**NORTH CAROLINA DIVISION OF AIR QUALITY**

# Application Review

**Issue Date:** January 31, 2025

**Region:** Raleigh Regional Office
**County:** Chatham
**NC Facility ID:** 1900104
**Inspector's Name:** Dena Pittman
**Date of Last Inspection:** 09/25/2024
**Compliance Code:** 3 / Compliance - inspection

## Facility Data

**Applicant (Facility's Name):** 3M Pittsboro – Industrial Mineral Products

**Facility Address:**
3M Pittsboro – Industrial Mineral Products
4191 Highway 87 South
Moncure, NC 27559

**SIC:** 3295 / Minerals, Ground Or Treated
**NAICS:** 327992 / Ground or Treated Mineral and Earth Manufacturing

**Facility Classification: Before:** Title V **After:** Title V
**Fee Classification: Before:** Title V **After:** Title V

## Permit Applicability (this application only)

**SIP:** 15A NCAC 02D .0516, .0524, .0614, and .1806
**NSPS:** 40 CFR Part 60, Subpart UUU
**NESHAP:** 15A NCAC 02Q .0317 for 15A NCAC 02D .1111
**PSD:** NA
**PSD Avoidance:** NA
**NC Toxics:** 15A NCAC 02D .1100, 15A NCAC 02Q .0711
**112(r):** NA
**Other:** NA

## Contact Data

| Facility Contact | Authorized Contact | Technical Contact |
|---|---|---|
| Blake Arnett<br>Plant Director<br>(919) 642-4011<br>4191 Highway 87 South<br>Moncure, NC 27559 | Blake Arnett<br>Plant Director<br>(919) 642-4011<br>4191 Highway 87 South<br>Moncure, NC 27559 | Ryan Navis<br>Senior Environmental Engineer<br>(651) 788-2580<br>3M Company, 3M Center<br>St. Paul, MN 55144 |

## Application Data

**Application Number:** 1900104.24B
**Date Received:** 11/18/2024
**Application Type:** Modification
**Application Schedule:** TV-Minor

**Existing Permit Data**
**Existing Permit Number:** 09006/T11
**Existing Permit Issue Date:** 11/29/2023
**Existing Permit Expiration Date:** 11/30/2027

**Total Actual emissions in TONS/YEAR:**

| CY | SO2 | NOX | VOC | CO | PM10 | Total HAP | Largest HAP |
|---|---|---|---|---|---|---|---|
| 2023 | 0.1300 | 20.40 | 9.75 | 17.07 | 75.73 | 0.3840 | 0.3651 [Hexane, n-] |
| 2022 | 0.1200 | 19.15 | 5.35 | 16.01 | 88.91 | 0.3602 | 0.3426 [Hexane, n-] |
| 2021 | 0.1300 | 19.95 | 20.24 | 16.68 | 90.46 | 5.99 | 5.08 [Methanol (methyl alcohol)] |
| 2020 | 0.1600 | 24.56 | 11.12 | 20.54 | 68.73 | 5.99 | 4.92 [Methanol (methyl alcohol)] |
| 2019 | 0.1520 | 24.77 | 11.15 | 20.75 | 52.15 | 5.89 | 4.80 [Methanol (methyl alcohol)] |

**Review Engineer:** Luke Mayer

**Review Engineer's Signature:** **Date:** January 31, 2025

**Comments / Recommendations:**
**Issue:** 09006/T12
**Permit Issue Date:** January 31, 2025
**Permit Expiration Date:** November 30, 2027

## 1. Purpose of Application

3M Pittsboro – Industrial Mineral Products currently holds Title V Permit No. 09006T11 with an expiration date of November 30, 2027, for a mineral products facility in Moncure, Chatham County, North Carolina. This permit application is for a minor permit modification. In this application, 3M Pittsboro intends to replace a control device, the dryer cyclone **(ID No. CDC1)** associated with one natural gas-fired dryer **(ID No. ES1415)**, and which feeds particulate emissions into one associated bagfilter **(ID No. CDB3)**, with a like-for-like replacement. The only change to the control device will be the installation of Corro tile on one section to reduce wear. No change to the facility's emissions is expected as a result of this modification. The application for modification was received on November 18, 2024. All terms and conditions of the existing permit shall remain in effect until the modified permit has been issued or denied.

## 2. Facility Description

The following description is taken from the most recent inspection report, prepared by engineer Abdul Kadir of the Raleigh Regional Office and dated October 2, 2023:

At the Moncure plant, 3M Industrial Mineral Products (3M) manufactures various types of stone granules to sell to the asphalt shingle industry. Luck Stone Corporation operates a stone crushing operation on the same property and supplies the 3M plant with 4-inch stone. 3M then crushes, dries, screens, colors, and bakes the stone materials to produce the granules. The final product is shipped out in specially designed bulk trucks. The 3M plant over the past years has had approximately 55 full-time employees. Historically, the Coloring Plant has operated with three 8-hour shifts (6 am – 2 pm, 2 pm – 10 pm, and 10 pm – 6 am). The Crushing/Screening Plant operates on a 24-hour basis. Both plants typically run Monday through Friday only.

The following sources at the facility are subject to modification as part of this application:

- Natural gas-fired dryer **(ID No. ES1415)**

The following control devices at the facility are subject to modification as part of this application:

- Dryer cyclone (96 inches in diameter) **(ID No. CDC1)**

The following control device at the facility is not subject to modification as part of this application, but is associated with an emission source that is subject to modification, so it is mentioned here:

- Dryer baghouse (12,002 square feet of filter area) **(ID No. CDB3)**

The facility is a Title V facility because emissions of $PM_{10}$ and $PM_{2.5}$ exceed 100 tons per year (tpy).

## 3. History/Background/Application Chronology

<u>History/Background</u>

| | |
|---|---|
| December 6, 2022 | TV permit renewal issued. Air Permit No. 09006T09 was issued on December 6, 2022, with an expiration date of August 31, 2026. *(See Judy Lee's TV review for permit No. 09006T09, dated December 6, 2022)* |

March 23, 2023 — Air Permit No. 09006T10 was issued for a minor modification. This application involved the addition, modification, or redesignation of numerous emission sources. *(See Richard Simpson's TV review for permit No. 09006T10, dated March 23, 2023)*

November 29, 2023 — Air Permit No. 09006T11 was issued for a minor modification. This application involved the replacement of most components of dryer **ID No. ESCPPH1**, the addition of an enclosed material conveyor **ID No. ES20A** inadvertently left off the previous permit issuance, and some administrative amendments. *(See Russell Braswell's TV review for permit No. 09006T11, dated November 23, 2023)*

Application Chronology

November 18, 2024 — Received permit application 1900104.24B for a minor modification.

November 26, 2024 — Sent acknowledgment letter indicating that the application for minor modification was complete.

December 11, 2024 — Draft permit and review forwarded to Supervisor Rahul Thaker for comments.

January 13, 2025 — Comments received from Supervisor. Minor editorial corrections needed.

January 15, 2025 — Draft permit and review forwarded to applicant, SSCB, and regional office for comments.

January 31, 2025 — Technical contact Ryan Navis indicated via email that they had no comments on the draft permit or permit review.

January 31, 2025 — Dena Pittman from the Raleigh Regional Office indicated via email that they had no comments on the draft permit or permit review.

January 31, 2025 — Permit issued.

**4. Permit Modifications/Changes and TVEE Discussion**

The following table describes the modifications to the current permit as part of the modification process. This summary is not meant to be an exact accounting of each change but a summary of those changes.

| Page(s) | Section | Description of Changes |
|---|---|---|
| Cover letter and throughout permit | -- | • Updated all dates and revision numbers<br>• Reformatted permit in accordance with current TV permitting shell |
| 48 | 4 | • Updated General Conditions to most recent version (Version 8.0 dated 07/10/2024) |

This permit modification does not incorporate any changes to the plant equipment or its operations. The modification merely incorporates the replacement of control device **(ID No. CDC1)** with a comparable replacement. No changes to the Title V Equipment Editor are needed.

## 5. Regulatory Review

3M Pittsboro is subject to the following regulations. The facility's equipment and operations have not changed since the last minor modification in 2023. The permit was updated to reflect the most current stipulations for all applicable regulations, where necessary.

15A NCAC 02D .0516: Control of Sulfur Dioxide Emissions – The source subject to modification as part of this application is one natural gas-fired boiler **(ID No. ES1415)** with associated control devices: one dryer cyclone **(ID No. CDC1)** and one dryer baghouse **(ID No. CDB3)**. This source is subject to this rule because it is a combustion source commonly associated with sulfur dioxide emissions. This source is subject to a flat emission limit of 2.3 lb $SO_2$ per million Btu heat input rate.

Based on estimations using DAQ's Natural Gas Combustion Emissions Calculator spreadsheet, Rev. N (01/05/2017), this source's potential emissions of $SO_2$ are far below the flat emission rate limit in this rule. Because the source fires, natural gas, no monitoring, recordkeeping, or reporting is required for this source. This modification does not involve any physical or operational changes to the source and involves only a like-for-like replacement of the dryer cyclone control device **(ID No. CDC1)**. No changes to the facility's sulfur dioxide emissions are expected as a result of this modification. Continued compliance is expected.

15A NCAC 02D .0524: New Source Performance Standards – The source subject to modification as part of this application is one natural gas-fired boiler **(ID No. ES1415)** with associated control devices: one dryer cyclone **(ID No. CDC1)** and one dryer baghouse **(ID No. CDB3)**. This source is subject to one New Source Performance Standard: 40 CFR Part 60, Subpart UUU: Standards of Performance for Calciners and Dryers in Mineral Industries because it is a dryer located at a mineral processing plant and because it was constructed or modified after April 23, 1986. See the NSPS regulatory review portion of Section 6 below for more information. The facility shall operate this source (and all other equipment facility-wide, as applicable) with any relevant NSPS requirements to demonstrate compliance with this rule.

15A NCAC 02D .0614: Compliance Assurance Monitoring - The source subject to modification as part of this application is one natural gas-fired boiler **(ID No. ES1415)** with associated control devices: one dryer cyclone **(ID No. CDC1)** and one dryer baghouse **(ID No. CDB3)**. The dryer and *one* of its control devices are subject to CAM, but the proposed modification involves the *other* control device and will not affect the status of the facility with respect to CAM. Therefore, CAM will not be discussed in detail as part of this permit modification. See the CAM review portion in Section 6 below for more information.

15A NCAC 02D .0958, Work Practices for Sources of Volatile Organic Compounds - On November 1, 2016, amendments to 15A NCAC 02D .0902 were finalized to narrow applicability of work practice standards in 15A NCAC 02D .0958 from statewide to the maintenance area for the 1997 8-hour ozone standard. This change is being made primarily because the abundance of biogenic VOC emissions in North Carolina results in ozone formation being limited by the amount of available nitrogen oxides (NOx) emissions. Provisions of the Clean Air Act require VOC requirements previously implemented in an ozone nonattainment area prior to redesignation remain in place. Areas that shall maintain the work practice standards under 15A NCAC 02D .0958 in North Carolina are as follows: Cabarrus County; Gaston County; Lincoln County; Mecklenburg County; Rowan County; Union County; and Davidson/Coddle Creek Township in Iredell County. Facilities outside the maintenance area counties for the 1997 8-hour ozone standard will no longer be required to comply with the work practice standards in 15A NCAC 02D .0958.

Chatham County was initially designated (partially) in nonattainment for ozone for 1997 NAAQS (National Ambient Air Quality Standards) and was later declared in attainment effective December 26, 2007. For more information, see 40 CFR 81.334 (Section 107 Attainment Status Designations – North Carolina). Moncure, where the facility is located, was declared in attainment of these NAAQS and was not part of the initial non-attainment designation for Chatham County. In brief, the requirements of 15A NCAC 02D .0958 cannot apply to the 3M Pittsboro facility in Moncure. The proposed modification does not change the facility's status with respect to 15A NCAC 02D .0958.

15A NCAC 02D .1806: Control and Prohibition of Odorous Emissions – This is a state-enforceable only requirement. All sources at the facility, including the source subject to modification (the natural gas fired dryer **(ID No. ES1415)** and associated control devices; one dryer cyclone **(ID No. CDC1)** and one dryer baghouse **(ID No. CDB3)**), are subject to this rule because they are capable of generating emissions with noticeable odors. The owner or operator of this facility shall not operate it without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from causing or contributing to objectionable odors beyond the facility's boundary. The most recent inspection report, prepared by engineer Abdul Kadir of the Raleigh Regional Office and dated October 2, 2023, states that no remarkable odors were noted at the facility during the inspection. Furthermore, the proposed modification (the replacement of the dryer cyclone **(ID No. CDC1)**) will not affect the facility's status with respect to odorous emissions. Continued compliance is expected.

**6. NSPS, NESHAPS/MACT, PSD, 112(r), CAM**

NSPS

The source involved in the proposed modification, one natural gas-fired dryer **(ID No. ES1415)**, is currently subject to one New Source Performance Standard: 40 CFR Part 60, Subpart UUU: Standards of Performance for Calciners and Dryers in Mineral Industries. The proposed modification does not change the facility's NSPS status.

40 CFR Part 60, Subpart UUU: Standards of Performance for Calciners and Dryers in Mineral Industries – The source subject to modification is a natural gas-fired dryer **(ID No. ES1415)** with associated control devices; one dryer cyclone **(ID No. CDC1)** and one dryer baghouse **(ID No. CDB3)**. The dryer is subject to this subpart because it is a dryer at a mineral processing plan and because it was constructed or modified after April 23, 1986.

To maintain compliance with this rule, the facility owner or operator shall maintain particulate emissions from the dryer below 0.057 grams per dry cubic meter and shall maintain visible emissions below 10% opacity. The facility owner or operator shall complete an initial NSPS performance test/compliance demonstration, which was completed for this source in August 2002, and shall install, calibrate, maintain, and operate a continuous opacity monitoring system (COMS) on each dryer. Finally, the facility owner or operator shall conduct annual inspections of bagfilters of each dryer, to record the results in a logbook, and to submit a summary report of these activities on a semiannual basis. The most recent inspection report, prepared by engineer Abdul Kadir of the Raleigh Regional Office and dated October 2, 2023, indicates that the facility demonstrated compliance upon request. Continued compliance is expected.

The permit for this facility was last renewed on December 6, 2022. This subpart has not been revised since the date of the last renewal. No changes to the permit language are needed.

NESHAP/MACT

The facility is not currently subject to any Maximum Achievable Control Technology standards. This permit renewal does not change the facility's MACT status. The facility is considered an area source for HAPs because emissions of all individual HAPs are below 10 tons per year (tpy), and because total emissions of HAPs are below 25 tpy.

The facility has an avoidance condition under 15A NCAC 02Q .0317 for 15A NCAC 02D .1111: Maximum Achievable Control Technology requiring it to maintain its emissions of HAPs below the major source thresholds. Several sources that are known to emit HAPs, including the source subject to modification **(ID No. ES1415)**, are subject to the avoidance condition. The facility's 12-month rolling total HAP emissions shall not exceed 10 tons per year for any individual HAP, and 25 tons per year for all HAPs. According to the facility's emissions inventory for calendar year 2023, the facility's largest HAP was hexane, n- at 730.26 lb, and the facility's total HAP emissions were 768.07 lb. These figures fall far below the major source thresholds. Given the wide margin of compliance with the thresholds, continued compliance can be expected.

PSD

The facility is currently classified as a minor stationary source for the purpose of the PSD permitting program under the major source threshold of 250 tons. This minor modification application does not affect this status.

112(r)

The facility is not subject to Section 112(r) of the Clean Air Act requirements because it does not store any of the regulated substances in quantities above the 112(r) thresholds. No change with respect to 112(r) is anticipated under this permit renewal.

CAM

The CAM rule (40 CFR 64; 15A NCAC 02D .0614) applies to each pollutant specific emissions unit (PSEU) located at a facility required to obtain a TV permit and that meets all three following criteria:

- the unit is subject to any (non-exempt: e.g., pre November 15, 1990, Section 111 or Section 112 standard) emission limitation or standard for the applicable regulated pollutant.
- the unit uses any control device to achieve compliance with any such emission limitation or standard.
- The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source (i.e., 100 tons per year for criteria pollutants or 10/25 tons per year for HAPs).

The source subject to modification as part of this application is one natural gas-fired boiler **(ID No. ES1415)** with associated control devices: one dryer cyclone **(ID No. CDC1)** and one dryer baghouse **(ID No. CDB3)**. Emissions from the source in question are limited by the baghouse **(ID No. CDB3)** in order to maintain compliance with emission rate limits for particulate matter ($PM_{10}$ and/or $PM_{2.5}$), particularly with respect to 40 CFR Part 60, Subpart UUU: Standards of Performance for Calciners and Dryers in Mineral Industries. The subject of this modification is the *other* control device associated with this source: the dryer cyclone **(ID No. CDC1)**. The cyclone feeds particulate emissions from the dryer into the baghouse, where they are collected. While the baghouse is subject to CAM and appears in Section 2.2 C (Compliance Assurance Monitoring Affected Sources) of the permit, the cyclone does not. Furthermore, the proposed modification involves only a like-for-like replacement of the cyclone and will

not result in any changes to the emissions or emission rate of the dryer. The facility's status with respect to CAM will not be affected by the proposed modification.

## 7. Facility Wide Air Toxics

The facility's overall emission rates of the following toxic air pollutants (TAPs) are limited in the permit under 15A NCAC 02D .1100:

| Emission Source(s) | Toxic Air Pollutant(s) | Emission Limit(s) |
|---|---|---|
| Facility-wide | Arsenic & Compounds (total mass of elemental AS, arsine and all inorganic compounds) (ASC-7778394) | 0.69 lb/yr |
| | Cadmium Metal, elemental, unreacted (Component of CDC) (7440-43-9) | 3.79 lb/yr |

These emission rate limits are set based on a toxic air pollutant dispersion modeling analysis dated November 21, 2011. This modeling analysis was approved by the Air Quality Analysis Branch on October 1, 2012. The facility is also subject to the Toxic Air Permit (TAP) Permitting Emission Rates (TPERs) listed in 15A NCAC 02Q .0711. The following TPERs are listed for observation in the permit in Section 2.2 B.4:

| Pollutant (CAS Number) | TPERs Limitations | | | |
|---|---|---|---|---|
| | Carcinogens (lb/yr) | Chronic Toxicants (lb/day) | Acute Systemic Toxicants (lb/hr) | Acute Irritants (lb/hr) |
| Benzene (71-43-2) | 8.1 | | | |
| Beryllium (7440-41-7) | 0.28 | | | |
| p-Dichlorobenzene (106-46-7) | | | | 16.8 |
| Formaldehyde (50-00-0) | | | | 0.04 |
| n-Hexane (110-54-3) | | 23 | | |
| Manganese and Compounds (Not applicable) | | 0.63 | | |
| Mercury (7439-97-6) | | 0.013 | | |
| Nickel metal (7440-02-0) | | 0.13 | | |
| Toluene (108-88-3) | | 98 | | 14.4 |

Facility-wide emissions include emissions include emissions from the source subject to modification, a natural gas-fired dryer **(ID No. ES1415)**. The replacement of this source's dryer cyclone **(ID No. CDC1)** with a comparable replacement will not affect the facility's status with respect to the NC Air Toxics program.

## 8. Facility Emissions Review

The facility-wide potential emissions will not change because of this minor permit modification. Actual emissions for criteria pollutants and HAPs for the previous five years reporting periods are provided in the header of this permit review.

## 9. Compliance Status

DAQ has reviewed the compliance status of 3M Pittsboro. During the most recent inspection, conducted on October 2, 2023- by engineer Abdul Kadir of the Raleigh Regional Office, the facility appeared to be in compliance with all applicable requirements. The facility has had four air quality violations within the last five years: two notice of violations (NOVs) on December 11, 2020 for failing to permit a redundant enclosed pugmill with wet suppression (violation of NCGS 143-215.108 and 40 CFR 60 Subpart OOO); one NOV on August 12, 2021 for failing to replace dryer baghouse **ID No. CDB3** with a like-for-like replacement, and for failure to permit portable backup conveyor **ID No. IS-32** and waste stacker conveyor 25A **(ID No. ES25A)** (violation of NCGS 143-215.108 and 40 CFR 60 Subpart OOO); and one NOV/NRE for failure to perform a required NSPS OOO initial notification within 15 days and initial performance testing within 180 days (violation of 40 CFR 60 Subpart OOO). The facility's Annual Compliance Certification was received on February 23, 2024, and indicated compliance with all applicable requirements in 2023.

## 10. Public Notice/EPA and Affected State(s) Review

Not applicable. Applications processed in accordance with 15A NCAC 02Q .0515 "Minor Permit Modifications" are not required public participation, and EPA and affected states review. However, pursuant to 02Q .0515, the permit revision will be "proposed" to EPA for their 45-days review and the changes made to the current permit will become effective on the 60$^{th}$ day from the issuance date if no EPA comment is received. If the EPA does not comment on the "proposed" permit within the 45-day review, it will be reissued with the changes as appropriate.

## 11. Other Regulatory Considerations

- A P.E. seal IS NOT required for this minor modification because the modification applies to a particulate emission source with an air flow rate of less than 10,000 cubic feet per minute, pursuant to 15A NCAC 02Q .0112(b)(4). However, 3M did provide a seal from Professional Engineer Kathryn Swor of Stantec as part of the application.
- A zoning consistency determination is NOT required for this minor modification.
- A permit fee of $3,508 was received on November 18, 2024 for this minor modification.

## 12. Recommendations

The permit minor modification application for 3M Pittsboro has been reviewed by DAQ to determine compliance with all procedures and requirements. DAQ has determined this facility is complying or will achieve compliance, as specified in the permit, with all requirements that are applicable to the affected sources. DAQ recommends the issuance of Air Permit No. 09006T12.