

**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:

042017-006

Project Number: 2017-03-056

Installation Number: 077-0051

Parent Company:

3M Company

Parent Company Address: 3M Center, Building 0224-05-W-03, Saint Paul, MN 55144

Installation Name:

3M Springfield

Installation Address:

3211 East Chestnut Expressway, Springfield, MO 65802

Location Information:

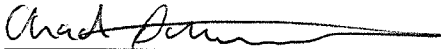
Greene County, S16, T29N, R21W

Application for Authority to Construct was made for:

Third phase of multi-phase permit, where phase 3 is production of new products on existing equipment. 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 are applicable to this permit.



Prepared by  
Chad Stephenson  
New Source Review Unit



Director of Designee  
Department of Natural Resources

APR 14 2017

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 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 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 Springfield  
Greene County, S16, T29N, R21W

1. **Superseding Condition**
  - A. The conditions of this permit supersede special condition 2 found in the previously issued construction permit 032017-005 issued by the Air Pollution Control Program.
  
2. **Hazardous Air Pollutant (HAP) Emission Limitation**
  - A. 3M Springfield shall emit less than 9.9 tons individually or 24.9 tons combined of Hazardous Air Pollutants (HAPs) in any consecutive 12-month period from the entire installation. This limit applies to the HAP emissions from all equipment/ processes installed or permitted at 3M Springfield as of the issuance date of this permit.
  
  - B. 3M Springfield shall use Emission Master® 8, a later software version or equivalent means to monitor HAP emissions from the entire installation.
    - 1) 3M Springfield shall maintain accurate records of the individual and combined HAP emissions from all sources. The records shall include the HAP emissions from coating operations, tanks, compounding, filling operations and any other source of HAP emissions.
    - 2) 3M Springfield shall retain copies of all Emission Master reports used to establish emission factors.
    - 3) 3M Springfield shall maintain records of each emission unit's 12-month rolling total of HAP emissions.
    - 4) Where the vendor of a material, which is used in or at the emission unit, publishes a range of pollutant content for such material, 3M Springfield shall use the highest value of the range to calculate the HAP emissions unless the Director determines there is site-specific data or a site specific monitoring program to support another content within the range.
  
3. **Record Keeping and Reporting Requirements**
  - A. 3M Springfield 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.

Project No. 2017-03-056

Permit No.

042017-006

**SPECIAL CONDITIONS:**

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

- B. 3M Springfield shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than 10 days after the end of the month during which any record required by this permit shows an exceedance of a limitation imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE  
SECTION (5) REVIEW

Project Number: 2017-03-056  
Installation ID Number: 077-0051  
Permit Number:

042017-006

Installation Address:

3M Springfield  
3211 East Chestnut Expressway  
Springfield, MO 65802

Parent Company:

3M Company  
3M Center, Building 0224-05-W-03  
Saint Paul, MN 55144

Greene County, S16, T29N, R21W

REVIEW SUMMARY

- 3M Springfield has applied for authority to produce as many as 32 new products on the existing DM25 (EU011-01) and 60M3 (EU60M3) mixers.
- The application was deemed complete on March 31, 2017.
- HAP emissions are expected from the DM25 and 60M3 mixers. HAPs of concern from this process are toluene, phenol, methanol, manganese compounds, and formaldehyde.
- None of the New Source Performance Standards (NSPS) apply to the equipment.
- Subpart CCCCCC, *National Emission Standards for Hazardous Air Pollutants for Area Sources: Paint and Allied Products Manufacturing*, of the Maximum Achievable Control Technology (MACT) regulations applies to the DM25 (EU011-01).
- MERV 8 Filters are being used to control the particulate matter (PM) and manganese emissions from the DM25 mixer when dry pigments and solids are being used.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of volatile organic compounds (VOCs) of the project are below de minimis levels and potential emissions of HAPs are below major source levels. Installation-wide HAP emissions have been conditioned to below major source levels.
- This installation is located in Greene 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 not performed since potential emissions of the application are below de minimis levels.
- Emissions testing is not required for the equipment as a part of this permit. Testing may be required as part of other state, federal or applicable rules.
- An amendment to your Intermediate Operating Permit application is required for this installation within 90 days of producing the new products.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

The 3M Springfield plant manufactures adhesives, sealants, coating and coated products. Raw materials are shipped to the plant by truck and rail car. They are stored in the warehouse or in bulk tanks. Raw materials are mixed and, in some cases, reacted in process vessels. Further processing includes coating applications, extruding, milling, additional mixing and slitting. Two boilers and a thermal oxidizer are also operated on site.

3M Springfield was issued an Intermediate Operating Permit (Permit No. OP2006-056) on August 11, 2006. In this operating permit, 3M Springfield took a 9.9 individual and 24.9 combined HAP limit. The Statement of Basis included in OP2006-056 contains a complete list of all 3M Springfield's construction permits issued by the Air Pollution Control Program and by the Springfield Air Pollution Control Authority. Since the completion of OP2006-056, 3M Springfield has received construction permit 072011-002 and currently has an Operating Permit Application under review as part of project 2011-06-004. 3M Springfield has also received construction permit numbers 1182-007 and 0802-231.

### PROJECT DESCRIPTION

3M Springfield is seeking authority to produce as many as 32 new products, including trial runs of these products on existing DM25 (EU011-01) and 60M3 (EU60M3) mixers. The 32 products are grouped into 5 different product families described in the table below.

Table 1: Product Family Descriptions

Product Family	Description	Control Device	Pollutants
1	AC-730 C-8	N/A	VOC, Particulates, Formaldehyde, Toluene, Xylene, Ethylbenzene, Phenol, Methanol, Benzene
2	301 Slow Cat	N/A	VOC, Particulates, Manganese Compounds, Dioxane
3	AC-370 B-1/2	N/A	VOC, Particulates, Formaldehyde, Methanol, Phenol
4	AC-770 B-2	N/A	VOC, Particulates, Formaldehyde, Methanol, Phenol
5	AC-350 A-2	N/A	VOC, Particulates, Formaldehyde, Toluene, Xylene, Ethylbenzene, Benzene, Phenol, Methanol

This project is not expected to add capacity to existing equipment. The project will introduce new materials that have HAPs to the existing equipment. Input materials consist of a variety of raw materials. Some of the products that will be handled by the mixers will contain materials which will render the operation subject to Subpart CCCCCC, National Emission Standards for Hazardous Air Pollutants for Area Sources: Paint and Allied Products Manufacturing. Subpart CCCCCC requires that particulate emissions be captured and routed to a particulate control device when using dry pigments and solids. This requirement does not apply to pigments and other solids that are in paste, slurry, or liquid form. 3M Springfield currently uses filters greater than or equal to MERV 8 control efficiency when the pigments and other solids are not in a paste, slurry, or liquid form; however these filters were not accounted for in the emission calculations.

3M Springfield has requested confidentiality as allowed per 10 CSR 10-6.210 with regards to process flow diagram, process rates, emission factors and safety data sheets (SDS) due to the proprietary nature of the information. This information can only be obtained with written permission from 3M Springfield. This permit is a public version and there is no confidential version of the permit.

This is the third phase of a multi-phased permit. The emissions of this project have been added with the first two phase (Permit No. 022017-003 and Permit No. 032017-005) and will be combined with future projects. A phased permit was chosen since the fate of the future projects is uncertain at this time, but more importantly to avoid the possibility of PSD circumvention if the future project is undertaken.

### EMISSIONS/CONTROLS EVALUATION

The project's potential emissions include, particulates, VOCs and HAPs. The air emissions are a result of evaporative losses from filling and powder charging. Emission factor data was calculated using the Emission Master® program, which calculates emission for batch and continuous processes using one or more computerized Environmental Protection Agency (EPA) models. The 32 new products were grouped into 5 different product families. For the purpose of evaluating emissions the worst case product for each pollutant was used. The worst case emissions from each mixer were added together. Product family 2 is only produced on the DM25 mixer. Product family 2 contains manganese compounds. The other 4 product families can be produced on both mixers. The product family with the worst case emissions on both mixers is summarized in the table below.



Table 2: Worst Case Mixer Emissions

Mixer	Pollutant	Worst Case Product Family Description	Emission Rate (lb/hr)
DM25	Particulates	4 (AC-770 B-2)	0.03
DM25	VOC	5 (AC-350 A-2)	0.09
DM25	Formaldehyde	4 (AC-770 B-2)	0.06
DM25	Toluene	5 (AC-350 A-2)	0.055
DM25	Manganese Compounds	2 (301 Slow Cat)	0.03
DM25	Methanol	5 (AC-350 A-2)	2.63E-04
DM25	Phenol	4 (AC-770 B-2)	6.07E-04
DM25	Xylene	5 (AC-350 A-2)	1.27E-05
DM25	Ethylbenzene	5 (AC-350 A-2)	1.84E-05
DM25	Benzene	5 (AC-350 A-2)	5.48E-05
DM25	Dioxane	2 (301 Slow Cat)	4.52E-07
DM25	Combined HAPs	4 (AC-770 B-2)	0.061
60M3	Particulates	4 (AC-770 B-2)	0.12
60M3	VOC	5 (AC-350 A-2)	0.28
60M3	Formaldehyde	4 (AC-770 B-2)	0.23
60M3	Toluene	5 (AC-350 A-2)	0.07
60M3	Methanol	3 (AC-370 B-1/2)	3.21E-04
60M3	Phenol	4 (AC-770 B-2)	3.65E-03
60M3	Xylene	5 (AC-350 A-2)	1.58E-05
60M3	Ethylbenzene	5 (AC-350 A-2)	6.87E-04
60M3	Benzene	5 (AC-350 A-2)	6.66E-05
60M3	Combined HAPs	4 (AC-770 B-2)	0.23

Subpart CCCCCC requires that particulate emissions be captured and routed to a particulate control device when using dry pigments and solids. This requirement does not apply to pigments and other solids that are in paste, slurry, or liquid form. 3M Springfield will be using filters greater than or equal to MERV 8 control efficiency when the pigments and other solids are not in a paste, slurry, or liquid form. DM25 mixer uses products described as product family 2 that are not in paste, slurry or liquid form and will use filters when using these products. The filters were not considered in the potential emission calculations. The 60M3 mixer does not use solids that are not in paste, slurry or liquid form and has no filter associated with it.

The following table provides an emissions summary for this project. Existing actual emissions were taken from the installation's 2016 EIQ. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year). Potential emissions are below the insignificance level from 10 CSR 10-6.061(3)(A)3.A however the future phases will be added to phases I-III and are expected to raise emissions above insignificance levels. All HAPs for the project are currently below the SMAL, but if future projects exceed the SMAL, modeling may be required.

Table 3: Emissions Summary (tpy)

Pollutant	Regulatory De Minimis Levels	Existing Actual Emissions (2016 EIQ)	Unconditioned Potential Emissions of Phase I and II	Unconditioned Potential Emissions of Phase III	Unconditioned Project (Phase I, II and III) Potential Emissions	New Installation Conditioned Potential
PM	25.0	N/D	N/A	0.78	0.78	N/A
PM <sub>10</sub>	15.0	0.46	N/A	0.78	0.78	N/A
PM <sub>2.5</sub>	10.0	0.46	N/A	0.78	0.78	N/A
SO <sub>2</sub>	40.0	0.03	N/A	N/A	N/A	N/A
NO <sub>x</sub>	40.0	6.05	N/A	N/A	N/A	N/A
VOC	40.0	47.78	0.03091	1.64	1.67	N/A
CO	100.0	5.09	N/A	N/A	N/A	N/A
HAPs	10.0/25.0	0.0012	0.01625	1.29	1.31	<9.9/24.9
Toluene	10.0	N/D	0.01625	0.53	0.55	<9.9
Manganese Compounds	0.8	N/D	N/A	0.12	0.12	N/A
Formaldehyde	2	N/D	N/A	1.29	1.29	N/A
Methanol	10	N/D	N/A	0.0026	0.0036	N/A
Phenol	0.1	N/D	N/A	0.019	0.019	N/A
Xylene	10	N/D	N/A	0.0001	0.0001	N/A
Ethylbenzene	10	N/D	N/A	0.003	0.003	N/A
Benzene	2	N/A	N/A	0.0005	0.0005	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*. Potential emissions of volatile organic compounds (VOCs) of the project are below de minimis levels and potential emissions of HAPs are below major source levels. Installation-wide HAP emissions have been conditioned to below major source levels

### APPLICABLE REQUIREMENTS

3M Springfield 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

- *Operating Permits*, 10 CSR 10-6.065
- *Start-Up, Shutdown, and Malfunction Conditions*, 10 CSR 10-6.050
- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
  - Per 10 CSR 10-6.110(4)(B)2.B(II) and (4)(B)2.C(II) a full EIQ is required for the first full calendar year the equipment (or modifications) approved by this permit are in operation.
- *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 10-6.165

## SPECIFIC REQUIREMENTS

- *Maximum Achievable Control Technology (MACT) Regulations*, 10 CSR 10-6.075, *National Emission Standards for Hazardous Air Pollutants for Area Sources: Paint and Allied Products Manufacturing*, 40 CFR Part 63, Subpart CCCCCC

## 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*, it is recommended that this permit be granted with special conditions.

## PERMIT DOCUMENTS

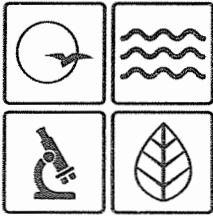
The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated March 7, 2017, received March 15, 2017, designating 3M Company as the owner and operator of the installation.

## APPENDIX A

### Abbreviations and Acronyms

<b>%</b> .....percent	<b>m/s</b> .....meters per second
<b>°F</b> .....degrees Fahrenheit	<b>Mgal</b> .....1,000 gallons
<b>acfm</b> .....actual cubic feet per minute	<b>MW</b> .....megawatt
<b>BACT</b> .....Best Available Control Technology	<b>MHDR</b> .....maximum hourly design rate
<b>BMPs</b> .....Best Management Practices	<b>MMBtu</b> ....Million British thermal units
<b>Btu</b> .....British thermal unit	<b>MMCF</b> ....million cubic feet
<b>CAM</b> ..... Compliance Assurance Monitoring	<b>MSDS</b> .....Material Safety Data Sheet
<b>CAS</b> ..... Chemical Abstracts Service	<b>NAAQS</b> ....National Ambient Air Quality Standards
<b>CEMS</b> ..... Continuous Emission Monitor System	<b>NESHAPs</b> National Emissions Standards for Hazardous Air Pollutants
<b>CFR</b> .....Code of Federal Regulations	<b>NO<sub>x</sub></b> .....nitrogen oxides
<b>CO</b> .....carbon monoxide	<b>NSPS</b> .....New Source Performance Standards
<b>CO<sub>2</sub></b> .....carbon dioxide	<b>NSR</b> .....New Source Review
<b>CO<sub>2e</sub></b> .....carbon dioxide equivalent	<b>PM</b> .....particulate matter
<b>COMS</b> ..... Continuous Opacity Monitoring System	<b>PM<sub>2.5</sub></b> .....particulate matter less than 2.5 microns in aerodynamic diameter
<b>CSR</b> ..... Code of State Regulations	<b>PM<sub>10</sub></b> .....particulate matter less than 10 microns in aerodynamic diameter
<b>dscf</b> .....dry standard cubic feet	<b>ppm</b> .....parts per million
<b>EIQ</b> .....Emission Inventory Questionnaire	<b>PSD</b> .....Prevention of Significant Deterioration
<b>EP</b> .....Emission Point	<b>PTE</b> .....potential to emit
<b>EPA</b> .....Environmental Protection Agency	<b>RACT</b> .....Reasonable Available Control Technology
<b>EU</b> .....Emission Unit	<b>RAL</b> .....Risk Assessment Level
<b>fps</b> .....feet per second	<b>SCC</b> .....Source Classification Code
<b>ft</b> .....feet	<b>scfm</b> .....standard cubic feet per minute
<b>GACT</b> ..... Generally Available Control Technology	<b>SDS</b> .....Safety Data Sheet
<b>GHG</b> .....Greenhouse Gas	<b>SIC</b> .....Standard Industrial Classification
<b>gpm</b> .....gallons per minute	<b>SIP</b> .....State Implementation Plan
<b>gr</b> .....grains	<b>SMAL</b> .....Screening Model Action Levels
<b>GWP</b> ..... Global Warming Potential	<b>SO<sub>x</sub></b> .....sulfur oxides
<b>HAP</b> .....Hazardous Air Pollutant	<b>SO<sub>2</sub></b> .....sulfur dioxide
<b>hr</b> .....hour	<b>tph</b> .....tons per hour
<b>hp</b> .....horsepower	<b>tpy</b> .....tons per year
<b>lb</b> .....pound	<b>VMT</b> .....vehicle miles traveled
<b>lbs/hr</b> .....pounds per hour	<b>VOC</b> .....Volatile Organic Compound
<b>MACT</b> ..... Maximum Achievable Control Technology	
<b>µg/m<sup>3</sup></b> .....micrograms per cubic meter	



Missouri Department of dnr.mo.gov

# NATURAL RESOURCES

Eric R. Greitens, Governor

Carol S. Comer, Director

APR 14 2017

Mr. Andrew Willing  
Environmental Specialist  
3M Springfield  
3M Center, Building 0224-05-W-03  
Saint Paul, MN 55144

RE: New Source Review Permit - Project Number: 2017-03-056

Dear Mr. Willing:

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 with your amended 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.

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 Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty 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](http://www.oa.mo.gov/ahc).



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Mr. Andrew Willing  
Page Two

If you have any questions regarding this permit, please do not hesitate to contact Chad Stephenson, 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:csj

Enclosures

c: Southwest Regional Office  
PAMS File: 2017-03-056

Permit Number: 042017-006