

**AIR EMISSION PERMIT NO. 04100003-004
(PART 70 REISSUANCE PERMIT)**

IS ISSUED TO

3M-Company

3M-ALEXANDRIA

2115 Broadway Street, South
Alexandria, Douglas County, MN 56308

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

Permit Type	Application Date	Permit Action	Issuance Date
Total Facility Operating Permit-Reissuance	November 7, 2007	004	See Below

This permit supersedes Air Emission Permit Nos. 04100003-001 through 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.

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

Issue Date: July 15, 2008

Expiration: July 15, 2013
All Title I Conditions do not expire.

Jeff J. Smith, Manager
Air Quality Permits Section
Industrial Division

for Brad Moore
Commissioner
Minnesota Pollution Control Agency

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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:

3M Alexandria began operation in 1967 and manufactures abrasive products such as sanding belts and sanding discs. In addition, the facility converts intermediate materials from other 3M plants into saleable abrasive products and also provides intermediate products to other 3M Abrasive Plants.

The facility production areas include: (1) abrasive coating/treating lines that make the abrasive backings for sanding belts and discs; (2) a specialty abrasive product line that makes specialty abrasive products for fine metal polishing; (3) a sierra line that makes only sanding discs; and (4) converting areas where the abrasive backings are converted into various sizes of belts (small, medium and wide belts) and discs.

The typical abrasive product is constructed of a backing material, a water-based phenolic resin, and a mineral. On the treating lines, the backing is coated with the multiple coatings and sometimes mineral and then dried in ovens. The abrasive backing is then converted into discs and belts onsite or it is shipped to another 3M location. Belts are spliced together using a solvent-based adhesive. Volatile organic compound (VOC) emissions are primarily from coatings and belt splice adhesive. The facility also has various dust collection units in the converting areas, gas ovens, two natural gas fired boilers, and one natural gas and No. 2 fuel oil fired boiler. The boilers serve for back-up since most of the current steam demand and future needs are met by purchasing steam from the nearby solid waste incinerator operated by the county.

A total facility limit of 240 tons per year of VOCs was added to the permit in action 003 in order to make the facility non-major under federal New Source Review regulations (40 CFR § 52.21). The facility is major source under federal Operating Program (40 CFR pt. 70) and under National Emissions Standards for Hazardous Air Pollutant (NESHAPs, 40 CFR pt. 63).

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: 3M - Alexandria
 Permit Number: 04100003 - 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
This permit establishes limits on the facility to keep it a minor source under New Source Review, this includes changes that might otherwise qualify as insignificant modifications and minor or moderate amendments for future modifications. The Permittee cannot make any change at the source area that would make the source a major source under New Source Review until a major permit amendment has been issued.	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000
Volatile Organic Compounds: less than or equal to 240.0 tons/year using 12-month Rolling Sum to be calculated by the 15th day of each month for the previous 12-month period. This limit includes VOCs from both combustion and non-combustion sources as well as the insignificant activities listed in Appendix A.	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, subps. 7A, 7L & 7M; 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, unless otherwise noted in Table A.	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, subp. 14 and Minn. R. 7007.0800, subp. 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
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, B, and/or C.	Minn. R. ch. 7017

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: 3M - Alexandria
 Permit Number: 04100003 - 004

<p>Performance Test Notifications and Submittals:</p> <p>Performance Tests are due as outlined in Tables A and B of the permit. See Table B for additional testing requirements.</p> <p>Performance Test Notification (written): due 30 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 - Microfiche Copy: due 105 days after each Performance Test</p> <p>The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.</p>	<p>Minn. Rs. 7017.2030, subp. 1-4, 7017.2018 and Minn. R. 7017.2035, subp. 1-2</p>
<p>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.</p>	<p>Minn. R. 7017.2025, subp. 3</p>
<p>MONITORING REQUIREMENTS</p>	<p>hdr</p>
<p>Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment (any requirements applying to continuous emission monitors are listed separately in this permit).</p>	<p>Minn. R. 7007.0800, subp. 4(D)</p>
<p>Operation of Monitoring Equipment: Unless otherwise noted in Tables A, B, and/or C, 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.</p>	<p>Minn. R. 7007.0800, subp. 4(D)</p>
<p>RECORDKEEPING</p>	<p>hdr</p>
<p>Recordkeeping: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).</p>	<p>Minn. R. 7007.0800, subp. 5(C)</p>
<p>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.</p>	<p>Minn. R. 7007.0800, subp. 5(B)</p>
<p>Daily Recordkeeping. On each day of operation, the Permittee shall calculate, record, and maintain the total quantity of all coatings and other VOC containing materials used at the facility. This shall be based on written usage logs.</p>	<p>Title I Condition: To avoid classification as major source and modification under 40 CFR 52.21 and Minn. R. 7007.3000</p>
<p>Monthly Recordkeeping -- VOC Emissions. By the 15th of the month, the Permittee shall calculate and record the following: 1) The total usage of VOC containing materials for the previous calendar month using the daily usage records. This record shall also include the VOC and solids contents of each material as determined by the Material Content requirement of this permit. 2) The VOC emissions for the previous month using the formulas specified in this permit. 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, subp. 4 and 5</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: 3M - Alexandria
 Permit Number: 04100003 - 004

<p>Monthly Calculation -- VOC Emissions. The Permittee shall calculate sourcewide VOC emissions using the following equations:</p> $\text{VOC (tons/month)} = (\text{Vusage} + \text{V comb} + \text{Vinsig}) - \text{W}$ $\text{V} = (\text{A1} \times \text{B1}) + (\text{A2} \times \text{B2}) + (\text{A3} \times \text{B3}) + \dots$ $\text{W} = (\text{C1} \times \text{D1}) + (\text{C2} \times \text{D2}) + \text{C3} \times \text{D3} + \dots$ <p>Monthly VOC Emissions Calculation Continued:</p> <p>where: Vusage = total VOC used in tons/month; A# = amount of each VOC containing material used, in tons/month; B# = weight percent VOC in A#, as a fraction; Vcomb = amount of VOC from all combustion sources in tons/month; Vinsig = amount of VOC emitted from all insignificant activities listed in Appendix A in tons/month; W = the amount of VOC shipped in waste, in tons/month; C# = amount, in tons/month, of each VOC containing waste material shipped. If the Permittee chooses to not take credit for waste shipments, this parameter would be zero; and D# = weight percent of VOC in C#, as a fraction.</p>	<p>Minn. R. 7007.0800, subp. 4 and 5</p>
<p>REPORTING/SUBMITTALS</p>	<p>hdr</p>
<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>	<p>Minn. R. 7019.1000, subp. 3</p>
<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>	<p>Minn. R. 7019.1000, subp. 2</p>
<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>	<p>Minn. R. 7019.1000, subp. 1</p>
<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. 	<p>Minn. R. 7019.1000, subp. 1</p>
<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>	<p>Minn. R. 7007.1150 through Minn. R. 7007.1500</p>
<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>	<p>Minn. R. 7007.1400, subp. 1(H)</p>
<p>Emission Inventory Report: due on or before April 1 of each calendar year following permit issuance. The Permittee shall submit this on a form approved by the Commissioner.</p>	<p>Minn. R. 7019.3000 through Minn. R. 7019.3100</p>
<p>Emission Fees: due 60 days after receipt of an MPCA bill.</p>	<p>Minn. R. 7002.0005 through Minn. R. 7002.0095</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: 3M - Alexandria

Permit Number: 04100003 - 004

<p>The Permittee must submit a Risk Management Plan (RMP) under 40 CFR pt. 68. Each owner or operator of a stationary source, at which a regulated substance is present above a threshold quantity in a process, shall design and implement an accidental release prevention program. An initial RMP must be submitted no later than the latest of the following dates: 1) June 21, 1999; 2) Three years after the date on which a regulated substance is first listed under 40 CFR Section 68.130; or 3) The date on which a regulated substance is first present above a threshold quantity in a process. A full update and resubmission of the RMP is required at least once every five years. The five-year anniversary date is reset whenever your facility fully updates and resubmits their RMP. Submit RMPs to the Risk Management Plan Reporting Center, P.O. Box 1515, Lanham-Seabrook, Maryland 20703-1515. RMP information may be obtained at http://www.epa.gov/swercepp or by calling 1-800-424-9346.</p>	<p>40 CFR pt. 68</p>
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TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: 3M - Alexandria

Permit Number: 04100003 - 004

Subject Item: GP 001 Boilers

Associated Items: EU 056 #5 Boiler

EU 057 #6 Boiler

What to do	Why to do it
LIMITS	hdr
Allowable fuels: natural gas only.	Minn. R. 7011.0515
PERFORMANCE TESTING	hdr
Initial Performance Test: due 180 days after Initial Startup to measure NOx emissions from EU 056.	40 CFR Section 63.7(a)(2); Minn. R. 7017.2020, subp. 1
Initial Performance Test: due 180 days after Initial Startup to measure CO emissions from EU 056.	40 CFR Section 63.7(a)(2); Minn. R. 7017.2020, subp. 1
Initial Performance Test: due 180 days after Initial Startup to measure NOx emissions from EU 057.	40 CFR Section 63.7(a)(2); Minn. R. 7017.2020, subp. 1
Initial Performance Test: due 180 days after Initial Startup to measure CO emissions from EU 057.	40 CFR Section 63.7(a)(2); Minn. R. 7017.2020, subp. 1
Performance Test Notifications and Submittals; Performance Test Notification (written): due 30 days before each Performance Test Performance Test Plan: due 30 days before each Performance Test Performance Test Pre-Test Meeting: due 7 day before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy or CD: due 105 day after each Performance Test. The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.	Minn. R. 7017.2030, subp. 1-4; Minn. R. 7017.2018 and Minn. R. 7017.2035, subp. 1-2
MONITORING AND RECORDKEEPING	hdr
If an action taken by the Permittee during a startup, shutdown, or malfunction (including an action taken to correct a malfunction) is not consistent with the procedures specified in the SSMP, and the boiler/process heater exceeds any applicable emission limitation in the relevant emission standard, then the Permittee must record the actions taken for that event and must report such actions within 2 working days after commencing actions inconsistent with the plan, followed by a letter within 7 working days after the end of the event, in accordance with 40 CFR Section 63.10(d)(5).	40 CFR Section 63.6(e)(3)(iv)
Fuel Usage Records: The permittee shall record and maintain records of the amount of natural gas combusted monthly in each unit. The records shall be maintained for a minimum of two years.	40 CFR Section 60.48c(g)(2); 40 CFR Section 60.48c(i)
Submit a 112(j) determination within 30 days after startup of EU 056 and/or EU 057 to the MPCA.	40 CFR Section 63.52(b)(1)

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: 3M - Alexandria
 Permit Number: 04100003 - 004

Subject Item: GP 002 Direct Heating Equipment

- Associated Items:** EU 008 Wide Maker Oven
 EU 022 Cloth Coater Treater Oven
 EU 029 Coater Cure Oven 2
 EU 044 Sierra 1 Make Oven
 EU 045 Sierra 1 Size Oven
 EU 062 M9 Coater Reactive Thermal Oxidizer

What to do	Why to do it
LIMITS (Limits apply to each oven)	hdr
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot using 3-hour Rolling Average 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 limit applies separately to each unit.	Minn. R. 7011.0610, subp. 1(A)(1)
Sulfur Dioxide: less than or equal to 2.0 lbs/million Btu heat input using 3-hour Rolling Average	Minn. R. 7011.0610, subp. 2(A)(2)
Opacity: less than or equal to 20.0 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. This limit applies separately to each unit.	Minn. R. 7011.0610, subp. 1(A)(2)
The Permittee shall burn only natural gas in the Group 2 emission units.	Minn. R. 7007.0800 subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

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07/15/08

Facility Name: 3M - Alexandria

Permit Number: 04100003 - 004

Subject Item: GP 003 Sierra #1 Process Equipment**Associated Items:** EU 041 Sierra Maker Coater

EU 042 Mixstation

EU 043 Sierra 1 Size Coater

EU 051 Sierra 1 in-line size cure oven

What to do	Why to do it
LIMITS (Limits apply to each emission unit)	hdr
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot using 3-hour Rolling Average of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011. 0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20.0 percent opacity	Minn. R. 7011.0715, subp. 1(B)
The Permittee shall properly maintain the process equipment so as to prevent excessive amounts of particulate matter from being emitted from the emission units listed above under Associated Items.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: 3M - Alexandria
 Permit Number: 04100003 - 004

Subject Item: GP 005 Miscellaneous Process Equipment

- Associated Items:** EU 001 Large Mixer A
 EU 002 Large Mixer B
 EU 003 Large Mixer C
 EU 004 Large Mixer D
 EU 005 Large Mixer E
 EU 006 Coater Room
 EU 007 Counter Coater
 EU 012 Belt Adhesive Mix Room
 EU 013 Medium Belt Making
 EU 014 Wide Belt Making
 EU 015 Butt Splice Coater
 EU 016 Mix Tank D, 1092
 EU 017 Mix Tank C, 1093
 EU 018 Mix Tank B, 1904
 EU 019 Mix Tank A, 1095
 EU 020 Mix Tank E
 EU 021 Cloth Coater Treater

What to do	Why to do it
LIMITS (Limits apply to each emission unit)	hdr
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot using 3-hour Rolling Average of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011. 0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20.0 percent opacity	Minn. R. 7011.0715, subp. 1(B)
The Permittee shall properly maintain the process equipment so as to prevent excessive amounts of particulate matter from being emitted from the emission units listed above under Associated Items.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

A-9

07/15/08

Facility Name: 3M - Alexandria

Permit Number: 04100003 - 004

Subject Item: GP 006 Subpart JJJJ NESHAP Units

Associated Items: EU 001 Large Mixer A
EU 002 Large Mixer B
EU 003 Large Mixer C
EU 004 Large Mixer D
EU 005 Large Mixer E
EU 006 Coater Room
EU 007 Counter Coater
EU 008 Wide Maker Oven
EU 016 Mix Tank D, 1092
EU 017 Mix Tank C, 1093
EU 018 Mix Tank B, 1904
EU 019 Mix Tank A, 1095
EU 020 Mix Tank E
EU 021 Cloth Coater Treater
EU 022 Cloth Coater Treater Oven
EU 029 Coater Cure Oven 2
EU 041 Sierra Maker Coater
EU 042 Mixstation
EU 043 Sierra 1 Size Coater
EU 051 Sierra 1 in-line size cure oven
EU 052 Make Coater
EU 053 Backrack Oven
EU 054 Size Coater
EU 055 Mainline Oven
EU 056 #5 Boiler
EU 057 #6 Boiler
EU 058 200 Gallon Mix Tank
EU 059 200 Gallon Mix Tank
EU 060 200 Gallon Mix Tank
EU 061 200 Gallon Mix Tank
SV 001 Wide Maker Mixers
SV 002 Wide Maker Coater Room
SV 003 Wide Maker Counter Coater
SV 004 Wide Maker Oven
SV 005 Wide Maker Oven
SV 006 Wide Maker Oven
SV 010 Medium Belt Making - IBL
SV 012 ACT Mixroom
SV 013 Cloth Coater Oven

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: 3M - Alexandria
 Permit Number: 04100003 - 004

- Associated Items:**
- SV 014 ACT Cloth Treater Oven
 - SV 015 ACT Cloth Treater Oven
 - SV 016 ACT Cloth Treater Oven
 - SV 030 Sierra Maker Coater
 - SV 033 Sierra 1 Size Coater
 - SV 041 Make Coater Bypass
 - SV 042 Size Coater Bypass

What to do	Why to do it
Paper and Other Web Coating NESHAP - Comply with the standards in 40 CFR 63.3370 beginning on December 5, 2005 for the "affected source". The Subpart JJJJ "affected source" includes all the units in this group.	40 CFR 63.3370
Based on the current and expected operations of the affected source, this permit only includes the regulations for compliance with 40 CFR pt. 63, subp. JJJJ using option in 40 CFR Section 63.3320(b)(2). If the Permittee later chooses to switch to one of the another compliance option allowed in the standard, the Permittee shall comply with all applicable portions of 40 CFR pt. 63, subp. JJJJ for that option. In addition, the Permittee shall apply for a permit amendment, as appropriate (e.g., to add applicable NESHAP language, installation of an oxidizer, etc.).	Minn. R. 7007.1150; Minn. R. 7007.0800 subp. 2
EMISSION AND OPERATING LIMITS - No Control Option at the facility for these processes	hdr
The Permittee must limit organic HAP emissions to: no more than 4 percent of the mass of coating materials applied for each month.	40 CFR Section 63.3320(b)(1)-(3); Minn. R. 7011.7385
MONITORING AND RECORDKEEPING REQUIREMENTS	hdr
Maintain the following records on a monthly basis: (1) Records specified in 40 CFR Section 63.10(b)(2) of all measurements need to demonstrate compliance, including: (iii) organic HAP content data used for demonstrating compliance in accordance with 40 CFR Section 63.3360(c); (iv) volatile matter and coating solids content data used for demonstrating compliance with 40 CFR Section 63.3360(d); and (vi) material usage, organic HAP usage, volatile matter usage, and coating solids usage and compliance demonstrations using these data in accordance with 40 CFR Section 63.3370(b), (c), and (d).	40 CFR Section 63.3410(a); 40 CFR Section 63.10(b)(1); Minn. R. 7011.7385
TESTING REQUIREMENTS	hdr
While organic HAP is controlled on any individual coating line or group of coating lines by limiting organic HAP or volatile matter content of coatings, the Permittee must determine the organic HAP or volatile matter and coating solids content of the coating materials according to procedures in 40 CFR Section 63.3360(c) and (d). If applicable, determine the mass of volatile matter retained in the coated web or otherwise not emitted to the atmosphere according to 40 CFR Section 63.3360(g).	40 CFR Section 63.3360(a); Minn. R. 7011.7385
Method 311 - The Permittee may test the coating material in accordance with Method 311 of Appendix A of Part 63. The Method 311 determination may be performed by the manufacturer of the coating material and the results provided to the Permittee. The organic HAP content must be calculated according to the criteria and procedures in 40 CFR Section 63.3360(c)(1)(i)-(iii).	40 CFR Section 63.3360(c)(1); Minn. R. 7011.7385
Method 24 - The Permittee may determine the volatile organic content of coatings as mass fraction of nonaqueous volatile matter and use it as a substitute for organic HAP using Method 24 of Appendix A of Part 63. The Method 24 determination may be performed by the manufacturer of the coating and the results provided to the Permittee.	40 CFR Section 63.3360(c)(2); Minn. R. 7011.7385
Formulation Data - The Permittee may use formulation data to determine the organic HAP mass fraction of a coating material. Formulation data may be provided to the Permittee by the manufacturer of the material. In the event of an inconsistency between Method 311 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.	40 CFR Section 63.3360(c)(3); Minn. R. 7011.7385

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: 3M - Alexandria

Permit Number: 04100003 - 004

<p>Volatile matter retained in the coated web or otherwise not emitted to the atmosphere - If you choose to take this into account when determining compliance with the emission standards, you must develop a testing protocol to determine the mass of volatile matter retained in the coated web or otherwise not emitted to the atmosphere and submit it to the Administrator for approval with your site-specific test plan under 40 CFR Section 63.7(f). If you intend to take into account the mass of volatile matter retained in the coated web after curing or drying or otherwise not emitted to the atmosphere and demonstrate compliance according to 40 CFR Section 63.3370(c)(3), (c)(4), or (d), then the protocol must determine the mass of organic HAP retained in the coated web or otherwise not emitted to the atmosphere. Otherwise, compliance must be shown using the volatile organic matter content as a surrogate for the HAP content of the coatings.</p>	<p>40 CFR Section 63.3360(g); Minn. R. 7011.7385</p>
<p>COMPLIANCE DEMONSTRATION</p>	<p>hdr</p>
<p>Demonstrate that: (iii) the monthly average of all coating materials used does not exceed 0.04 kg organic HAP per kg coating material as-applied, using the procedures set out in 40 CFR Section 63.3370(c)(3). Use Equation 4 of 40 CFR Section 63.3370 to determine compliance with 40 CFR Section 63.3320(b)(2) in accordance with 40 CFR Section 63.3370(c)(5)(ii).</p>	<p>40 CFR Section 63.3370(a)(2); Minn. R. 7011.7385</p>
<p>Demonstrate compliance by tracking total monthly organic HAP applied, and demonstrate that the total monthly organic HAP applied does not exceed the calculated limit based on emission limitations. Follow the procedures set out in 40 CFR Section 63.3370(d). Show that the monthly HAP applied (Equation 6 of 40 CFR Section 63.3370) is less than the calculated equivalent allowable organic HAP (Equation 13a or 13b of 40 CFR Section 63.3370).</p>	<p>40 CFR Section 63.3370(a)(3); Minn. R. 7011.7385</p>
<p>Semiannual Continuous Compliance Report: due 30 days after end of each calendar half-year following Permit Issuance applicable to each emission unit subject to a standard in 40 CFR Part 63. This may be submitted with the semiannual compliance report required under Part 70 (See Table B of this permit). The report must contain the information listed in 40 CFR Section 63.3400(c)(2).</p>	<p>40 CFR Section 63.3400(c); Minn. R. 7011.7385</p>
<p>GENERAL PROVISIONS, 40 CFR pt. 63, subp. A</p>	<p>hdr</p>
<p>Proper Operation and Maintenance: At all times the Permittee shall operate and maintain the emission unit subject to the MACT standard consistent with good air pollution control practices for minimizing emissions at least to the levels required by all relevant standards.</p>	<p>40 CFR Section 63.6(e)(1)(i); Minn. R. 7011.7000</p>
<p>Comply with emission standards at all times except during startup, shutdown, and malfunction.</p>	<p>40 CFR Section 63.6(f)(1); Minn. R. 7011.7000</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS

A-12

07/15/08

Facility Name: 3M - Alexandria

Permit Number: 04100003 - 004

Subject Item: EU 034 Prism Beltmaking Line**Associated Items:** SV 025 Butt Splice Coater

What to do	Why to do it
LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot using 3-hour Rolling Average of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011. 0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20.0 percent opacity	Minn. R. 7011.0715, subp. 1(B)
The Permittee shall properly maintain the process equipment so as to prevent excessive amounts of particulate matter from being emitted from the emission unit listed above under Associated Items.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: 3M - Alexandria

Permit Number: 04100003 - 004

Subject Item: CE 009 Direct Flame Afterburner w/Heat Exchanger

Associated Items: EU 052 Make Coater

EU 053 Backrack Oven

EU 054 Size Coater

EU 055 Mainline Oven

What to do	Why to do it
OPERATION AND MAINTENANCE	hdr
The operation of this control equipment is not necessary in order for the process to meet applicable emissions limits. However, the Permittee wishes to take credit for its operation for the purposes of reporting actual emissions for emission inventory. Therefore, in order for the VOC to be considered controlled for the purposes of emissions inventory, the afterburner (thermal oxidizer) must comply with the requirements of this permit during the time credit for control is taken. The VOC used during that time shall be considered controlled, and the control efficiency used is the limit given in this table.	Minn. Stat. 116.07, subd. 4a; Minn. R. 7019.3020 (G); Minn. R. 7019.3050
The Permittee shall operate and maintain the thermal 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. Stat. 116.07, subd. 4a; Minn. R. 7019.3020 (G); Minn. R. 7019.3050
EMISSION LIMITS	hdr
The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for Volatile Organic Compounds: greater than or equal to 95 percent	Minn. Stat. 116.07, subd. 4a; Minn. R. 7019.3020 (G); Minn. R. 7019.3050
Temperature: greater than or equal to 1400 degrees F using 3-hour Rolling Average at the Combustion Chamber unless a new minimum temperature is set pursuant to Minn. R. 7017.2025, subp. 3. If a new minimum temperature is required to be set, it will be based on the average temperature recorded during the most recent MPCA approved performance test where compliance for VOC emissions was demonstrated. If the three-hour rolling average temperature drops below the minimum temperature limit, the VOC used during that time shall be considered uncontrolled until the average minimum temperature limit is once again achieved. This shall be reported as a deviation.	Minn. Stat. 116.07, subd. 4a; Minn. R. 7019.3020 (G); Minn. R. 7019.3050
RECORDKEEPING	hdr
The Permittee shall document periods of operation and non-operation of the control equipment.	Minn. Stat. 116.07, subd. 4a; Minn. R. 7019.3020 (G); Minn. R. 7019.3050
The Permittee shall maintain a continuous hard copy readout or computer disk file of the temperature readings and calculated three-hour average temperatures for the combustion chamber.	Minn. Stat. 116.07, subd. 4a; Minn. R. 7019.3020 (G); Minn. R. 7019.3050
Monitoring Equipment: The Permittee shall install and maintain thermocouples to conduct temperature monitoring required by this permit. The monitoring equipment must be installed, in use, and properly maintained whenever operation of the monitored control equipment is required.	Minn. Stat. 116.07, subd. 4a; Minn. R. 7019.3020 (G); Minn. R. 7019.3050
The Permittee shall maintain and operate a thermocouple monitoring device that continuously measures and records the combustion chamber temperature of the thermal oxidizer. The monitoring device shall have a margin of error less than +/- .75 percent of the temperature being measured or +/- .25 degrees Celsius, whichever is greater. The recording device shall also calculate the three-hour rolling average combustion chamber temperature.	Minn. Stat. 116.07, subd. 4a; Minn. R. 7019.3020 (G); Minn. R. 7019.3050
Semiannual Inspections: At least once per calendar halfyear, the Permittee shall inspect the control equipment internal and external 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.	Minn. Stat. 116.07, subd. 4a; Minn. R. 7019.3020 (G); Minn. R. 7019.3050
Annual Calibration: The Permittee shall calibrate the temperature monitor at least once annually and shall maintain a written record of the inspection and any action resulting from the calibration.	Minn. Stat. 116.07, subd. 4a; Minn. R. 7019.3020 (G); Minn. R. 7019.3050

TABLE A: LIMITS AND OTHER REQUIREMENTS

A-14

07/15/08

Facility Name: 3M - Alexandria

Permit Number: 04100003 - 004

<p>For periods when the thermal oxidizer is operated above the minimum combustion chamber temperature, the Permittee shall use either one of the following when completing calculations as required elsewhere in this permit:</p> <p>a. The overall control efficiency limit specified in this permit for this equipment (95%); or</p> <p>b. The overall control efficiency determined during the most recent MPCA approved performance test. If the tested efficiency is less than the efficiency limit in this permit, the Permittee must use the tested value in all calculations until the efficiency is demonstrated to be above the permit limit through a new test.</p>	Minn. Stat. 116.07, subd. 4a; Minn. R. 7019.3020 (G); Minn. R. 7019.3050
<p>Corrective Actions: If the temperature is below the minimum specified by this permit or if the thermal 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 to at least the permitted minimum 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 Thermal oxidizer. The permittee shall keep a written record of the type and date of any corrective action taken.</p>	Minn. Stat. 116.07, subd. 4a; Minn. R. 7019.3020 (G); Minn. R. 7019.3050

TABLE B: SUBMITTALS

B-1 07/15/08

Facility Name: 3M - Alexandria
Permit Number: 04100003 - 004

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

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

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.

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 Technical Advisor
Industrial Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

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.

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: 3M - Alexandria

Permit Number: 04100003 - 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
Equipment List	due 270 days after 11/15/2007 . The equipment list shall include forms GI-04 and GI-05(a) and (b), and shall include all of the parameters for all of the stack vents, emission units and control equipment at the facility.	Total Facility
Notification of compliance status	<p>due 120 days after Startup of any EU 052-055.</p> <p>Include:</p> <ul style="list-style-type: none"> - compliance certification - results of any performance tests (includes operating limits established) and monitoring - description of demonstrating compliance. Specifically identifies whether low-HAP materials, emission capture and control systems, or a combination of low-HAP materials and capture and control systems were used to comply. <p>Reporting:</p> <ul style="list-style-type: none"> - 2 semiannual reporting periods - report any changes that occur at the facility or within the process that may affect its compliance status - report any changes at the facility or within the process from what was reported in the initial notice - if no deviations occur during a reporting period, the semiannual compliance report will state the source is in compliance. 	GP006
Testing Frequency Plan	due 60 days after Initial Performance Test for CO and NOx emissions from EU 056 and EU 057. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future performance tests based on one-year (12 month), 36 month, and 60 month intervals, or as applicable, shall be required upon written approval of the MPCA.	GP001

TABLE B: RECURRENT SUBMITTALS

B-3 07/15/08

Facility Name: 3M - Alexandria

Permit Number: 04100003 - 004

What to send	When to send	Portion of Facility Affected
Semiannual Deviations Report	due 30 days after end of each calendar half-year starting 11/15/2007. 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 by July 30th. The second report of each calendar year covers July 1 - December 31 by January 30th. If no deviations have occurred, the Permittee shall submit the report stating no deviations.	Total Facility
Compliance Certification	due 31 days after end of each calendar year starting 11/15/2007 (January 30th, 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 MATERIALFacility Name: **3M - Alexandria**Permit Number: **04100003-004****APPENDIX I****Insignificant Activities and Applicable Requirements**

Minn. R. 7007.1300, subpart	Rule Description of the Activity	Applicable Requirement
3(G)	Emissions from a laboratory, as defined in the subpart. <ul style="list-style-type: none"> Water testing agents used in the laboratory 	Minn. R. 7011.0710/0715
3(H)	Miscellaneous: 4. brazing, soldering or welding equipment; <ul style="list-style-type: none"> Facility operates soldering and welding equipment Blueprint copiers and photographic processes 	Minn. R. 7011.0710/0715 Minn. R. 7011.0110
3(I)	Individual emissions units at a stationary source, each of which have a potential to emit the following pollutants in amounts less than: <ol style="list-style-type: none"> 4,000 lbs/year of carbon monoxide; and 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. <ul style="list-style-type: none"> Make Kettles Size Kettles Roll Cure Oven Mineral Add Make Coater Size Coater Space Heater Emergency Generator 	Minn. R. 7011.0110 Minn. R. 7011.0110 Minn. R. 7011.0510/515 Minn. R. 7011.0110 Minn. R. 7011.0110 Minn. R. 7011.0110 Minn. R. 7011.0510/515 Minn. R. 7011.2300
3(J)	Roads and parking lots fugitive emissions	Minn. R. 7011.0150

APPENDIX II
COMPLIANCE EQUATIONS UNDER 40 CFR pt. 63, subpart JJJJ

The following are several compliance equations from the Paper and Other Web Coating NESHAP that applies to several units at the Alexandria facility.

- **40 CFR 63.3370(c)(2)(i):** Determine the as-applied coating solids content of each coating material following the procedure in 40 CFR 63.3360(d). You must calculate the as-applied coating solids content of coating materials which are reduced, thinned, or diluted prior to application, using **Equation 2** of this section:

Equation 2:

Where:

C_{si} = Coating solids content of coating material, i, 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_{sij} = Coating solids 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.

- **40 CFR 63.3370(c)(2)(ii):** Calculate the as-applied organic HAP to coating solids ratio using **Equation 3**

Equation 3:

Where:

H_{si} = As-applied, organic HAP to coating solids ratio of coating material, i.

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

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

- **40 CFR 63.3370(c)(4):** Monthly average organic HAP content of all coating materials as-applied is less than the mass fraction of coating solids limit (40 CFR 63.3320(b)(3)). Demonstrate that the monthly average as-applied organic HAP content on the basis of coating solids applied of all coating materials applied at an existing affected source is less than 0.20 kg organic HAP per kg coating solids applied, and all coating materials applied at a new affected source are less than 0.08 kg organic HAP per kg coating solids applied, as determined by **Equation 5** of this section:

Equation 5:

Where:

H_s = Monthly average, as-applied, organic HAP to coating solids ratio, kg organic HAP/kg coating solids applied.

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

Chi = 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.

Ch_{ij} = 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 you choose 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 63.3370.

C_{si} = Coating solids content of coating material, i , expressed as a mass fraction, kg/kg.

C_{sij} = Coating solids content of material, j , added to as-purchased coating material, i , expressed as a mass-fraction, kg/kg.

- **40 CFR 63.3370(d):** Monthly allowable organic HAP applied. Demonstrate that the total monthly organic HAP applied as determined by **Equation 6** of 40 CFR 63.3370(d) is less than the calculated equivalent allowable organic HAP as determined by Equation 13a or b in paragraph (l) of 40 CFR 63.3370(l)

Equation 6:

Where:

H_m = Total monthly organic HAP applied, kg.

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

Chi = 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.

Ch_{ij} = 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 you choose 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 63.3370.

- **40 CFR 63.3370(l):** Monthly allowable organic HAP emissions. This paragraph provides the procedures and calculations for determining monthly allowable organic HAP emissions for use in demonstrating compliance in accordance with 40 CFR 63.3370(d). You will need to determine the amount of coating material applied at greater than or equal to 20 mass percent coating solids and the amount of coating material applied at less than 20 mass percent coating solids. The allowable organic HAP limit is then calculated based on coating material applied at greater than or equal to 20 mass percent coating solids complying with 0.2 kg organic HAP per kg coating solids at an existing affected source or 0.08 kg organic HAP per kg coating solids at a new affected source as follows:
 - (1) Determine the as-purchased mass of each coating material applied each month.
 - (2) Determine the as-purchased coating solids content of each coating material applied each month in accordance with 40 CFR 63.3360(d)(1).
 - (3) Determine the as-purchased mass fraction of each coating material which was applied at 20 mass percent or greater coating solids content on an as-applied basis.
 - (4) Determine the total mass of each solvent, diluent, thinner, or reducer added to coating materials which were applied at less than 20 mass percent coating solids content on an as-applied basis each month.
 - (5) Calculate the monthly allowable organic HAP emissions using **Equation 13a** of this section for an existing affected source:

Equation 13a:

Where:

H_a = Monthly allowable organic HAP emissions, kg.

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

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

G_i = Mass fraction of each coating material, i , which was applied at 20 mass percent or greater coating solids content, on an as-applied basis, kg/kg.

C_{si} = Coating solids content of coating material, i , expressed as a mass fraction, kg/kg.

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

ML_j = Mass of non-coating-solids-containing coating material, j , added to coating-solids-containing coating materials which were applied at less than 20 mass percent coating solids content, on an as-applied basis, in a month, kg or:

Equation 13b of 40 CFR 63.3370(l) for a new affected source:

Equation 13b:

Where:

H_a = Monthly allowable organic HAP emissions, kg.

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

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

G_i = Mass fraction of each coating material, i , which was applied at 20 mass percent or greater coating solids content, on an as-applied basis, kg/kg.

C_{si} = Coating solids content of coating material, i , expressed as a mass fraction, kg/kg.

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

ML_j = Mass of non-coating-solids-containing coating material, j , added to coating-solids-containing coating materials which were applied at less than 20 mass percent coating solids content, on an as-applied basis, in a month, kg.

TECHNICAL SUPPORT DOCUMENT
For
EMISSION PERMIT NO. 04100003-004

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 preliminary determination to issue the permit.

1. General Information

1.1 Applicant and Stationary Source Location

Applicant/Address	Stationary Source/Address (SIC Code: 3291)
3M Company Building 42-2E P.O. Box 33331 St. Paul, MN 55133	3M Alexandria 2115 Broadway St. South Alexandria, MN 56308 Douglas County
Contact: Mike Osborne Phone: 651-778-6135	

1.2 Description of the Permit Action

This permit is a Part 70 Reissuance permit for 3M Alexandria.

3M Alexandria began operation in 1967 and manufactures abrasive products such as sanding belts and sanding discs. In addition, the facility converts intermediate materials from other 3M plants into saleable abrasive products and also provides intermediate products to other 3M Abrasive Plants.

The facility production areas include: (1) abrasive coating/treating lines that make the abrasive backings for sanding belts and discs; (2) a specialty abrasive product line that makes specialty abrasive products for fine metal polishing; (3) a sierra line that makes only sanding discs; and (4) converting areas where the abrasive backings are converted into various sizes of belts (small, medium and wide belts) and discs.

The typical abrasive product is constructed of a backing material, a water-based phenolic resin, and a mineral. On the treating lines, the backing is coated with the multiple coatings and sometimes mineral and then dried in ovens. The abrasive backing is then converted into discs and belts onsite or it is shipped to another 3M location. Belts are spliced together using a solvent-based adhesive. Volatile Organic Compound (VOC) emissions are primarily from coatings and belt splice adhesive. The facility also has various dust collection units in the converting areas, gas ovens, and two natural gas fired boilers. The boilers serve for back-up

since most of the current steam demand and future needs are met by purchasing steam from the nearby solid waste incinerator operated by the county.

A total facility limit of 240 tons per year (tpy) of VOCs was added to the permit in action 003 in order to make the facility a non-major source under federal New Source Review regulations (40 CFR § 52.21)

1.3 Description of any Changes Allowed with this Permit Issuance

This permit does not authorize any new emission units or allow for increase in emissions.

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

Permit Number and Issuance Date	Action Authorized
04100003-001 April 7, 2003	Permitted the installation of the Sierra 2 abrasive coating/treating line and a size oven unit for the Sierra 1 abrasive coating/treating line.
04100003-002 March 23, 2006	Incorporates NESHAP Subpart JJJJ requirements.
04100003-003 November 15, 2007	<p>Major amendment authorizing the construction of a new paper maker machine at the facility and incorporates a minor amendment to replace an oven in the sierra line (EU 051).</p> <p>Permits the replacement of three existing boilers by two new natural gas boilers (EUs 056-057). An emergency generator for the paper maker was also permitted.</p> <p>Several units were added to the insignificant activities list.</p> <p>A total facility limit of 240 tpy of VOCs was added to make the facility a non major source for Prevention of Significant Deterioration (PSD).</p>

1.5 Facility Emissions

Table 1. Total Facility Potential to Emit Summary

	PM tpy	PM₁₀ tpy	SO₂ tpy	NO_x tpy	CO tpy	VOC tpy	Single HAP tpy	All HAPs tpy
Total Facility Limited Potential Emissions	7.74	2.72	23.6	75.9	19.4	240*	240* (Phenol)	240*
Total Facility Actual Emissions (2007)	0.13	0.13	0.01	1.68	1.41	51.85	18.7 (Phenol)	32.8

* The source is limited to 240 tpy of VOC in order to make the facility a non major source for Prevention of Significant Deterioration. Since the majority of HAP emitted at this source is VHAP, the limit also limits HAP emissions to less than 240 tons per year.

Table 2. Facility Classification

Classification	Major/Affected Source	Synthetic Minor	Minor
PSD		VOC	SO ₂ , NO _x , CO, PM, PM ₁₀
Part 70 Permit Program	VOC	SO ₂ , NO _x , CO	PM, PM ₁₀
Part 63 NESHAP	HAPs		

1.6 Changes to Permit

The following changes have been made in the reissued permit:

- updated to reflect current MPCA templates and standard citation formatting;
- revised narrative descriptions of certain equipment at the request of the facility;
- revised the VOC emissions equation provided in the Total Facility Condition 27 in order to account for VOC emissions not only from VOC usage, but also from combustion sources and the insignificant activities listed in Appendix A;
- revised the recordkeeping requirements for boilers EU 056 and EU 057 to the appropriate citation;
- removed emission units identified as EU 030, EU 031, EU 032, EU 033, EU 046, EU 047, EU 048, EU 049, and EU 050; and
- revised the maximum heat input for each of the new boilers (EU 056 and EU 057) from 15 MMBtu/hr to 46.028 MMBtu/hr.

2. Regulatory and/or Statutory Basis

New Source Review

The facility is not considered to be one of the 28 listed source categories and have limited their VOC emissions to 240 tons per year; therefore, this facility is considered an existing non major source under New Source Review regulations. The potential to emit of all other criteria pollutants are less than 250 tons per year. No changes are authorized by this permit.

Part 70 Permit Program

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

New Source Performance Standards (NSPS)

- The New Source Performance Standards for Industrial-Commercial-Institutional Steam Generating Units (40 CFR pt. 60, subpart Dc) are included in this permit for the boilers EU056, and EU057 because these boilers have a design rate between 10 MMBtu/hr and 100 MMBtu/hr and were installed after June 9, 1989. Since boilers EU056 and EU057 combust only natural gas, monthly records of the amount of natural gas combusted in these boilers is the only applicable requirement in this subpart.
- The requirements of New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines (40 CFR pt. 60, subpart IIII) does not apply to the insignificant emergency generator.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

- The requirements of National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (40 CFR 63, Subpart ZZZZ) apply to the insignificant emergency generator. However, pursuant to 40 CFR 63.6590(c), since the emergency generator is located at a major source and has a site rating of less than or equal to 500 brake HP; the emergency generator must meet the requirements of 40 CFR 63, Subpart ZZZZ by meeting the requirements of 40 CFR part 60 subpart IIII.
- The National Emission Standards for Hazardous Air Pollutants for Miscellaneous Organic Chemical Manufacturing (40 CFR 63, Subpart FFFF) are not included in this permit for this facility. This rule applies to major HAP facilities (≥ 10 tons/year of individual HAP or ≥ 25 tons/year of combined HAPs), which own or operate miscellaneous organic chemical manufacturing process units (MCPU). An MCPU includes equipment necessary to operate a miscellaneous organic chemical manufacturing process, as defined in 40 CFR Section 63.2550 (process includes reaction, recovery, separation, purification, or other activity, operation, manufacture, or treatment which are used to produce a product of isolated intermediate), that produce an organic chemical(s) in the specified SIC (includes SIC 2869), and processes, uses, or produces HAP. This facility does not produce any material or family of materials that are described in 40 CFR 63.2453(b)(1).
- The Permittee is subject to the requirements of 40 CFR 63, Subpart JJJJ – National Emission Standards for Hazardous Air Pollutants: Paper and Other Web Coating (326

IAC 20-65) because this source consists of web coating lines (see equipment identified in the permit as GP 006) which apply a continuous layer of coating material across the entire width or any portion of the width of a web substrate and is a major source of hazardous air pollutants (HAPs) as defined in 40 CFR Section 63.2. Web is defined in 40 CFR Section 63.3310 as a continuous substrate which is flexible enough to be wound or unwound as rolls. The Permittee has elected to comply with the requirements of 40 CFR pt. 63, subpart JJJJ by limiting organic HAP emissions to a level specified in 40 CFR Section 63.3320(b)(2).

- The boilers EU056, and EU057 belong to a source category that was to be regulated by 40 CFR pt. 63, subpart DDDDD. However, the U.S. District Court Appeals for the DC Circuit vacated 40 CFR pt. 63, subpart DDDDD on July 30, 2007, thereby making the MACT Hammer provisions applicable to boilers located at sources that are major sources of HAP. Boilers or process heaters installed after July 30, 2007 are subject to the requirements of Section 112(j) of the Clean Air Act. Boilers identified as EU056 and EU057 are required to submit to MPCA a 112(j) determination within 30 days after startup. Note: MPCA requires a 112(j) determination application submittal for the new boilers EU056 and EU057. The Permittee submitted its 112(j) determination to the MPCA in accordance with the MPCA deadline.

Compliance Assurance Monitoring (CAM) Applicability

The requirements of 40 CFR pt. 64, CAM are not included in this permit for any of the emission units located at this facility. In order for this rule to apply, a pollutant-specific-emissions-unit at a source that requires a Part 70 permit must meet three criteria for a given pollutant: 1) the unit has potential emissions (before controls) of the applicable regulated air pollutant equal or greater than 100 percent of the amount required for a source to be classified as a major source; 2) the unit is subject to an applicable emission limitation or standard for the applicable regulated air pollutant; and 3) the unit uses a control device to achieve compliance with the applicable emission limitation or standard. None of the emission units at this facility meet these criteria; therefore, the requirements of 40 CFR pt. 64, CAM are not applicable. Note: the thermal oxidizer currently being constructed to control the Make Coater (EU 052), Backrack Oven (EU 053), Size Coater (EU 054), and Mainline Oven (EU 055) will only be operating on a voluntary basis. The oxidizer is not needed to demonstrate compliance with an emission limit.

Acid Rain Program

This facility does not produce electricity; therefore, it is not subject to the federal Acid Rain Program.

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*

Table 3. Regulatory Overview of Facility

EU, GP, or SV	Applicable Regulations	Comments:
Total Facility (TF)	40 CFR § 52.21 and Minn. R. 7007.3000	Title I Condition: PSD, sourcewide VOC limit taken to avoid classification as a major source under NSR. Corresponding recordkeeping is required.
TF	Minn. R. chs. 7002, 7007, 7009, 7011, 7019, 7030	Table A contains requirements that apply to all facilities in Minnesota. Reporting and monitoring requirements are contained in Table B of the permit.
TF	40 CFR pt. 50; Minn. R. 7009.0010-0080	Modeling requirements to ensure emissions do not cause a violation of the ambient air quality standards.
GP 001	Minn. R. 7011.0515, subp. 1 and 2; Minn. R. 7007.0800	Standards of Performance for New Indirect Heating Equipment. The boilers EU056 and EU057 are subject to this rule because they were constructed after January 31, 1977. The boilers EU056 and EU057 burn natural gas only, so they are only subject to fuel usage record keeping requirements. They are also required to do performance testing after start-up.
GP 001	40 CFR pt. 60, subp. Dc	See New Source Performance Standards (NSPS) Section.
GP 001	40 CFR § 63.52(b)(1)	Submit a 112(j) determination within 30 days after startup of boilers EU056 and EU057 to the MPCA.
GP 002	Minn. R. 7011.0610	Standards of Performance for Fossil-Fuel-Burning Direct Heating Equipment. This group of emission units is subject to this rule because they are considered direct heating equipment. This group is subject to individual emission limits on PM and Opacity and are only allowed to burn natural gas.

Table 3. Regulatory Overview of Facility (Continued)

EU, GP, or SV	Applicable Regulations	Comments:
GP 003	Minn. R. 7011.0715	Standards of Performance for Post-1969 Industrial Process Equipment. This group of emission units is subject to this rule because each unit has the potential to emit particulate matter and was not in operation before July 9, 1969. The rule limits PM and Opacity from individual emission units and requires recordkeeping.
GP 005	Minn. R. 7011.0715	Standards of Performance for Post-1969 Industrial Process Equipment. This group of emission units is subject to this rule because each unit has the potential to emit particulate matter and was not in operation before July 9, 1969. The rule limits PM and Opacity from individual emission units and requires recordkeeping.
GP 006	40 CFR 63 pt. JJJJ	The facility is using option 2, $\leq 4\%$ HAP content by mass, to comply with the NESHAP. However, the permit allows the Permittee flexibility to change the compliance options as allowed by the standard (e.g., may comply using a control device in accordance with 40 CFR 63.3320(b)(4)).
EU 034	Minn. R. 7011.0715	Standards of Performance for Post-1969 Industrial Process Equipment. EU034 is subject to this rule because it has the potential to emit particulate matter and was not in operation before July 9, 1969. The rule limits PM and Opacity from and requires recordkeeping.
CE 009	Minn. Stat. 116.07, subd. 4a; Minn. R. 7019.3020 (G); Minn. R. 7019.3050	The thermal oxidizer is in the permit so that credit can be used for emissions inventory purposes. Requirements are similar to those that would normally be included for thermal oxidizers used to comply with an emission limit.

3. Technical Information

3.1 Calculations of Potential to Emit

MPCA has prepared potential to emit (PTE) calculations for each emission unit using information provided by 3M Alexandria. These potential to emit calculations and the methodology used to prepare them are considered confidential. Attachment 1 summarizes the PTE for each emission unit.

3.2 Periodic Monitoring

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.

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 4 summarizes the periodic monitoring requirements for those emission units for which the monitoring required by the applicable requirement is nonexistent or inadequate.

Table 4. Periodic Monitoring

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
Total Facility Limit	VOC \leq 240 tons per year, on a 12 month rolling basis (limit to avoid NSR)	Recordkeeping: Daily records of coating usage; Monthly calculations of emissions.	This limit applies to VOCs from both combustion and non-combustion sources at the facility and includes the insignificant activities in Appendix A. A 12-month rolling sum is warranted for the facility due to the substantial and unpredictable variation in their production.

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
GP 001	PM: ≤ 0.4 lb/MMBtu with a 3-hour basis (Minn. R. 7011.0515) SO ₂ : ≤ 4.0 lb /MMBtu with a 3-hour basis (Minn. R. 7011.0515) Opacity: < 20 % with exceptions (Minn. R. 7011.0515) 40 CFR 60 pt. Dc	Recordkeeping: Maintain fuel usage records.	Due to the use of only natural gas, these units are expected to never approach the particulate matter limit or the 20 percent opacity limit. Therefore, no additional periodic monitoring is required.
GP 002	PM: variable depending on the airflow (Minn. R. 7011.610) SO ₂ : ≤ 2.0 lb/MMbtu (Minn. R. 7011.0610) Opacity: ≤ 20 % except for one six-minute period per hour of not more than 60% opacity (Minn. R. 7011.0610) Fuel Restriction: Natural gas	None	Since the ovens will be fired with natural gas fuel only, there should be no significant PM, SO ₂ or visible emissions the fuel; therefore, no additional periodic monitoring is required.

Table 4. Periodic Monitoring (Continued)

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
GP 003	PM: variable depending on the airflow (Minn. R. 7011.0715) Opacity: ≤ 20% (Minn. R. 7011.0715)	Properly maintain the process equipment.	State rules require the permit to contain an emission limit for total PM, even though the actual emission rate for PM is extremely low. The likelihood of violating the PM and opacity emission standard is impossible as long as the units are properly maintained; therefore no additional periodic monitoring is required.
GP 005	PM: variable depending on the airflow (Minn. R. 7011.0715) Opacity: ≤ 20% (Minn. R. 7011.0715)	Properly maintain the process equipment.	State rules require the permit to contain an emission limit for total PM, even though the actual emission rate for PM is extremely low. The likelihood of violating the PM and opacity emission standard is impossible as long as the units are properly maintained; therefore no additional periodic monitoring is required.
GP 006	Organic HAP Usage: 40 CFR 63 pt. JJJJ	Monitor HAP content of coating and record the amount of coating used.	This group has requirements to measure the HAP content of the coatings and to monitor/record their usage.
EU 034	PM: variable depending on the airflow (Minn. R. 7011.0715) Opacity: ≤ 20% (Minn. R. 7011.0715)	Properly maintain the process equipment.	State rules require the permit to contain an emission limit for total PM, even though the actual emission rate for PM is extremely low. The likelihood of violating the PM and opacity emission standard is impossible as long as the units are properly maintained; therefore no additional periodic monitoring is required.

Table 4. Periodic Monitoring (Continued)

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
CE 009	<p>Overall control efficiency: $\geq 95\%$;</p> <p>Temperature: ≥ 1400 degrees F</p> <p>(Minn. Stat. 116.07, subd. 4a; Minn. R. 7019.3020 (G); Minn. R. 7019.3050)</p>	<p>Monitor temperature; inspect semiannually; and record temperature readings, and results of semiannual inspections.</p>	<p>The MPCA has included these monitoring, inspection, and recordkeeping requirements because the Permittee will rely on the control device for calculations of actual emissions for its annual emission inventory.</p>
EU 041, 042, and 043; CE 004, 005, 006	<p>Organic HAP Usage: 40 CFR 63 pt. JJJJ</p> <p>Opacity $\leq 20\%$</p> <p>(Minn. R. 7011.0105 or 7011.0110)</p>	<p>Monitor HAP content of coating and record the amount of coating used.</p>	<p>CE 004 is a cyclone above the Sierra mixing area (EU 042) and CE 005 and CE 006 are dry filters in the exhaust lines of the mix and size coaters (EU 041 and EU 043) in the Sierra area. All these units qualify as insignificant activities but are tracked in the permit because they are subject to the 40 CFR pt. 63, subp. JJJJ. They are also checked in Delta as insignificant activities. CE 004, 005 and 006 are not listed in the control equipment Delta screen because they were removed without any explanations but they are listed in the emission unit screen. No updates will be made in Delta for CE 004, 005 and 006.</p> <p>It is highly unlikely that these units will generate PM or visible emissions.</p>

3.3 Insignificant Activities

3M Alexandria has several operations which are classified as insignificant activities. These are listed in Appendix I 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. The following table documents the justification why no additional periodic monitoring is necessary for the insignificant activities. See Attachment 1 of this TSD for PTE totals for the insignificant activities.

Table 5. Insignificant Activities

Insignificant Activity	General Applicable Emission limit	Discussion
Fuel use: space heaters fueled by, kerosene, natural gas, or propane and Fuel burning equipment with a capacity less than 500,000 Btu/hour, etc	$PM \leq 0.6$ or 0.4 lb/MMBtu, depending on year constructed $Opacity \leq 20\%$ with exceptions (Minn. R. 7011.0510/515)	This applies to the space heaters and roll cure oven located at this facility. Based on the fuels used and EPA published emissions factors, it is highly unlikely that these units could violate the PM and opacity limits. In addition, these types of units are typically operated and vented inside a building, so testing for PM or opacity is not feasible.
Emissions from a laboratory, as defined in Minn. R. 7007.1300, subp. 3(G)	PM Limit (variable depending on airflow) $Opacity \leq 20\%$ (Minn. R. 7011.0710/715)	These are very small, intermittent, bench-top operations that typically do not emit air pollution. It is highly unlikely that they could violate the applicable requirement.
Brazing, soldering or welding equipment	PM , variable depending on airflow $Opacity \leq 20\%$ (Minn. R. 7011.0710/715)	Based on EPA published emissions factors, it is highly unlikely that these units could violate the applicable requirement. In addition, these units are typically operated and vented inside a building, so testing for PM or opacity is not feasible.

Table 5. Insignificant Activities (Continued)

Insignificant Activity	General Applicable Emission limit	Discussion
Blueprint copiers and photographic processes	Opacity \leq 20% (Minn. R. 7011.0105 or 7011.0110)	While no known emissions estimation method exists for these units, based on general knowledge of how they operate, it is highly unlikely they could generate visible emissions. In addition, these units would be operated and vented directly into an office area, so monitoring or testing is not feasible.
Individual units with actual emissions less than 2000 lb/year of certain pollutants	Opacity \leq 20% (Minn. R. 7011.0105 or 7011.0110)	These units consist of : <ul style="list-style-type: none"> • Make Kettles • Size Kettles • Mineral Add • Make Coater • Size Coater While no known emissions estimation method exists for these units, based on general knowledge of how they operate, it is highly unlikely they could generate visible emissions.
	SO ₂ \leq 0.5 lb/mmBtu Opacity \leq 20% (Minn. R. 7011.2300)	The emergency generator: The likelihood of violating the SO ₂ and opacity emission standard is highly unlikely as long as the unit is properly.
Fugitive Emissions from unpaved roads and parking lots	Requirement to take reasonable measures to prevent PM from becoming airborne (Minn. R. 7011.0150)	The Facility is located in the Metro area and has all paved parking lots and few private roads. Nearly all surfaces are currently paved. The permit does contain a general requirement that this standard must be met.

ATTACHMENT 1
POTENTIAL TO EMIT SUMMARY (MPCA)
(Non Confidential Calculation Spreadsheets, paper copy only)

ATTACHMENT 2
FACILITY DESCRIPTION and CD-01 FORMS
(Delta Printouts, paper copy only)