STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT BOOK

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: 042004-002 Project Number: 2003-06-024

Owner: 3M Company

Owner's Address: P.O. Box 33331, Bldg. 42-2E-27, St. Paul, MN 55133-3331

Installation Name: 3M Nevada

Installation Address: 1440 East Austin, P.O. Box 327, Nevada, MO 64772

Location Information: Vernon County, S10, T35N, R3W

Application for Authority to Construct was made for:

A flexible permit for pre-approved modifications at an existing commercial graphics plant in Nevada, Missouri. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required.*

☐ Standard Conditions (on reverse) are applicable to this permit.

☒ Standard Conditions (on reverse) and Special Conditions (listed as attachments starting on page 2) are applicable to this permit.

MAR 12 2004
EFFECTIVE DATE

Leanne Tippett
DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional Office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed Special Conditions as provided in RSMo 643.075. If you choose to appeal, the Air Pollution Control Program must receive your written declaration within 30 days of receipt of this permit.

If you choose not to appeal, this certificate, the project review, your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Department of Natural Resources has established the Outreach and Assistance Center to help in completing future applications or fielding complaints about the permitting process. You are invited to contact them at 1-800-361-4827 or (573) 526-6627, or in writing addressed to Outreach and Assistance Center, P.O. Box 176, Jefferson City, MO 65102-0176.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention Construction Permit Unit.

2003-06-024

3M Company

P.O. Box 33331, Bldg. 42-2E-27, St. Paul, MN 55133-3331

3M Nevada

1440 East Austin, P.O. Box 327, Nevada, MO 64772

Vernon County, S10, T35N, R3W

A flexible permit for pre-approved modifications at an existing commercial graphics plant in Nevada, Missouri. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority." Definitions for key words and phrases used in this permit may be found in 10 CSR 10-6.060(2).

3M Nevada
Vernon County, S10, T35N, R3W

1. Superseding Condition
   A. The conditions of this construction permit supersede all special conditions found in the following previously issued construction permits and amendments from the Air Pollution Control Program:

Permit Number
0782-002
0590-011
0590-012
0291-003
0395-012
0895-025
1195-009
1095-014
1195-018
0396-019
1098-017
1098-017A
1098-017B

2. Annual Emission Limitation
   A. 3M Nevada shall emit less than 655 tons of Volatile Organic Compounds (VOCs) from the entire installation in any consecutive 12-month period. The consecutive 12-month period shall not include time periods prior to issuance of this construction permit. Emissions from the entire installation include emissions during periods of start-up, shutdown, and malfunction of the control device.

   B. 3M Nevada shall track VOC emissions and calculate the monthly and consecutive 12-month VOC emissions from the entire installation. Attachment A, or equivalent forms approved by the permitting authority

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

shall be used to demonstrate compliance with Special Conditions 2.A.

C. 3M Nevada shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after the end of the month during which the records from Special Condition Number 2.B. indicate that the source exceeds the limitation of Special Conditions Number 2.A.

D. 3M Nevada shall keep documentation of any emission factors used to demonstrate compliance with Special Condition 2.A. Emission factors must be obtained from the most recent edition of AP-42, *Compilation of Air Pollutant Emission Factors*, the most recent stack performance test results, a mass balance approach using the Material Safety Data Sheets (MSDS) of all materials, and/or by a method approved by the permitting authority. Documentation sufficient to support the emission factors must accompany Attachment A required by Special Condition 2.B.

E. 3M Nevada shall keep documentation of any overall control efficiencies used to demonstrate compliance with Special Condition 2.A. Overall control efficiency is the product of the capture efficiency and control efficiency of the pollution control device. Documentation sufficient to support the capture and control efficiencies must accompany Attachment A required by Special Condition 2.B.

F. 3M Nevada shall keep documentation of all data relied upon, including but not limited to, any quality assurance/quality control data, in calculating the monthly and annual VOC emissions.

3. Operational Requirement

3M Nevada shall keep the ink, solvents and cleaning solutions in sealed containers whenever the materials are not in use. 3M Nevada shall provide and maintain suitable easily read permanent markings on all inks, solvent and cleaning solution containers used with this equipment.

4. Pre-Approved Operational and Equipment Modifications

A. 3M Nevada is authorized to perform the physical or operational changes, or changes deemed consistent with those physical or operational changes, listed in Attachment B, *Pre-Approved Changes*, without applying for or obtaining a construction permit or amendment from the permitting authority. Any increase or decrease in emissions of VOC resulting from the construction and operation of any of the above pre-approved changes are subject to the requirements listed in Special Condition 2. Any increase

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

or decrease in emissions of non-VOC criteria air pollutants resulting from the construction and operation of any of the above pre-approved changes are subject to the requirements listed in Special Condition 23. *These pre-approved modifications are designed, in part, to accommodate the facility's implementation of pollution prevention activities. As a result, 3M is fully pre-approved to implement all physical and operational changes consistent with making the change to MACT JJJJ compliant coatings*

B. 3M Nevada shall maintain a log of equipment installed and/or modified under the Pre-Approved Changes and the date on which construction and/or modification and operation began. In addition, 3M Nevada shall maintain a log of equipment removed from the installation and the date on which it was removed. The log must account for all equipment present at the installation at any given time. Attachment C, or equivalent forms approved by the permitting authority, may be used for this purpose.

C. 3M Nevada shall notify the permitting authority of all activities associated with any Pre-Approved Change according to Special Condition 5 and 6.

D. If 3M Nevada wishes to make physical or operational changes that are not deemed consistent with the physical or operational changes listed in Attachement B of this construction permit and are not exempt from the construction permit rule, then 3M Nevada must first apply for and obtain a construction permit or amendment according to 10 CSR 10-6.060, *Construction Permits Required*.

5. Notification of Actual Construction of Pre-Approved Change

A. 3M Nevada shall submit written notification to the permitting authority at least 10 days prior to the actual construction of any pre-approved change listed in Attachment B. The notification shall contain the following:

1) Detailed description of the physical or operational change including the affect on existing equipment;
2) A plant layout diagram with representation of existing equipment and physical or operational changes;
3) A schedule of construction activities related to the pre-approved change;
4) A statement of applicability for any New Source Performance Standard (NSPS), National Emissions Standard of Hazardous Air Pollutants (NESHAP), and/or state regulations not identified as core requirements in the operating permit;
5) An emissions calculation sheet for the pre-approved change including any modeling required by Special Condition 7;

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

6) A calculation sheet for the potential emissions of all criteria air pollutants except VOC for the pre-approved change;
7) A summation of the potential emissions from completed and proposed pre-approved changes; and
8) A statement of verification that the physical or operational change will not result in installation emissions that exceed the limitations stated in Special Condition 2.

B. This notification shall become an enforceable part of this construction permit upon receipt by the permitting authority and 3M Nevada shall comply with the terms and conditions of the notification.

C. The permitting authority may disapprove any activity that has not been demonstrated to the satisfaction of the Program to be related to the pre-approved changes. At that time, 3M Nevada shall cease construction of the change until an appropriate authorization of the activities is obtained (such as a construction permit, if necessary).

6. Notification of Actual Start-up of Pre-Approved Change

A. 3M Nevada shall submit written notification to the permitting authority at least 10 days prior to the actual start-up or operation of any pre-approved change listed in Attachment B. The notification shall contain the following:
1) Reference to the notification of actual construction including date of notification and brief description of change;
2) Verification that the physical or operational change was completed as described in the original notification; and
3) Scheduled date operations will be commenced.

B. It is a violation of this construction permit for 3M Nevada to construct, modify or operate the installation not in accordance with the notification of 6.A. above.

7. Ambient Air Quality Analysis Requirement for Individual HAPs

Prior to submitting notification of a pre-approved change, 3M Nevada must evaluate HAP emissions for the pre-approved change according to the following methodology:

A. For all HAPs listed in *Draft Acceptable Ambient Levels for Missouri* with a potential to emit greater than their respective threshold levels, 3M Nevada shall perform screen modeling using the methods outlined in Special Condition 8 to determine the one-hour, 8-hour, 24-hour, and/or annual concentration of any individual HAP. The results of the screen modeling must be submitted with the notification required in Special Condition 5 for

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

all pre-approved changes containing HAP.

B. The 8-hour, 24-hour and/or annual concentrations shall be compared to the current, available Risk Assessment Levels for each HAP listed in *Draft Acceptable Ambient Levels for Missouri*.

C. If the screen modeling indicates that the emissions from the pre-approved change at the installation exceeds acceptable concentration levels as stated in the most current version of *Draft Acceptable Ambient Levels for Missouri*, then 3M must submit and obtain approval for either of the following options prior to submitting notification of construction (Special Condition 5):
   1) Refined modeling, or
   2) An amendment to the flexible construction permit to include a federally enforceable limit on HAP emissions.

8. Screen Modeling Method for Individual HAPs

A. 3M Nevada shall use the preferred screening method stated in 40 CFR Part 51 Appendix W, "*Guideline on Air Quality Models*".

B. The emission rate to be used in the model shall be the potential to emit of the individual HAP. Stack parameters used in the model shall be representative of actual stack parameters including height, diameter, flow rate/velocity, temperature, etc. If 3M Nevada wishes to use values other than the default values for any parameter with a default value, 3M Nevada shall submit justification and obtain approval for the proposed value prior to use in the model.

9. Capture and Control Equipment - Thermal Oxidizer

A. The thermal oxidizer must be in use at all times when a control efficiency is claimed for compliance with the VOC emissions limitation. The thermal oxidizer shall be operated and maintained in accordance with the manufacturer's specifications and within the temperature range determined in Special Condition 11.

B. The operating temperature of the thermal oxidizer shall be maintained on a rolling 3-hour average and shall be continuously monitored and recorded when a control efficiency is claimed for compliance with the VOC emissions limitation. The most recent sixty (60) months of records shall be maintained on-site and shall be made immediately available to Missouri Department of Natural Resources' personnel upon request.

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

C. An assessment of RTO valve operation and leakage shall be conducted as part of the maintenance and inspection activities, at least annually.

D. 3M Nevada shall develop a monitoring plan that, for each capture system (maker, bay, or room enclosure):
   1) Identifies the operating parameter(s) to be monitored to assure capture efficiency,
   2) Explains why this parameter is appropriate for demonstrating ongoing compliance,
   3) Identifies the specific monitoring procedures, and
   4) Specifies the operating parameter value or range of values (or the procedures for establishing the values) that shall be maintained to demonstrate capture efficiency is being maintained.

E. The capture efficiency operating parameter(s) identified in Special Condition 9(D) shall be continuously monitored when a capture and control efficiency is claimed for compliance with the VOC emissions limitation. The most recent sixty (60) months of records shall be maintained on-site and shall be made immediately available to Missouri Department of Natural Resources' personnel upon request.

F. 3M Nevada shall install and maintain, for any intermittently controllable work station, a system to monitor when bypass of the control device system occurs while the work station is in operation.

G. 3M Nevada shall maintain an operating and maintenance log for the capture and control systems (enclosures and thermal oxidizers) for a period of (60) sixty months which shall include the following:
   1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
   2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
   3) A written record of regular inspection schedule, the date and results of all inspections including any actions or maintenance activities that result from that inspection.

10. Performance Testing

A. 3M Nevada shall conduct performance tests on the Regenerative Thermal Oxidizers A, B, C, and D (TOA, TOB, TOC, and TOD) to determine the VOC and HAP destruction efficiencies and operating parameters when all the processes controlled by these devices are in normal operation. These control efficiencies will be used in Attachment A for compliance.

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

B. For each capture system, 3M Nevada shall:
   1) Confirm that the capture system continues to meet the requirements of EPA Method 204 from an approved performance test with no changes to operating parameters, or
   2) Conduct a performance test to determine the capture efficiency and establish the value or range of values for the selected operating parameter(s) when all the processes controlled by these devices are in normal operation.

   These capture efficiencies shall be used in Attachment A for compliance.

C. Section 6 of EPA method 204 of 40 CFR part 51, Appendix M shall be used to confirm that an enclosure meets the requirements for permanent total enclosures. If the enclosure meets the permanent total enclosure criteria and directs all VOC to a control device, a capture efficiency of 100 percent may be assumed.

D. By June 3, 2006 and, henceforth, within 5 years of the most recent performance tests, 3M Nevada shall:
   1) Conduct performance tests to verify the operating parameters and/or the control efficiencies of the thermal oxidizers; and
   2) Confirm the capture efficiencies of the total or partial enclosures by Special Condition 10.B.1) or 10.B.2).

E. These tests shall be performed according to the requirements found at 40 CFR Chapter I Part 63 Subpart JJJJ and Subpart KK, as applicable. Equipment in the pre-approved list will be treated as an existing affected source under Subpart JJJJ. Subpart JJJJ and Subpart KK performance testing will be supplemented with the appropriate VOC test methods to establish total control efficiencies. These performance tests will need to comply with Special Condition 11.

F. 3M Nevada shall maintain a record of the results of all performance tests required by Special Conditions 10.A. and 10.B.

11. Proposed Test Plan
   A. A completed Proposed Test Plan Form (enclosed) must be submitted to the Air Pollution Control Program, Enforcement Section, 30 days prior to the proposed test date so that the Air Pollution Control Program, Enforcement Section, may arrange a pretest meeting, if necessary, and assure that the test date is acceptable for an observer to be present. The Proposed Test Plan may serve the purpose of notification and must be

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

approved by the Staff Director prior to conducting the required emission testing.

B. Two (2) copies of a written report of the performance test results shall be submitted to the Staff Director within 30 days of completion of any required testing. The report must include legible copies of the raw data sheets, analytical instrument laboratory data and complete sample calculations from the required U.S. EPA Method for at least one (1) sample run.

C. The test report is to fully account for all operational and emission parameters addressed both in the construction permit conditions as well as in any other applicable state or federal rules or regulations.

12. Startup, Shutdown, and Malfunction Requirement
3M Nevada shall develop and implement an operation and maintenance plan to minimize the instances of excess emissions during start-up, shutdown and malfunction. The operation and maintenance plan shall detail procedures for maintaining, repairing and operating the various sources and their controls during all periods of operation, including start-up, shutdown and malfunction.

13. Reopening of the Construction Permit
A. The permitting authority may reopen this construction permit to accomplish the following actions:
1) Revise the Special Condition 2 to reflect an increase in the plantwide limitation as outlined in Special Condition 18.
2) Reduce the plantwide limitation to reflect newly applicable Federal and/or State requirements with compliance dates after the issuance of this construction permit.
3) Reduce the plantwide limitation if the permitting authority determines that a reduction is necessary to avoid causing or contributing to a National Ambient Air Quality Standard (NAAQS) or Prevention of Significant Deterioration (PSD) increment violation, or to an adverse impact on air quality in a Class I area.

B. All reopenings that increase the plantwide limitation level are required to be placed on public notice for at least a 30-day period for submittal of public comment.

14. Plantwide Limitation Effective Period
The plantwide limitation in Special Condition 2 will be effective for ten (10) years. The plantwide limitation term commences on the date of issuance of this

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

construction permit.

15. Permit Application Submission Requirements

A. Between six and eighteen months prior to the expiration of the plantwide limitation in Special Condition 2, 3M Nevada shall submit a complete application for the renewal or expiration of the plantwide limitation in Special Condition 2. For plantwide limitation renewal, 3M Nevada will be required to comply with Special Condition 16. For plantwide limitation expiration, 3M Nevada will be required to comply with Special Condition 17.

B. Once a complete application according to Special Condition 15.A. is received by the permitting authority, the plantwide limitation in Special Condition 2 will remain in effect until a revised plantwide limitation or a revised permit incorporating allowable limits is issued by the permitting authority.

C. Failure to submit a complete application according to Special Condition 15.A. to the permitting authority at least six (6) months prior to the expiration of the plantwide limitation is a violation of this construction permit and will result in the termination of the plantwide limitation on the date of expiration. At the time of termination, 3M Nevada will be required to comply with Special Condition 17.

16. Plantwide Limitation Renewal Requirements

A. A complete application shall consist of written documentation and/or calculations for the following items:
   1) A proposed plantwide limitation level;
   2) A list of all emissions units with applicable Federal or State requirements;
   3) The potential emissions of all current equipment at the installation;
   4) Identification of the baseline period;
   5) Baseline actual emissions; and
   6) A compliance plan for the proposed plantwide limitation.

B. The permitting authority will have the final authority to set the new plantwide emissions limitation based on the following guidelines:
   1) If the baseline actual emissions at the time of renewal are equal to or greater than 80 percent of the plantwide limitation, the plantwide limitation may be renewed at the same level.
   2) The plantwide limitation may not be set at a level that is greater than the potential to emit of the entire installation.

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

3) The plantwide limitation shall be adjusted to account for any applicable State or Federal requirement with a compliance date that occurs during the effective period of this plantwide limitation.
4) A plantwide limitation level higher than the current plantwide limitation level cannot be approved unless otherwise approved through Special Condition 18.

C. Any request to renew the plantwide limitation level is required to be placed on public notice for at least a 30-day period for submittal of public comment.

17. Expiration of the Plantwide Limitation

A. If 3M Nevada does not wish to renew the plantwide limitation of this construction permit, 3M Nevada shall apply for and obtain a construction permit for each emissions unit (or each group of emissions units) that existed under the plantwide limitation.

B. A complete application shall consist of a proposed allowable emission limitation for each emissions unit (or each group of emissions units) by distrubuting the plantwide limitation allowable emissions for the installation among each of the emissions units that existed under the plantwide limitation. If the plantwide limitation had not yet been adjusted for an applicable requirement that became effective during the plantwide limitation effective period, such distribution shall be made as if the plantwide limitation had been adjusted.

C. The plantwide limitation in Special Condition 2 will remain in effect until a revised construction permit is issued by the permitting authority.

D. Any physical change or change in the method of operation at the installation that meets the definition of major modification will be subject to major construction permitting requirements.

E. 3M Nevada shall continue to comply with any State or Federal applicable requirements that may have applied either during the plantwide limitation effective period or prior to the plantwide limitation effective period except for the emissions limitations that are superceded in Special Condition 1.

18. Increase of the Plantwide Limitation during the Effective Period

A. If 3M Nevada wishes to alter Special Condition 2 of this construction permit to allow the installation to emit more than 655 tons per year of VOC, 3M Nevada shall submit a complete application to request an

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

increase in the plantwide limitation meeting all the requirements for a major modification.

B. A complete application shall consist of written documentation and/or calculations to accomplish the following items:
   1) Identify the emissions units contributing to the increase in emissions so as to cause 3M Nevada's emissions to equal or exceed the plantwide limitation in Special Condition 2.
   2) Demonstrate that the sum of the baseline actual emissions of the small emissions units, plus the sum of the baseline actual emissions of the significant and major emissions units assuming application of Best Available Control Technology (BACT) equivalent controls, plus the sum of the allowable emissions of the new or modified emissions units exceeds the plantwide limitation.
   3) Comply with the provisions of a current BACT analysis for all emissions unit(s) identified in Special Condition 18.B(1) in accordance with the requirements of 10 CSR 10-6.060 section (8) regardless of the magnitude of the emissions increase resulting from them.

C. The revised plantwide limitation shall be effective on the day any emissions unit that is part of the plantwide limitation major modification becomes operational and begins to emit VOC.

D. The revised plantwide limitation level shall be placed on public notice for at least a 30-day period for submittal of public comment.

19. Requirements for the Early Termination of the Plantwide Limitation

A. If 3M Nevada wishes to terminate the plantwide limitation in Special Condition 2 of this construction permit, 3M Nevada will be required to comply with the provisions of State Rule 10 CSR 10-6.060.

B. Activities that are subject to Special Condition 19.A. are any physical and/or operational changes performed after issuance of this construction permit and in accordance with this construction permit.

C. Upon termination of the plantwide emission limitation, this construction permit will be void and all previously issued construction permits cited in Special Condition 1 will be reinstated.

D. The new construction permit will include a BACT analysis utilizing current technologies, a netting analysis performed by the installation and any other requirements that the permitting authority deems necessary

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

pursuant to 10 CSR 10-6.060 section (8). The results of the BACT and netting analyses shall be submitted to the permitting authority for review and approval.

E. If 3M Nevada requests termination of the plantwide limitation during the effective period, the plantwide limitation in Special Condition 2. will remain in effect until a valid construction permit is issued by the permitting authority pursuant to 10 CSR 10-6.060.

20. Records Retention Requirement
3M Nevada shall maintain all records required by this construction permit for not less than ten (10) years unless otherwise specified in a special condition. 3M Nevada shall make these records available immediately to any Missouri Department of Natural Resources' personnel upon request.

21. Reporting Requirement

A. 3M Nevada shall submit a semi-annual emissions report to the permitting authority within 30 days after the end of each reporting period. The reporting periods are January 1 – June 30 and July 1- December 31. The report shall contain the following information:

1) Identification of owner and operator and the permit number;
2) Total annual emissions in tons per year based on a 12-month rolling total for each month in the reporting period;
3) A summary of all data relied upon, including but not limited to, any Quality Assurance or Quality Control data, in calculating the monthly and annual VOC emissions;
4) A list of any emissions units modified or added to the installation during the preceding 6-month period;
5) The number, duration, and cause of any deviations or monitoring malfunctions, and any corrective action taken;
6) A notification of shutdown of any monitoring system, whether the shutdown was permanent or temporary, the reason for the shutdown, the anticipated date that the monitoring system will be fully operational or replaced with another monitoring system, and whether the emissions unit monitored by the monitoring system continued to operate, and the calculation of the emissions of VOC;
7) A signed statement by the responsible official certifying the truth, accuracy, and completeness of the information provided in the report.

B. 3M Nevada shall submit reports to the permitting authority within ten (10) days of any deviations or exceedance of permitting requirements. The report shall contain the following information:

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

1) The identification of owner and operator and the permit number:
2) The permit requirement that experienced the deviation or that was exceeded:
3) Emissions resulting from the deviation or the exceedance: and
4) A signed statement by the responsible official certifying the truth, accuracy, and completeness of the information provided in the report.

22. Quality Assurance/Quality Control Plan

3M Nevada shall maintain an operation and maintenance plan on site at all times. A table of contents of the plan shall be submitted to the permitting authority within 60 days of the issuance of this construction permit. The plan shall be a detailed, specific to the Nevada facility and include the following information:

A. A preventative maintenance program for avoidance of excess emissions which shall include all maintenance activities, with inspection schedule, repair actions, and replacements inventory.
B. A range of operating conditions and outlet variables for normal operation.
C. A summary of operating conditions and outlet variables for all control equipment that will be monitored for malfunction or breakdown and a description of the method of detecting and informing responsible personnel of any malfunction or breakdowns, including alarm systems, lights and other indicators.
D. A description of the generic corrective procedures that will be taken in the event of a malfunction or breakdown in order to restore compliance with the applicable emission limitations and permit conditions (e.g. reducing of production rate).

23. Emission Limitation for Non-VOC pollutants

A. 3M Nevada shall maintain documentation of the summation of the potential emissions of all criteria air pollutants except VOC from completed and proposed pre-approved changes. Attachment D, or equivalent forms approved by the permitting authority shall be used for this purpose.

B. If the records from Special Condition 23.A. indicate that the summation of potential emissions of any of the following criteria air pollutant exceeds its respective de minimis level as indicated in Special Condition 23.B.(1), 3M Nevada shall comply with the provisions of Special Condition 23.B.(1)-(3) for that particular pollutant.

1) 3M Nevada shall emit less than the following amounts for each listed criteria air pollutant in any consecutive 12 month period from all equipment, which has been installed under the authority of pre-approved changes set forth in Special Condition 4.A. and listed in

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

Attachment B, *Pre-Approved Changes*:

Pollutant	Limitation
Particulate Matter less than 10 microns in diameter (PM_{10})	15.0
Sulfur Oxides (SO_X)	40.0
Nitrogen Oxides (NO_X)	40.0
Carbon Monoxide (CO)	100.0

2) 3M Nevada shall track and calculate the monthly emissions of the listed criteria air pollutants in Special Condition 23.B (1) from all equipment listed in Attachment B, *Pre-Approved Changes*. Attachment E, or equivalent forms approved by the permitting authority shall be used to demonstrate compliance with Special Conditions 23.B.(1).
3) 3M Nevada shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after the end of the month during which the records from Special Condition Number 23.B(2) indicate that the source exceeds the limitation of Special Conditions Number 23.B(1).

24. Emissions Limitation on Process Line N3 Maker and 48 Maker

A. 3M Nevada shall emit less than 99.5 tons of Volatile Organic Compounds (VOCs) from the N3 Maker in any consecutive 12-month period.

B. 3M Nevada shall emit less than 99.5 tons of Volatile Organic Compounds (VOCs) from the 48 Maker in any consecutive 12-month period.

C. Attachment F and Attachment G or equivalent forms approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 24(A) and 24(B). These records shall include Material Safety Data Sheets (MSDS) for all materials used for N3 Maker and 48 Maker.

D. 3M Nevada shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after the end of the month during which the records from Special Condition Number 24(C) indicate that the source exceeds the limitation of Special Conditions Number 24(A) and 24(B).

E. 3M Nevada may request the removal of Special Condition 24 if and when

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

EPA approves the State of Missouri's submittal for adoption into the State Implemenation Plan (SIP), the NSR improvements for Plantwide Applicability Limits finalized on December 31, 2002.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW
Project Number: 2003-06-024
Installation ID Number: 217-0004
Permit Number:

3M Nevada
1440 East Austin
P.O. Box 327
Nevada, MO 64772

Complete: June 6, 2003
Reviewed: February 11, 2004

Parent Company:
3M Company
P.O. Box 33331
Bldg. 42-2E-27
St. Paul, MN 55133-3331

Vernon County, S10, T35N, R3W

REVIEW SUMMARY

- 3M Nevada has applied for a flexible permit for pre-approved changes at the existing commercial graphics plant in Nevada, MO.

- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. However, HAP emissions may not exceed acceptable ambient air quality concentrations as required by special conditions of this construction permit.

- Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*, and Subpart Kb, *Standards of Performance for Volatile Organic Liquid Storage Vessels*, of the NSPS applies to the installation. Subpart RR, *Standards of Performance for Pressure Sensitive Tape and Label Surface Coating Operations*, of the NSPS applies to 42 Maker, N3 Press, 47 Maker, 48 Maker, 49 Maker, and 50 Maker.

- The Maximum Achievable Control Technology (MACT) standards, 40 CFR Part 63, Subpart M, National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities; Subpart N, National Emission Standards for Chromium Emissions; Subpart KK, National Emission Standards for Hazardous Air Pollutants for the Printing and Publishing Industry; and Subpart JJJJ, National Emission Standards for Paper & Other Web (Surface Coating) apply to the proposed equipment.

- A regenerative thermal oxidizer is being used to control the VOC emissions from equipment at this installation.

- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Emissions of VOC for the entire installation are conditioned

- This installation is located in Vernon County, an attainment area for all criteria air pollutants.

- This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].

- Ambient air quality modeling was not performed since potential emissions of the flexible permit were not determined. However, screen modeling for HAPs is required as specified in the special conditions of this construction permit.

- Emissions testing is not required for the source.

- A Part 70 Operating Permit application is required for this installation within 1 year of equipment startup.

- Approval of this construction permit is recommended with special conditions.

INSTALLATION DESCRIPTION

3M Nevada (3M) owns and operates an existing commercial graphics plant in Nevada, Missouri. This installation is a major source of VOC emissions. A Part 70 Operating permit application was submitted to the Air Pollution Control Program on July 11, 1996 and is currently under Technical Review. The following permits have been issued to 3M Nevada from the Air Pollution Control Program.

Permit Number	Description
0782-002	DMC Paint Line (Dismantled)
0184-013	Storage/Extruder Fume Exhausts
0884-005	3 Roll Mill
0585-001	Corona Treater
0988-003	Replacement Boiler
0289-005	Roll Grinder
0590-011	Replacement of Line Drives for 42 Maker
0590-012	Five (5) Aboveground Solvent Storage Tanks
0291-003	47 Maker
0395-012	48 Maker
0895-025	533 Gallon Kettle
0395-012A	Amendments to Permit 0395-012
1195-009	250 Gallon Kettle
1095-014	N3 Maker
1195-018	Chromium and Copper Electroplating
0396-019	49 Maker
0396-020	Case Printer
1195-018A	Amendments to Permit 1195-018
0596-010	Temporary Permit for 40 Maker
0596-011	Temporary Permit for Corona Treaters
0796-003	New Lathe
1096-003	Distillation Unit
0297-017	Electrostatic Printer and Two (2) Flexographic Printers
1098-017	Flexible sign face substrate production line
0199-025	New Parts Cleaning Vat
0899-012	Temporary permit for an air compressor
012000-020	Temporary permit for two (2) 175 kw/hour diesel generators
1098-017A	Amendment to Permit Number 1098-017
1098-017B	Amendment to Permit Number 1098-017A

Environmentally, 3M has been recognized as a leader in responsible environmental management. In 1999, the plant was awarded the Missouri Governor's Pollution Prevention Award. In 2000, the plant received the EPA Region 7 Pollution Prevention Award for Environmentally Preferred Products. More recently, the 3M Nevada facility was added to the EPA National Environmental Performance Track Program. The 3M Nevada facility was the 13th in the four-state region of Iowa, Kansas, Missouri and Nebraska to be certified in this national program designed to recognize and encourage top environmental performers that voluntarily go beyond compliance with environmental regulations and commit to continual environmental improvement. One notable accomplishment for 3M Nevada has been the reduction of air emissions by more than 85 percent since 1990 by the voluntary installation of thermal oxidizers on major air emission sources.

PROJECT DESCRIPTION

3M has applied for a flexible permit from the Air Pollution Control Program through a "pilot project" with EPA Headquarters that will accomplish two things: place an emissions limit on VOC from the entire installation and allow pre-approved changes to occur at the installation with little advance notice. The idea was presented to the permitting authority by the applicant and the EPA as a means of lowering overall plant emissions and increasing manufacturing flexibility.

The pre-approval of certain types of physical and operational changes in the permit is designed, in part, to facilitate the facility's implementation of pollution prevention projects, including potential conversion to the use of non-VOC-containing compliant coatings to satisfy MACT JJJJ requirements. One of the future commitments established by the 3M Nevada facility in their application to the EPA National Performance Track Program focuses on reducing VOC emissions through the expanded use of water-based and high solids coatings. This permit is explicitly designed to enable the Nevada facility to accomplish this in a streamlined manner. Utilization of the pre-approvals in this permit, insofar as they facilitate pollution prevention activities that contribute to meeting VOC reduction commitments at the facility, will be reported through the annual Performance Track Progress Reports.

3M was chosen to participate in this "pilot project" due to their commitment to the environment which is exemplified by the awards described in the previous section. In addition, 3M has been involved in prior flexible air permit pilot projects in Minnesota and Oklahoma.

In this "pilot project", 3M has teamed with US EPA Regional Offices and US EPA Headquarters to develop a network of flexible permits in three states; besides permitting efforts in Missouri, similar permits are being proposed at 3M-owned sister plants in the states of Texas and Alabama. In a joint effort among the states to produce permits that are consistent for the three respective 3M plants, certain aspects of this construction permit are being based on newly reformed federal regulations that were finalized in December of 2002. Although these regulatory provisions have yet to be adopted into the Missouri State Rules and Implementation Plan, the federal regulations have been used as guidance in determining the plantwide emissions limitation, the basis for the pre-approval process and the performance testing, monitoring, record keeping and reporting needed to demonstrate compliance with the emission limitation.

The reformed regulations have a provision for a Plantwide Applicability Limitation (PAL) which limits plantwide emissions based on historical actual emissions and a reasonable operational margin. With the issuance of a PAL, the company would be allowed to make modifications to operations without triggering major or minor construction permitting as long as emissions from the installation remained below the PAL "emissions cap". A PAL cap is established for existing emissions units with an emissions history greater than 24-months, using the average rate of emissions during any one consecutive 24-month period. This 24-month period must be contained within the 10-year period immediately preceding the application for a PAL.

Once the average is determined, a reasonable operating margin can be added to the average and must be set such that major construction is not triggered. This assures that the environment sees no significant increase in emissions compared to the baseline actual emissions existing before the PAL is established.

As stated previously, although these federal rules have not been specifically incorporated into Missouri state rules, existing Missouri regulations allow for such innovative permitting techniques.

The basis for the plantwide limitation set forth in this construction permit can be found in 10 CSR 10-6.060(5)(C), which states:

> "In order to eliminate the necessity for a large number of de minimis permit applications from a single installation, a special case de minimis permit may be developed for those batch-type production processes which frequently change products and component source operations."

In addition, the definition of "actual emissions" in 10 CSR 10-6.020(2)(A)4 allows the Director to determine a more representative time period for averaging the rate of emissions from the installation. In this case, the Director is relying on the final federal regulations to "guide" the determination that a more representative time period is a 24-month period contained within the 10-year period immediately preceding the application.

In fact, Missouri statutes mandate the use of federal guidelines, policies and regulations to ensure compliance with the federal Clean Air Act. When the newly reformed federal regulations are adopted into the Missouri state rules, through the State Implementation Plan, the Missouri rules will not and cannot be stricter than the federal regulations, according to this statute. As such, the reformed federal regulations are used as guidance for developing the provisions for a plantwide limitation for this pilot project. The statute can be found in Missouri Revised Statutes Chapter 643 Air Conservation Section 643.055, which states:

> "Other provisions of law notwithstanding, the Missouri air conservation commission shall have the authority to promulgate rules and regulations, pursuant to chapter 536, RSMo, to establish standards and guidelines to ensure that the State of Missouri is in compliance with the provisions of the federal Clean Air Act, as amended (42 U.S.C. Section 7401, et seq.). The standards and guidelines so established shall not be any stricter than those required under the provisions of the federal Clean Air Act, as amended; nor shall those standards and guidelines be enforced in any area of the state prior to the time required by the federal Clean Air Act, as amended. The restrictions of this section shall not apply to the parts of a state implementation plan developed by the commission to bring a nonattainment area into compliance and to maintain compliance when needed to have a United States Environmental Protection Agency approved state implementation plan. The determination of which parts of a state implementation plan are not subject to the restrictions of this section

shall be based upon specific findings of fact by the air conservation commission as to the rules, regulations and criteria that are needed to have a United States Environmental Protection Agency approved plan."

Typically, construction permits are issued to installations for the duration that the installation itself exists, i.e. without an expiration date. However, in this case, 3M has requested and accepted a termination condition for the plantwide limitation, which mirrors the reformed federal regulations. In particular, the plantwide limitation in this construction permit is limited to a ten year period with renewal provisions as seen in Special Conditions 14 through 19.

One purpose of this construction permit is to supercede the special conditions of previously issued construction permits in order to reduce the necessity of tracking a large number of de minimis permits and conditions by establishing a new limitation that will cap the entire installation's VOC emissions. In addition, there are two previously issued construction permits with 99.5 tons per year limits taken to address the applicable NSR regulations and relevant interpretations. These limitations are being proposed for incorporation into today's draft construction permit. This construction permit also proposes a mechanism to remove these two limits if and when EPA approves the State of Missouri's submittal for adoption into the State Implemenation Plan (SIP), the NSR improvements for Plantwide Applicability Limits finalized on December 31, 2002. Missouri DNR is also considering the appropriateness of an alternative approach in which all 29 of the previously issued construction permits would become part of the new limitation that will cap the entire intallation's VOC emissions.

To date, 3M has received 29 construction permits from the Air Pollution Control Program. However, of the 29 issued construction permits, only 13 contain special conditions that, at the time, were necessary to limit emissions of a particular project or to set requirements for a control device. All previous permit conditions have been subsumed into the conditions of this construction permit and are, therefore, unnecessary or repetitive in nature. Special Condition 1 was set forth to supercede the special conditions of these 13 construction permits. The remaining 16 construction permits that are not mentioned in Special Condition 1 do not have special conditions.

In order to give the company flexibility in making changes quickly to their facility that will meet market demands, the permitting authority is granting 3M a "special case de minimis permit". Based on existing potential emissions, 3M is currently considered major for VOC and minor for all other criteria air pollutants. Under this application, 3M has requested a plantwide emissions cap for only VOC. To determine this cap, emissions reported in the Emissions Inventory Questionnaires (EIQs) were examined and a two-year average was calculated over the last 10 years for VOC. Table 1 summarizes these values.

Table 1: Two-year averages of VOC emissions over the last 10 years

Emission	Emission of VOC	2-year Average of VOC Emissions

Year	(tons)	(tons)
2002	574.54	
2001	608	591.27
2000	619.89	613.95
1999	593.08	606.49
1998	558.27	575.68
1997	674.09	616.18
1996	554.59	614.34
1995	428.76	491.68
1994	425.2	426.98
1993	367.18	396.19
1992	466.25	416.72

The two years that produced the highest two- year average emissions of VOC were 1997 and 1998 with an average of 616 tons of VOC per year. To set the emissions cap, a reasonable operating margin for VOC was set just below the significance levels for major source reviews, which is 40 tons per year. Therefore, the total allowable emissions limit set forth in this construction permit is 655 tons of VOC per year (616 +39).

Attachment A, or any form approved by the permitting authority, will be used to demonstrate compliance with the emissions limitation. Attachment A is intended to account for emissions from the entire installation including any equipment added or removed under authority of this construction permit. Although Attachment A implies that emissions must be reconciled monthly, 3M will be required to account for daily emissions that occur as a result of start-up, shut-down, and/or malfunction of the control device. Accordingly, 3M may use monthly inventory data to backcast daily emissions prorated on each day's production rates during such times.

For equipment that is added or removed under authority of this construction permit, 3M must keep a record of these additions/removals per Special Condition 4.B. Furthermore, 3M must verify any emission factors and control efficiencies applied to emissions from the installation through documentation accompanying the Attachment. Documentation may include Material Safety Data Sheets (MSDS) specific to the material being used and/or recent stack performance test results. In particular, the documentation should include explicit details on how the emission factor and/or control efficiency was determined. This type of flexibility should allow 3M the opportunity to use better emission factors as they become available.

Under the emissions limitation, 3M is authorized to perform physical and operational changes stated in the list of pre-approved changes found in Attachment B, *Pre-Approved Changes*. This construction permit may be amended to include activities that are not identified in the original list of pre-approved modifications if those activities will not increase emissions over the plantwide cap. However, 3M may not amend this construction permit to increase the plantwide cap itself for any reason. To amend the plantwide cap would result in the termination of this construction permit and would require 3M to apply for and obtain a new permit under Section (8) regulations.

For modifications that are not considered a pre-approved change and increase potential emissions of criteria air pollutants other than VOC and HAP, the installation must submit a construction permit application for evaluation and approval. In order for the installation to obtain any additional construction permits, the emissions must be below de minimis levels for that pollutant to avoid major source review.

In addition, when 3M submits notification of a pre-approved change that produces emissions other than VOC, 3M is required to include a calculation sheet and a summation of potential emissions of all criteria air pollutants except VOC for the proposed pre-approved changes and all completed pre-approved changes. Proposed pre-approved changes consist of any equipment for which a notification has been received including the equipment proposed in the current notification. A record of the summation must also be kept on site as specified in Special Condition 23.

The purpose of these special conditions is to set forth provisions for recordkeeping for equipment installed under authority of the pre-approved changes with potential emissions greater than de minimis levels for non-VOC pollutants. This is required to ensure these pollutants do not trigger major review for these phased projects. Therefore, once the potential emissions of a non-VOC criteria air pollutant exceeds de minimis levels, 3M will be required to maintain a 12-month rolling average of actual emissions below de minimis levels from all completed pre-approved changes for that particular criteria air pollutant.

For example, if 3M were to install sources with the following emissions under authority of a pre-approved change (see Table 2), 3M would not be required to comply with an emissions limitation for PM_{10}, SOx, or CO. However, upon installation of the third source, 3M would be required to track NOx emissions for all three sources and not exceed an annual limitation of 40 tons.

Table 2: Example Applicability Summary for Special Condition 23

Pollutant	Source 1	Source 2	Source 3	Summation
PM_{10}	1.0	1.3	1.0	3.3
SOx	0.1	0.1	0.1	0.3
NOx	14.0	16.6	13.1	43.7
CO	12.0	14.0	11.0	37.0

From a timeline perspective, in this example, if source 1 and 2 were installed in 2005 and 2006, respectively, and source 3 were installed in 2007, the limit would not become effective until 2007.

Besides VOC emissions, some materials are anticipated to contain HAP, which are required to meet state requirements as outlined in Special Conditions 7 and 8. Based on the potential emissions of each specific HAP, 3M is required to determine the impact of the HAP on the ambient air. To do this, 3M must screen using the EPA preferred screening method prior to operation. The modeled screening concentration must then be compared to the acceptable concentrations found in the Missouri document *Draft Acceptable Ambient Levels for Missouri*, which is maintained by the permitting authority. 3M must also contact the Program for the most recent update to the document to

ensure compliance with the construction permit. If modeled concentrations are above acceptable concentration levels on any averaging period (i.e. 3-hour, 8-hour, 24-hour, and/or annual), 3M may not commence operation until 3M completes refined modeling to document ambient concentrations that are below acceptable concentration levels or applies for and obtains a construction permit limiting the HAP emissions.

Once this construction permit is issued, 3M is authorized to construct and operate any pre-approved modification in accordance with the notification system (Special Conditions 5 and 6). Prior to commencement of construction and operation, 3M must submit notification to the permitting authority describing all required details of the operational and/or physical changes being performed. As a part of the notification, 3M is required to submit a statement verifying that the physical or operational change will not result in installation emissions that exceed the plantwide limitation. Construction permits believes that the notifications are similar to pre-construction waivers, where the applicant is requesting authority to start construction before issuance of the permit. In this case, if a change is determined to be inconsistent with the pre-approved changes, and the change requires an amendment to the permit, the statement of verification serves as assurance that the change will not affect the limit. Once received, these notifications will become incorporated into the construction permit, and compliance with the notifications will be enforceable.

The plantwide limitation set forth in this construction permit is effective for a period of ten (10) years from the date of issuance. At least six (6) months prior to, but not earlier than 18 months from, the expiration date of this plantwide limitation, 3M must submit a request for either the renewal of or the termination of the plantwide limitation.

Once a request for renewal is received by the permitting authority, the plantwide limitation will continue as an enforceable requirement. At that time, the limitation must be re-evaluated to account for newly applicable requirements and/or declining potential emissions. For example, if 3M removes equipment from the installation that results in a total decrease in potential emissions below the current plantwide limitation, the renewed plantwide limitation must be adjusted downward accordingly. On the other hand, if applicable requirements and potential emissions remain the same, or if the Director deems it appropriate, the plantwide limitation may remain at the same level.

However, if 3M wishes to allow the limitation to terminate, 3M must submit a proposed approach for allocating the plantwide limitation among existing emissions units for review and approval. The allowable emission limitations for each emissions units will be based on a 12-month rolling basis. In addition, once the original plantwide limitation expires, 3M may not perform activities previously approved under this construction permit and must comply with the permitting requirements found in Sections (5), (6), (7), (8), and (9), as appropriate.

3M may terminate the plantwide limitation through walk away provisions of this construction permit by requesting an increase in the limitation or by simply requesting termination. If 3M wishes to walk away from the terms of this construction permit, 3M may vacate the permit and return to the requirements of previously issued construction permits. For all construction commenced in the duration of this construction permit, 3M

is required to apply for and obtain a new permit under Section (8) regulations for each project with potential emissions that exceed the significance threshold(s). In addition, a complete netting analysis is required for all emissions reductions and increases that occurred over the life of the construction permit.

Once 3M requests termination of, expiration of, or an increase in the plantwide limitation, 3M must submit appropriate applications for revised or replacement permits. During any review by the permitting authority and until a valid construction permit is issued, 3M must continue to comply with the plantwide limitation in Special Condition 2 of this construction permit.

EMISSIONS/CONTROLS EVALUATION

The emission factors and control efficiencies obtained from the most recent edition of the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, shall be used to determine compliance with the plantwide limitation of VOCs. For materials that contain VOCs and for which there is a Material Safety Data Sheet (MSDS), a mass balance approach should be used to determine emissions from the process. The upper limit of any content range stated in the MSDS must be used in the calculations unless approved tests indicate a more appropriate value. Per permitting authority policy, it is assumed that all VOCs and HAPs contained in the material will be emitted into the atmosphere unless an alternative method is approved by the Program. Approval can be requested through the notification process.

Due to the nature of the flexible permit, potential emissions of the application and existing potential emissions were not determined. Existing actual emissions were taken from the 2002 EIQ. The following table provides an emissions summary for this project.

Table 3: Emissions Summary (tons per year)

Pollutant	Regulatory *De Minimis* Levels	Existing Potential Emissions	Existing Actual Emissions (2002 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM_{10}	15.0	N/D	2.40	N/A	N/A
Sox	40.0	N/D	0.19	N/A	N/A
NOx	40.0	N/D	31.52	N/A	N/A
VOC	40.0	>Major	574.54	N/D	<655.0
CO	100.0	N/D	26.48	N/A	N/A
HAPs	10.0/25.0	N/D	N/D	N/A	N/A

*N/A = Not Applicable; N/D = Not Determined

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. This is a special case de minimis permit. Although a plantwide cap of 655 tons per year of VOC is being placed on the installation, this permit was reviewed under Section (5) because the reasonable operating margin for VOC emissions is below de minimis levels.

APPLICABLE REQUIREMENTS

3M Nevada shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information,* 10 CSR 10-6.110
  The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required April 1 for the previous year's emissions.

- *Operating Permits*, 10 CSR 10-6.065

- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170

- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220

- *Restriction of Emission of Odors*, 10 CSR 10-3.090

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400

- *New Source Performance Regulations*, 10 CSR 10-6.070 – *New Source Performance Standards (NSPS) for Pressure Sensitive Tape and Label Surface Coating Operations*, 40 CFR Part 60, Subpart RR

- *New Source Performance Regulations*, 10 CSR 10-6.070 – *New Source Performance Standards (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units*, 40 CFR Part 60, Subpart Dc

- *New Source Performance Regulations*, 10 CSR 10-6.070 – *New Source*

Performance Standards (NSPS) for Volatile Organic Liquid Storage Vessels, 40 CFR Part 60, Subpart Kb

- *Maximum Achievable Control Technology (MACT) Regulations*, 10 CSR 10-6.075, *National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities,* 40 CFR Part 63, Subpart M

- *Maximum Achievable Control Technology (MACT) Regulations*, 10 CSR 10-6.075, *National Emission Standards for Chromium Emissions,* 40 CFR Part 63, Subpart N

- *Maximum Achievable Control Technology (MACT) Regulations*, 10 CSR 10-6.075, *National Emission Standards for Hazardous Air Pollutants for the Printing and Publishing Industry,* 40 CFR Part 63, Subpart KK

- *Maximum Achievable Control Technology (MACT) Regulations*, 10 CSR 10-6.075, *National Emission Standards for Hazardous Air Pollutants for Paper & Other Web (Surface Coating),* 40 CFR Part 63, Subpart JJJJ

- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260

- *Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating,* 10 CSR 10-3.060

AMBIENT AIR QUALITY IMPACT ANALYSIS

Ambient air quality modeling is required to determine the ambient impact of hazardous air pollutants (HAP) from any physical or operational change performed under the pre-approved changes of this construction permit. Currently, the EPA preferred method for screening is Screen 3 modeling.

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State

Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Emily Enkvetchakul Wilbur
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated June 3, 2003, received June 6, 2003, designating 3M Company as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Southwest Regional Office Site Survey, dated June 16, 2003.

Mr. James R. Kotsmith
Senior Environmental Engineer
3M Nevada
P.O. Box 33331
Bldg. 42-2E-27
St. Paul, MN 55133-3331

RE: Construction Permit - Project Number: 2003-06-024

Dear Mr. Kotsmith:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files.

Operation in accordance with these conditions, your construction permit application and with your operating permit is necessary for continued compliance.

The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact me at (573) 751-4817, or you may write to me at the Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102.

Thank you,

AIR POLLUTION CONTROL PROGRAM

Kyra L. Moore
Interim New Source Review Unit Chief

KLM:ewl

Enclosures

c: Southwest Regional Office
PAMS File 2003-06-024

Permit Number:

Attachment A: VOC Compliance Calculations and Worksheet

3M Commercial Graphics Division
Vernon County, S10, T35N, R3W
Project Number: 2003-06-024
Installation ID Number: 217-0004
Permit Number:

The calculation methods for demonstrating compliance with special condition 2 (A) are described below. Table A provides an example worksheet that will be used to identify the sources of VOC emissions, the emissions calculations method used, and the monthly emissions (tons).

Recordkeeping – Material Balance

On each day of operation, the Permittee shall record and maintain records of the total quantity of all materials used containing VOC at the facility. By the 20th 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 VOC usage records. The record shall also include the VOC content of each material as determined by (1) Material Safety Data Sheet (MSDS) from the 3M Chemical Data Management System (CDMS), (2) 3M laboratory formulation sheet or (3) 3M product specification information, which ever is most representative for each material used; the record shall indicate the source of VOC content for each material used. Other alternative methods approved by the Director may be used. The Director reserves the right to require the Permittee to determine the VOC contents of any material according to EPA reference methods. The amount of VOC used for each month shall be determined by multiplying the amount of VOC containing materials used by the VOC content of each material.

2. The VOC emissions for each emissions unit and the total facility for the previous month. VOC emissions shall be determined from the total VOC used for each emissions unit multiplied by one minus the capture efficiency for each emissions unit multiplied by the control efficiency of any thermal oxidizer used, as represented in the following equation:

$$VOC\ emissions = VOC\ used\ (1 - capture\ efficiency\ x\ control\ efficiency)$$

Where:
-VOC emissions are expressed as pounds (or tons)
-VOC used is expressed as pounds (or tons)
-Capture efficiency is expressed as a fraction (i.e., percent capture divided by 100)
-Control efficiency is expressed as a fraction (i.e., percent capture divided by 100)

Total facility VOC emissions shall be calculated by summing the VOC emissions from each emissions unit.

3. The 12 month rolling sum VOC emission for the previous 12 month period by summing the monthly VOC emissions data for the previous 12 months. This number shall be used to demonstrate compliance with Special Condition 2(A).

4. VOC emissions shall be recorded and maintained in a written or electronic form at the facility for a period of five years.

Recordkeeping – Emission Factor or Emission Model Calculations

On each day of operation, the Permittee shall record and maintain records of the total quantity of materials used or hours of operation for each VOC emissions unit. By the 20th of the month, the Permittee shall calculate and record the following:

1. The total usage of VOC containing materials or hours of operation for the previous calendar month using the daily production records. The record shall indicate the emission factor used to demonstrate compliance with Special Condition 2(A). Emission factors must be obtained from the most recent edition of AP-42, *Compilation of Air Pollutant Emission Factors*, the most recent stack test report, a mass balance approach (described above), and/or by a method approved by the Air Pollution Control Program. Documentation sufficient to support the emission factors must accompany Attachment A required by Special Condition 2(B).

2. The VOC emissions for each emissions unit and the total facility for the previous month. VOC emissions shall be determined by multiplying the quantity of materials used or hours of operation by an emissions factor, as represented in the following equation:

   VOC emissions = Materials Used or Hours of Operation x Emission Factor

   Total facility VOC emissions shall be calculated by summing the VOC emissions from each emissions unit.

5. The 12 month rolling sum VOC emission for the previous 12 month period by summing the monthly VOC emissions data for the previous 12 months. This number shall be used to demonstrate compliance with Special Condition 2(A).

6. VOC emissions shall be recorded and maintained in a written or electronic form at the facility for a period of five year

Attachment B: Pre-Approved Changes

3M Commercial Graphics Division
Vernon County, S10, T35N, R3W
Project Number: 2003-06-024
Installation ID Number: 217-0004
Permit Number:

Pre-Approved Change			Regulated Substances	Applicable Standards	
				Federal	State of Missouri
1	Install [1]	(a) a web coating line [2]	VOC, HAP	**MACT:** 40 CFR 63 sub JJJJ	NONE
			IF: natural gas **OR** propane, **THEN:** PM, SOx, NOx	NONE	10 CSR 10-6.260 [Restriction of Emission of Sulfur Compounds] 10 CSR 10-3.060 [Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating]
		(b) a coating line used in the manufacture of pressure sensitive tape and label materials [3]	VOC, HAP	**NSPS:** 40 CFR 60 sub RR	NONE
			IF: natural gas **OR** propane, **THEN:** PM, SOx, NOx	NONE	10 CSR 10-6.260 [Restriction of Emission of Sulfur Compounds] 10 CSR 10-3.060 [Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating]
		(c) a product and packaging rotogravure or wide-web flexographic printing press [4]	VOC, HAP	**MACT:** 40 CFR 63 sub KK	NONE
			IF: natural gas **OR** propane, **THEN:** PM, SOx, NOx	NONE	10 CSR 10-6.260 [Restriction of Emission of Sulfur Compounds] 10 CSR 10-3.060 [Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating]
		(d) equipment for processing and/or handling raw materials associated with coating operations	VOC, HAP	**MACT:** 40 CFR 63 sub JJJJ, **AND/OR** 40 CFR 63 sub KK	NONE
			PM		10 CSR 10-6.400 [Restriction of Emission of Particulate Matter From Industrial Processes]
		(e) dry cleaning equipment [5]	perchloroethylene	MACT M	NONE
		(f) a chromium anodizing tank [6]	chromium	MACT N	NONE
		(g) a thermal oxidizer	VOC, HAP		as required by applicable requirements under Pre-Approved Projects 1(a), 1(B), OR 1(c)
			PM, SOx, NOx	NONE	10 CSR 10-3.060 [Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating] 10 CSR 10-6.260 [Restriction of Emission of Sulfur Compounds]
		(h) a VOL tank (fixed roof) [7]	VOC, HAP	**IF:** V ≥ 19,800 gal, **THEN:** **NSPS**: 40 CFR 60 sub Kb	NONE

Pre-Approved Change			Regulated Substances	Applicable Standards	
				Federal	State of Missouri
		(i) a solvent cold cleaner	VOC, HAP (non-halogen)		NONE
2	Modify [1]	(a) a web coating line		Same as Pre-Approved Project 1(a) above	
		(b) a coating line used in the manufacture of pressure sensitive tape and label materials		Same as Pre-Approved Project 1(b) above	
		(c) a product and packaging rotogravure or wide-web flexographic printing press		Same as Pre-Approved Project 1(c) above	
		(d) equipment for processing and/or handling raw materials associated with coating operations		Same as Pre-Approved Project 1(d) above	
		(e) dry cleaning equipment		Same as Pre-Approved Project 1(e) above	
		(f) a chromium anodizing tank		Same as Pre-Approved Project 1(f) above	
		(g) a thermal oxidizer		Same as Pre-Approved Project 1(g) above	
		(h) a VOL tank (fixed roof)		Same as Pre-Approved Project 1(h) above	
3	Changes Materials	(a) use of a new raw material or ingredient in a coating solution	VOC, HAP		
		(b) use of a new coating solution	VOC, HAP		

Notes:

[1]	The terms *install*, *construct,* and *modify*, for purposes of this table, have operational rather that regulatory meaning. For example, in some cases one or more of the listed *installation* projects might meet the regulatory definition of a *modification* rather than *construction*, according to its applicable regulation.
[2]	A **web coating** line means any number of work stations, of which one or more applies a continuous layer of coating material across the entire width or any portion of the width of a web substrate, and any associated curing/drying equipment between an unwind or feed station and a rewind or cutting station, AND: • Web means a continuous substrate (e.g., paper, film, foil) which is flexible enough to be wound or unwound as rolls. • Includes ancillary equipment which meets the definition of "affiliated equipment" addressed in the preamble of the POWC MACT
[3]	Means any number or combination of adhesive, release, or precoat coating applicators, flashoff areas, and ovens which coat a continuous web, located between a web unwind station and a web rewind station, to produce pressure sensitive tape and label materials, AND: • Coating applicator means an apparatus used to apply a surface coating to a continuous web. • Flashoff area means the portion of a coating line after the coating applicator and usually before the oven entrance. • Hood or enclosure means any device used to capture fugitive volatile organic compounds. • Oven means a chamber which uses heat or irradiation to bake, cure, polymerize, or dry a surface coating. • Precoat means a coating operation in which a coating other than an adhesive or release is applied to a surface during the production of a pressure sensitive tape or label product.
[4]	**Product and packaging rotogravure printing** means the production, on a rotogravure press, of any printed substrate. This includes, but is not limited to, folding cartons, flexible packaging, labels and wrappers, gift wraps, wall and floor coverings, upholstery, decorative laminates, and tissue products. **Wide-web flexographic press** means a flexographic press capable of printing substrates greater than 18 inches in width, AND: Flexographic press means an unwind or feed section, a series of individual work stations, one or more of which is a flexographic print station, any dryers (including interstage dryers and overhead tunnel dryers) associated with the work stations, and a rewind, stack, or collection station. The work stations may be oriented vertically, horizontally, or around the circumference of a single large impression cylinder. Inboard and outboard work stations, including those employing any other technology, such as rotogravure, are included if they are capable of printing or coating on the same substrate.

[5]	Means each dry-to-dry machine and its ancillary equipment or a transfer machine system and its ancillary equipment, AND: • Ancillary equipment means the equipment used with a dry cleaning machine in a dry cleaning system including, but not limited to, emission control devices, pumps, filters, muck cookers, stills, solvent tanks, solvent containers, water separators, exhaust dampers, diverter valves, interconnecting piping, hoses, and ducts. • Dry-to-dry machine means a one-machine dry cleaning operation in which washing and drying are performed in the same machine.
[6]	**Chromium electroplating or chromium anodizing tank** means the receptacle or container in which hard or decorative chromium electroplating or chromium anodizing occurs. • Decorative chromium electroplating means the process by which a thin layer of chromium (typically 0.003 to 2.5 microns) is electrodeposited on a base metal, plastic, or undercoating to provide a bright surface with wear and tarnish resistance. In this process, the part(s) serves as the cathode in the electrolytic cell and the solution serves as the electrolyte. Typical current density applied during this process ranges from 540 to 2,400 Amperes per square meter (A/m2) for total plating times ranging between 0.5 to 5 minutes. • Hard chromium electroplating or industrial chromium electroplating means a process by which a thick layer of chromium (typically 1.3 to 760 microns) is electrodeposited on a base material to provide a surface with functional properties such as wear resistance, a low coefficient of friction, hardness, and corrosion resistance. In this process, the part serves as the cathode in the electrolytic cell and the solution serves as the electrolyte. Hard chromium electroplating process is performed at current densities typically ranging from 1,600 to 6,500 A/m2 for total plating times ranging from 20 minutes to 36 hours depending upon the desired plate thickness. • Chromium anodizing means the electrolytic process by which an oxide layer is produced on the surface of a base metal for functional purposes (e.g., corrosion resistance or electrical insulation) using a chromic acid solution. In chromium anodizing, the part to be anodized acts as the anode in the electrical circuit, and the chromic acid solution, with a concentration typically ranging from 50 to 100 grams per liter (g/L), serves as the electrolyte
[7]	Means each tank, reservoir, or container used for the storage of volatile organic liquids, not including frames, housing, auxiliary supports, or other components that are not directly involved in the containment of liquids or vapors.

Attachment C: Processes Added/Removed/Modified from VOC Compliance Worksheet

3M Commercial Graphics Division
Vernon County, S10, T35N, R3W
Project Number: 2003-06-024
Installation ID Number: 217-0004
Permit Number:

This sheet covers the period from _____ to _____.

Emission Point (Note 1)	Equipment Description (Note 1)	Pre-Approved Change Category (Note 1)	Equipment Action (Note 2)	Date of Action (Note 3)

Note1: Description of equipment being added/removed/modified including emission point identification and category of pre-approved change. This log shall include any equipment/process that is added or removed from the calculation of annual VOC emissions as listed in Attachment A.

Note 2: Any equipment being added, removed, or modified from the emissions calculation sheet (Attachment A) must be listed.

Note 3: If equipment is being added, list date of commencement of operation (including startup). If equipment is being removed, list date of removal from installation.

Attachment D: Calculation of Potential to Emit of Non-VOC Pollutants for Pre-Approved Changes Worksheet

3M Commercial Graphics Division
Vernon County, S10, T35N, R3W
Project Number: 2003-06-024
Installation ID Number: 217-0004
Permit Number:

This sheet covers the period from _____ to _____.

Emission Point (Note 1)	Equipment Description (Note 1)	Pre-Approved Change Category (Note 1)	Potential Emissions of Equipment (Note 2)		Total Potential Emissions (Note 3)			
			Pollutant	PTE (tons)	PM_{10} (tons)	SOx (tons)	NOx (tons)	CO (tons)

Note1: Description of equipment including emission point identification and category of pre-approved change. This log shall include any equipment with potential emissions of pollutants other than VOC.

Note 2: Calculation of the potential to emit for the equipment grouped by pollutant.

Note 3: The summation of non-VOC potential emissions for all equipment. For potential emissions greater than de minimis levels, 3M must comply with de minimis limitations as set forth in Special Condition 23.

Attachment E: Non-VOC Compliance Calculations and Worksheet

3M Commercial Graphics Division
Vernon County, S10, T35N, R3W
Project Number: 2003-06-024
Installation ID Number: 217-0004
Permit Number:

Pollutant Name _____

This sheet covers the period from _____ to _____.
(Month, Year) (Month, Year)

Copy as needed.

Month	Equipment Description (Note 1)	Amount of Material Processed (Note 2)	Emission Factor (Note 3)	Monthly Emissions of Pollutant (Note 4)	12-Month Emissions (Note 5)

Note1: Description of equipment including emission point identification. This log shall include any equipment with potential emissions of pollutants greater than de minimis as specified in Special Condition 23. The pollutant being tracked should be indicated above.

Note 2: Amount of material processed for combustion sources is the amount of natural gas/propane combusted. Units should be specified in the chart.

Note 3: The units for the emission factor used should correspond with the units used for amount of material processed. For combustion sources, the emission factor should be obtained from the EPA document AP-42.

Note 4: Amount of Material Processed x Emission Factor x 0.0005.

Note 5: Sum of last 12-months of Monthly Emissions. A 12-Month Total pollutant emissions not in excess of de minimis levels indicates compliance.

Attachment F: VOC Compliance Calculations and Worksheet for N3 Maker

3M Commercial Graphics Division
Vernon County, S10, T35N, R3W
Project Number: 2003-06-024
Installation ID Number: 217-0004
Permit Number:

This sheet covers the period from _____ to _____.
(Month, Year) (Month, Year)

Copy as needed.

Month	Equipment Description (Note 1)	Amount of Material Processed (Note 2)	Emission Factor (Note 3)	Monthly Emissions of VOC (Note 4)	12-Month Emissions (Note 5)

Note1: Description of equipment including emission point identification. This log shall include any emissions associated with N3 Maker as specified in Special Condition 24.

Note 2: Amount of material used at N3 Maker. Amount of material processed for combustion sources is the amount of natural gas/propane combusted. Units should be specified in the chart.

Note 3: The units for the emission factor used should correspond with the units used for amount of material processed. For combustion sources, the emission factor should be obtained from the EPA document AP-42. For VOC content, use Material Safety Data Sheets (MSDS).

Note 4: Amount of Material Processed x Emission Factor x 0.0005.

Note 5: Sum of last 12-months of Monthly Emissions. A 12-Month Total VOC emissions less than 99.5 tons indicates compliance.

Attachment G: VOC Compliance Calculations and Worksheet for 48 Maker

3M Commercial Graphics Division
Vernon County, S10, T35N, R3W
Project Number: 2003-06-024
Installation ID Number: 217-0004
Permit Number:

This sheet covers the period from _____ to _____.
(Month, Year) (Month, Year)

Copy as needed.

Month	Equipment Description (Note 1)	Amount of Material Processed (Note 2)	Emission Factor (Note 3)	Monthly Emissions of Pollutant (Note 4)	12-Month Emissions (Note 5)

Note1: Description of equipment including emission point identification. This log shall include any emissions associated with 48 Maker as specified in Special Condition 24.

Note 2: Amount of material used at 48 Maker. Amount of material processed for combustion sources is the amount of natural gas/propane combusted. Units should be specified in the chart.

Note 3: The units for the emission factor used should correspond with the units used for amount of material processed. For combustion sources, the emission factor should be obtained from the EPA document AP-42. For VOC content, use Material Safety Data Sheets (MSDS).

Note 4: Amount of Material Processed x Emission Factor x 0.0005.

Note 5: Sum of last 12-months of Monthly Emissions. A 12-Month Total VOC emissions less than 99.5 tons indicates compliance.