STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

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: 082016-001
Project Number: 2016-04-001
Installation Number: 217-0004

Parent Company: 3M Company
Parent Company Address: 3M Center, Bldg 224-05W-03, St. Paul, MN 55144

Installation Name: 3M Nevada
Installation Address: 2120 East Austin Blvd, Nevada, MO 64772
Location Information: Vernon County, S10, T35N, R31W

Application for Authority to Construct was made for:
The use of a new solvent on Maker 51. This review was conducted in accordance with Section (5) of 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 are applicable to this permit.

Prepared by
Alana Hess
New Source Review Unit

Director or Designee
Department of Natural Resources
AUG 2 2016

Effective Date
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 Enforcement and Compliance Section of 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. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Enforcement and Compliance Section of the Department's Air Pollution Control Program of the anticipated date of start-up of this (these) air contaminant source(s). The information must be made available within 30 days of actual startup. Also, you must notify the Department's Southwest Regional Office within 15 days after the actual start-up of this (these) air contaminant source(s).

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

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and 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 Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit using the contact information below.

Contact Information:
Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102-0176
(573) 751-4817

The regional office information can be found at the following website:
http://dnr.mo.gov/regions/
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.”

3M Nevada
Southwest County, S10, T35N, R31W

1. Alternative Solvents
   A. 3M Nevada may use alternative solvents on Maker 51 provided all of the following conditions are met:
      1) 3M Nevada shall not use any solvents or any combination of solvents on Maker 51 which from both coating stations combined at maximum coating rates result in potential toluene emissions greater than 78.57 lb/hr.
      2) 3M Nevada shall not use any solvents or any combination of solvents on Maker 51 which from both coating stations combined at maximum coating rates result in potential combined HAP emissions (excluding toluene and methanol) in excess of 0.5 lb/hr.
      3) 3M Nevada shall not use any solvents or any combination of solvents on Maker 51 which from both coating stations combined at maximum coating rates result in potential individual HAP emissions (excluding toluene) greater than the SMAL. A listing of SMALs can be obtained at: http://dnr.mo.gov/env/apcp/docs/cp-hapraltbl6.pdf
   
   B. 3M Nevada shall maintain records of individual HAP potential emissions and combined HAP potential emissions for each solvent used by Maker 51.

2. The permittee shall notify the Air Pollution Control Program before initial startup of any modifications to the facility design that could impact the release parameters or toluene emission rates as specified in the Memorandum from the Modeling Unit titled, “Ambient Air Quality Impact Analysis (AAQIA) for the 3M Company Nevada Facility-Use of Additional Materials on Maker 51 – Revision #1” (June 2016). In the event the Air Pollution Control Program determines that the changes are significant, the permittee shall submit an updated AAQIA to the Air Pollution Control Program that this project continues to demonstrate compliance with the toluene RAL.
SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

3. Record Keeping and Reporting Requirements
3M Nevada shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources’ personnel upon request. These records shall include SDS for all materials used.
REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2016-04-001
Installation ID Number: 217-0004
Permit Number:_______________

Installation Address: 3M Nevada
2120 East Austin Blvd
Nevada, MO 64772

Parent Company: 3M Company
3M Center, Bldg 224-05W-03
St. Paul, MN 55144

Vernon County, S10, T35N, R31W

REVIEW SUMMARY

- 3M Nevada has applied for authority to use a new solvent on Maker 51.

- The application was deemed complete on April 20, 2016.

- HAP emissions are expected from the solvents used on Maker 51. The solvents included in the permit application contain methanol (67-56-1) and toluene (108-88-3). Alternative solvents language in Special Condition 1 allows for the use of alternative solvents which may result in the emission of other individual HAPs; however, any combined HAP emissions (excluding toluene and methanol) increase is limited to 0.5 lb/hr and potential individual HAP emissions are limited to the SMAL (whichever is less)\(^1\).


- Thermal oxidizers are being used to control the HAP emissions from the equipment in this permit.

- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060 Construction Permits Required. Potential emissions of all pollutants are below the de minimis levels. A permit was required as potential emissions of the project

\(^1\) As an emissions increase of more than 0.5 lb/hr of combined HAP (excluding toluene and methanol) or potential individual HAP emissions greater than the SMAL triggers a permit per 10 CSR 10-6.061(3)(A)3.B.
exceed the toluene SMAL. A Section (9) permit is not required as Maker 51 is subject to MACT JJJJ.

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

- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.

- Ambient air quality modeling was performed to determine the ambient impact of toluene.

- Emissions testing is not required for the equipment as a part of this permit. The destruction efficiencies of the thermal oxidizers were tested in June and August of 2015. The capture efficiency of the permanent total enclosure was tested in August of 2015. 3M Nevada is required to revalidate the destruction efficiencies and capture efficiency at least every 60 months by their VOC PAL permit.

- 3M Nevada is required to update their Part 70 operating permit application, Project 2010-02-029, as necessary to include the new solvents no later than 90 days after the issuance date of this permit.

- Approval of this permit is recommended with special conditions.

**INSTALLATION DESCRIPTION**

3M Company owns and operates an existing commercial graphics plant in Nevada, Missouri. The installation is a major source of VOC emissions. A Part 70 operating permit renewal application was submitted by 3M Company on February 5, 2010 and is currently under technical review. Until the Part 70 operating permit renewal is issued, the installation operates under their current Part 70 operating permit OP2005-023 and their Part 70 operating permit renewal application, Project 2010-02-029. The following permits have been issued to 3M Nevada from the Air Pollution Control Program:

**Table 1: Previously issued permits**

<table>
<thead>
<tr>
<th>Permit Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0782-002</td>
<td>DMC Paint Line (Dismantled)</td>
</tr>
<tr>
<td>0184-013</td>
<td>Storage/Extruder Fume Exhausts</td>
</tr>
<tr>
<td>0884-005</td>
<td>Three Roll Mill</td>
</tr>
<tr>
<td>0585-001</td>
<td>Corona Treater</td>
</tr>
<tr>
<td>0988-003</td>
<td>Replacement Boiler</td>
</tr>
<tr>
<td>0289-005</td>
<td>Roll Grinder</td>
</tr>
<tr>
<td>0590-011</td>
<td>Replacement of Line Drives for 42 Maker</td>
</tr>
<tr>
<td>0590-012</td>
<td>Five Aboveground Solvent Storage Tanks</td>
</tr>
<tr>
<td>0291-003</td>
<td>47 Maker</td>
</tr>
<tr>
<td>0395-012</td>
<td>48 Maker</td>
</tr>
</tbody>
</table>
The installation’s PAL permit, 072015-012, supersedes the special conditions of most of the previous permits. The only permits with special conditions applicable to the installation at this time are 112008-009, 032015-005, and 072015-012.

PROJECT DESCRIPTION

Maker 51 is an existing emission source. Maker 51 contains two separate coating stations. 3M Nevada has requested to use a new solvent (Solvent 5) on Maker 51. Solvent 5 results in an increase in toluene and methanol emissions from Maker 51. VOC emissions from Solvent 5 were not analyzed by this project as 3M Nevada operates under a VOC PAL. Maker 51 is currently designated as a continuously controlled emission source for compliance with their VOC PAL; therefore, no federally enforceable control device requirement for the permanent total enclosure and thermal oxidizers was included in this permit. The restrictions in Special Condition 1 ensure that 3M Nevada cannot switch Maker 51 to an intermittently controlled or never controlled
source in the future while using Solvent 5. These restrictions are necessary as Solvent 5 was modeled as a continuously controlled source for this project. Special Condition 1 also allows for the use of alternative solvents provided certain conditions are met.

- The toluene modeling analysis indicates that toluene emissions from Maker 51 are less than 4% of the toluene RAL at a potential toluene emissions rate of 78.57 lb/hr; therefore, while Maker 51 remains a continuously controlled source Solvent 5 or other toluene-containing solvents with potential controlled toluene emissions from Maker 51 of less than 78.57 lb/hr may be used. If Maker 51 becomes an intermittently controlled or never controlled source in the future, 3M Nevada may not use Solvent 5; however, 3M Nevada may use other toluene-containing solvents provided potential uncontrolled toluene emissions from Maker 51 are less than 78.57 lb/hr.

- None of the solvents evaluated by this project contained individual HAPs other than toluene and methanol. Missouri’s current construction permit exemptions allow for a change in solvent provided the construction/modification increases combined HAP emissions (excluding toluene and methanol) by no more than 0.5 lb/hr or causes individual HAP potential emissions to exceed the SMAL, whichever is less (see 10 CSR 10-6.061(3)(A)3.B); therefore, 3M Nevada is not required to obtain a permit for a new individual HAP-containing solvent provided the controlled combined HAP emissions (excluding toluene and methanol) increase from Maker 51 is less than 0.5 lb/hr and the controlled potential emissions of each individual HAP (except toluene) from Maker 51 are below the SMAL. If Maker 51 becomes an intermittently controlled or never controlled source in the future, 3M Nevada may use new individual HAP-containing solvents provided the uncontrolled combined HAP emissions (excluding toluene and methanol) increase from Maker 51 is less than 0.5 lb/hr and the uncontrolled potential emissions of each individual HAP (excluding toluene) from Maker 51 are below the SMAL.

The stack tested capture efficiency of the permanent total enclosure on Maker 51 was determined to be 99.93% in August of 2015.

Captured emissions from Maker 51 are sent to one of the installation’s three thermal oxidizers for destruction. The destruction efficiency of each of the thermal oxidizers was tested in June and August of 2015. The destruction efficiencies ranged from 97.9% to 98.5%. The lowest destruction efficiency of 97.9% is the worst-case and was used to determine potential HAP emissions from this project.

EMISSIONS/CONTROLS EVALUATION

Emissions from this project were calculated using a mass balance approach to determine the uncontrolled emission rate (which assumed 100% emission and 0% retention within the product being coated) and then applying the capture and destruction efficiencies. The following table provides an emissions summary for this project. Existing potential emissions were unavailable for the installation; however, past actuals indicate the installation is a major source. Existing actual emissions were taken from the installation’s 2014 EIQ. Potential emissions of the application represent the continuously controlled potential of Maker 51, assuming continuous operation (8760 hours per year).
Table 3: Emissions Summary (tpy)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td>25.0</td>
<td>N/D</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>PM$_{10}$</td>
<td>15.0</td>
<td>N/D</td>
<td>2.43</td>
<td>N/A</td>
</tr>
<tr>
<td>PM$_{2.5}$</td>
<td>10.0</td>
<td>N/D</td>
<td>2.43</td>
<td>N/A</td>
</tr>
<tr>
<td>SO$_x$</td>
<td>40.0</td>
<td>N/D</td>
<td>0.17</td>
<td>N/A</td>
</tr>
<tr>
<td>NO$_x$</td>
<td>40.0</td>
<td>N/D</td>
<td>25.88</td>
<td>N/A</td>
</tr>
<tr>
<td>VOC</td>
<td>40.0</td>
<td>Major</td>
<td>220.03</td>
<td>N/D</td>
</tr>
<tr>
<td>CO</td>
<td>100.0</td>
<td>N/D</td>
<td>21.72</td>
<td>N/A</td>
</tr>
<tr>
<td>HAPs</td>
<td>25.0</td>
<td>Major</td>
<td>80.66</td>
<td>11.30</td>
</tr>
<tr>
<td>Toluene (108-88-3)</td>
<td>10.0</td>
<td>Major</td>
<td>6.37</td>
<td>11.30</td>
</tr>
<tr>
<td>Methanol (67-56-1)</td>
<td>10.0</td>
<td>Major</td>
<td>1.72</td>
<td>9.50</td>
</tr>
</tbody>
</table>

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060 Construction Permits Required. Potential emissions of all pollutants are below the de minimis levels. A permit was required as potential emissions of the project exceed the toluene SMAL. A Section (9) permit is not required as Maker 51 is subject to MACT JJJJ.

APPLICABLE REQUIREMENTS

3M Nevada shall comply with the following requirements applicable to Maker 51. 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 requirements applicable to the entire installation, please consult your operating permit.

GENERAL REQUIREMENTS

- 10 CSR 10-6.110 Submission of Emission Data, Emission Fees and Process Information
- 10 CSR 10-6.065 Operating Permits
- 10 CSR 10-6.165 Restriction of Emission of Odors
SPECIFIC REQUIREMENTS

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

- 10 CSR 10-6.075 Maximum Achievable Control Technology Regulations

AMBIENT AIR QUALITY IMPACT ANALYSIS

Ambient air quality modeling was performed to determine the ambient impact of toluene. The Missouri Air Pollution Control Program has adopted a significant impact threshold of 4% of the RAL; therefore, if toluene emissions from Maker 51 are less than 4% of the RAL, 3M Nevada is not required to model toluene emissions from the rest of the installation. The application as submitted results in potential controlled toluene emissions of 2.58 lb/hr; however, 3M Nevada requested their toluene limit be set equivalent to the modeled emission rate which results in a toluene concentration at the property boundary of 4% of the RAL. Per the Ambient Air Quality Impact Analysis (AAQIA) for the 3M Company Nevada Facility-Use of Additional Materials on Maker 51 –Revision #1 (June 2016), Maker 51’s toluene emissions are less than 4% of the toluene RAL when the toluene emission rate is less than or equal to 78.57 lb/hr on 24-hour basis and 650.81 lb/hr on an annual basis. As the toluene emission rate of 650.81 lb/hr on an annual basis would exceed 4% of the RAL on a 24-hour basis, the toluene emission rate of 78.57 lb/hr on a 24-hour basis is being used to set 3M Nevada’s Maker 51 maximum hourly toluene emission rate limit (see Special Condition 1.A.1).

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Modeled Impact (µg/m³)</th>
<th>4% of RAL (µg/m³)</th>
<th>RAL (µg/m³)</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>toluene</td>
<td>303.170</td>
<td>304</td>
<td>7600</td>
<td>24-hour</td>
</tr>
<tr>
<td></td>
<td>197.612</td>
<td>200</td>
<td>5000</td>
<td>annual</td>
</tr>
</tbody>
</table>

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060 Construction Permits Required, it is recommended that this permit be granted with special conditions.
PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated March 21, 2016, received April 1, 2016, revised April 8, 2016, designating 3M Company as the owner and operator of the installation.
- The Ambient Air Quality Impact Analysis (AAQIA) for the 3M Company Nevada Facility-Use of Additional Materials on Maker 51 – Revision #1 (June 2016)
APPENDIX A

Abbreviations and Acronyms

% ............ percent
°F ............ degrees Fahrenheit
acfm ...... actual cubic feet per minute
BACT ..... Best Available Control Technology
BMPs ..... Best Management Practices
Btu......... British thermal unit
CAM ...... Compliance Assurance Monitoring
CAS .......... Chemical Abstracts Service
CEMS ..... Continuous Emission Monitor System
CFR .......... Code of Federal Regulations
CO .......... carbon monoxide
CO₂ .......... carbon dioxide
cO₂e ...... carbon dioxide equivalent
COMS ..... Continuous Opacity Monitoring System
CSR.......... Code of State Regulations
dscf ......... dry standard cubic feet
EIQ .......... Emission Inventory Questionnaire
EP .......... Emission Point
EPA .......... Environmental Protection Agency
EU .......... Emission Unit
fps .......... feet per second
ft ............. feet
GACT ..... Generally Available Control Technology
GHG .......... Greenhouse Gas
gpm .......... gallons per minute
gr ............ grains
GWP .......... Global Warming Potential
HAP .......... Hazardous Air Pollutant
hr .......... hour
hp ........... horsepower
lb .......... pound
lbs/hr ...... pounds per hour
MACT ..... Maximum Achievable Control Technology
µg/m³ .... micrograms per cubic meter
m/s .......... meters per second
Mgal....... 1,000 gallons
MW .......... megawatt
MHDR ...... maximum hourly design rate
MMBtu ...... Million British thermal units
MMCF ...... million cubic feet
MSDS ....... Material Safety Data Sheet
NAAQS ... National Ambient Air Quality Standards
NESHAPs National Emissions Standards for Hazardous Air Pollutants
NOₓ .......... nitrogen oxides
NSPS ...... New Source Performance Standards
NSR .......... New Source Review
PAL.......... Plantwide Applicability Limitation
PM .......... particulate matter
PM₂.⁵ ...... particulate matter less than 2.5 microns in aerodynamic diameter
PM₁₀ ...... particulate matter less than 10 microns in aerodynamic diameter
ppm .......... parts per million
PSD ........ Prevention of Significant Deterioration
PTE .......... potential to emit
RACT ...... Reasonable Available Control Technology
RAL .......... Risk Assessment Level
SCC .......... Source Classification Code
scfm ....... standard cubic feet per minute
SDS .......... Safety Data Sheet
SIC .......... Standard Industrial Classification
SIP .......... State Implementation Plan
SMAL ....... Screening Model Action Levels
SOₓ .......... sulfur oxides
SO₂ .......... sulfur dioxide
tph .......... tons per hour
tpy .......... tons per year
VMT .......... vehicle miles traveled
VOC .......... Volatile Organic Compound
Mr. R. Todd Cantrell  
Plant Manager  
3M Nevada  
2120 East Austin Blvd  
Nevada, MO 64772

RE: New Source Review Permit - Project Number: 2016-04-001

Dear Mr. Cantrell:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. Also, note the special conditions 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 new source review permit application, and revision of your operating permit application 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.

This permit may include requirements with which you may not be familiar. If you would like the department to meet with you to discuss how to understand and satisfy the requirements contained in this permit, an appointment referred to as a Compliance Assistance Visit (CAV) can be set up with you. To request a CAV, please contact your local regional office or fill out an online request. The regional office contact information can be found at the following website: http://dnr.mo.gov/regions/. The online CAV request can be found at http://dnr.mo.gov/cav/compliance.htm.

If you were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to §§621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission, whose contact information is: Administrative Hearing Commission, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.oa.mo.gov/ahc.
If you have any questions regarding this permit, please do not hesitate to contact Alana Hess, at the Department of Natural Resources’ Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp
New Source Review Unit Chief

SH:ahj

Enclosures

c: Southwest Regional Office
   PAMS File: 2016-04-001

Permit Number: