. 7007.0800, subp. 2
EMISSIONS AND OPERATIONAL LIMITS	hdr
HAPs - Organic: less than or equal to 5 percent of the organic HAP applied for each month (95% reduction).	40 CFR Section 63.3320(b)(1); Minn. R. 7011.7385
For a catalytic oxidizer used to comply with 40 CFR pt. 63, subp. JJJJ, the Permittee shall comply with the applicable operating limits established according to 40 CFR Section 63.3360(e)(3) as described later in this permit. The Permittee shall comply with these operating limits at all times after they are established. See CE 002 for additional limits, monitoring, and recordkeeping.	40 CFR Section 63.3321(a); Minn. R. 7011.7385
BYPASS MONITORING AND COATING USE	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-11**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

Bypass and coating use monitoring: The Permittee must monitor bypasses of CE 002 and the mass of each coating material applied at each work station associated with CE 002 during each bypass. The Permittee shall monitor the bypass using at least one of the following procedures in 40 CFR Section 63.3350(c)(1)-(4) listed below, for each work station and associated dryer, including slot/enclosure exhaust bypass if the Permittee chooses to take credit for control of slot/enclosure exhaust emission in calculating organic HAP emissions. In the absence of monitoring records described below for any of the four bypass monitoring options, it is assumed that all material used during the time for which there are no records bypassed the control device.	40 CFR Section 63.3350(c); Minn. R. 7011.7385
Bypass Monitoring on CE 002: 1) Flow control position indicator. The Permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications a flow control position indicator that provides a record indicating whether the exhaust stream from the dryer was directed to the control device or was diverted from the control device. A flow control position indicator must be installed at the entrance to any bypass line that could divert the exhaust stream away from the control device to the atmosphere. The Permittee shall record the following for each flow control position indicator: a) the time and flow control position, at least once each per hour; and b) the time and flow control position, whenever flow control position is changed	40 CFR Section 63.3350(c)(1); Minn. R. 7011.7385
Bypass Monitoring on CE 002 Continued: 2) Car-seal or lock-and-key valve closures. The Permittee shall secure any bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. At least once a month, the Permittee shall conduct a visual inspection of the seal or closure mechanism to ensure that the valve or damper is maintained in the closed position, and the exhaust stream is not diverted through the bypass line. The Permittee shall maintain records of the inspection and any corrective action; or	40 CFR Section 63.3350(c)(2); Minn. R. 7011.7385
Bypass Monitoring on CE 002 Continued: 3) Valve closure continuous monitoring. The Permittee shall ensure that any bypass line valve or damper is in the closed position through continuous monitoring of valve position when the emission source is in operation and CE 002 is being used for compliance with Subpart JJJJ. The Permittee shall inspect the monitoring system at least once a month to verify that the monitor will indicate valve position. The Permittee shall maintain records of the inspection and any corrective action; or	40 CFR Section 63.3350(c)(3); Minn. R. 7011.7385
Bypass Monitoring on CE 002 Continued 4) Automatic shutdown system. The Permittee shall use an automatic shutdown system that stops the web coating line when flow is diverted away from the control device to any bypass line when the control device is in operation. The Permittee shall inspect the automatic shutdown system at least once a month to verify that it will detect diversions of flow and would shut down operations in the event of such a diversion. The Permittee is not required to shut down operations to perform this inspection. The Permittee follow the manufacturer's recommendations for verifying that the sytem is operating correctly. The Permittee shall maintain records of the inspection and any corrective actions.	40 CFR Section 63.3350(c)(4); Minn. R. 7011.7385
Continuous Parameter Monitoring System (CPMS) for Bypass Monitoring Requirements (CPMS requirements for temperature monitoring system appear at CE 002): The Permittee must install, operate, and maintain each CPMS that the Permittee uses for bypass monitoring according to the following requirements: 1) The Permittee must record the results of each inspection, calibration, and validation check of the indicator. 2) At all times, the Permittee must maintain the monitoring system in proper working order including, but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.	40 CFR Section 63.3350(e)(5)-(7); Minn. R. 7011.7385
CPMS for Bypass Monitoring Requirements Continued: 3) Except for monitoring malfunctions, associated repairs, or required quality assurance or control activities (including calibration checks or required zero and span adjustments), the Permittee must conduct all monitoring at all times that the unit is operating. Data recorded during monitoring malfunctions, associated repairs, out-of-control periods, or required quality assurance or control activities shall not be used for purposes of calculating the emissions concentrations and percent reductions specified in 40 CFR Section 63.3370. The Permittee must use all the valid data collected during all other periods in assessing compliance of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.	40 CFR Section 63.3350(e)(5)-(7); Minn. R. 7011.7385
COMPLIANCE DEMONSTRATION	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-12**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

<p>The Permittee has chosen to comply using intermittently-controlled workstations. The Permittee is in compliance with the emission standard of 40 CFR Section 63.3320(b)(1) if:</p> <ol style="list-style-type: none"> 1) all the operating parameters required to be monitored under 40 CFR Section 63.3770(n)(1)-(3) for CE 002 are maintained at the values established under 40 CFR Section 63.3350 and 63.3360 (requirements at CE 002); and 2) the total mass of organic HAP emitted by the affected source is not more than 5 percent of the total mass of organic HAP applied for the month. 	40 CFR Section 63.3370(n)(6); Minn. R. 7011.7385
<p>Compliance Demonstration for Units Controlled by the Catalytic Oxidizer</p> <p>The Permittee must:</p> <ol style="list-style-type: none"> 1) Monitor the oxidizer operating parameter in accordance with 40 CFR Section 63.3350(e) to ensure the control device efficiency (requirements at CE 002); 2) For each capture system delivering emissions to the oxidizer, monitor the operating parameter established in accordance with 40 CFR Section 63.3350(f) to ensure capture efficiency (requirements at CE 002); 3) Determine the oxidizer destruction efficiency using the procedure in 40 CFR Section 63.3360(e) (procedure at CE 002); 4) Determine the capture system capture efficiency in accordance with 40 CFR Section 63.3360(f) (procedure at CE 002); 	40 CFR Section 63.3370(n)(3); Minn. R. 7011.7385
<p>Compliance Demonstration for Units Controlled by the Catalytic Oxidizer Continued:</p> <ol style="list-style-type: none"> 5) Determine the organic HAP content of each coating material "as-applied" during the month following the procedures detailed in 40 CFR Section 63.3360(c) and the "Organic HAP Content As-Applied" and the "Organic HAP Content As-Purchased" requirements below; 6) Determine the sum of the mass of all coating materials as-applied while operating in bypass mode (i.e., uncontrolled); 7) Determine the sum of the mass of all coating materials as-applied while operating in control mode; and 8) Calculate the organic HAP emitted during the month using Equations 11, 11', and 15 in Appendix V of this permit. 	40 CFR Section 63.3370(n)(3); Minn. R. 7011.7385
<p>Organic HAP Content As-Applied: If the as-purchased coating material is applied to the web without any solvent or other material added, then the as-applied organic HAP mass fraction is equal to the as-purchased organic HAP mass fraction. Otherwise, the as-applied organic HAP mass fraction must be calculated using Equation 1a in Appendix V of this permit.</p>	40 CFR Section 63.3360(c)(4); Minn. R. 7011.7385
<p>Organic HAP Content As-Purchased. The Permittee shall determine the organic HAP mass fraction of each coating material "as-purchased" by using formulation data. Formulation data may be provided to the Permittee by the manufacturer of the material. In the event of an inconsistency between Method 311 (appendix A of 40 CFR part 63) test data and a facility's formulation data, and the Method 311 test value is higher, the Method 311 data will govern. Formulation data may be used provided that the information represents all organic HAP present at a level equal to or greater than 0.1 percent for OSHA-defined carcinogens as specified in 29 CFR Section 1910.1200(d)(4) and equal to or greater than 1.0 percent for other organic HAP compounds in any raw material used.</p>	40 CFR Section 63.3360(c)(3); Minn. R. 7011.7385
<p>Total Organic HAP Emitted: By the end of each calendar month, the Permittee shall calculate, for the previous calendar month, the total organic HAP emitted by summing the HAP emissions calculated for all units subject to 40 CFR pt. 63, subp. JJJJ as detailed in step 8 of the "Compliance Demonstration for Units Controlled by the Catalytic Oxidizer" requirement of GP 005.</p>	40 CFR Section 63.3370(n)(5); Minn. R. 7011.7385
<p>Total Organic HAP Applied and Mass Percentage Organic HAP Emitted:</p> <p>By the end of each calendar month, the Permittee shall calculate, for the previous calendar month,</p> <ol style="list-style-type: none"> 1) the total mass of organic HAP applied by the affected source in the month using Equation 6 in Appendix V of this permit. 2) the mass percentage of total HAP emitted using equation A of Appendix V of this permit 	40 CFR Section 63.3370(n)(6)(iv); Minn. R. 7011.7385
RECORDKEEPING	hdr
<p>The Permittee shall maintain the following records on a monthly basis:</p> <ol style="list-style-type: none"> (1) Records specified in 40 CFR Section 63.10(b)(2) of all measurements needed to demonstrate compliance, including: <ol style="list-style-type: none"> (i) control device and capture system operating parameter data in accordance with 40 CFR Section 63.3350(c), (e), and (f) (as described in "Bypass Monitoring and Coating Use" of GP 005, "Continuous Parameter Monitoring System Requirements" of CE 002, and "Capture System Monitoring" of CE 002); (ii) organic HAP content data used for demonstrating compliance in accordance with 40 CFR Section 63.3360(c) (as described in "Organic HAP Content As-Applied" and "Organic HAP Content As-Purchased" of GP 005); 	40 CFR Section 63.3410(a); 40 CFR Section 63.10(b)(1); Minn. R. 7011.7385

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-13**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

continued (iii) overall control efficiency determination using capture efficiency and control device destruction or removal efficiency test results in accordance with 40 CFR Section 63.3360(e) and (f) (as described in "Performance Testing" of CE 002); (iv) Organic HAP usage, and compliance demonstrations using this data in accordance with 40 CFR Section 63.3370(b), (c), and (d) (as described under "Compliance Demonstration" of GP 005). (2) Records specified in 40 CFR Section 63.10(c) for each Continual Monitoring System (CMS) operated in accordance with 40 CFR Section 63.3350(b) (as described in CE 002).	40 CFR Section 63.3410(a); 40 CFR Section 63.10(b)(1); Minn. R. 7011.7385
REPORTS AND NOTIFICATIONS (See also Table B)	hdr
Content of Semiannual Compliance Status Report: the report shall include: 1) Company name and address; 2) A statement by a responsible official with that official's name, title, and signature certifying the accuracy of the content of the report; 3) Date of report and beginning and ending dates of the reporting period; 4) If there are no deviations from any emission limitations (emission limit or operating limit) that apply to you, a statement that there were no deviations from the emission limitations during the reporting period, and that no CMS was inoperative, inactive, malfunctioning, out-of-control, repaired, or adjusted except for during periods when the laminators are shutdown; and (continued below)	40 CFR Section 63.3400(c)(2); Minn. R. 7011.7385
Content of Semiannual Compliance Status Report Continued: 5) For each deviation from an emission limitation (emission limit or operating limit) that applies to you: A) The total operating time of each affected source during the reporting period; B) Information on the number, duration, and cause of deviations (including unknown cause), if applicable, and the corrective action taken; and C) Information on the number, duration, and cause for CPMS downtime incidents, if applicable, other than downtime associated with zero and span and other calibration checks.	40 CFR Section 63.3400(c)(2); Minn. R. 7011.7385
General Notifications 40 CFR pt. 63, subp. A Notifications: The Permittee shall submit applicable notifications described in 40 CFR pt. 63, subp. A and 40 CFR Section 63.3400. Some of these notifications are also listed individually in other locations in this permit, as indicated below: 1. 63.7(b) notification of performance test due 60 days before test (also listed in the 'Performance Test Notifications and Submittals' requirement at the FC level) 2. 63.7(c) performance test quality assurance program reports 3. 63.9(e) notification of performance test (also listed above and in the 'Performance Test Notifications and Submittals' requirement at the FC level) 4. 63.9(g) additional notification requirements for sources with Continuous Monitoring Systems 5. 63.9(h) notification of compliance status	40 CFR Section 63.3400(d)-(g); Minn. R. 7011.7385
General Notifications Continued 7. 63.10(d)(2) (and 63.7(g)(1)) performance test reports (also listed above in the 'Performance Test Notifications and Submittals' requirement at the FC level) 8. 63.10(d)(5) startup, shutdown and malfunction reports	40 CFR Section 63.3400(d)-(g); Minn. R. 7011.7385
GENERAL PROVISIONS	hdr
The Permittee shall comply with the requirements of the General Provisions in 40 CFR Part 63, subpart A, as specified in Table 2 to 40 CFR subpart JJJJ and listed in this permit at GP 005, with the exception of 40 CFR Sections 63.6(f)(1) and (h)(1). As of permit issuance these sections are null and void.	40 CFR 63.3340; Minn. R. 7011.7385

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-14**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

Subject Item: GP 006 Units Controlled by Wet Scrubbers**Associated Items:** EU 092 DES Line, Etch Develop Module

EU 098 DESN Line (Ammonia)

EU 099 DESN 2 (Ammonia)

EU 102 SEB Line (Ammonia)

EU 129 ESA - Etch, Strip, Antitarnish (ammonia)

What to do	Why to do it
The Permittee shall vent emissions from EU 092 to a wet scrubber meeting the requirements of CE 004.	Minn. R. 7007.0800 subp. 2 and 14
The Permittee shall vent emission from EUs 098, 099, 102, and 129 to a wet scrubber meeting the requirements of CE 005.	

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-15**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

Subject Item: EU 012 Oxidizer Burner**Associated Items:** SV 017 Stack AA West

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0610, subp. 1(A)(1)
Opacity: less than or equal to 20.0 percent opacity except for one six-minute period per hour of not more than 60.0 percent opacity.	Minn. R. 7011.0610, subp. 1(A)(2)
Fuel Type: natural gas only.	Minn. R. 7005.0100, subp. 35a

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-16**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

Subject Item: CE 002 Catalytic Afterburner w/Heat Exchanger

Associated Items: EU 015 Laminator #2, Slot Exhaust

EU 023 Laminator #5, Slot Exhaust

EU 025 Laminator #1

EU 026 Laminator #1, Enclosure

EU 027 39" Laminator, Slot Exhaust

EU 080 Pilot Coater

EU 081 Laminator #10

EU 082 Laminator #2

EU 083 Laminator #5

EU 084 39" Laminator

GP 005 Subpart JJJJ NESHAP

What to do	Why to do it
OPERATIONAL REQUIREMENTS AND LIMITS	hdr
The Permittee shall operate and maintain the catalytic oxidizer any time that any one of the following units is in operation and using VOC-containing and/or organic HAP-containing materials: EUs 025, 080, 081, 082, 083, and 084 (laminators). See GP 005 for bypass monitoring.	Title I Condition: To avoid classification as a major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000
If the Permittee replaces the existing catalytic oxidizer or modifies the existing catalytic oxidizer listed as CE 002, such equipment is subject to all of the requirements of CE 002. Prior to making such a change, the Permittee shall apply for and obtain the appropriate permit amendment, as applicable.	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000
Temperature: greater than or equal to 712 degrees F using 3-hour Rolling Average at the inlet of the catalyst bed until a new minimum is set pursuant to Minn. R. 7017.2025, subp. 3, and established during the most recent MPCA approved performance test where compliance for VOC and Organic HAP destruction efficiency was demonstrated according to 40 CFR Section 63.3360(e). If the 3-hour rolling average inlet temperature drops below the minimum temperature limit, the VOC and organic HAP used during that time shall be considered uncontrolled until the average minimum temperature limit is once again achieved. Such an incident shall be reported as a deviation.	Title I Condition: To avoid classification as a major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; Table 1 (item 2.a) of 40 CFR pt. 63, subp. JJJJ; 40 CFR Section 63.3321(a); Minn. R. 7011.7385
The Permittee shall operate and maintain the control equipment such that it achieves a destruction efficiency for Volatile Organic Compounds: greater than or equal to 97 percent destruction efficiency	Title I Condition: To avoid classification as a major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000
The Permittee shall operate and maintain the control equipment and laminators with slot/enclosure exhaust such that the system achieves an overall control efficiency for Volatile Organic Compounds: greater than or equal to 95 percent control efficiency	Title I Condition: To avoid classification as a major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000
The Permittee shall operate and maintain the control equipment such that it achieves a destruction efficiency for HAPs - Organic: greater than or equal to 97 percent destruction efficiency	40 CFR Section 63.3370(e); Minn. R. 7011.7385
The Permittee shall operate and maintain the control equipment and the laminators with slot/enclosure exhaust such that the system achieves an overall control efficiency for HAPs - Organic: greater than or equal to 95 percent control efficiency	40 CFR Section 63.3370(e); Minn. R. 7011.7385

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-17**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

<p>For VOC and Organic HAP emissions:</p> <p>For periods when the catalytic oxidizer is operated above the minimum combustion chamber temperature, the Permittee shall use either one of the following when completing calculations in Appendix I as required by GP 001, and Appendix V as required by GP 005 of this permit:</p> <p>a. The destruction efficiency limit specified at CE 002 for laminators without slot/enclosure exhaust and the overall control efficiency limit specified at CE 002 for laminators with slot/enclosure exhaust (97% and 95% respectively);</p> <p>Note: for VOC emissions only, the Permittee may use 95% overall control efficiency for both laminators without slot/enclosure and laminators with slot/enclosure exhaust.</p> <p>or</p>	<p>Title I Condition: To avoid classification as a major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; 40 CFR Section 63.3320(b)(1); Minn. R. 7011.7385; Minn. R. 7007.0800, subp. 2</p>
<p>For VOC and Organic HAP emissions, continued:</p> <p>b. The destruction efficiency and overall control efficiency (taking into account the percent carryover to the dryer for the laminators with slot/enclosure exhaust) determined during the most recent MPCA approved performance test and according to the testing procedures of 40 CFR Section 63.3360. If the tested efficiencies are less than the efficiency limits in this permit, the Permittee must use the tested values in all calculations until the efficiency is demonstrated to be above the permit limit through a new test. If the tested efficiencies are greater than the efficiency limits in this permit, and the Permittee wishes to use the tested values in permit calculations, these values will become permit limits.</p>	<p>Title I Condition: To avoid classification as a major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; 40 CFR Section 63.3320(b)(1); Minn. R. 7011.7385; Minn. R. 7007.0800, subp. 2</p>
MONITORING	hdr
Continuous Parameter Monitoring System (CPMS) Requirements	hdr
The Permittee shall install, calibrate, operate, and maintain thermocouples according to the manufacturer's specifications. The monitoring equipment must be installed, in use, and properly maintained whenever the monitored control equipment is required to be operated.	40 CFR Section 63.3350(e)(9)(i); Minn. R. 7011.7385; 40 CFR Section 64.7(b); Minn. R. 7017.0200; Minn. R. 7007.0800, subp. 4 and 5
The calibration of the chart recorder, data logger, or temperature indicator shall be verified every 3 months or the chart recorder, data logger, or temperature indicator shall be replaced with a calibrated unit. The Permittee shall replace the equipment whether the Permittee chooses not to perform the calibration or if the equipment cannot be calibrated properly.	40 CFR Section 63.3350(e)(9)(i); Minn. R. 7011.7385; 40 CFR 64.3(b)(3); Minn. R. 7017.0200
The Permittee shall maintain and operate a thermocouple monitoring device that continuously indicates and records both the inlet and outlet temperatures of the catalytic oxidizer. The temperature monitoring device shall be equipped with a continuous recorder. The device must be capable of monitoring temperature with an accuracy of +/- 1 percent of the temperature being monitored in degrees Celsius or +/- 1 degree Celsius, whichever is greater. The thermocouple shall be installed in the vent stream at the nearest feasible point to the inlet and outlet of the catalyst bed. The recording device shall calculate the temperature rise across the catalyst and calculate the three-hour rolling average inlet temperature. Recorded values outside the range specified in this permit are considered Deviations as defined by Minn. R. 7007.0100, subp. 8a.	40 CFR Section 63.3550(e)(9)(iii); Minn. R. 7011.7385; 40 CFR Section 64.3(b)(4)(ii); Minn. R. 7017.0200; Minn. R. 7007.0800, subps. 4 and 5
The Permittee shall maintain a continuous hard copy readout or computer disk file of the calculated three-hour rolling average inlet temperature as described in this permit.	Title I Condition: To avoid classification as a major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000; 40 CFR Section 64.9(b); Minn. R. 7017.0200; Minn. R. 7007.0800, subps. 4 and 5
Daily Monitoring: The Permittee shall physically verify the operation of the temperature recording device at least once each operating day to verify that it is working and recording properly. The Permittee shall maintain a written record of the daily verifications.	Title I Condition: To avoid classification as a major source and modification under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800; 40 CFR Section 64.3(b); Minn. R. 7017.0200
<p>The Permittee shall operate and maintain the CPMS as specified below:</p> <p>1) The temperature monitoring system shall complete a minimum of one cycle of operation for each successive 15-minute period, with a minimum of four equally spaced successive cycles for a valid hour of data.</p> <p>2) The Permittee shall have valid data from at least 90 percent of the hours during which the process is operated.</p> <p>3) The Permittee shall determine the hourly average of all recorded reading as follows:</p> <p>i) to calculate a valid hourly value, the Permittee must have at least three of four equally spaced data values from that hour from a continuous monitoring system that is not out-of-control</p> <p>ii) provided all of the readings recorded clearly demonstrate continuous compliance with the standard, then the Permittee is not required to determine the hourly average of all recorded readings</p>	40 CFR Section 63.3350(e)(1)-(8); Minn. R. 7011.7385

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-18**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

<p>4) Determine the rolling 3-hour average of all recorded readings for each operating period. To calculate the average for each 3-hour averaging period, the Permittee must have at least two of the three hourly averages for that period using only average values that are based on valid data.</p> <p>5) Record the results of each inspection, calibration, and validation check of the CPMS</p> <p>6) At all times, maintain the monitoring system in proper working order including, but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment</p>	40 CFR Section 63.3350(e)(1)-(8); Minn. R. 7011.7385
<p>(7) Except for monitoring malfunctions, associated repairs, or required quality assurance or control activities (including calibration checks or required zero and span adjustments), conduct all monitoring at all times that the unit is operating. Data recorded during monitoring malfunctions, associated repairs, out-of-control periods, or required quality assurance or control activities shall not be used for purposes of calculating the emissions concentrations and percent reductions specified in 40 CFR Section 63.3370. Use all the valid data collected during all other periods in assessing compliance of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.</p>	40 CFR Section 63.3350(e)(1)-(8); Minn. R. 7011.7385
<p>(8) Any averaging period for which you do not have valid monitoring data and such data are required constitutes a deviation, and you must notify the Administrator in accordance with 40 CFR Section 63.3400(c), the semiannual compliance report requirements for subpart JJJJ.</p>	40 CFR Section 63.3350(e)(1)-(8); Minn. R. 7011.7385
<p>Sample Analysis: due before the end of each calendar 12 months starting 01/15/2011. The Permittee shall send a representative sample of the catalyst to a laboratory to test the catalyst's destruction efficiency. If test results show a destruction efficiency of less than 95%, the Permittee shall follow the corrective actions contained in the Operation and Maintenance Plan. The Permittee is not required to conduct a sample analysis during the same calendar year in which they conduct a performance test. The Permittee shall maintain records indicating that the sample analysis was not required because a performance test was conducted.</p>	Minn. R. 7007.0800, subps. 4, 5, and 14
Catalytic Oxidizer Monitoring Requirements	hdr
<p>The Permittee shall implement a site-specific inspection and maintenance plan for the catalytic oxidizer. The plan must address:</p> <p>(1) Annual sampling and analysis of the catalyst activity (i.e., conversion efficiency) following the manufacturer's or catalyst supplier's recommended procedures,</p> <p>(2) Monthly inspection of the oxidizer system including the burner assembly and fuel supply lines for problems, and</p> <p>(3) Annual internal and monthly external visual inspection of the catalyst bed to check for channeling, abrasion, and settling. If problems are found with any of 1-3 above, you must take corrective action consistent with the manufacturer's recommendations and conduct a new performance test to determine destruction efficiency in accordance with 40 CFR Section 63.3360(e)</p>	40 CFR Section 63.3360(e)(3)(ii)(C) and (D); Minn. R. 7011.7385
<p>Quarterly Inspections: At least once per calendar quarter, or more frequently if required by the manufacturer specifications, the Permittee shall inspect the control equipment external system components. The Permittee shall maintain a written record of the inspection and any corrective actions taken resulting from the inspection.</p>	40 CFR Section 64.3; Minn. R. 7017.0200
<p>Annual Inspections: At least once per calendar year, or more frequently if required by the manufacturer specifications, the Permittee shall inspect the control equipment internal system components, including but not limited to the refractory, heat exchanger, and electrical systems. The Permittee shall maintain a written record of the inspection and any corrective actions taken resulting from the inspection.</p>	40 CFR Section 64.3; Minn. R. 7017.0200
<p>The Permittee shall keep records at each Laminator documenting when non-VOC-containing materials are being used (and therefore control is not required). In the absence of such a record, it will be assumed that VOC-containing materials were in use.</p>	Title I Condition: To avoid classification as a major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000
<p>Corrective Actions: If the inlet temperature is below the minimum specified by this permit or if the catalytic oxidizer or any of its components are found during the inspections to need repair, the Permittee shall take corrective action as soon as possible. Corrective actions shall return the temperature(s) to at least the permitted minimum(s) and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the catalytic oxidizer and the Catalytic Oxidizer Inspection and Maintenance Plan. The Permittee shall keep a record of the type and date of any corrective action taken.</p>	40 CFR Section 64.7(d); Minn. R. 7017.0200

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-19**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

Documentation of Need for Improved Monitoring: If the Permittee fails to achieve compliance with an emission limitation or standard for which the monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing minimum combustion chamber temperature(s), the Permittee shall promptly notify the MPCA and, if necessary, submit a permit amendment application to address the necessary monitoring changes.	40 CFR Section 64.7(e); Minn. R. 7017.0200
The Permittee shall operate and maintain the catalytic oxidizer in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	Minn. R. 7007.0800, subp. 14
Capture System Monitoring	hdr
The Permittee shall develop a site-specific monitoring plan. The monitoring plan must: 1) Identify the operating parameter to be monitored to ensure that the capture efficiency determined during the initial compliance test is maintained; 2) Explain why this parameter is appropriate for demonstrating ongoing compliance; 3) Identify the specific monitoring procedures 4) Specify the operating parameter value or range of values that demonstrate compliance with the emission standards in 40 CFR part 63 subpart JJJJ. The specified operating parameter value or range of values must represent the conditions present when the capture system is being properly operated and maintained.	40 CFR Section 63.3350(f); Minn. R. 7011.7385
The Permittee shall: 1) Conduct all capture system monitoring in accordance with the plan; 2) Make the monitoring plan available for inspection by the permitting authority upon request; and 3) Review and update the capture system monitoring plan at least annually. If no updates are needed, document that a review took place. Any deviation from the operating parameter value or range of values which are monitored according to the plan will be considered a deviation from the operating limit.	40 CFR Section 63.3550(f); Minn. R. 7011.7385
PERFORMANCE TESTING	hdr
Performance Test: due before end of each 60 months starting 05/20/2008 for VOC and Organic HAP Destruction Efficiency of the Catalytic Oxidizer. In addition, the test shall measure the carryover of VOC emissions into the dryer versus emitted from the slot/enclosure exhaust. Organic HAP destruction efficiency shall be tested in accordance to the methods and procedures of 40 CFR Section 63.3360(e)(1) and (2).	Minn. R. 7017.2020, subp. 1; 40 CFR Section 63.3360(e); Minn. R. 7011.7365
The Permittee shall establish operating limits during the performance test as outlined below: During the performance test, the Permittee shall monitor and record the temperature just before the catalyst bed at least once every 15 minutes during each of the three test runs. The Permittee shall use the data collected during the performance test to calculate and record the average temperature just before the catalyst bed during the performance test. This is the minimum operating limit for the catalytic oxidizer	40 CFR Section 63.3360(e)(3)(ii)(C); Minn. R. 7011.7385
The Permittee shall determine capture efficiency using the procedures of 40 CFR Section 63.3360(f)(1), (2), or (3).	40 CFR Section 63.3360(f); Minn. R. 7011.7385
ADDITIONAL RECORDKEEPING/REPORTING	hdr
The Permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, and other supporting information required to be maintained. The Permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements.	40 CFR Section 64.9(b); Minn. R. 7017.0200
As required by 40 CFR Section 64.9(a)(2), for the Semi-Annual Deviations Report listed in Table B of this permit and/or the Notification of Deviations Endangering Human Health and the Environment listed earlier in Table A of this permit, as applicable, the Permittee shall include the following related to the monitoring identified as required by 40 CFR pt. 64: 1) Summary information on the number, duration, and cause of excursions or exceedances, as applicable, and the corrective action taken; and 2) Summary information on the number, duration, and cause for monitor downtime incidents.	40 CFR Section 64.9(a)(2); Minn. R. 7017.0200

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-20**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

Subject Item: CE 004 Wet Scrubber-High Efficiency**Associated Items:** EU 092 DES Line, Etch Develop Module

What to do	Why to do it
The Permittee shall control EU 092 with a wet scrubber meeting the permit requirements of CE 004. If the Permittee replaces CE 004 with a wet scrubber that meets the requirements of CE 004 and has an equivalent or better removal efficiency of the regulated pollutants, the Permittee shall notify the MPCA of the replacement and submit a new GI-05A form.	Minn. R. 7007.0800, subp 2 and 14
Ammonia: less than or equal to 0.56 lb/hr, based on a three-hour average. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for Ammonia: greater than or equal to 85 percent control efficiency	Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM < 10 micron: greater than or equal to 85 percent control efficiency	Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM < 2.5 micron: greater than or equal to 85 percent collection efficiency	Minn. R. 7007.0800, subp. 2 and 14
Pressure Drop: less than or equal to 6.0 inches of water column , unless a new limit is set pursuant to Minn. R. 7017.2025, subp. 3, based on the value recorded during the most recent MPCA approved performance test where compliance was demonstrated. The Permittee shall record the pressure drop once every 24 hours when in operation.	Minn. R. 7007.0800, subps. 2 and 14
pH: less than or equal to 3.5 unless a new limit is set pursuant to Minn. R. 7017.2025, subp. 3, based on the value recorded during the most recent MPCA approved performance test where compliance was demonstrated. The Permittee shall record the pH once every 24 hours when in operation.	Minn. R. 7007.0800, subps. 2 and 14
The Permittee shall operate and maintain the wet scrubber any time that any emission unit controlled by the wet scrubber is in operation. The Permittee shall document periods of non-operation of the control equipment.	Minn. R. 7007.0800, subps. 2 and 14
Recordkeeping of Pressure Drop and pH. The Permittee shall record the time and date of each pressure drop and pH reading and whether or not the recorded value was under the limit specified in this permit.	Minn. R. 7007.0800, subps. 4, 5, and 14
Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - the recorded pH is greater than the listed limit; - the recorded pressure drop is greater than the listed limit; or - the scrubber or any of its components are found during the inspections to need repair. Corrective actions shall return the values to below the listed permit limits and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the scrubber. The Permittee shall keep a record of the type and date of any corrective action taken for the scrubber.	Minn. R. 7007.0800, subps. 4, 5, and 14
Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording the pressure drop and pH as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored scrubber is in operation.	Minn. R. 7007.0800, subp. 4
Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturing specifications, the Permittee shall inspect the control equipment components. The Permittee shall maintain a written record of these inspections.	Minn. R. 7007.0800, subps. 4, 5, and 14
The Permittee shall operate and maintain the wet scrubber in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	Minn. R. 7007.0800, subp. 14

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-21**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

Subject Item: CE 005 Wet Scrubber-High Efficiency**Associated Items:** EU 098 DESN Line (Ammonia)

EU 099 DESN 2 (Ammonia)

EU 102 SEB Line (Ammonia)

EU 129 ESA - Etch, Strip, Antitarnish (ammonia)

What to do	Why to do it
The Permittee shall control EUs 098, 099, 102, and 129 with a wet scrubber meeting the permit requirements of CE 005. If the Permittee replaces CE 005 with a wet scrubber that meets the requirements of CE 005 and has an equivalent or better removal efficiency of the regulated pollutants, the Permittee shall notify the MPCA of the replacement and submit a new GI-05A form.	Minn. R. 7007.0800, subp 2 and 14
Ammonia: less than or equal to 6.2 lb/hr, based on a three-hour average. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for Ammonia: greater than or equal to 85 percent control efficiency	Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM < 10 micron: greater than or equal to 85 percent control efficiency	Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM < 2.5 micron: greater than or equal to 85 percent control efficiency	Minn. R. 7007.0800, subp. 2 and 14
Pressure Drop: less than or equal to 6.0 inches of water column , unless a new limit is set pursuant to Minn. R. 7017.2025, subp. 3, based on the value recorded during the most recent MPCA approved performance test where compliance was demonstrated. The Permittee shall record the pressure drop once every 24 hours when in operation.	Minn. R. 7007.0800, subps. 2 and 14
pH: less than or equal to 3.5 unless a new limit is set pursuant to Minn. R. 7017.2025, subp. 3, based on the value recorded during the most recent MPCA approved performance test where compliance was demonstrated. The Permittee shall record the pH once every 24 hours when in operation.	Minn. R. 7007.0800, subps. 2 and 14
The Permittee shall operate and maintain the wet scrubber any time that any emission unit controlled by the wet scrubber is in operation. The Permittee shall document periods of non-operation of the control equipment.	Minn. R. 7007.0800, subps. 2 and 14
Recordkeeping of Pressure Drop and pH. The Permittee shall record the time and date of each pressure drop and pH reading and whether or not the recorded value was under the limit specified in this permit.	Minn. R. 7007.0800, subps. 4, 5, and 14
Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - the recorded pH is greater than the listed limit; - the recorded pressure drop is greater than the listed limit; or - the scrubber or any of its components are found during the inspections to need repair. Corrective actions shall return the values to below the listed permit limits and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the scrubber. The Permittee shall keep a record of the type and date of any corrective action taken for the scrubber.	Minn. R. 7007.0800, subps. 4, 5, and 14
Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording the pressure drop and pH as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored scrubber is in operation.	Minn. R. 7007.0800, subp. 4
Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturing specifications, the Permittee shall inspect the control equipment components. The Permittee shall maintain a written record of these inspections.	Minn. R. 7007.0800, subps. 4, 5, and 14
The Permittee shall operate and maintain the wet scrubber in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	Minn. R. 7007.0800, subp. 14

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-22**

09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

Subject Item: TK 001 Toluene

What to do	Why to do it
The Permittee shall equip the tank with a permanent submerged fill pipe.	Minn. R. 7011.1505, subp. 3(B)
The Permittee shall keep up-to-date documentation that verifies that each storage tank and transfer rack are not required to be controlled under 40 CFR Section 63.2346(a) through (e).	40 CFR Section 63.2338(a) and Minn. R. 7011.8110
If any storage tank or transfer rack become subject to control under 40 CFR subpart EEEE, the Permittee shall submit a Compliance report as specified in 40 CFR 63.2338(b)(2) and (c)(2).	40 CFR Section 63.2338(d) and Minn. R. 7011.8110

TABLE B: SUBMITTALS**B-1** 09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd
Permit Number: 13100005 - 004

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

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

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

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.

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.

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

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

Send any application for a permit or permit amendment to:

AQ Permit Document Coordinator
Industrial Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

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

AQ Compliance Tracking Coordinator
Industrial Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd
Permit Number: 13100005 - 004

What to send	When to send	Portion of Facility Affected
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility

TABLE B: RECURRENT SUBMITTALS**B-3** 09/30/11

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005 - 004

What to send	When to send	Portion of Facility Affected
Compliance Status Report	due 30 days after end of each calendar half-year starting 12/05/2005. The report shall contain the information specified in Table A, GP 005 of this permit.	GP005
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Permit Issuance. The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. If no deviations have occurred, the Permittee shall submit the report stating no deviations.	Total Facility
Annual Report	due 30 days after end of each calendar year following Permit Issuance. The Permittee shall submit an annual report by January 31st that describes the changes made at the facility during the previous calendar year using the latest MPCA application forms. The report shall include the emission unit, stack/vent, group, and control equipment data for any new or replaced units or control devices. The report shall document the VOC 12-month rolling sum calculations for the previous calendar year. The report shall be submitted with the annual Compliance Certification listed in Table B. As part of the Annual Report, the Permittee shall verify and certify that the facility has maintained minor source status for New Source Review.	GP001
Compliance Certification	due 31 days after end of each calendar year following Permit Issuance (for the previous calendar year). The Permittee shall submit this on a form approved by the Commissioner, both to the Commissioner and to the US EPA regional office in Chicago. This report covers all deviations experienced during the calendar year.	Total Facility

Appendix I

VOC Calculation Procedures

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005-004

The Permittee shall calculate monthly VOC emissions using the formulas below. If the Permittee tracks material usage on a volume basis, the Permittee shall also record the necessary material density or VOC content in lbs/gallon, and perform the necessary conversions to calculate emissions in tons/month.

$$\text{VOC (tons)} = A + B + C + D + F - G$$

A = VOC emissions, in tons, from laminating mixing area (EUs 016, 017, 020, 024, 088, 089, 091, and 119)

$$A = [(MF1 \times U1 \times V1) + (MF2 \times U2 \times V2) + \dots]/2000$$

MF# = the appropriate Total Mixing Emissions Factor for a given material, based on the number of times the given material is mixed or weighed. This shall be based on the specific factors of 0.10 lb/lb for open mixing, 0.06 lb/lb for closed mixing, and 0.92 lb/ton for product weighing unless the MPCA approves new mixing factors per the procedures in Table A of this permit.

U# = amount of each VOC-containing material mixed the previous month, in pounds (or tons for product weighing at EU 016)

V# = weight percent VOC in U#, as a fraction (e.g., 10 % is 0.10)

B = VOC emissions, in tons, from the laminators with slot or enclosure exhaust (EUs 025, 082, 083, and 084) To simplify calculations, the Permittee may also use Equation B below to calculate VOC emission from laminators without slot or enclosure exhaust (EUs 080 and 081).

$$B = [(1-MF1) \times (U1 \times V1) \times (1 - OCE) + (1-MF2) \times (U2 \times V2) \times (1 - OCE) + \dots]/2000$$

MF# = For any material that was mixed and where the mixing emissions were already calculated under item "A", this is the same mixing factor from above (e.g., 0.10 lb/lb for open mixing). If the material was not mixed (e.g., cleaner), MF# = 0.

U# = pounds of each VOC-containing material used at the laminators in the previous month

V# = weight percent VOC in U#, as a fraction

OCE = Overall control efficiency for laminators with slot or enclosure exhaust. The overall control efficiency takes into account the destruction efficiency of the oxidizer and the percentage of material that is carried over to the laminator dryer. The overall control efficiency is 0.95 (95%) until a new value is set per MPCA-approved testing and according to the procedures in Table A of this permit.

Note: Because this equation uses an overall control efficiency that takes into account the percent carryover to the laminator dryer, the emissions from the slot/enclosure exhaust (EUs 015, 023, 026, and 027) are accounted for, and they do not have to be calculated separately.

If the emissions are not vented to the control device, OCE = 0

C = VOC emissions, in tons, from the laminator dryers without slot or enclosure exhaust (EUs 080 and 081). The Permittee should only use Equation C if the emissions from EUs 080 and 081 are not calculated in Equation B above.

$$C = [(1-MF1) \times (U1 \times V1) \times (1 - (CE \times DE)) + (1-MF2) \times (U2 \times V2) \times (1 - (CE \times DE)) + \dots]/2000$$

- MF# = For any material that was mixed and where the mixing emissions were already calculated under item “A”, this is the same mixing factor from above (e.g., 0.10 lb/lb for open mixing). If the material was not mixed (e.g., cleaner), MF# = 0.
- U# = amount of each VOC-material used at the laminators in the previous month, in pounds
- V# = weight percent VOC in U#, as a fraction
- CE = capture efficiency. The capture efficiency is 1.0 (100%).
- DE = destruction efficiency of the applicable control system. The destruction efficiency is 0.97 (97%) until a new value is set through an MPCA-approved performance test and according to the procedures in Table A of this permit.

If the emissions are not vented to the control device, CE and DE = 0

D = VOC emissions, in tons, from all other processes

$$D = [(EF1 \times U1 \times V1) + (EF2 \times U2 \times V2) + \dots]/2000$$

- EF# = emissions factor for the given process. EF is assumed to be “1” (or 100% emitted) for each VOC-containing material unless a new value is approved by the MPCA per the procedures detailed in Table A of this permit.
- U# = amount of each VOC-containing material used in the previous month, in pounds
- V# = weight percent VOC in U#, as a fraction

F = VOC emissions, in tons, from combustion of fuel.

$$F = NG \times EF_{\text{gas}}$$

- NG = amount of natural gas burned in the previous month.
- EF_{gas} = emissions factor for natural gas combustion, from most recent edition of EPA’s AP-42.

If the Permittee doesn’t wish to calculate the actual VOC emissions from fuel combustion, the Permittee shall use the total calculated VOC PTE from all significant combustion units for “F”. As of permit issuance, this shall be 1.25 tpy.

G = the amount of VOC shipped in waste, in tons

$$G = [(W1 \times V1) + (W2 \times V2) + \dots]/2000$$

W# = amount, in pounds, of each VOC-containing waste shipped in the previous month. If the Permittee chooses to not take credit for waste shipments, this parameter would be zero.

V# = weight percent VOC in W#, as a fraction, using the value specified in Table A, GP 001.

Waste may be credited at the individual variable level (e.g., A, B, C, etc.) or as a separate variable, G.

Appendix II

Insignificant Activities and General Applicable Requirements

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005-004

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

Minn. R. 7007.1300, subp.	Rule Description of the Activity	General Applicable Requirement
3(B)(1)	infrared electric ovens <i>Multek has approximately 10 unit that qualify under this subpart</i>	Minn. R. 7011.0110 (opacity)
3(G)	laboratory equipment <i>Multek has approximately 20 units that qualify under this subpart.</i>	Minn. R. 7011.0715 (PM and opacity)
3(H)(4)	brazing, soldering or welding equipment	Minn. R. 7011.0715 (PM and opacity)
3(I)	Individual emissions units at a stationary source, each of which have a potential to emit the following pollutants in amounts less than: 1. 4,000 lbs/year of carbon monoxide; and 2. 2,000 lbs/year each of nitrogen oxide, sulfur dioxide, particulate matter, particulate matter less than ten microns, volatile organic compounds (including hazardous air pollutant-containing VOC), and ozone. <i>Multek has approximately 25 units that qualify under this subpart.</i>	Minn. R. 7011.0715 (PM and opacity)
4	Individual emissions units with actual emissions of one ton per year or less for particulate matter, particulate matter less than ten microns, nitrogen oxide, sulfur dioxide, and VOCs, and emissions of HAP under various thresholds listed in the rule. <i>Multek has approximately 45 units that qualify under this subpart.</i>	various

Appendix III

Facility Description from Delta

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005-004

(paper copy only)

Appendix IV

Maximum¹ Materials Contents and Usage Rates

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005-004

Tables A and B below give the maximum materials contents and maximum usage/application rates used in calculating potential to emit for many of the units listed in GP 001. These values are not limits; however, changing to a material that has a higher VOC or solids content, or increasing the usage/application rate, is considered a change in method of operation that must be evaluated under Minn. R. 7007.1200, subp. 3 to determine if a permit amendment or notification is required under Minn R. 7007.1150. This list is not exhaustive; it generally includes emission units with a VOC or PM emission rate of over 1 lb/hr before applying additional emission factors (e.g. mixing emission factors).

Additionally, the list does not include units for which the emissions are directly dependent on another unit and therefore the material content and usage/application rate are already documented in these tables (e.g. slot exhausts or dryers/ovens are not included).

For the types of units in Table A, maximum material usage is the result of many process characteristics, including, but not limited to, the speed at which the coating takes place or the web moves (“process rate”), the maximum area being printed or coated (“web width or area”), the maximum practical coating coverage (“coverage”), and the content of pollutant in the coatings (“material content”). An increase in any of these parameters or any other parameter that increase the value of maximum material usage, is considered a change in maximum material usage.

¹ Maximums at the time of permit issuance

**Table A: Maximum² Materials Content
Usage/Application Rate for Laminators and Screeners**

Emission Unit	Process Rate	Web Width or Area	Coverage	Material Content
025 Laminator #1	44 (ft/min)	56.5 (in)	99.42 (g/m2)	100 % VOC
054 Flatbed Screener, small	7.5 (ft/min)	1.67 (ft)	2 (g/ft2)	70 % VOC
058 LOS #2 Colight UV Exposer	35 (ft/min)	2 (ft)	2 (g/ft2)	70 % VOC
059 LOS #3 Colight UV Exposer	35 (ft/min)	2 (ft)	2 (g/ft2)	70 % VOC
060 LOS #4 Colight UV Exposer	35 (ft/min)	2 (ft)	2 (g/ft2)	70 % VOC
061 Colight UV Exposer	7.5 (ft/min)	1.67 (ft)	2 (g/ft2)	70 % VOC
062 Colight UV Exposer	7.5 (ft/min)	1.67 (ft)	2 (g/ft2)	70 % VOC
065 Flatbed Screener, medium	7.5 (ft/min)	1.67 (ft)	2 (g/ft2)	70 % VOC
066 LOS #2 Klemm Screener	35 (ft/min)	2 (ft)	2 (g/ft2)	70 % VOC
067 LOS #3 Klemm Screener	35 (ft/min)	2 (ft)	2 (g/ft2)	70 % VOC
068 LOS #4 Klemm Screener	35 (ft/min)	2 (ft)	2 (g/ft2)	70 % VOC
069 LOS #1 Klemm Screener	35 (ft/min)	2 (ft)	2 (g/ft2)	70 % VOC
070 Flatbed Screener, large	7.5 (ft/min)	1.67 (ft)	2 (g/ft2)	70 % VOC
071 Flatbed Screener, small	7.5 (ft/min)	1.67 (ft)	2 (g/ft2)	70 % VOC
080 Pilot Coater	6 (ft/min)	10 (in)	117.17 (g/m2)	100 % VOC
081 Laminator #10	13 (ft/min)	53 (in)	197.33 (g/m2)	100 % VOC
082 Laminator #2	8 (ft/min)	26 (in)	228 (g/m2)	100 % VOC
083 Laminator #5	10 (ft/min)	30 (in)	252.55 (g/m2)	100% VOC
084 Laminator 39"	14 (ft/min)	29 (in)	93.74 (g/m2)	100 % VOC
104 Flatbed Screener, Medium	7.5 (ft/min)	1.67 (ft)	2 (g/ft2)	70 % VOC
110 Screener Coater	32 (ft/min)	2 (ft)	2 (g/ft2)	70 % VOC
116 LOS #5 Klemm Screener	32 (ft/min)	2 (ft)	2 (g/ft2)	70 % VOC
121 LPI Screener w/ oven	180 (sheets/hr)	7.15 (ft2/sheet)	.0062 (lb/ft2)	26 % VOC

² Maximums at the time of permit issuance

Table B: Maximum³ Material Content and Process Rate

Emission Unit	Process Rate	Units	Material Content	Units
016 Bulk Solvent Dispensing Scale	10	gal/min	27.9	lb VOC/gal
017 Cowles Mixer	52	gal/3 hr	6.9	lb VOC/gal
			2.4	lbs solids/gal
020 No. 1 Daymax Mixer	180	gal/3 hr	5.6	lb VOC/gal
			2.4	lbs solids/gal
024 No. 2 Daymax Mixer	180	gal/3 hr	6.7	lb VOC/gal
			2.4	lb solids/gal
038 DES Line Rinse and Strip Module	150	gal/week	6.3	lb VOC/gal
074 Screen Reclaim Booth	0.5	gal/hr	4	lb VOC/gal
			4.9	lb solids/gal
075 Screen Developmer Washout Booth	0.5	gal/hr	4	lb VOC/gal
			4.9	lb solids/gal
077/078 Ink Mix Lab, Panetary mixer	48	gal/24 hr	6.4	lb VOC/gal
			3.4	lb solids/gal
079 Bucket Wash	0.5	gal/hr	3.8	lb VOC/gal
088 No. 4 Daymax Mixer	180	gal/3 hr	5.6	lb VOC/gal
			2.4	lb solids/gal
089 PAPI Dispensing Station	0.5	gal/min	5	lb VOC/gal
091 No. 3 Daymax Mixer	180	gal/3 hr	5.6	lb VOC/gal
			2.4	lb solids/gal
105 Klemm Screener, 20"	2	gal/hr	8.4	lb VOC/gal
119 Vispersater Mixer	52	gal/3 hr	6.9	lb VOC/gal
			2.4	lb solids/gal
120 HSL Flux AF1803	45	gal/24 hr	8.9	lb VOC/gal
120 HSL Oil	45	gal/24 hr	9.5	lb VOC/gal
124 ITO R/R DES	90	gal/week	6.3	lb VOC/gal
125 ITO Screener w/ Oven	90	gal/week	6.3	lb VOC/gal
126 ITO Washout Booth	0.25	gal/screen	7.6	lb VOC/gal
127 SENE Line	120	gal/week	6.3	lb VOC/gal
128 ESA line (VOC)	21	gal/week	7.9	lb VOC/gal
130 Ross Mixer	17	gal/1.5 hr	6.1	lb VOC/gal
			6.2	lb solids/gal

³ Maximums at the time of permit issuance

Appendix V

NESHAP JJJJ Compliance Calculations

Facility Name: Multek Flexible Circuits Inc-Sheldahl Rd

Permit Number: 13100005-004

With the exception of “Equation A” and “Equation 11’ ” all equation numbers correspond to the equation numbers used in 40 CFR pt. 63, subp. JJJJ. Equation 15 has been modified from its original form in the text of the NESHAP to account for the fact that Multek has one laminator without slot/enclosure exhaust, and four laminators without slot/enclosure exhaust that are subject to the NESHAP (e.g. not all laminators have the same overall control efficiency).

Equation 1a: as-applied organic HAP content of each coating material

$$C_{ahi} = \frac{C_{hi}M_i + \sum_{j=1}^q C_{hij}M_{ij}}{M_i + \sum_{j=1}^q M_{ij}}$$

Where:

C_{ahi} = Monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.

C_{hi} = Organic HAP content of coating material, i, as-purchased, expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

q = number of different materials added to the coating material.

C_{hij} = Organic HAP content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

M_{ij} = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

Equation 11: Overall Organic HAP Control Efficiency Applied to Laminators without Slot/Enclosure Exhaust (at the time of permit issuance, EU 081)

$$R = [(E)(CE)]/100$$

Where:

R = Overall organic HAP control efficiency applied to laminators, percent.

E = Organic volatile matter destruction efficiency of the control device, percent. At the time of permit issuance, this value is 97% until a new value is set through MPCA-approved performance testing, according to 40 CFR Section 63.3360(e), and according to the procedures at CE 002 of Table A of this permit.

CE = Organic volatile matter capture efficiency of the capture system for laminators, percent. For all total enclosures this is 100%

Equation 11’: Overall Organic HAP Control Efficiency Applied to Laminators with Slot/Enclosure Exhaust (EUs 025, 082, 083, and 084)

$$R' = 0.95$$

R' is 0.95 (95%) at the time of permit issuance, and takes into account the destruction efficiency of the oxidizer and the percent carryover to the laminator dryer. A new value may be set through MPCA-approved performance testing, according to 40 CFR Section 63.3360(e), and according to the procedures at CE 002 of Table A of this permit

Equation 15: organic HAP emitted during the month on intermittently –controlled workstations

$$H_e = \left[\sum_{i=1}^p M_{Ci} C_{ahi} \right] \left[1 - \frac{R}{100} \right] + \left[\sum_{i=1}^p M_{Ci} C_{ahi} \right] \left[1 - \frac{R'}{100} \right] + \left[\sum_{i=1}^p M_{Bi} C_{ahi} \right] - M_{vret}$$

Where:

H_e = Total monthly organic HAP emitted from laminators and slot/enclosure exhaust, kg.

p = Number of different coating materials applied in a month.

M_{Ci} = Sum of the mass of coating material, i, as-applied on intermittently-controlled work stations operating in controlled mode and the mass of coating material, i, as-applied on always-controlled work stations, in a month, kg.

C_{ahi} = Monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.

R = Overall organic HAP control efficiency for laminators without slot/enclosure exhaust (EUs 080 and 081), percent, determined according to Equation 11.

M_{Bi} = Sum of the mass of coating material, i, as-applied on intermittently-controlled work stations operating in bypass mode and the mass of coating material, i, as-applied on never-controlled work stations, in a month, kg.

C_{ahi} = Monthly average, as-applied, organic HAP content of coating material, i, expressed as a mass fraction, kg/kg.

R' = Overall organic HAP control efficiency for laminators with slot/enclosure exhaust (EUs 025, 082, 083, and 084), percent, determined according to Equation 11’.

M_{vret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where the Permittee chooses to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in 40 CFR subpart JJJJ.

Equation 6: total monthly organic HAP applied

$$H_m = \sum_{i=1}^p C_{hi} M_i + \sum_{j=1}^q C_{hij} M_{ij} - M_{vret}$$

Where:

H_m = Total monthly organic HAP applied, kg.

p = Number of different coating materials applied in a month.

C_{hi} = Organic HAP content of coating material, i, as-purchased, expressed as a mass fraction, kg/kg.

M_i = Mass of as-purchased coating material, i, applied in a month, kg.

q = Number of different materials added to the coating material.

C_{hij} = Organic HAP content of material, j, added to as-purchased coating material, i, expressed as a mass fraction, kg/kg.

M_{ij} = Mass of material, j, added to as-purchased coating material, i, in a month, kg.

M_{vret} = Mass of volatile matter retained in the coated web after curing or drying, or otherwise not emitted to the atmosphere, kg. The value of this term will be zero in all cases except where the Permittee chooses to take into account the volatile matter retained in the coated web or otherwise not emitted to the atmosphere for the compliance demonstration procedures in 40 CFR subpart JJJJ.

Equation A: Mass percentage of total HAP emitted

$$\frac{H_e}{H_m} \times 100$$

H_e = Total monthly organic HAP emitted, kg.

H_m = Total monthly organic HAP applied, kg.

TECHNICAL SUPPORT DOCUMENT
For
AIR EMISSION PERMIT NO. 13100005-004

This Technical Support Document (TSD) is intended for all parties interested in the permit and to meet the requirements that have been set forth by the federal and state regulations (40 CFR § 70.7(a)(5) and Minn. R. 7007.0850, subp. 1). The purpose of this document is to provide the legal and factual justification for each applicable requirement or policy decision considered in the determination to issue the permit.

1. General Information

1.1 Applicant and Stationary Source Location

Table 1. Applicant and Source Address

Applicant/Address	Stationary Source/Address (SIC Code: 3697)
Multek Flexible Circuits, Inc. 805 Highway 3 N Northfield, MN 55057	Multek Flexible Circuits, Inc. 1150 Sheldahl Rd Northfield, MN 55057 Rice and Dakota County
Contact: Ronald Keller Phone: 507-663-8274 ron.keller@multek.com	

1.2 Facility Description

Multek Flexible Circuits, Inc. (Multek or Permittee) owns and operates a flexible printed circuit fabrication facility and manufactures specialty electronic products such as flexible printed circuitry, flexible composite laminates, and specialty engineering products. The stationary source consists of two buildings on either side of a county road called the East and West facilities. The two buildings are considered one stationary source under all air regulations. The types of processes at the facility include mixing, laminating, screen printing, plating, etching, stripping, material handling, and combustion of natural gas.

The main emissions are Volatile Organic Compounds (VOC) and Hazardous Air Pollutants (HAP), with lesser amounts of Particulate Matter, Particulate Matter Less than 10 microns, particulate matter less than 2.5 microns (PM/PM₁₀/PM_{2.5}), and various other pollutants from the combustion of natural gas. The Facility currently has two scrubbers for controlling ammonia and a catalytic oxidizer for controlling VOC and organic HAP emissions from its laminators.

1.3 Description of any Modifications Allowed with this Permit Issuance

This permit authorizes the operation of emission units installed since the issuance of permit 13100005-002. See Section 3.4 for more information. No additional changes are authorized by this permit action. In addition, with this permit action, the preauthorized

changes that were allowed in permit 13100005-003 are removed. The permit now contains PreCap language (see Section 3.7 for further explanation).

1.4 Description of All Amendments Issued Since the Issuance of the Last Total Facility Permit

Permit Number and Issuance Date	Action Authorized
13100005-003 January 12, 2005	Administrative amendment to change name from Northfield Acquisition Co. to Multek Flexible Circuits, Inc.
13100005-002 June 28, 2004	MPCA initiated a major amendment under Minn. R. 7007.1600, subp. 1(D) to incorporate minimum temperature requirements and testing frequency requirements for CE002, Catalytic Afterburner, imposed on the facility under performance testing rules Minn. R. 7017.2025, subp. 3 and Minn. R. 7017.2020, subp. 1 respectively.

1.5 Facility Emissions

Table 2. Total Facility Potential to Emit (PTE) Summary (tons per year)

	PM	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	CO _{2e}	VOC ⁺	Single HAP	All HAPs
Total Facility Limited and Controlled Potential Emissions	3.7	33.3	33.3	0.11	24.2	15.7	21,300	245	245**	245**
Total Facility Actual Emissions (2008)	0.31	0.31	NA*	0.32	4.00	3.30	NA*	108.09	HAPs not reported in emission inventory	

*Pollutant not reported in the 2008 emission inventory

+This is the value of the PTE from significant emission units and insignificant activities. All other pollutant totals are only the PTE from significant emission units.

**The PTE in Table 2 for single and combined HAPs is limited by the total VOC limit of 200 tons per year and insignificant activities PTE limit of 45 tons per year because the majority of the HAP emitted by the facility is volatile HAP. For example, the facility can only emit up to 200 tons per year of toluene from significant emission units and 45 tpy from insignificant activities since it is a VOC as well as HAP. (However, this is essentially impossible, since this would mean that the facility would then not be able to use any other volatile material). The total for "All HAPs" is also considered the sum of volatile HAP (245, based on VOC + insignificant activities limit) because the facility emits very little (<1 tpy PTE) of non-volatile HAP.

Note: PM₁₀ and PM_{2.5} PTE are significantly higher than PM PTE because PM₁₀ and PM_{2.5} PTE include condensables.

Table 3. Facility Classification

Classification	Major/Affected Source	Synthetic Minor	Minor
PSD	NA	VOC	PM, PM ₁₀ , PM _{2.5} , SO ₂ , NO _x , CO, CO _{2e}
Part 70 Permit Program	VOC and HAPs	NA	PM, PM ₁₀ , PM _{2.5} , SO ₂ , NO _x , CO, CO _{2e}
Part 63 NESHAP	Yes	NA	NA

1.6 Changes to Permit

The following types of changes have been made in the reissued permit:

- Updated to reflect current Minnesota Pollution Control Agency (MPCA) templates and standard citation formatting;
- Removed requirements for equipment that was removed (EUs 003, 044, 075, and 105);
- Added emissions units EU 121 and EU 124-030 as described in Section 3.4
- Replaced flexcap language that preauthorized certain changes with PreCap language. Although changes are no longer preauthorized, the PreCap language gives the Permittee the flexibility to make changes without automatically triggering a major amendment. (See Section 3.7 for more information)
- Added requirements for Compliance Assurance Monitoring (CAM) at CE 002.
- Added requirements associated with subpart JJJJ National Emission Standard for Hazardous Air Pollutants (NESHAP) at GP 005 and CE 002
- Added requirements associated with subpart EEEE NESHAP at TK 001; moved toluene tank from insignificant activities list to TK 001
- Removed No. 2 fuel oil and propane from allowable fuels under GP 002 and 003; potential to emit (PTE) adjusted for the removal of No. 2 fuel oil and propane
- Added site-specific plan for waste credit at GP 001
- Updated oxidizer destruction efficiency to 95% and overall control efficiency (including percent carryover to dryer) to 97% based on most recent performance test and to ensure compliance with subpart JJJJ NEHSAP
- Added language at CE 004 and CE 005 allowing like-kind replacement of non-listed control equipment without automatically requiring a moderate amendment for the change
- Added the requirement that if the Permittee wishes to change inks or solutions, or to increase the usage rate of inks or solutions, they cannot do so without first evaluating whether the change requires an amendment or a notification. The Permittee was always subject to this requirement, but now it is explicitly laid out in the permit. (See subsection “Worst Case Material Contents” under Section 3.1 for more explanation)
- Removed the conditions for a “mix room emission factor study” and “ethanolamine emission factor study” because the Permittee does not wish to pursue these options going forward.
- Updated PTE of resist strippers based on new Bay Area Air Quality Management District calculation method
- Added PTE of greenhouse gases (GHGs) to the MPCA’s Delta database

2. Regulatory and/or Statutory Basis

New Source Review (NSR)

The facility has taken limits to avoid being a major source under New Source Review. These limits are carried forward from the prior Part 70 permit. No changes are authorized by this permit to change the facility's status under the NSR program.

Part 70 Permit Program

The facility is a major source under the Part 70 permit program.

New Source Performance Standards (NSPS)

The Permittee has stated that there are no New Source Performance Standards applicable to the operations at this facility.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The facility is a major source under the NESHAP program. Multek is subject to the NESHAPs listed below.

Subpart JJJJ Paper and Other Web Coating:

The facility is subject to this standard because it is a major source of HAP at which web coating lines are operated. The affected source, as defined by the NESHAP, is the collection of all web coating lines at the facility. As indicated in the final rule preamble (67 FR 72332, II.B), certain affiliated operations performed at web-coating lines are part of the paper and other web source category. These affiliated operations include: (1) mixing or dissolving of coating ingredients prior to application; (2) coating mixing for viscosity adjustment, color tint or additive blending, or pH adjustment; (3) cleaning of coating lines and coating line parts; (4) handling and storage of coatings and solvents; (5) conveyance and treatment of wastewater. Based on this text from the preamble, all units at the facility that are considered part of the laminating process are included in GP 005 of the permit that addresses subpart JJJJ.

EU 080, the pilot coater is exempt from the requirements of subpart JJJJ under 40 CFR Section 63.3300(g)(3) because it qualifies as research or laboratory equipment that is not engaged in the manufacture of products for commercial sale in commerce.

The facility has chosen to comply with the NESHAP by limiting organic HAP emissions to no more than 5 percent of the organic HAP applied for each month. The facility complies with this limit using the intermittent control option. With this option, the Permittee is required to

- Demonstrate capture efficiency (with associated monitoring, recordkeeping, and reporting (MMR))
- Demonstrate control efficiency (with associated MMR)
- Calculate emissions rates based on total coatings (with associated MMR)

Attachment 1 to this TSD contains EPA-prepared and MPCA-modified Step-by-step Compliance Demonstrations for subpart JJJJ NESHAP.

Subpart ZZZZ Stationary Reciprocating Internal Combustion Engines:

The facility's two emergency generators are an affected source under this standard because they are existing (commenced construction before December 19th, 2002) stationary reciprocating internal combustion engines (RICE) at a major source of HAP emissions. However, because the RICE at Multek are classified as existing emergency RICE and meet the criteria of 40 CFR Section 63.6590(b)(3), the affected source does not have to meet the requirements of 40 CFR part 63 subpart ZZZZ or subpart A.

Subpart EEEE Organic Liquids Distribution (Non-Gasoline):

The facility is subject to this standard because it is a major source of HAP and it performs activities, and has equipment, used to distribute organic liquids into, out of, or within the facility. The facility's toluene storage tank and transfer rack are subject to this subpart. Based on the size of the tank and the fact that the transfer rack is only used to unload organic liquids (no organic liquids are loaded at the transfer rack), the facility is only subject to limited recordkeeping requirements under the NESHAP standard.

Compliance Assurance Monitoring (CAM)

Many of the laminators at the facility have uncontrolled VOC PTE greater than 100 tpy, are subject to a VOC emissions limit, and use controls to comply with the limit; therefore, they are subject to CAM for VOC emissions. Additionally, some of the laminators also have uncontrolled single HAP PTE greater than 10 tpy, are subject to a HAP emission limit, and use controls to comply with the limit; however, these units are exempt from CAM for HAPs because the HAP limits are from a Maximum Achievable Control Technology (MACT) Standard proposed after November 15, 1990.

All other units at the facility are either uncontrolled or do not have uncontrolled emissions equal to or greater than 100% of the major source threshold for a given pollutant. The table below outlines the applicability CAM for the laminators controlled by the catalytic oxidizer.

Table 4: CAM Applicability of Units Controlled by Catalytic Oxidizer (CE 002)

EU #	Emission Unit Description	Applicable pollutant (uncontrolled PTE ≥ major source threshold)	Applicable limit/standard	Subject to CAM?
025	Laminator #1	VOC	Total Facility VOC Limit	Yes
		Single HAP	MACT JJJJ Limit	No, MACT limit exempt
080	Pilot Coater	Single HAP	MACT JJJJ Limit	No, MACT limit exempt
081	Laminator #10	VOC	Total Facility VOC Limit	Yes
082	Laminator #2	VOC	Total Facility VOC Limit	Yes
083	Laminator #5	VOC	Total Facility VOC Limit	Yes

084	39" Laminator	VOC	Total Facility VOC Limit	Yes
		Single HAP	MACT JJJJ Limit	No, MACT limit exempt

EUs 025, 081, 082, 083, and 084 are all considered “other pollutant specific emissions units” because their controlled VOC PTE is less than 100 tpy.

Although each of the above laminators is subject to CAM, the control device is common to all the laminators. As allowed under 40 CFR Section 64.4, only one CAM plan is needed for all pollutant-specific emission units. The CAM plan for the laminators controlled by the catalytic oxidizer is Attachment 2 of this TSD.

Environmental Review & Air Emissions Risk Analysis

The permit does not authorize any increases in emissions so neither of these requirements apply.

Minnesota State Rules

Portions of the facility are subject to the following Minnesota Standards of Performance:

- Minn. R. 7011.0510 Standards of Performance for Existing Indirect Heating Equipment
- Minn. R. 7011.0515 Standards of Performance for New Indirect Heating Equipment
- Minn. R. 7011.0610 Standards of Performance for Fossil-Fuel-Burning Direct Heating Equipment
- Minn. R. 7011.0715 Standards of Performance for Post-1969 Industrial Process Equipment
- Minn. R. 7011.2300 Standards of Performance for Stationary Internal Combustion Engines
- Minn. R. 7011.1505 Standards of Performance for Storage Vessels

Table 5. Regulatory Overview of Facility

EU, GP, CE, or SV	Applicable Regulations	Comments:
Total Facility	40 CFR § 52.21 Minn. R. 7007.0800, subp. 2 Minn. R. 7007.0800, subp. 2 40 CFR § 52.21 40 CFR pt. 82 Minn. R. chs.7002, 7007, 7009, 7019, & 7030	Prevention of Significant Deterioration (PSD): The Permittee cannot become a major source without first obtaining a permit amendment. Prohibition on emitting methylene chloride. Carried forward from previous permit (limit from Air Toxics Review (ATR)). Prohibition on emitting thiourea. Carried forward from previous permit (limit from ATR). PSD: Limit and tracking requirements for insignificant VOC sources to keep the entire facility under the major source threshold for PSD. Ozone Depleting Substances rules: enforced by EPA. Various general requirements that apply to all facilities in Minnesota.

EU, GP, CE, or SV	Applicable Regulations	Comments:
	40 CFR pt 50; Minn. R. 7009.0010-0080	Requirements that emissions do not cause a violation of ambient air quality standards.
GP 001: Total Facility VOC Limit	40 CFR § 52.21 Minn. R. 7011.0715	PSD: Limits to avoid major source and modification classification under PSD for VOC emissions. The VOC limit is a rolling limit due to substantial and unpredictable variations in operation. The VOC limit is also a “PreCap” limit. Changes and additions to VOC-emitting equipment (not including insignificant activities) at the facility are subject to the limits set by the cap and the requirements of Group 001. Standards of Performance for Post 1969 Industrial Process Equipment.
GP 002: Natural Gas Boilers: Re-Jan. 31, 1977	Minn. R. 7011.0510	Standards of Performance for Pre-Jan. 31, 1977 Indirect Heating Equipment: Fuel limited to natural gas only.
GP 003: Natural Gas Boilers: Jan. 31, 1977 or later	Minn. R. 7011.0515	Standards of Performance for Indirect Heating Equipment from Jan. 31, 1977, or later: Fuel limited to natural gas only.
GP 004: Emergency Generators	Minn. R. 7011.2300	Standards of Performance for Stationary Internal Combustion Engines: Fuel limited to natural gas only. Emergency generators limited to 500 hrs/yr per EPA PTE guidance.
GP 005: Subpart JJJJ NESHAP	40 CFR pt. 63 subp JJJJ	NESHAP (Paper and Other Web Coating): Limit on organic HAP emissions from web coating lines. The facility complies by using the intermittent control option. (See Section 2 for applicability discussion.) Note: any reference to General Provisions, 40 CFR §§ 63.6(f)(1) and (h)(1), regulating the emission of HAPs during periods of startup, shutdown, and malfunction is omitted from the permit as the subpart JJJJ NESHAP is one of the source category rules affected by the mandate in Sierra Club v. EPA making 40 CFR §§ 63.6(f)(1) and (h)(1) null and void. (Subpart JJJJ NESHAP does nothing more than automatically incorporate those two sections).
EU 012: Oxidizer burner	Minn. R. 7011.0610	Standards of Performance for Direct Heating Equipment: Catalytic oxidizer burner limited to natural gas only.
TK 001: Toluene Tank	40 CFR pt. 63 subp. EEEE Minn. R. 7011.1505	NESHAP (Organic Liquids Distribution): Limited recordkeeping requirements. This unit would normally be considered an insignificant activity; however, because it is subject to the NESHAP, it is listed in the permit under the “tanks” category. Standards of Performance for Storage Vessels constructed after June 11, 1953 and with a capacity of 2,000-40,000 gallons: The tank is subject to this standard because it was constructed in 1994 and has a capacity of 3,000 gallons.

EU, GP, CE, or SV	Applicable Regulations	Comments:
CE 002: Catalytic Afterburner w/ Heat Exchanger	40 CFR § 52.21; 40 CFR pt. 63 subp. JJJJ	PSD and NESHAPs: Control efficiency and other operating parameter requirements to limit VOC PTE to avoid major source and modification classification under PSD. Control efficiency and other operating parameter requirements to limit organic HAP per the requirements of subpart JJJJ NESHAP. Control is required for specific units and optional for others.
CE 002 Cont'd	40 CFR pt. 64	<p>Compliance Assurance Monitoring (CAM): See “Compliance Assurance Monitoring” under Section 2 above for discussion of rule applicability.</p> <p>Note: Not all requirements for the oxidizers are cited as CAM. Some of the requirements associated with the oxidizers are standard control equipment requirements (not CAM-specific) or are specific to the MACT standard and therefore these requirements are not cited as CAM. Additionally, several conditions are listed as a combination of Title I, CAM, and/or MACT because the condition is required by a combination of all three programs.</p>
CE 004 and 005: High Efficiency Wet Scrubbers	Minn. R. 7007.0800, subp. 2	<p>Ammonia controls and emissions limits. Previous air permit included an air toxics review that resulted in ammonia emissions limits (lb/hr) as well as control efficiencies and operating parameter limits. These limits are carried forward in this permit action .</p> <p>The permit allows for like-kind replacement of the wet scrubbers without automatically triggering a moderate amendment.</p>

*Where the requirement appears in the permit (e.g., EU, SV, GP, etc.).

3. Technical Information

3.1 Calculations of Potential to Emit

Attachment 3 to this TSD contains detailed spreadsheets and supporting information submitted by the Permittee and revised by the MPCA. Emissions are generally calculated using either a mass balance or with EPA or other MPCA-approved emissions factors.

Laminating (EUs 014-018, 020-027, 080-084, 088, 089, 091, 119, and 130)

The laminating operations consist of several process steps and emissions units including the mix room (product weighing/dispensing, mixing, dryers), laminating (laminator and slot exhaust), equipment cleaning, and dryers/ovens (insignificant activities). The processes for calculating PTE for the various operations are described below.

Product weighing (EU 016) - The PTE is calculated using the maximum throughput and EPA emissions factors.

Dispensing Station (EU 089) – The dispensing station is used for dispensing a methylene diphenyl diisocyanate (MDI) mixture. The PTE is calculated using MPCA-approved formulas

based on physical chemistry principles (see Attachment 4). The Permittee believes that MDI emissions are zero or negligible. MPCA calculations show this to be the case (less than 3.00E-08 tpy); therefore, these emissions do not need to be tracked as part of the VOC permit calculations.

Mixing (EUs 017, 020, 024, 088, 091, 119 and 130) – An EPA mixing emissions factor of 10% is assumed for all other VOC/volatile HAP. Per EPA guidance, if the mixer is covered or enclosed, the factor is adjusted to 6%. No specific emissions factors exist for the particulate emissions from mixing. A conservative PTE was calculated using an AP-42 emissions factor for concrete batch mixing.

Dryers and Ovens (EUs 018, 021, 022) – All of the dryers and ovens at this facility are electric and do not have combustion emissions. However, the dryers in the mixing room (018, 021, and 022) do have volatile emissions from the materials being dried. For all of these units, a mass balance was used to obtain the maximum hourly emissions (the maximum amount of material entering the dryer (e.g., rags, drums) was multiplied by the highest VOC/HAP content). 100% of the VOC/HAP is considered emitted. For the permit calculations, these emissions are already accounted for in other calculations – the amount of material left in the drum or rags is not credited to the dryers and already assumed to be emitted at the original process (e.g., mixing, laminating, cleaning, etc.).

Laminating (EUs 015, 023, 025, 026, 027, and 080-084) – The PTE from the laminating area is based on mass balance (i.e., capacity is multiplied by the highest content of materials to obtain maximum hourly emissions of the given pollutant). The emissions are vented at two points on four of the units. The point called “slot exhaust” or “enclosure” is the ventilation point that occurs prior to the dryer on these four units. The other two units only have one vent that is controlled. The facility’s previous permit assumed that 7% of VOC was emitted at the slot/enclosure exhaust with the remaining 93% carried over to the dryer. Since the issuance of the facility’s previous Part 70 permit, the Permittee has conducted two stack tests on the catalytic oxidizer. Both tests measured the uncontrolled emissions from the four slot exhausts and compared them to the total inlet exhaust to the oxidizer. The results of the tests are below.

**Table 6. Performance Test Results
Exhaust Carryover**

Test Date	% Total Oxidizer Inlet VOC Exhausted to Slot/Enclosure
05/20/2003	1.5
05/29/2008	1.34

However, for a single laminator, the percent of VOC exhausted at a slot/enclosure is expected to be larger than what is presented in Table 6. The values in Table 6 are calculated based on total slot/enclosure VOC exhaust rate divided by **total** VOC exhaust to the oxidizer. The total exhaust to the oxidizer includes the exhaust from the 2 laminators without slot/enclosures. Therefore, for the purposes of calculating PTE and for permit calculations, it is assumed that 3% of VOC is emitted at the slot/enclosure. Based on the capacities of the 2 laminators without slot/enclosures,

this is a reasonable, yet conservative assumption. The PTE calculations have been adjusted to assume that 3% of VOC is emitted at the slot/enclosure exhaust and the remaining 97% of the VOC is carried over to the dryer.

The Permittee has the option of venting the enclosure/slot exhausts to a control device, but the areas are not currently totally enclosed. The Permittee has stated that sometimes the slot exhaust is vented to the oxidizer, and sometimes it is not. For the purposes of calculating PTE, it is assumed that the slot exhaust is not controlled. The remaining emissions occur in the dryer zone (called “laminator” emissions) and are controlled with the catalytic oxidizer (CE 002). The control efficiency is based on site-specific performance testing. The dryers are considered total enclosures. For the purposes of simplifying permit calculations contained in Appendix I and Appendix V, but maintaining a conservative approach, the “percent carryover” is incorporated into an overall control efficiency of 95%. For laminators without a slot/enclosure exhaust, a destruction efficiency of 97% may be used for VOC calculations, and shall be used for Organic HAP calculations. See Appendix I and V for further explanation.

If the Permittee wishes refine this “percent carryover” through a subsequent performance test, the test must be conducted such that the VOC routed to the oxidizer from the two laminators that do not have slot/enclosure exhaust can be quantified and distinguished from the VOC routed to the oxidizer from the other four laminators.

Equipment cleaning (EU 014) – Equipment cleaning emissions are calculated using a mass balance approach based on the maximum capacity multiplied by the maximum content materials. All VOC/HAP is assumed to be emitted.

Combustion (EUs 001, 002, 006, 008, 012, 085, and 103)

The potential emissions from combustion are calculated based on equipment capacity, the allowable fuel, and EPA published emissions factors (AP-42).

Wet Processes (EUs 042, 043, 046, 092, 098-102, 120, 125, 128, and 129)

The Permittee uses the term “wet processes” to describe the various baths and chemistries used in flexible printed circuit fabrication. In general, there are very few EPA emissions factors available for these processes. EPA has published factors for chromium electroplating, but not for flexible printed circuits which use a broad spectrum of bath materials. For these processes, the MPCA has published guidance for calculating PTE. There are two basic methods for calculating the PTE for these units: 1) mass balance, where all of the material used (or added to the bath) is assumed to be emitted in the same form (e.g., VOC in = VOC out) or 2) emissions factors from engineering or industrial handbooks.

1) For volatile bath materials, if the make-up or bath addition quantities were known, this was used to determine the PTE. The amount of make-up (or bath additions) is assumed to be emitted as VOC/HAP. For some of the baths, the entire bath is dumped at some frequency, so the loss rate was not known. However, make-up records from similar baths were used to estimate the loss rates. In general, 10% loss of volatile bath materials was used for calculating PTE.

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2) There are two sources used for emissions factors for this facility – one for particulate from soldering and one for the bath chemistries. For soldering, Modern Pollution Control Technology contains an emission factor for lead. For the various baths, the Electroplating Engineering Handbook contains several tables that give gassing rates of specific pollutants for different processes (e.g., copper etching with sulfuric acid emits sulfuric acid mist). These gassing rates correspond to a percent loss factor listed in Modern Pollution Control Technology (0-5%).

Resist Stripping (EUs 038, 124, 127)

With this permit action, the facility changes their calculation method for determining PTE from the resist strippers. The change is motivated by a calculation method developed by the Bay Area Air Quality Management District (BAAQMD) and documented in the BAAQMD Permit Handbook, Source-Specific Guidance, Section 7: Electronic & Semiconductor Industry; Printed Circuit Board Manufacturing. The Permittee states that the new calculation method more accurately reflects the emissions from these units.

The BAAQMD method is based on three assumptions: “1) the organic constituents of the solution obey Raoult’s Law, 2) the vapor exhaust stream is saturated with organic compounds, and 3) the emissions are at steady state.” These assumptions are used in a theoretical equation based on concentration of each organic compound in the liquid mixture, vapor pressure of each organic compound, temperature, and exhaust flow rate. The assumption that Raoult’s Law applies is not a bad approximation because these processes are occurring at low pressures. At low pressures the vapor mix will perform more like a “perfect” gas.

The old calculation method for these units was a mass balance approach ($VOC_{in} = VOC_{out}$) described under method 1 of preceding section, “Wet Processes”. For components with lower relative vapor pressures, the BAAQMD method will give a much lower emission rate than the mass balance approach, but for solution components with a higher vapor pressure the BAAQMD method will give a higher emission rate than the mass balance approach. A correction needs to be applied to the calculation method where the theoretical equation predicts emissions higher than the mass balance approach (e.g. predicts emissions higher than the total amount of organic material in the bath). Therefore, the emissions from the strippers are assumed to be the lower of either the theoretical emissions or total organic compounds available to be emitted.

Imaging (EUs 047-079, and 104, 110, 116, 118, 125, and 126)

The PTE from the imaging processes is based on mass balance calculations, where the capacity is multiplied by the highest content of materials to obtain maximum hourly emissions of the given pollutant.

Insignificant Activities

The PTE calculations for the insignificant activities are calculated using AP-42 emission factors or mass balance calculations. For insignificant activity equipment that is similar to significant emission units, the PTE calculation methodology is the same as listed above for that type of unit or process.

Worst Case Material Contents

The Permittee assumed certain worst-case material contents and usage rates in determining the short term PTE (lb/hr) of units at the facility. These worst-case parameters are documented in Appendix IV of the permit. The Permittee can change formulations or solutions, but changing to a material that has a higher content of any of the given pollutants or increasing its usage rate is considered a change in method of operation that must be evaluated to determine if a permit amendment or notification is required under Minn. R. 7007.1150.

The tables in Appendix IV are not exhaustive, but they generally include emission units with a VOC or PM emission rate of over 1 lb/hr before applying additional emission factors (e.g. mixing emission factors). Units with an emission rate of less than 1 lb/hr were not included in the table because these units would have to undergo a significant change in usage rate or VOC/solids content to trip an amendment threshold. Additionally, the tables do not include units for which the emissions are directly dependent on another unit and therefore the material content and usage/application rate are already documented in these tables (e.g. slot/enclosure exhausts or dryers/ovens are not included).

Fine Particulate Matter

Where specific emission factors for PM_{2.5} were not available, PM_{2.5} emissions were assumed to be the same as PM₁₀ emissions. Based on the types of units at Multek, this is a conservative estimate. It should be noted that the facility's particulate emissions do not approach any programmatic thresholds and therefore the precision of the PM_{2.5} potential emissions rates do not affect the applicability of NSR.

AP-42 contains emission factors for filterable and condensable PM from natural gas combustion. According to AP-42 all particulate matter (filterable and condensable) from natural gas combustion has been estimated to be less than 1 micrometer. Therefore, it is reasonable that the emission factors presented in AP-42 can be used to estimate PM, PM₁₀, and PM_{2.5} emissions.

AP-42 emission factors for particulate emissions from chromium electroplating include filterable and condensable PM; however, the document states that the condensable PM from these sources are likely to be negligible. There is little additional information on PM_{2.5} emissions from other types of plating, let alone flexible printed circuits. Given that the PM_{2.5} emissions from the plating tanks are likely small compared to the PM/PM₁₀ emissions, using PM/PM₁₀ as a surrogate for PM_{2.5} is a conservative assumption. Until PM_{2.5} emissions rates are better characterized for these types of operations, the PM_{2.5} emissions are assumed to be the same as the PM/PM₁₀ emissions.

These assumptions should be reevaluated upon the permit's next reissuance.

Greenhouse Gases (GHGs)

As of January 2, 2011 GHGs are a regulated pollutant under the Clean Air Act. This permit action documents the PTE of the facility's GHG emissions as carbon dioxide equivalents (CO₂e), which is a weighted sum of greenhouse gases normalized to global warming potential of carbon dioxide. Because there is no increase in GHG emissions with this permit action, the GHG PTE does not affect the facility's status as a synthetic minor source under PSD. At this time, there are no applicable requirements that address GHGs for this facility.

3.3 Performance Testing

The Permittee submitted a test frequency plan for its catalytic oxidizer (CE 002) on July 10th, 2003. The plan was approved by the MPCA on October 23, 2003 and established a testing frequency of once every 60 months. Therefore, Permittee tested again in May of 2008. This permit maintains the 60 month testing frequency and requires a performance test within 60 months of May, 2008.

The facility has not performed the initial performance test as required by the subpart JJJJ NESHAP, because as of the facility's last performance test, they were not aware that they were subject to the standard. The EPA does not generally allow the use of existing or past performance test data to establish operating limits, control device efficiency or capture efficiency unless specified in a regulation. Performance tests associated with the Maximum Achievable Control Technology (MACT) standards must be conducted in accordance with the requirements of the applicable standard. However, the MPCA has determined that the facility's most recent performance test did meet the specifications set out in 40 CFR Section 63.3360(e) for an initial performance test. Therefore, this permit uses the operating parameters and limits established in the facility's most recent performance test as those that would be required to be established by the subpart JJJJ initial performance test, and this permit does not require an initial performance test under subpart JJJJ. When Multek conducts its next performance test, it shall follow the methods and procedures of 63.3360(e).

3.4 Modifications to Facility

The tables below document the changes (additions, removals, and replacements) to Multek's emission units since the last permit action (1310005-003).

**Table 7. Emission units and Insignificant Activities
Added Since Issuance of Permit 13100005-003**

Date Constructed	Emission Unit Number/Insignificant Activity (IA) used in Application	Emission Unit Number/Insignificant Activity (IA) used in Permit	Description
09/2003	129	127	SENE Line
06/2004	IA (formerly 132)	IA	Dispatch Oven #4
06/2004	IA (formerly 133)	IA	Dispatch Oven #5
06/2004	IA (formerly 134)	IA	Dispatch Oven #6
06/2004	IA (formerly 135)	IA	Dispatch Oven #7
06/2004	IA (formerly 136)	IA	Dispatch Oven #8
06/2005	121	121	LPI Screener DP6000
06/2005	IA (formerly 122)	IA (formerly 122)	LPI Screen Wash
06/2005	IA (formerly 123)	IA (formerly 123)	LPI Washout
10/2005	IA (formerly 130)	128	ESA Line VOC
10/2005	IA (formerly 131)	129	ESA Line Ammonia
10/2007	124	124	ITO R/R DES
10/2007	IA (formerly 125)	IA	ITO Sheet DES Prototype
10/2007	126	125	ITO Screener w/oven
10/2007	127	126	ITO Washout Booth

**Table 8. Emission Units Replaced Since
the Issuance of Permit 13100005-003**

Date Replaced	Replaced Unit	New Unit
05/2009	EU 087 Sand Mill	EU 130 Ross Mixer (EU 137 in permit application)

**Table 9. Emission Units Removed Since
the Issuance of Permit 13100005-003**

Date Removed	Emission Unit Number	Description
12/10/2004	003	Ajax Boiler
08/2009	031	Auto Solder Line
09/2002	036	Nova Etch Line
09/2004	044	ESA #1-VOC
09/2004	100	ESA #1-Ammonia
01/2007	045	ESA #2-VOC
01/2007	101	ESA #2-Ammonia
09/2004	076	Roll Mill

3.5 Permit Calculations

Mixing

Appendix I of the permit shows the various formulas that the Permittee will use to calculate VOC emissions on a monthly basis. For most operations, these are based on a simple mass balance approach (e.g., bath makeup amounts are assumed to be emitted), but for the laminating process where control is applied for only part of the process, the percentage released at various parts of the process is relevant to determining the actual emissions. For example, if it is assumed that all of mixing accounts for 2% loss, then 98% of the original material would be assumed to enter the laminating area. But if 10% is lost at mixing, a much lower percentage would be considered controlled; therefore, a higher amount emitted. This permit uses the same PTE assumptions detailed above (e.g., mixing is 10 or 6%) until such time that the Permittee conducts the necessary analysis or testing to propose new factors.

For mixing, the Permittee will have a specification number for each material. This number indicates how many times the given material was handled or mixed. For example, some materials might be weighed at EU 016 (factor of 0.92 lb VOC/ton weighed), then mixed at EU 020 (factor of 6%), then mixed again at EU 017 (factor of 6%). This sequence shows the total emissions:

- 100 lbs weighed: 0.046 lbs emitted
- 99.96 lbs mixed: 6.0 lbs emitted
- 93.96 lbs mixed: 5.6 lbs emitted
- 88.3 lbs continues to laminating area; total emissions of 11.7 lbs, or 11.7% of original material.

For each material specification, the Permittee can determine a combined emissions factor or may calculate each step separately in the monthly calculations.

Laminating

The Permittee is required to track VOC usage at the laminators on a daily basis based on mixing, dispensing, and/or usage logs. While the mix room records can be used to calculate the total VOC mixed, not all of it is used on site. Some of the materials mixed in the mix room are not used at the facility – they are mixed and sold. If the Permittee were to use the total mixed quantities to calculate the laminating emissions, this would grossly over-estimate actual emissions. The Permittee tracks material that is mixed for off-site use based on the individual adhesive recipes, and the volumes are tracked through sales records. When completing the monthly calculations, the Permittee will use only the on-site materials when calculating emissions from the laminators.

For the purpose of complying with subp. JJJJ NESHAP, the Permittee must keep track of the amount of material being used at each laminator. The Permittee currently does this based on work orders that contain the batch record (recipe) for a specific adhesive that can then be linked to the quantity mixed for that particulate batch record and the laminator used for that particular job.

Combustion

The permit gives the Permittee the option of calculating actual VOC emissions from fuel combustion on a monthly basis. If the Permittee does not wish to do this calculation, the VOC potential emissions from combustion will be used in the total VOC calculation. The emissions from combustion are low enough (1.25 tpy) that the additional tracking might not be worth the effort unless the Permittee finds that they are approaching the permit limit.

Wet Processes

Mass balance calculations are used for these areas based on purchase records. For some units, the Permittee has usage records at the unit, but not for all of them. These materials are used in a disperse manner around the facility. Rather than try to track small amounts at the individual units, the permit allows the Permittee to use purchase records.

The permit previously based the recordkeeping for the wet processes on the chemical room records. Each time a drum was taken from the chemical storage room and brought onto the floor, it was considered used or emitted. In practice, this has become essentially a duplication of purchase records for the facility. The facility keeps a very low inventory for these materials. Additionally, they do not have a central storage area where chemicals are stored before use, but rather four separate storage areas. When a shipment arrives the drums or totes are brought immediately to either one of four areas near the process at which the chemicals are used, or they are brought directly to the process line. The facility receives deliveries of many chemicals once every 2 days, others are delivered about once a week, and others a few times a month. Rather than assuming as soon as a drum or tote is brought from the storage room it is used, the facility may assume that as soon as a drum or tote is purchased/delivered it is considered used. Because the facility keeps a low inventory the frequency and volume of purchases/deliveries mimics the frequency and volume at which drums and totes would be removed from the four storage areas.

Each time a delivery is made a copy of the invoice containing the material name or identification number, and quantity of material shall be retained for the VOC usage records.

Miscellaneous Sources

The remaining VOCs, such as those used in the screening processes, are used in smaller quantities and will be tracked monthly based on purchase records. A mass balance calculation is then used to calculate the emissions.

Waste Credit

The facility typically ships more than 500 drums of waste from its “waste flammable liquid” stream per year, so sampling of each drum is not reasonable. This waste stream comes predominantly from the clean-up of the equipment used in the laminating area, and consists of toluene, MEK, ethyl acetate, and acetone. The VOC content of this waste stream is expected to be significant, as the cleanup solution that Multek mixes contains a considerable amount of toluene.

As part of the reissuance process Multek had a third party conduct EPA Method 24 %VOC testing on several samples from this waste stream. The results of these tests are shown in Table 10 below. All results show a VOC content of $94 \pm 0.5\%$. The tested values are higher than expected because Multek believed this waste stream to be made up mostly of cleanup solvent that is 70% VOC. However, Multek has stated that the cleanup solvent mixture may fluctuate depending on the job. The data set in Table 10 is not sufficient to establish a site-specific VOC content in the 90% range, there aren't enough data points to substantiate a high site-specific value. Additionally, because the cleanup mixture may fluctuate, depending on the job it would be ill-advised to assign a high VOC content to the waste stream without also regulating how Multek mixes its cleanup solvent. Therefore, because there is variability in the make-up of the cleanup solvent, but it is unlikely that it would be below 70% VOC, a site-specific value of 70% VOC content is assigned to the waste flammable liquid stream unless and until the facility elects to conduct further testing of the stream to establish a more substantial data set.

Table 10. Method 24 Analytical Results for Waste Flammable Liquid Stream by Sample Date

Sample Date	Wt. % VOC
12/14/2009	94.0
11/02/2009	93.8
11/16/2009	93.5
02/23/2010	93.6
03/09/2010	94.3
03/23/2010	93.5

This permit contains site-specific requirements for the waste flammable liquid stream VOC content. These requirements do not apply to any other waste streams at the facility.

NESHAP Calculations

To comply with the NESHAP the facility is required to calculate the ratio of organic HAP emissions from the web coating lines to the organic HAP applied at the web coating lines. Appendix V of the permit contains the relevant equations from the NESHAP that are needed to perform the compliance calculations. The MPCA has customized some of the NESHAP equations to accommodate for the specifics of Multek's operations. Additionally, Attachment 1 to this TSD contains a series of helpful fact sheets prepared by EPA that provide a step-by-step outline of the subpart JJJJ compliance demonstration. The specific compliance option relevant to Multek has been highlighted in each of the fact sheets.

3.6 Ammonia Limits and Controls

Air Permit No. 884-91-OT-2 was issued in April of 1991. That permit contained various limits that resulted from a non-criteria air pollutant study, or an air toxics review. The permit required the facility to phase-out the use of certain chemicals (e.g., methylene chloride) and established hourly emissions limits on ammonia. Controls for ammonia were also required (with the necessary control equipment parameters, operation, and maintenance requirements). Those hourly limits were amended in 1993 and 1997. On both occasions, site-specific modeling was done prior to setting the limits. After 1997, the Minnesota Department of Health proposed a new acute Health Risk Value for ammonia. The new value was higher, meaning the exposure can be greater before requiring further evaluation; therefore, the previous limits are considered conservative and are carried forward in this permit.

3.7 VOC Limit

PreCap

Permit 13100005-003 contained the authorization to modify and replace existing emissions units as long as all permit conditions were met and as long as no new applicable requirements were triggered. This preauthorization is removed with this permit action and replaced with a PreCap. For Multek's needs, a PreCap will be a more useful tool than the preauthorized changes because, many of the changes that Multek makes are not solely replacements or modifications, but rather additions of new equipment. Under a PreCap, all replacements, changes, and additions to VOC-emitting equipment are covered under the VOC emission cap. Therefore, additions and replacements would not require a major amendment solely due to an emissions increase, but any change would still need to be evaluated for the applicability of other amendments or requirements.

If the facility wishes to make a change in which the PreCap covers only some of the equipment affected by the change, the Title I calculation for the modification would be completed as follows for the equipment involved in the project:

- the ton per year potential emissions from the units covered by the precap OR

- the precap value, if the ton per year potential emissions from the units covered by the precap is greater than the precap

PLUS

- the ton per year potential emissions from units not covered by the precap.

Potential emissions would be calculated as required – meaning any rules or enforceable permit conditions could be taken into account (e.g., required control efficiencies). It should be noted that it is unlikely that Multek would conduct this calculation because, as of permit issuance, all VOC-emitting emission units at the facility are covered by the VOC precap limit or the insignificant activities cap.

Margin of Compliance and Recordkeeping

MPCA and EPA have published guidance on setting limits to avoid applicable requirements. While the federal NSR threshold is 250 tons per year, the various permit limits need to ensure that the source does not trigger this level. The actual value of permit limits are based on the accuracy of the compliance method, the variability of the data, the frequency of recordkeeping, as well as the potential and actual emissions of non-limited or non-tracked units. Therefore, MPCA typically sets minor limits at 240 tons per year to allow for uncertainty in the calculations and other non-tracked units to ensure that the permittee doesn't inadvertently trip the major threshold.

However, for this permit, the total limited PTE is 245 tons of VOC per year as established in their previous Part 70 permit. MPCA believes the higher limit is justified for the following reasons:

- First, there are no non-tracked VOC emissions. All VOCs are under either the GP limit or the insignificant activity limit.
- The insignificant activity limit is a limit on the potential to emit. The actual emissions are much less than the limit. It may be technically possible to emit 45 tons from the insignificant activities, but this is very unlikely. Many of the insignificant activities are included under Minn. R. 7007.1300, subp. 4. The PTE for these units is greater than 1 tpy but the actual emissions are less. The company has estimated that the total insignificant VOC actual emissions are roughly 2 tons per year (compared to the PTE of 36 tons per year). The actual emissions from the insignificant activities are not likely to ever approach the PTE. Therefore, there is little risk of the insignificant activities causing the source to actually exceed the major source threshold for PSD.
- For this permit, the assumptions used in the potential to emit calculations are conservative estimates. For example:

Over half of the emissions from this source are from laminating. The current mixing emissions calculations are likely to overestimate the actual emissions by several orders of magnitude.

Approximately 40% of the emissions come from the wet processes. The permit assumes that all of the VOC used is emitted. The Permittee has stated that a significant portion of the VOC used ends up in their wastewater, but since the Permittee does not want to prove this on an on-going basis, all VOC used is considered to be emitted.

In addition, the types of records the Permittee uses are much better than the traditional MSDS. For a significant portion of their usage, the Permittee does not buy mixed materials; rather, they buy raw solvents/chemicals and resins to formulate their own materials -- so the data is based on the Permittee's own specifications, not a supplier MSDS range. The records kept by the Permittee show exact material content specifications. This method is more accurate than MSDS or data sheets that only provide a content range from a supplier.

3.8 Periodic Monitoring and CAM

In accordance with the Clean Air Act, it is the responsibility of the owner or operator of a facility to have sufficient knowledge of the facility to certify that the facility is in compliance with all applicable requirements.

For CAM, the Permittee submitted a CAM proposal as required by 40 CFR § 64.3. The plan can be found in Attachment 2 to this TSD. Further discussion of applicability of CAM can be found in Table 4 and Section 2.

In evaluating the monitoring included in the permit, the MPCA considers the following:

- The likelihood of violating the applicable requirements;
- Whether add-on controls are necessary to meet the emission limits;
- The variability of emissions over time;
- The type of monitoring, process, maintenance, or control equipment data already available for the emission unit;
- The technical and economic feasibility of possible periodic monitoring methods; and
- The kind of monitoring found on similar units elsewhere.

Table 11 summarizes the periodic monitoring requirements for those emission units for which the monitoring required by the applicable requirement is nonexistent or inadequate or where CAM applies.

Table 11. Monitoring

EU/GP/CE	Requirement (basis)	Additional Monitoring	Discussion
Total Facility	Shall not emit thiourea or methylene chloride	none	The Permittee is required to keep material content records as part of the VOC tracking. This recordkeeping is adequate to demonstrate that these materials are not in use.

EU/GP/CE	Requirement (basis)	Additional Monitoring	Discussion
	VOC PTE of listed Insignificant Activities ≤ 45 tons/yr (limit to avoid NSR)	Recordkeeping: Calculations of total PTE, updates required to calculations prior to making any change	Tracking of actual emissions from these units would be overly burdensome, so the Permittee has chosen to limit their PTE. If the PTE approaches the limit, the Permittee will need to obtain a permit amendment to revise the VOC limits on production and insignificant activities or to include some of the insignificant activities under the production limit. Either type of change would require a major amendment.
GP 001: Total Facility VOC Limits	VOC ≤ 200 tons/yr (12-mo. rolling sum) (limit to avoid NSR)	Recordkeeping: Daily records of material usage; On-going MSDS records of coating contents; Monthly calculations of emissions.	Records can be generated on a daily basis for the biggest VOC-emitting units at the sources using daily mixing logs. Some materials are not used or replenished daily, such as the wet process lines. For these units, each time a purchase/delivery is made, the amount is considered used. The remaining materials are used in small quantities and monthly purchase/delivery records are adequate to demonstrate compliance.
	\leq various grain loading limits based on airflow Opacity: $\leq 20\%$ (Minn. R. 7011.0715)	none	These units are not expected to generate significant particulate emission. Calculations in Attachment 3 show PTE significantly under the allowable emissions.
GP 002: Nat. Gas Boilers: Pre-Jan. 31, 1977	PM: ≤ 0.6 lb/MMBtu Opacity: $\leq 20\%$ with exceptions (Minn. R. 7011.0510)	Recordkeeping: Monthly fuel records	These units use natural gas; therefore, the likelihood of violating either of the emission limits is very small. Design based PTE for each unit, using AP-42, is 0.0075 compared to the rule limit of 0.60 lb/MMBtu.
GP 003: Nat. Gas Boilers: Jan. 31, 1977 or later	PM: ≤ 0.4 lb/MMBtu Opacity: $\leq 20\%$ with exceptions (Minn. R. 7011.0515)	Recordkeeping: Monthly fuel records	These units use natural gas; therefore, the likelihood of violating either of the emission limits is very small. Design based PTE for each unit, using AP-42, is 0.0075 compared to the rule limit of 0.40 lb/MMBtu.
GP 004: Emergency Generators:	SO ₂ : ≤ 0.5 lb/MMBtu Opacity: $\leq 20\%$ with exceptions (Minn. R. 7011.2300)	Recordkeeping: Monthly records of fuel usage and documentation showing units are emergency generators	These units use natural gas; therefore, the likelihood of violating either of the emission limits is very small. Design based PTE for each unit, using AP-42, is 0.00006 compared to the rule limit of 0.5 lb/MMBtu. Records are required in order to show the units qualify for EPA's policy memo for emergency generators.

EU/GP/CE	Requirement (basis)	Additional Monitoring	Discussion
EU 012: Oxidizer Burner	various gr/dscf limits based on airflow Opacity: $\leq 20\%$ with exceptions (Minn. R. 7011.0610)	Recordkeeping: Monthly fuel records	This unit is a catalytic oxidizer burner. It uses natural gas; therefore, the likelihood of violating either of the emission limits is very small. Design based PTE is less than 0.4% of the allowable rate.
CE 002: Catalytic Afterburner w/ heat exchanger	VOC: Destruction Efficiency $\geq 97\%$ (limit to avoid NSR) VOC: Overall Control Efficiency Efficiency $\geq 95\%$ (limit to avoid NSR) HAP- Organic: Destruction Efficiency $\geq 97\%$ (in order to achieve JJJJ NESHAP limit of 95% reduction of organic HAP) HAP- Organic: Overall Control Efficiency $\geq 95\%$ (JJJJ NESHAP) Inlet Temperature $\geq 712^\circ\text{F}$ (3-hr rolling avg.)	Temperature monitoring; Recordkeeping; O & M; Inspections; Corrective action	<p>CAM and monitoring associated with the subpart JJJJ NESHAP are adequate to assure compliance. The Permittee monitors widely accepted indicators of catalytic oxidizer performance: inlet temperature, catalyst activity, and conducts periodic inspections and performance tests to demonstrate compliance with applicable requirements. The Permittee is not required to measure the temperature rise across the catalyst bed as an indicator of catalyst activity because the temperature rise across the bed is heavily dependent on solvent load. So, normal operating conditions would not be able to achieve the same temperature rise as achieved during the performance test. Additionally, a fluctuation in temperature rise across the catalyst is expected based on variations in solvent loading. As an alternative to measuring temperature rise, as allowed by subpart JJJJ, the Permittee developed a site specific inspection and maintenance plan for the catalytic oxidizer. This plan is Attachment 5 to this TSD.</p> <p>The permit also requires additional monitoring for tracking material usage when the bypass stacks are used or when non-VOC or non-HAP containing materials are used at the laminators (many of the monitoring requirements associated with tracking bypass emissions are also at GP 005)</p> <p>The temperature limit is based on a 3-hr rolling average. There appears to be a discrepancy in the type of average required by the NESHAP. In separate parts of the standard, the NESHAP instructs the Permittee to reduce the temperature readings to 3-hr block averages and to 3-hr rolling averages to show compliance with the temperature limit. 3-hr rolling averages are generally more stringent than 3-hr block averages. Additionally, the Permittee proposed the use of 3-hr rolling averages in their CAM plan, so the rolling average shall be used in this permit.</p> <p>Performance testing is required once every 60 months for VOC and Organic HAP destruction efficiency and carryover of VOC/Organic HAP to the dryer versus emitted at the slot/enclosure exhaust.</p>

EU/GP/CE	Requirement (basis)	Additional Monitoring	Discussion
CE 004: High Efficiency Wet Scrubber	Ammonia ≤ 6.2 lb/hr (limited based on toxics modeling – state-only requirements) Pressure Drop ≤ 6 inches of water column pH < 3.5 Control Efficiency $\geq 85\%$	Pressure drop and pH monitoring; Recordkeeping; O & M; Inspections	This monitoring is carried forward from the previous permit. The monitoring is based on the Minnesota Performance Standard for Control Equipment. The permit requires daily monitoring for parameters that indicate control equipment performance – pressure drop and pH. The Permittee has previous stack test data and has tested significantly under the emissions limit and higher than the minimum control efficiency. Testing in 1998 showed an efficiency of 94% (vs. 85% limit) and 0.98 lb/hr (vs. 6.2 lb/hr limit). No further testing is required at this time.
CE 005: High Efficiency Wet Scrubber	Ammonia ≤ 0.56 lb/hr (limited based on toxics modeling – state-only requirements) Control Efficiency $\geq 85\%$ Pressure Drop ≤ 6 inches of water column pH < 3.5	Pressure drop and pH monitoring; Recordkeeping; O & M; Inspections	See CE 004 above.

*Where the requirement appears in the permit (e.g., EU, SV, GP, TK etc.).

3.9 Insignificant Activities

Multek has several operations which are classified as insignificant activities. These are listed in Appendix II to the permit.

The permit is required to include periodic monitoring for all emissions units, including insignificant activities, per EPA guidance. The insignificant activities at this Facility are only subject to general applicable requirements. Using the criteria outlined earlier in this TSD, the following table documents the justification why no additional periodic monitoring is necessary for the current insignificant activities. See Attachment 3 of this TSD for PTE information for the insignificant activities.

Table 12. Insignificant Activities and Associated General Applicable Requirements

Insignificant Activity	General Applicable Emission limit	Discussion
Infrared electric ovens (Minn. R. 7007.1300 subp. 3(B)(1))	Opacity \leq 20% (Minn. R. 7011.0110)	Roughly 10 units qualify under this subpart. While no emissions estimation method exists for these units, based on general knowledge of how they operate, it is highly unlikely that they could generate visible emissions. In addition, these units are vented directly into the building, so testing is not feasible.
Laboratory equipment (Minn. R. 7007.1300 subp. 3(G))	PM, variable depending on airflow Opacity \leq 20% (Minn. R. 7011.0715)	Roughly 20 units qualify under this subpart. Most of these units are laboratory hoods and are not reasonably expected to generate particulate matter; therefore, it is highly unlikely that they could violate the applicable requirement.
Brazing, soldering or welding equipment (Minn. R. 7007.1300 3(H)(4))	PM, variable depending on airflow Opacity \leq 20% (Minn. R. 7011.0715)	For these units, based on EPA published emissions factors, it is highly unlikely that they could violate the applicable requirement. In addition, these units are operated and vented inside a building, so testing for PM or opacity is not feasible.
Individual units that have potential emissions of less than 1 tpy of various criteria pollutants (Minn. R. 7007.1300 subp. 3(I))	PM, variable depending on airflow Opacity \leq 20% (Minn. R. 7011.0715)	Roughly 25 units qualify under this category. Only 5 of them could possibly generate particulate matter. For those units, the calculated PTEs are significantly under the allowable emissions rates.
Individual units that have actual emissions of less than 1 tpy of various criteria pollutants and less than various HAP thresholds listed in rule (Minn. R. 7007.1300 subp. 4)	PM, variable depending on airflow Opacity \leq 20% (Minn. R. 7011.0715)	Roughly 45 units qualify under this category. About 20 of those could possibly generate particulate matter. For those units, the calculated PTEs are significantly under the allowable emissions rates. In addition, many of the units are operated and vented inside a building, so testing for PM or opacity is not feasible.

3.10 Permit Organization

In general, the permit meets the MPCA Delta Guidance for ordering and grouping of requirements. The permit deviates from Delta Guidance in the following ways:

- A. One area where this permit deviates slightly from Delta guidance is in the use of appendices. While appendices are fully enforceable parts of the permit, in general, any requirement that the MPCA thinks should be tracked (e.g., limits, submittals, etc.), should be in Table A or B. The main reason is that the appendices are word processing sections and are not part of the tracking system. Violation of the appendices can be enforced, but the computer system will not automatically generate the necessary enforcement notices or documents. Staff must generate these.

Appendix I contains the VOC Calculation Procedure. These requirements are fairly detailed and lengthy and cannot fit into the data entry fields for Table A. Table A states the company must follow the procedures in Appendix I.

Appendix II meets Delta guidance; it is the listing of Insignificant Activities and their applicable requirements. This is a fairly standard way to include these in the permit, since it is highly unlikely the MPCA would need to have these as trackable items in the Delta database.

Appendix III is a printout from Delta of the control equipment and emissions unit description, Forms GI-0BA and GI-05B. This documents the correlation of specific emissions units to specific control equipment as well as the capacities of each unit. Delta does not show this data as part of the “associated items” in Table A of the permit.

Appendix IV contains two tables with maximum material contents and usage rates used in the calculation of PTE. These tables are too extensive to put in Table A of the permit.

Appendix V contains the compliance equations needed for the Subpart JJJJ NESHA. These calculations are also fairly detailed and lengthy and cannot fit into the data entry fields for Table A.

- B. The permit deviates from guidance by using groups for requirements that apply to individual pieces of equipment. This is done in order to streamline the permit.
- C. The first group listed in the permit (GP 001) has no associated items. Usually, all the items belonging to the group are linked electronically in Delta. This was not done for this permit in order to make the permit more readable. There are over 100 emission units in the group and listing them traditionally would result in several pages in the permit just showing this list. In order to make the permit more readable, the emission units are listed using a CD screen as the first item in the permit under GP 001.
- D. Individual Combustion HAP PTEs are listed at the group level in the Delta database (GP 002, 003, and 004). The “Total HAPs” PTE is listed at the emission unit level. This was done to streamline the permitting process. These HAP emissions are very small relative to the total HAP emissions at the facility. In the future should the HAP PTEs be needed for each unit individually, they can easily be calculated based on the relative capacity of the unit and the totals for each HAP at the group level.

3.11 Comments Received

This section will be completed after the review periods are complete.

Public Notice Period: August 7th, 2011 – September 6th, 2011
EPA 45-day Review Period: August 7th, 2011 – September 21st, 2011

No comments were received during the public notice period or the EPA 45-day review period.

3.12 Permit Fee Assessment

This permit action is the reissuance of an individual Part 70; therefore, no application fees apply under Minn. R. 7002.0016, subp. 1.

4. Conclusion

Based on the information provided by Multek, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 13100005-004, and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Kelsey Suddard (permit engineer)
Brent Rohne (enforcement)
Marc Severin (stack testing)
Peggy Bartz (peer reviewer)

AQ File No. 884; DQ 1770

Attachments:

1. EPA-Prepared Step-by-step Compliance Demonstrations for Subpart JJJJ NESHAP
2. Compliance Assurance Monitoring Plan for the Catalytic Oxidizer, CE 002
3. PTE Summary and Calculation Spreadsheets
4. Supporting Information for MDI Calculations
5. Site-Specific Catalytic Oxidizer Inspection and Maintenance Plan
6. CD-01 Forms