

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

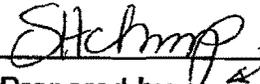
Location Information: Vernon County, S10, T35N, R31W

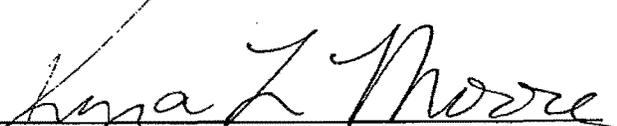
Application for Authority to Construct was made for:

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 02 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.
- 40 CFR Part 60, Subpart RR – *Standards of Performance for Pressure Sensitive Tape and Label Surface Coating Operations* applies to Maker 51.
- 40 CFR Part 60, Subpart FFF – *Standards of Performance for Flexible Vinyl and Urethane Coating and Printing* applies to Maker 51.
- 40 CFR Part 63, Subpart JJJJ – *National Emission Standards for Hazardous Air Pollutants: Paper and Other Web Coating* applies to Maker 51.
- 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

Permit Number	Description
0782-002	DMC Paint Line (Dismantled)
0184-013	Storage/Extruder Fume Exhausts
0884-005	Three 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 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 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 175 kW-hr diesel generators
1098-017A	Amendment to Permit Number 1098-017
1098-017B	Amendment to Permit Number 1098-017A
042004-002	Flexible VOC permit
042004-002A	Mixer
042004-002B	Ductwork changes
042004-002C	Line modification
112007-007	Temporary boiler permit - Expired
112008-009	Boilers
042004-002D	Boiler recordkeeping
042004-002E	Printing line
042004-002F	Special condition changes
072015-012	VOC PAL
032015-005	Drum washer

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)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2014 EIQ)	Potential Emissions of the Application
PM	25.0	N/D	N/A	N/A
PM ₁₀	15.0	N/D	2.43	N/A
PM _{2.5}	10.0	N/D	2.43	N/A
SO _x	40.0	N/D	0.17	N/A
NO _x	40.0	N/D	25.88	N/A
VOC	40.0	Major	220.03	N/D
CO	100.0	N/D	21.72	N/A
HAPs	25.0	Major	80.66	11.30
Toluene (108-88-3)	10.0	Major	6.37	11.30
Methanol (67-56-1)	10.0	Major	1.72	9.50

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*
 - 40 CFR Part 60, Subpart FFF – *Standards of Performance for Flexible Vinyl and Urethane Coating and Printing*
- 10 CSR 10-6.075 *Maximum Achievable Control Technology Regulations*
 - 40 CFR Part 63, Subpart JJJJ – *National Emission Standards for Hazardous Air Pollutants: Paper and Other Web Coating*

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).

Pollutant	Modeled Impact ($\mu\text{g}/\text{m}^3$)	4% of RAL ($\mu\text{g}/\text{m}^3$)	RAL ($\mu\text{g}/\text{m}^3$)	Time Period
toluene	303.170	304	7600	24-hour
	197.612	200	5000	annual

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	Mgal	1,000 gallons
°F	degrees Fahrenheit	MW	megawatt
acfm	actual cubic feet per minute	MHDR	maximum hourly design rate
BACT	Best Available Control Technology	MMBtu	Million British thermal units
BMPs	Best Management Practices	MMCF	million cubic feet
Btu	British thermal unit	MSDS	Material Safety Data Sheet
CAM	Compliance Assurance Monitoring	NAAQS ...	National Ambient Air Quality Standards
CAS	Chemical Abstracts Service	NESHAPs	National Emissions Standards for Hazardous Air Pollutants
CEMS	Continuous Emission Monitor System	NO_x	nitrogen oxides
CFR	Code of Federal Regulations	NSPS	New Source Performance Standards
CO	carbon monoxide	NSR	New Source Review
CO₂	carbon dioxide	PAL	Plantwide Applicability Limitation
CO_{2e}	carbon dioxide equivalent	PM	particulate matter
COMS	Continuous Opacity Monitoring System	PM_{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
CSR	Code of State Regulations	PM₁₀	particulate matter less than 10 microns in aerodynamic diameter
dscf	dry standard cubic feet	ppm	parts per million
EQ	Emission Inventory Questionnaire	PSD	Prevention of Significant Deterioration
EP	Emission Point	PTE	potential to emit
EPA	Environmental Protection Agency	RACT	Reasonable Available Control Technology
EU	Emission Unit	RAL	Risk Assessment Level
fps	feet per second	SCC	Source Classification Code
ft	feet	scfm	standard cubic feet per minute
GACT	Generally Available Control Technology	SDS	Safety Data Sheet
GHG	Greenhouse Gas	SIC	Standard Industrial Classification
gpm	gallons per minute	SIP	State Implementation Plan
gr	grains	SMAL	Screening Model Action Levels
GWP	Global Warming Potential	SO_x	sulfur oxides
HAP	Hazardous Air Pollutant	SO₂	sulfur dioxide
hr	hour	tph	tons per hour
hp	horsepower	tpy	tons per year
lb	pound	VMT	vehicle miles traveled
lbs/hr	pounds per hour	VOC	Volatile Organic Compound
MACT	Maximum Achievable Control Technology		
µg/m³	micrograms per cubic meter		
m/s	meters per second		

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.

Mr. Cantrell
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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: