NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date: DRAFT – July 27, 2022

Region: Raleigh Regional Office
County: Chatham
NC Facility ID: 1900104
Inspector's Name: Matthew Mahler
Date of Last Inspection: 05/28/2021
Compliance Code: W / Violation - procedures

Facility Data

Applicant (Facility's Name): 3M Pittsboro – Industrial Mineral Products
Legal Corporate/Owner Name per application (Form A): 3M Company

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 .0510, .0524, .0540, .0614, .1111, and 02Q .0513, .0515 and 02Q .0317 of 02D .1111
NSPS: 40 CFR 60, Subpart OOO & Subpart UUU
NESHAP: 40 CFR 63, Subpart CCCCCC
PSD: N/A
PSD Avoidance: N/A
NC Toxics: N/A
112(r): N/A
Other: N/A

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Blake Arnett Plant Manager (919) 642-4011 4191 Highway 87 South Moncure, NC 27559	Blake Arnett Plant Manager (919) 642-4011 4191 Highway 87 South Moncure, NC 27559	Ryan Navis Advanced Environmental Engineer (651) 230-4776 3M Company, 3M Center St. Paul, MN 55144

Application Data

Application Number: 1900104.20A (and 1900104.21C and 1900104.22A)
Date Received: 06/01/2020
Application Type: Renewal
Application Schedule: TV-Renewal

Existing Permit Data
Existing Permit Number: 09006/T08
Existing Permit Issue Date: 01/13/2022
Existing Permit Expiration Date: 08/31/2026

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
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)]
2018	0.1400	22.99	11.41	19.23	60.92	6.37	5.27 [Methanol (methyl alcohol)]
2017	0.1400	22.78	10.76	19.07	74.72	5.89	4.91 [Methanol (methyl alcohol)]
2016	0.1300	21.69	9.70	18.16	66.95	5.23	4.35 [Methanol (methyl alcohol)]

Review Engineer: Judy Lee

Review Engineer's Signature: **Date:**

Comments / Recommendations:
Issue: 09006T09
Permit Issue Date:
Permit Expiration Date:

1. Purpose of Application

3M Pittsboro – Industrial Mineral Products (referred to as 3M or 3M Pittsboro throughout this document) currently holds Title V Permit No. 09006T08 with an expiration date of August 31, 2026. Its facility located in Moncure, Chatham County, North Carolina currently produces stone granules for the shingle industry. This permitting action is for the following:

a. Renewal (Application No. 1900104.20A) of an existing Title V permit pursuant to 15A NCAC 02Q .0513. – The primary purpose of this application is for permit renewal without a modification. The renewal application was received in the Division's RCO on June 1, 2020, which was at least nine months prior to the expiration date, as required by General Permit Condition 3.K. Therefore, the existing permit shall not expire until the renewal permit has been issued or denied pursuant to 02Q .0513. All terms and conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied.
b. Permit applicability determination. – As part of the renewal application submittal, 3M also submitted a permit applicability determination for an evaluation of their existing and newly added dual pugmill system to be considered as an insignificant activity and not subject to New Source Performance Standards (NSPS).
c. Insignificant activities. – As part of the renewal application submittal, 3M also requests revisions to the insignificant activities list in their current permit.
d. Minor modification (Application No. 1900104.21A) pursuant 02Q .0515. – 3M Pittsboro proposes to add two new pickups from existing permitted conveyors and route each pickup to an existing permitted baghouse. The facility proposes to add two tower filters to the enclosures near each transfer point. Additionally, 3M Pittsboro requests to make administrative amendments to the IDs and descriptions of two existing permitted sources which have been mistakenly identified. This minor modification was processed and permit No. 09006T07 issued on September 16, 2021.
e. Minor modification (Application No. 1900104.21B) pursuant 02Q .0515. – 3M proposes to add one existing portable backup conveyor and one existing conveyor to permit number 09006T07 through a minor modification request. This minor modification was processed and permit No. 09006T08 issued on January 13, 2022.
f. Minor modification (Application No. 1900104.21C) pursuant 02Q .0515. – 3M proposes replacement of several emission sources and to update existing bagfilter sizes, in addition to other changes to permit number 09006T08 through a minor modification request to bring the facility back into compliance. This minor modification is pending receipt of additional technical information (received May 13, 2022).
g. Minor modification (Application No. 1900104.22A) pursuant 02Q .0515. – 3M Pittsboro proposes to install one new silo and two new conveyors and a new baghouse. Additionally, the facility proposes to replace one of its existing crushers with a new crusher. As part of this Minor Modification, 3M has requested additional related administrative changes to be made with respect to permit naming conventions. Additionally, 3M has included proposed permit conditions for this minor modification that reflect the proposed conditions of Permit Section 2.1 A from the Title V Renewal and Application 21C draft that was submitted by 3M to DAQ (Ms. Judy Lee) via email on May 13, 2022. This minor modification will be processed with the renewal application. This minor modification was received on May 18, 2022.
h. 502(b)(10) Notification Form (submitted with minor modification 22A)

2. Facility Description [compiled from previous review and latest inspection report]

3M Pittsboro - Industrial Mineral Products (referred to as 3M throughout this document) 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 operates 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.

✓ **Facility name/address/legal name/responsible official check**:

IBEAM compared with Renewal application submittal and NC Secretary of State (SOS):
Legal Corporate/Owner Name per application (Form A): 3M Company
Site Name per application (Form A): 3M Pittsboro
Site Name per IBEAM: 3M Pittsboro – Industrial Mineral Products
Site Address per application: 4191 Highway 87 South, Moncure, NC 27559, Chatham County
Site Address per IBEAM: SAME

NC Secretary of State website:
https://www.sosnc.gov/online_services/search/Business_Registration_Results

Legal Name: 3M Company
Previous Legal Name: Minnesota Mining and Manufacturing Company

✓ The name will remain as entered in IBEAM. No address change is necessary.

Responsible Official: Mr. Blake Arnett, Plant Manager, was confirmed as the responsible official (RO) of record per Form A – General Facility Information and IBEAM.

3. History/Application Chronology

***update after notice

Please see the attached Comprehensive Application Report for 1900104.20A with consolidated minor modifications (application Nos. 1900104.21C and 1900104.22A) and email correspondence for more details.

Date	Event Description
January 30, 2015	Permit application **1900104.15A** was received in Raleigh Central Office (RCO) for a Title V renewal of 3M's Title V Air Permit. 3M's Permit No. 09006T06 was issued on April 6, 2016.
January 16, 2018	A 502(b)(10) notification was received from 3M. Based on the information submitted no 502(b)(10) is required, the submitted information was instead processed as Applicability Determination No. 3194.
August 2019	Per application submittal (**1900104.20A)**, 3M installed a redundant Pugmill System. It was determined (by 3M) prior to installation, as detailed below, that the redundant Pugmill System did not require federal or state permitting.
December 10, 2019	Compliance inspection performed by Matthew Mahler, Raleigh Regional Office (RRO). The facility appeared to be operating in compliance with all permit requirements.
June 1, 2020	Permit application **1900104.20A** was received for a Title V renewal of the Title V Air Permit No. 09006T06.

Date	Event Description
June 22, 2020	Additional information request sent via email to 3M regarding the existing pugmill applicability determination in Appendix C of the renewal application (references 3M's application dated February 24, 2009).
June 30, 2020	Additional information was received for the pugmill (2009 renewal application – confidential version).
November 9-14, 2020	Email exchanges with Jill Blissenbach of 3M with questions regarding the pugmill and storage tanks to be added during this renewal. Ms. Blissenbach indicated that this project has been reassigned to Ryan Navis of 3M.
November 16, 2020	Telephone call from Ryan Davis of 3M to discuss renewal application and requested information.
November 30, 2020	An initial draft of the permit and review for 3M's renewal were sent to first line supervisor, Booker Pullen, RCO.
December 3, 2020	Comments received from first line supervisor, Booker Pullen, RCO.
December 4, 2020	A draft of the permit and review were sent to DAQ staff - Samir Parekh, Stationary Source Compliance Branch (SSCB) and Dena Pittman, RRO for review.
December 9, 2020	Comments received from Samir Parekh, SSCB.
December 11, 2020	Notice of Violation (NOV) – Unpermitted Emission Source; 40 CFR 60 NSPS OOO sent to 3M from RRO.
December 11, 2020	Comments received from Dena Pittman, RRO.
December 11, 2020	Email response from Mr. Navis, 3M that he was able to confirm the pugmill system's initial start-up was January 7, 2020.
December 15, 2020	Teams call with Mr. Navis of 3M and this review engineer to discuss the draft permit.
December 16, 2020	A draft of the permit incorporating RCO, SSCB and RRO comments was sent to 3M staff (Jill Blissenbach, Ryan Navis and Andrew Miller) through Mr. Blake Arnett, the responsible official (RO) of record, for review.
December 18, 2020	Email exchange between Mr. Navis, 3M, and this review engineer regarding historical records of emission calculations for F6771.
December 18, 2020	Email exchange between Mr. Navis, 3M and this review engineer regarding the NOV 3M received on December 11, 2020. Mr. Davis requested a copy of the NSPS OOO applicability evaluation/determination for the pugmills so 3M can determine an accurate and appropriate course of action moving forward. A copy of the review was emailed to Mr. Navis. In addition, an extension of time to provide comments on the draft permit was requested and granted.
January 9, 2021	Mr. Navis, 3M requested a follow-up meeting with this review engineer and Mr. Mahler regarding the recent NOV issued to 3M's Pittsboro facility.
January 10, 2021	Email response to Mr. Navis, 3M with available times for a follow-up meeting (after email exchanges within DAQ – RCO and RRO).
January 14, 2021	Teams call between 3M (Pittsboro and corporate) and DAQ (RCO and RRO) staff.
January 20, 2021	Response to NOV confirming that the new dual pugmill system went into service on January 25, 2020 and the existing pugmill (ID No. F6771) was decommissioned on December 17, 2019.
January 21, 2021	Comments on the draft permit were received from 3M staff.
January 26, 2021	Email from RRO with thread from the Permit Coordinators chat.

Date	Event Description
March 5, 2021	Revised draft renewal permit and review sent to Supervisor and RRO. Due to the many discrepancies between the permit and facility on-site, it was requested by the facility that the renewal be issued after the equipment was corrected through minor modifications to bring the facility back into compliance with their permit. DAQ agreed and RRO scheduled a compliance inspection/site visit.
April 7, 2021	Permit application **1900104.21A** was received via electronic-copy (e-copy) for a Minor Modification Application for 3M Pittsboro (Daq.reports-applications@ncdenr.gov).
May 28, 2021	Mr. Mahler, RRO met with 3M staff to perform an inspection and site walk through with Ms. Kyna Patterson, Process Engineer.
June 2, 2021	Stack test protocol for backup conveyor submitted to SSCB
June 16, 2021	Application amendment received (**No. 1900104.21A).**
July 15, 2021	Permit application **1900104.21B** was received via electronic-copy (e-copy) for a Minor Modification Application for 3M Pittsboro (Daq.reports-applications@ncdenr.gov).
August 12, 2021	The facility was issued an NOV for Failure to Obtain a Minor Modification Permit. Additionally, as an addendum to the NOV issued on December 11, 2020, the facility is being cited for two additional violations for operating unpermitted emission sources. First, the facility's May 13, 2021 notification letter indicated that 3M operates a portable backup conveyor (draft ID No. IS-32) that was installed around 2002. Second, Mr. Mahler observed an existing Waste Stacker Conveyor 25A during his May 28, 2021 inspection. IS-32 and Conveyor 25A are subject to New Source Performance Standards (NSPS) 40 CFR 60, Subpart OOO, *Standards of Performance for Nonmetallic Mineral Processing Plants*, and have been operating prior to obtaining the proper air permit. Minor modification (application **1900104.21B**) is to bring the facility into compliance.
September 8, 2021	Teams call with Mr. Navis, 3M, and this review engineer.
September 15, 2021	Teams call with 3M (Pittsboro and Corporate) and DAQ (RCO and RRO)
September 16, 2021	Permit No. 09006T07 issued for minor modification (**No. 1900104.21A**).
October 13, 2021	Stack test protocol for waste stacker conveyor (ID No. F72) and pugmill (ID No. F6771) submitted to SSCB. Proposed test date is November 11, 2021.
October 20, 2021	Follow up email with Mr. Navis regarding requested information for the portable and waste stack conveyors on September 8, 2021.
October 22, 2021	Email response from Mr. Navis with additional information requested.
November 1, 2021	Permit application (**No. 1900104.21C)** was received via electronic-copy (e-copy) for a Minor Modification Application for 3M Pittsboro (Daq.reports-applications@ncdenr.gov).
November 5, 2021	Teams call with Mr. Navis, 3M, and this review engineer.
November 5, 2021	An initial draft of the permit and review (**1900104.21B)** were sent to this review engineer's supervisor, Booker Pullen, RCO for review. Comments received on November 16, 2021.
November 12, 2021	Completeness additional information request sent to 3M (application No. **1900104.21C**)
November 19, 2021	The Permittee was sent a draft permit for review (**1900104.21B)**. Comments received on December 22, 2021.

Date	Event Description
December 8, 2021	The Permittee requested an extension to provide comments (**1900104.21B)** until December 23, 2021. Extension granted.
December 14, 2021	All required elements to deem the minor application (**1900104.21C)** administratively complete for processing were received by the Division.
December 15, 2021	Ten day administratively complete letter sent to 3M allowing the proposed changes requested as a minor modification **(1900104.21C)**. Hardcopies of the amended application were received by the Division. This review engineer followed up with an email to Mr. Navis and Mr. Balcerek indicating that based on a preliminary review of the additional information submitted there are still outstanding items necessary to deem the application technically complete and suggested a Teams meeting to discuss.
December 22, 2021	Comments (**1900104.21B)** were received from the facility.
December 22, 2021	This review engineer sent an email to 3M indicating that the permit was drafted based on the application (**1900104.21B)** submittal. 3M's comments do not agree with the application; requested clarifications and/or updated application forms, emission calculations and information to support removing "wet suppression" from the draft permit.
January 12, 2022	No response was received from the applicant. Management approval to issue.
January 13, 2022	Permit No. 09006T08 issued for minor modification (No. 1900104.21B).
January 14, 2022	Telephone call with Mr. Navis regarding issued permit No. 09006T08, specifically wet suppression as a control for the conveyors.
January 18, 2022	3M internal discussion with supervisors to discuss 1/14/2022 call with 3M regarding wet suppression and revising the permit. 3M must submit clarification of what was presented in the application versus what they are asking for as part of the renewal we will make any needed revisions or corrections (application No. **1900104.21B**) because of the new information provided by 3M and the application submitted being in contradictory statement of each other. The Division will process 3M's requested revisions to the wet suppression language and incorporate the dual pugmill into 3M's renewal.
January 18, 2022	Follow-up call with Mr. Navis, 3M, and a call with RRO, Taylor Hartsfield to discuss the permit, wet suppression, and revisions.
January 25, 2022	Email from Mr. Navis regarding recent minor modification (**1900104.21B)** issuance and additional water suppression monitoring requirements. This information was forwarded to Ms. Taylor, RRO.
February 1, 2022	Email discussions with RRO and supervisors; Teams call to discuss path forward for incorporating the new dual pugmill and production rate based on NSPS OOO testing. RCO will issue the renewal to incorporate compliance requirements and testing for pugmill production rates above the approved tested rate which will be placed in the revised permit; then the next minor modification (**1900104.21C**) will be processed.
February 15, 2022	Letter to 3M from RRO regarding testing conducted on November 11, 2021 and December 1, 2021 (2021-304ST) of the dual pugmill, 25 conveyor and 25A conveyor transfer points. IN addition, this letter addressed the periodic inspections for the dual pugmill and water carryover for the recently permitted 25 and 25A conveyors.

Date	Event Description
February 17, 2022	Email to 3M requesting they provide the clarification(s) for issued permit No. 09006T08 versus what 3M is asking for now for the discrepancies discussed on January 14th and 18th which contradicted what was presented in the application (No. 1900104.21B) as outlined in the December 22, 2021 email.
February 23, 2022	Email from 3M indicating that they will work on providing the necessary information and requesting DAQ clarify and confirm that the periodic inspections for wet suppression can be conducted at the pugmill (refer to January 25, 2022 email).
February 24, 2022	Ms. Hartsfield, RRO responded to the email from 3M. Attached was the February 15, 2022 letter regarding testing of the pugmill and conveyor transfer points and required periodic inspections for the pugmill (i.e., wet suppression) and water carryover for 25 conveyor and 25A conveyor transfer points.
March 1, 2022	Email exchanges with Mr. Navis, 3M, for a meeting request.
March 2, 2022	Meeting between this review engineer and Mr. Navis regarding a facility expansion at the 3M Pittsboro facility. Discussed the possible avenues and type of applications (e.g., construction notice, expedited application). This review engineer also reminded Mr. Navis of the clarifications needed to process the renewal application per February 17, 2022 email.
March 2, 2022	After discussions with this review engineer's supervisor, Mr. Pullen, a follow up email was sent to 3M with a discussion recap, fees, application types and available guidance.
March 3, 2022	Email exchange with Mr. Navis, 3M regarding the expansion and PSD.
March 8, 2022	Email correspondence from Mr. Navis regarding the NOI. Question about eligibility if PSD triggered. Email response explaining PSD/PSD avoidance. Second email regarding the facility's compliance status; ineligible for NOI.
March 9, 2022	Internal meeting with Mr. Cuilla and Mr. Pullen to discuss 3M's eligibility with respect to the NOI. Followup email to our discussion and review of NOVs issued to 3M.
March 10, 2022	Email sent to Mr. Navis through the RO of record indicating that 3M was ineligible for the NOI until the renewal and minor modifications are issued.
March 10, 2022	Internal email discussions between Mr. Cuilla, Mr. Pullen and this review engineer regarding the renewal, clarifications, and minor modification. Proceed with drafting the renewal correcting everything as we understand they should be, then send draft to facility for comments/clarifications.
March 17, 2022	Revised renewal permit and review incorporating pugmill applicability determination and minor modifications (No. 1900104.21A through 1900104.21C) sent to first line supervisor.
March 17, 2022	Revised renewal permit and review incorporating pugmill applicability determination and minor modifications (No. 1900104.21A through 1900104.21B) sent to RRO and SSCB for final review.
March 21, 2022	Comments received from first line supervisor, Mr. Pullen.
March 29, 2022	Comments were received from SSCB, Mr. Parekh.
April 1, 2022	No comments were received from the regional office; permit sent to 3M.
April 1, 2022	Revised renewal permit incorporating pugmill and minor modifications (No. 1900104.21A and 1900104.21C) sent to applicant, 3M (Pittsboro and corporate), copying RRO. Due to the numerous changes the Division requested comments within two weeks.

Date	Event Description
April 4, 2022	Comments received from Ms. Hartsfield, RRO. "For 2.1.A.2.e.ii, the paragraph mentions "EPA Method 9 conducted on June 2, 2021 for the Portable Backup Conveyor (pending approval)." Per the attached letter, the backup conveyor (ID No. IS-32) test results were approved on July 9, 2021." Change made.
April 13, 2022	3M requested an extension for providing comments through April 22, 2022.
April 21, 2022	Teams meeting between 3M staff (corporate and Pittsboro) and DAQ (RCO permitting and RRO) to discuss renewal, compliance, CAM, etc. in addition to submittal requirements; extension of time to submit addendum granted.
April 25, 2022 through May 10, 2022	3M requested additional time to provide comments; extensions were granted through May 13, 2022.
April 28, 2022	Andrea Russell of 3M emailed this review engineer with questions regarding the pugmill's PTE and how the Division determined it was subject to Title V permitting. Reference was made to the previous draft technical review provided to 3M on December 16, 2020 that discussed the use of an emission factor from screening operations for the pugmill. (This has since been updated as indicated in the reply email correspondence with Ms. Russell) … 3M agrees NSPS OOO applies to the pug, but not because the emission factor used is a screening EF – it's because the pug is a process continuation of the crushing and screening operations that process non-metallic minerals and is connected by conveyor, so it is an NSPS OOO source. A response was provided to Ms. Russell with the pugmill PTE emission calculations from the draft technical review and partial write up providing the EF and wet suppression control efficiency.
May 9, 2022	3M provided an electronic copy of the new dual pugmill (LKF 0726) manual.
May 13, 2022	Comments were received from the facility on the renewal/minor modification, in addition to an addendum to application 1900101.21C, the pugmill and administrative changes.
May 18, 2022	Permit application **1900104.22A** was received for a Minor Modification Application for 3M Pittsboro. Along with this minor modification, 3M submitted a 502(b)(10).
May 19, 2022	Brain Bland, RCO permitting responded to 3M's 502(b)(10) request indicating that no change to the permit was required, as such, no 502(b)(10) is necessary.
May 20, 2022	All required elements to deem the minor application (**1900104.22A)** administratively complete for processing were received by the Division.
July 12, 2022	Email correspondence to Mr. Navis and Mr. Arnett requesting additional information/clarifications on the Addendum received on May 13, 2022 (specifically bagfilter surface area for CDB16-CDB20).
July 12, 2022	Revised renewal permit with 3M's comments was sent to SSCB for a final review with a couple of questions/clarifications based on 3M's comments.
July 13, 2022	Email response from SSCB, Mr. Parekh.
July 19, 2022	Final draft sent for supervisor approval and RRO prior to notice.
July 25, 2022	Supervisor approval for notice.
July 27, 2022	No comments from RRO.
XXX	The Public / EPA Notice periods began.
XXX	The Public Notice period ended. XX comments were received.

Date	Event Description
XXX	The EPA Notice period ended. XX comments were received.

4. Permit Modifications/Changes and Title V Equipment Editor Discussion

The following table describes the modifications to the current permit No. 09006T08 as part of this renewal (application No. 1900104.20A) with consolidated minor modifications (application Nos. 1900104.21C and 1900104.22A):

Page No(s).	Section	Description of Changes
Cover and throughout	Globally	Updated all tables, dates, and permit revision numbers Updated per current shell guidance Added increment statement and ER (lb/hr) increase Removed minor modification language for applications No. 1900104.21A and 1900104.21B
--	Insignificant Activities List	Moved to Section 3 per current shell guidance
Attachment	Summary Table of Changes	Revised per changes associated with this renewal
1	Permit Cover	Revised per current guidance; removed minor modification language
--	Sections 3 and 4	Table of Contents – added Section 3 for Insignificant Activities and renumber General Permit Conditions to Section 4
3	--	List of Acronyms
4 – 9	1	Revised page numbers for this renewal Removed minor modification language for applications No. 1900104.21A and 1900104.21B at bottom of equipment table Revised descriptions per facility's request per email dated January 25, 2022 for wet suppression and water carryover Revised bagfilter total filter surface areas per minor modification (1900104.21C) request Added CAM references to newly affected sources Changed ES2729.2 (G crusher No. 2) to ES233 (C crusher No. 2B) per 3M's comments – as part of 1900104.21C the facility is replacing G Crusher No. 2 (ID No. ES2729.2), not G Crusher No. 1 (ID No. ES2426.2) Added new silo (ID No. ES5155D), two new conveyors (ID Nos. ES20B and ES26A), new baghouse (CD No. CDB21) and changed G crusher No. 1 (ID No. ES2426.2) to C crusher No. 2A (ID No. ES232) for the replacement cone crusher – per 1900104.22A Revised CDB5 description per facility's request from Crusher baghouse No. 2 to Grade Silo Baghouse No. 1 Changed source description of C crusher (ID No. ES607. 2) to "C Crusher No. 1" and its emission source ID to "ES206" per facilities request
10 – 18	2.1 A	Revised bagfilter total filter surface areas per minor modification (1900104.21C) request. Removed "Enclosed pugmill with wet suppression" (ID No. F6771) Revised East and West pugmill for dust and waste processing (ID No. F6772) controlled by wet suppression (ID No. CDF6772) and removed wet suppression from conveyors (ID Nos. 25 and 25A) per facility request. Added controlled by water carryover to conveyors (ID Nos. 25 and 25A).

Page No(s).	Section	Description of Changes
		Added monitoring, recordkeeping, reporting requirements for the pugmill controlled by wet suppression and water carryover for the conveyors. Added a production rate limit for the pugmill based on NSPS OOO testing Revised 40 CFR Part 60 Subpart OOO for equipment installation after 2008: **(ID Nos. F6772, ES25A, ES3537B, ES3537C, ES3537G, ES3537H, ES8913D, ES8913E, ES8913G, ES232, ES2426.3, ES2327C, ES5155D, ES20B, ES26A, and ES233)** and incorporated more specific monitoring, recordkeeping and reporting requirements for wet suppression, water carryover, replacement equipment, testing and reporting. Changed ES2729.2 (G crusher No. 2) to ES233 (C crusher No. 2B) Added Grade Silo No. 4 (ID No. ES5155D), Enclosed Conveyor No. 20B (Two Pickups) (ID No. ES20B), and Enclosed Conveyor No. 26A (Two Pickups) (ID No. ES26A) controlled by a new grade silo baghouse designated as Grade Silo Baghouse No. 2 (CDB21). Revised name of baghouse (CDB5) to "Grade Silo Baghouse No. 1" Replace G Crusher No. 1 (ID No. ES2426. 2) with a new cone crusher designated as C Crusher No. 2A (ID No. ES232). Changed source description of C crusher (ID No. ES607. 2) to "C Crusher No. 1" and its emission source ID to "ES206" per facilities request
19 – 20	2.1 B	Revised cyclone description (i.e., change from feet to inches) Revised UUU to be consistent with other NC permits. Changed annual inspection to monthly visual inspection. Revised semiannual reporting to include quarterly calculations for continuous opacity monitoring system.
21 – 23	2.1 C	Updated regulatory table - removed list of sources from table and placed under specific conditions. Revised bagfilter total filter surface areas per minor modification (1900104.21C) request.
24 – 25	2.1 D	Revised bagfilter total filter surface areas per minor modification (1900104.21C) request. Added CAM reference. Revised UUU to be consistent with other NC permits. Changed annual inspection to monthly visual inspection. Revised semiannual reporting to include quarterly calculations for continuous opacity monitoring system.
26 – 28	2.1 E	Revised bagfilter total filter surface areas per minor modification (1900104.21C) request. Added CAM reference. Revised annual to monthly per current guidance (2.1 E.1.c).
29 – 31	2.1 F	Revised bagfilter total filter surface areas per minor modification (1900104.21C) request. Added CAM reference.
32 – 33	2.1 G	Shell changes only.
34 – 35	2.2 A	No changes necessary with this modification (previously revised during processing of 1900104.21A)
36 – 38	2.2 B	No changes necessary with this modification.
39 – 43	2.2 C	Updated CAM monitoring language per current EPA guidance and reformatted to tabular format per latest Title V shell guidance.

Page No(s).	Section	Description of Changes
		Revised per email from SSCB on February 25, 2022 (for another facility). Added CAM for PSEU's greater than 100 tpy per EPA guidance. Revised per 3M's addendum and email correspondence with SSCB on July 13, 2022
44 – 46	Section 3	Reformatted per current guidance. Revised "IS" to be "IS-1" for consistency. Revised IS-FP** by removing asterisks, [constructed prior to June 12, 2006] and footnote ** - Compliance date of May 3, 2013. Removed IS-A11 from emission source description of "Chatham County Water Tower" per facility request Added IS-A19 Diesel Storage Tank (280 gallon capacity) and IS-A20 Gasoline Storage Tank (280 gallon capacity) per Form D4; and IS-21 Diesel Storage Tank (550 gallon capacity) per latest inspection report. Added MACT 6C reference to IS-A20. Added Elevator 12.
47 – 55	4	Updated General Conditions to latest version (version 6.0, 01/07/2022) and moved to Section 4 per current shell guidance.

* This list is not intended to be a detailed record of every change made to the permit but a summary of those changes.

❖ **Minor modification (Application No. 1900104.21C)**

The only pollutant of concern with this minor modification request is particulate matter (PM and PM10). The facility requests the following additional or modified equipment and controls as provided on Form A2 Emission Source Listing for this Application:

FORMs A2, A3

EMISSION SOURCE LISTING FOR THIS APPLICATION - A2

112r APPLICABILITY INFORMATION - A3

REVISED 09/22/16 — NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate — A2

EMISSION SOURCE LISTING: New, Modified, Previously Unpermitted, Replaced, Deleted

EMISSION SOURCE ID NO.	EMISSION SOURCE DESCRIPTION	CONTROL DEVICE ID NO.	CONTROL DEVICE DESCRIPTION
Equipment To Be ADDED By This Application (New, Previously Unpermitted, or Replacement)			
TBD	Metal Diverter chute	N/A	N/A
TBD	G Crusher No.1 Diverter chute	N/A	N/A
TBD	D Screen Bin #1 Discharge Chute	N/A	N/A
Existing Permitted Equipment To Be MODIFIED By This Application			
Please see the attached	sheet for details.		

Existing Permitted Equipment To Be MODIFIED By This Application			
EMISSION SOURCE ID NO.	EMISSION SOURCE DESCRIPTION	CONTROL DEVICE ID NO.	CONTROL DEVICE DESCRIPTION
ES3537B	Megatex Screener #2	CDB 2	Screen baghouse No. 1 (11,296 square feet of filter area)
ES3537C	Megatex Screener #3	CDB 2	Screen baghouse No. 1 (11,296 square feet of filter area)
ES3537G	Megatex Screener #4	CDB 4	Screen baghouse No. 2 (9,002 square feet of filter area)
ES3537H	Megatex Screener #5	CDB 4	Screen baghouse No. 2 (9,002 square feet of filter area)
ES8913D	Undersize conveyor No. 3 (D screen No. 1 to dryer feed conveyor No. 7)	CDB 2	Screen baghouse No. 1 (11,296 square feet of filter area)
ES8913E	C bin feed conveyor No. 4 (D screen No. 1 to C crusher bin)	CDB 2	Screen baghouse No. 1 (11,296 square feet of filter area)
ES2426.2	G crusher No. 1	CDB 1	Crusher baghouse No. 1 (6,178 square feet of filter area)
CDB1	Crushing Baghouse No. 1	N/A	N/A
CDB2	Screen Baghouse No. 1	N/A	N/A
CDB3	Dryer Baghouse	N/A	N/A
CDB4	Screen Baghouse No. 2	N/A	N/A
CDB5	Crushing Baghouse No. 2	N/A	N/A
CDB6	11 Grade Baghouse	N/A	N/A
CDB7	Waste Baghouse	N/A	N/A
CDB8	Raw Granule Baghouse No.	N/A	N/A
CDB9	Preheater Baghouse No. 1	N/A	N/A
CDB10	Preheater Baghouse No. 2	N/A	N/A
CDB11	Mixer Baghouse No. 1	N/A	N/A
CDB12	Mixer Baghouse No. 2	N/A	N/A
CDB13	Kiln 1 A and B Baghouse	N/A	N/A
CDB14	Kiln 2 A and B Baghouse	N/A	N/A
CDB15	Finished Granule Baghouse	N/A	N/A

The following summary table of control devices modified as part of minor modification 1900104.21C are indicated in red line strikeout (i.e., bagfilter surface area changes in square feet):

Control Device ID No.	Control Device Description
CDB1	Crusher baghouse No. 1 (6,178 ~~6,500~~ square feet of filter area)
CDB2	Screen baghouse No. 1 (11,296 ~~11,750~~ square feet of filter area)
CDB4	Screen baghouse No. 2 (9,002 ~~9,000~~ square feet of filter area)
CDB5	Crusher baghouse No. 2 (4,942 ~~5,250~~ square feet of filter area)
CDB6	Grade 11 silo baghouse (4,942 square feet of filter area)
CDB7	Waste handling baghouse (11,000 ~~2,750~~ square feet of filter area)
CDB8	Raw granule baghouse (5,472 ~~5,750~~ square feet of filter area)
CDB9	~~Line 1 dryer~~ Preheater baghouse No. 1 (6,354 ~~7,111~~ square feet of filter area)
CDB10	~~Line 2 dryer~~ Preheater baghouse No. 2 (6,354 ~~7,111~~ square feet of filter area)
CDB11	~~Line 1~~ Mixer baghouse No. 1 (2,648 ~~2,889~~ square feet of filter area)
CDB12	~~Line 2~~ Mixer baghouse No. 2 (2,648 ~~2,889~~ square feet of filter area)
CDB13	~~Line 1~~ Kiln 1 baghouse (10,590 ~~11,111~~ square feet of filter area)
CDB14	~~Line 2~~ Kiln 2 baghouse (10,590 ~~11,111~~ square feet of filter area)
CDB15	Finished granule baghouse (5,825 ~~6,111~~ square feet of filter area)

❖ **Minor modification (Application No. 1900104.22A)**

The only pollutant of concern with this minor modification request is particulate matter (PM and PM10). The facility requests the following additional or modified equipment and controls as provided on Form A2 Emission Source Listing for this Application:

FORMs A2, A3

EMISSION SOURCE LISTING FOR THIS APPLICATION - A2

112r APPLICABILITY INFORMATION - A3

REVISED 09/22/16 — NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate — A2

EMISSION SOURCE LISTING: New, Modified, Previously Unpermitted, Replaced, Deleted

EMISSION SOURCE ID NO.	EMISSION SOURCE DESCRIPTION	CONTROL DEVICE ID NO.	CONTROL DEVICE DESCRIPTION
Equipment To Be ADDED By This Application (New, Previously Unpermitted, or Replacement)			
ES5155D	Grade Silo No. 4	CDB21	Grade Silo Baghouse No. 2 (5,119 square feet of filter area)
ES20B	Enclosed Conveyor No. 20B (Two Pickups)	CDB21	Grade Silo Baghouse No. 2 (5,119 square feet of filter area)
ES26A	Enclosed Convetor No. 26A (Two pickups)	CDB21	Grade Silo Baghouse No. 2 (5,119 square feet of filter area)
ES232	C Crusher No. 2A	CDB1	Crusher Baghouse No. 1 (6,178 square feet of filter area)
Existing Permitted Equipment To Be MODIFIED By This Application			
N/A			
Equipment To Be DELETED By This Application			
ES2426.2	G Crusher No. 1		

Title V Equipment Editor

Changes were made to the Title V Equipment Editor (TVEE) under this permit renewal and minor modifications (application Nos. 1900104.21C and 1900104.22A). TVEE changes were reviewed and approved on XXXX, 2022 by Jenny Sheppard. See Permit Modification Tracking slip or email correspondence for confirmation.

5. Regulatory Review

In addition to requirements provided in Section 3 – General Conditions, this facility is currently subject to the following regulatory requirements:

a. 15A NCAC 02D .0510, "Particulates from Sand, Gravel, or Crushed Stone Operations" readopted effective November 1, 2020
b. 15A NCAC 02D .0515, "Particulates from Miscellaneous Industrial Processes" readopted effective November 1, 2020
c. 15A NCAC 02D .0516, "Sulfur Dioxide Emissions from Combustion Sources" readopted effective November 1, 2020
d. 15A NCAC 02D .0521, "Control of Visible Emissions" readopted effective November 1, 2020
e. 15A NCAC 02D .0524, "New Source Performance Standards" readopted effective November 1, 2020
    i. NSPS – 40 CFR 60, Subpart OOO last amended on April 28, 2009
    ii. NSPS – 40 CFR 60, Subpart UUU last amended on October 17, 2000
f. 15A NCAC 02D .0540, "Particulates from Fugitive Dust Emission Sources" readopted effective September 1, 2019
g. 15A NCAC 02D .0614, "Compliance Assurance Monitoring" (CAM) readopted effective November 1, 2019
h. 15A NCAC 02D .0958, "Work Practices for Sources of Volatile Organic Compounds" readopted effective November 1, 2020
i. 15A NCAC 02D .1806, "Control and Prohibition of Odorous Emissions" readopted effective September 1, 2019
j. 15A NCAC 02D .1111, "Maximum Achievable Control Technology" (MACT) readopted effective July 1, 2018
    i. MACT – 40 CFR 63, Subpart ZZZZ last amended on January 30, 2013
    ii. MACT – 40 CFR 63, Subpart CCCCCC last amended on January 24, 2011 (added)
k. 15A NCAC 02Q .0317, "Avoidance Conditions" for 15A NCAC 02D .1111 MACT readopted effective April 1, 2018
l. 15A NCAC 02Q .0711, "Emission Rates Requiring a Permit" readopted effective July 1, 2018

The permit will be updated to reflect the most current format and stipulations for all applicable regulations during processing of this renewal with modification.

For a general discussion of Compliance Assurance Monitoring (CAM), Maximum Achievable Control Technology (MACT) or Generally Available Control Technology (GACT), New Source Performance Standards (NSPS) and Prevention of Significant Deterioration (PSD) requirements, refer to Section 6.

The following equipment changes and/or regulatory changes require a more thorough review during this renewal process:

❖ **Permit Applicability Determination Application No. 3194:**

DAQ's response was sent to 3M via email on January 19, 2018 for Applicability Determination No. 3194. The facility plans to perform like-in-kind shell replacements on the existing Line 1 natural gas-fired kiln (ID No. ESCPK1). The replacement does not affect the associated control equipment or debottleneck any upstream emission units. No increase in process rate or emissions will occur due to these replacements. This change is not considered a modification under NSPS, MACT, PSD or NC toxics and will not require any change to the existing permit conditions or emission source description.

❖ **Applicability Determination for a Dual Pugmill System:**

Excerpt from renewal application, Appendix C[1] – Memorandum dated – May 5, 2020:
As part of this renewal application, 3M submitted a permit applicability determination for a Dual Pugmill System. As documented in this memorandum, 3M Pittsboro requests a permit applicability determination for the Dual Pugmill System at the 3M Pittsboro facility in Pittsboro, NC. In August 2019, the facility installed a redundant Pugmill System. It was determined (by 3M) prior to installation, as detailed below, that the redundant Pugmill System did not require federal or state permitting action. Furthermore, the existing Pugmill System (Emission Source ID No. F6771) was incorrectly listed as an NSPS-affected facility in Pittsboro's Title V permit and should be listed as an insignificant activity. 3M requests that the Division of Air Quality remove Emission Source ID No. F6771 from the facility's Title V Operating Permit #09006T06, issued April 6, 2016, and list both the existing and redundant Pugmill System as the "Dual Pugmill System" on the facility's list of Insignificant Activities.

- Email exchanges between this review engineer and Hannah Brady of 3M on June 22, 2020 and Jill Blissenbach of 3M on June 30, 2020 are provided below:

From: Hannah Brady CW <hbrady.cw@mmm.com>
Sent: Monday, June 22, 2020 12:43 PM
To: Lee, Judy <judy.lee@ncdenr.gov>
Subject: [External] 3M Pittsboro Question

Hi Judy,

I hope you're doing well!

I'm working again with 3M Pittsboro and I've got another question for you that I hope isn't silly. The site is considering operating some equipment closer to maximum operating capacity than they have been doing recently. So, they are considering a change in actual emissions but not a change to potential emissions and no physical changes to any equipment. My understanding is that this change does not contravene any permit terms and does not change the facility's status as a synthetic minor PSD source.

In reviewing rules and definitions of a "modification" in 15A NCAC 02Q .0103, I'm not seeing clarification on changes in actual versus potential emissions. Are you able to provide any additional guidance on if the DAQ requires a submittal for such a change? Any and all help is appreciated. Thanks!

Hannah Brady | Environmental Engineer
Wenck Associates for 3M Environmental, Health, and Safety
3M Center, 224-5W-03 | St. Paul, MN 55144-1000 | United States
Mobile: +1 651 274 7466
hbrady.cw@mmm.com

From: Lee, Judy <judy.lee@ncdenr.gov>
Sent: Monday, June 22, 2020 12:52 PM
To: Hannah Brady CW <hbrady.cw@mmm.com>
Cc: Lee, Judy <judy.lee@ncdenr.gov>
Subject: [EXTERNAL] RE: [External] 3M Pittsboro Question

[1] 3M's Renewal Application (No. 1900104.20A) – Appendix C: Justification for Listing Dual Pugmill as an Insignificant Activity

Hey Hannah,

Thanks, I'm doing well. Hope you are!

No change would be necessary if the facility has no operational restrictions or limits (e.g., PSD avoidance conditions). This assumes that the facility operating at or close to maximum operating capacity would not exceed PSD thresholds and the source(s) do not exceed their permitted maximum capacity provided with the application at the time of permitting (if not listed in the current permit) or any subsequent modifications to increase capacity since permitting.

I would need to review the permit and equipment in question in more detail.

I hope this answers your question. If not, or if you have any further questions, please let me know. Thanks,

FYI:

I did a quick review of your renewal application and applicability determination requests in Appendix C regarding the existing pugmill (ID No. F6771) subject to NSPS OOO that 3M is requesting be removed from the permit.

Based on available historical documents the pugmill has been on 3M's permit since issuance of Permit No. 09006R00 on May 14, 2001.

The supporting documentation in 3M's renewal application; Appendix C: Justification for Listing Dual Pugmill as an Insignificant Activity on page 2 states:

All capacity, throughput and emission factors are the same as those submitted in previous applications. Please refer to 3M's application dated 2/24/2009 for this information.

I reviewed 3M's permitting history and there was an application submitted and received by the Division on February 25, 2009 for renewal of Permit No. 09006T01. However, the specific emission rates, etc. are not included in the review, nor is the application available. If 3M has a copy and could forward that to me that would be great.

I reached out to our regional office. The 2009 application could not be located. They were able to find an application from 2003 that contains emission rates for the existing pugmill. Based on this data, the pugmill's potential to emit (PTE) of particulate exceeds 5 tons per year (tpy). Per 15A NCAC 02Q .0503(8) if a sources PTE before controls are greater than 5 tpy; the source is not an insignificant activity because of size or production rate. Based on this data, the pugmill must remain on the permit. I have not started working on your renewal application (other than a quick review of the application and looking for information regarding the pugmill), so I have not looked into NSPS OOO applicability at this time.

Judy Lee
Environmental Engineer
Division Of Air Quality, Permitting Section
Department of Environmental Quality
919 707 8729 office/fax
919 707 8400 main
judy.lee@ncdenr.gov

217 West Jones Street
1641 Mail Service Center
Raleigh, North Carolina 27699-1641

From: Jill Blissenbach <jblissenbach@mmm.com>
Sent: Tuesday, June 30, 2020 3:07 PM
To: Lee, Judy <judy.lee@ncdenr.gov>
Cc: Charles Balcerek CW <cbalcerek.cw@mmm.com>
Subject: FW: [External] 3M Pittsboro Question

Hi Judy,

Hannah forwarded your question to me. Attached is a copy of the 2009 renewal application for 3M Pittsboro, please note this is the confidential version. I can't locate a copy of the 2003 application myself so don't know how pugmill emissions were calculated at the time, but in 2009 uncontrolled emissions were 2.17 tons/year for F6771.

In Appendix C of the renewal application submitted this year, PTE is lower due to the use of the wet suppression control factor, which is explained in the Emission Calculations section. The site can only operate one pugmill at a time.

I hope this answers your question, please reach out if you'd like to discuss.

Thanks!

Jill Blissenbach | Senior Environmental Scientist
Environment, Health, Safety and Medical
3M Center, 224-5W-03 | St. Paul, MN 55144-1000 | United States
Office: +1 651 737 6528 | Mobile: +1 651 387 2939
jblissenbach@mmm.com

- DAQ analysis for Dual Pugmill System (proposed **ID No. F6772**):

A thorough review of 3M's 2009 renewal application (confidential version provided by Ms. Blissenbach), as well as historical permitting documents was performed and excerpts from permit reviews are included below to aid in the regulatory applicability of the pugmill system:

Excerpts from the review associated with Permit No. 09006R00 issued on May 14, 2001:
This permitting action was for a Title V fee class Greenfield facility.
3. New Equipment/Change in Emission and Regulatory Review
A. Crushing and Screening Plant
…
NSPS 7. enclosed pugmill (ID No. F6771) with wet suppression - dust and waste processing,

8. enclosed waste stacker conveyor No. 25 (ID No. F72) with wet suppression - pugmill to outside storage,

NSPS 9. enclosed dust conveyor 23B (ID No. F61) - dust conveyor 23A to transfer conveyor 23C, and

NSPS 10. dryer baghouse (12,300 square feet of filter area; ID No. CDB3) on dust conveyor No. 23A (ID No. ESC23A) - dryer baghouse screw conveyors to dust conveyor 23B.

Uncontrolled emissions of PM-10 from the materials handling and processing operations listed above were determined from AP-42 Section 11.19.2 (1/95) for Crushed Stone Processing. TSP emissions were estimated based on the TSP to PM-10 ratio of 2.1 to 1 provided by AP-42. Confidential process diagrams indicate that all conveyors are under negative pressure from one or more pick-ups which results in the collection of emissions at transfer points which have no pick-ups. The source list above goes beyond the application in that each transfer operation is depicted separately for compliance review rather than as a source group. Emissions estimates provided by the applicant remain relevant because AP-42 emission factors include transfer to and from the process as well as the process emissions.

Controlled emission factors were calculated using a fabric filter control efficiency of 99.92, a 97 percent (%) emissions reduction for wet suppression, and a passive 90 percent control efficiency for enclosures. The fabric filter control systems were certified by David J. Heron, professional engineer temporarily licensed in the State of North Carolina, to achieve a maximum outlet grain loading of 0.01 grains per dry standard cubic foot.

Total uncontrolled and potential (controlled) emissions from the sources listed above are as follows:

Annual Emissions

Pollutant	Uncontrolled Emissions	Potential Emissions
TSP	556 tpy	0.8 tpy
PM-10	265 tpy	0.4 tpy

The regulations applicable to the crushing and screening operations above are:

02D .0510 "Particulates from Sand, Gravel or Crushed Stone Operations"
02D .0521 "Control of Visible Emissions"
02D .0524 "NSPS for Nonmetallic Minerals Processing Plants (40 CFR 60, Subpart OOO)"
02D .0540 "Particulates from Fugitive Non-process Dust Emission Sources"

02D .0510
The owner or operator of a sand, gravel, or crushed stone operation shall not cause, allow, or permit any material to be produced, handled, transported or stockpiled without taking measures to reduce to a minimum any particulate matter from becoming airborne to prevent exceeding the ambient air quality standards beyond the property line for particulate matter (both PM10 and total suspended particulate).

The owner or operator shall control process-generated emissions from crushers with wet suppression, and from conveyors, screens, and transfer points such that the applicable opacity standards in Rule .0521 or .0524, of this Section are not exceeded.

The five crushers will be enclosed and controlled with two collection systems using fabric filter control. They are required to employ wet suppression to the extent necessary to comply with the applicable opacity standards should the enclosures and fabric filter controls prove to be insufficient.

02D .0521
This standard allows no more than a 20 percent opacity due to visible emissions. The use of the fabric filter and particulate mitigation practices required in 2D .0510 and .0524 will ensure compliance with this standard.

02D .0524 (all emission sources marked as subject to NSPS, Subpart OOO)
This NSPS provides two compliance options. The DAQ has determined that Permittee may show initial compliance with NSPS requirements for stack and fugitive emissions from affected facilities within a

building by showing that each individual affected unit complies with the particulate and opacity requirements or show that the building and its vents comply with the particulate and opacity requirements below.

- Stacks at affected facilities shall not discharge particulate emissions in excess of 0.05 grams per dry standard cubic meter (0.02 grains per dry standard cubic foot) and seven percent opacity. The applicant has stated that all fabric filter control devices will be designed to achieve an outlet grain loading of 0.01 grains per dry standard cubic feet. The controlled emission rate of 0.01 grains per standard dry cubic foot for all processes meets this particulate standard. Compliance testing is required to determine compliance with the particulate and opacity standards; and
- Fugitive emissions from each affected facility must not exceed an opacity of 10 percent. Compliance testing is required to determine compliance with the opacity standard on a per source basis for all uncontrolled and fugitive affected sources; or
- Building vents at affected facilities shall not discharge particulate emissions in excess of 0.05 grams per dry standard cubic meter (0.02 grains per dry standard cubic foot) and seven percent opacity and the building must not have any visible fugitive emissions due to uncontrolled emission sources contained within the building. Compliance testing is required to determine compliance with these standards.

02D .0540
This regulation requires that the owner/operator implement a fugitive dust control plan if fugitive non-process dust emissions from a facility cause or contribute to substantive complaints, if ambient air quality measurements or dispersion modeling show a potential for a violation of an ambient air quality standard for particulates, or if the DAQ observes excessive fugitive non-process dust emissions from the facility beyond the property boundaries.

Excerpts from the review for renewed Permit No. 09006T03 issued on November 1, 2010 (application received on February 25, 2009):

Other Sources in crushing and screening plant

- Enclosed dust conveyor No. 23B (dust conveyor No. 23A to transfer conveyor No. 23C) (ID No. F61);
- Enclosed waste stacker conveyor No. 25 with wet suppression (pugmill to outside storage) (ID No. F72);
- Enclosed pugmill with wet suppression (dust and waste processing) (ID No. F6771); and
- Waste pile (ID No. FWP)

The Crushing and Screening Plant receives stone from the Luck Stone Quarry Operation, located on the premises. Processing consists of repeated steps of crushing and screening the rock until it is uniformly sized to Grade 11. Then, the crushed rock is fed by underground conveyor from the storage pile to the secondary crusher. The crushed material is next sent to screening equipment where the smaller material is sent to a dryer and the oversize rocks are returned to the crusher for further size reduction. After drying, the material is sent to another screening operation. Particles in the desired size range are conveyed to the storage bins, but the unacceptable oversized granules are sent to tertiary crushers for further size reduction. The final screening process takes place at screens fed by the storage bin. All of the properly sized material is conveyed from here to Raw Granule Storage. The oversized material is sent to the quaternary crusher for final size adjustment and, after crushing, is re-circulated through the screeners. This cycle continues until the material is small enough to be sent to Raw Granule Storage or is too small for use as roofing granule and is screened out for disposal. These grade 11 granules are the plant's final product. The granules are eventually sent from storage to the Coloring Plant as raw material for production of colored roofing granules.

ii. 15A NCAC 2D .0524 "New Source Performance Standards"[2]
40 CFR Part 60, Subpart OOO "NSPS for Nonmetallic Mineral Processing Plants"
Applicability: [40 CFR 40 CFR 60.670(a) and (e)]
The crushing and screening operations at this facility are a nonmetallic mineral processing plant constructed after 08/31/83. Therefore, any crushers, grinding mills, screening operations, bucket elevators, belt conveyors, bagging operations, storage bins, and/or enclosed truck or railcar loading stations located at this facility (other than those that qualify as wet material processing operations as defined in 40 CFR 60.671) are subject to the applicable requirements of 40 CFR Part 60, Subpart OOO. Note that this regulation was modified (see 74 FR 19309) such that new standards apply to sources constructed, modified or reconstructed after 04/22/08. However, the Permittee has indicated that the subject equipment has not been modified or reconstructed since that date.

Emission Limits: [40 CFR 60.672(a) and (e) and Tables 2 and 3 of Subpart OOO]
Subpart OOO requires that particulate emissions from affected sources located within a building (i.e., from a building vent) must not exceed 0.05 grams per dry standard cubic meter (0.022 grains per dry standard cubic foot) and visible emissions must not exceed 7 percent opacity. Fugitive emissions are limited to 10 percent opacity. The Permittee demonstrated compliance with these limits via initial testing conducted on 09/26/07 (for silo No. 3 – ID No. ES5155C) and 08/05/02 through 08/08/02 (for all other sources).

Current Permit No. 09006T02 prohibits the Permittee from emitting any fugitive visible emissions from any building enclosing an affected source. That is, any emissions from a building enclosing an affected source must be emitted through a vent. This requirement is maintained in Permit No. 09006T03.

Monitoring: [15A NCAC 2Q .0508(f)]
Subpart OOO does not include any monitoring requirements for the existing subject sources. However, current Permit No. 09006T02 requires the Permittee to conduct monthly visible emissions monitoring of each building enclosing affected sources. These requirements are maintained in Permit No. 09006T03.

Recordkeeping: [15A NCAC 2Q .0508(f)]
Subpart OOO does not include any recordkeeping requirements for the existing subject sources. However, current Permit No. 09006T02 also requires the Permittee to maintain records of the required monthly visible emissions monitoring. These requirements are maintained in Permit No. 09006T03.

Reporting: [15A NCAC 2Q .0508(f) and 40 CFR 60.676]
Paragraph 40 CFR 60.676(a) requires the Permittee to submit information concerning the rated capacity and/or size of existing equipment and the replacement equipment if the Permittee wishes to take advantage of the exemption found at 40 CFR 60.670(d)(1). Current Permit No. 09006T02 also requires the Permittee to submit semiannual summary reports and to submit reports of any non-compliant visible emissions observed within 5 business days of the associated observation. These requirements are maintained in Permit No. 09006T03.

*end of excerpts

[2] Title 40: Protection of Environment – PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES (40 CFR 60), Subpart OOO "Standards of Performance for Nonmetallic Mineral Processing Plants," including Subpart A, "General Provisions." FEDERAL REGISTER 74 FR 19309, April 28, 2009, unless otherwise noted. https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-60/subpart-OOO

Based on a review of historical permitting documents, NSPS OOO, AP-42 emission factors (EF)[3], as well as information provided by 3M from their 2009 confidential renewal application, compared to information obtained from RRO, Dena Pittman, on June 4, 2020 from 3M's 2003 application, there is no indication that the existing pugmill (ID No. F6771) was incorrectly permitted. Maximum uncontrolled potential to emit (PTE) of PM from the existing enclosed pugmill with wet suppression exceeds 5 tpy. Both sets of data (i.e., 2003 and 2009) were compared. The maximum uncontrolled emission rates for PM and PM_{10} from both data sets vary slightly; however, historical maximum uncontrolled emissions data is approximately 8 times higher for PM and 10 times higher for PM_{10} than the data presented in 3M's 2020 renewal application (refer to Tables 1 and 2 below).

As indicated during email exchanges with 3M representatives, per 15A NCAC 02D 02Q .0503 Definitions:

(8) "Insignificant activities because of size or production rate" means any activity whose emissions would not violate any applicable emissions standard and whose potential emission of particulate, sulfur dioxide, nitrogen oxides, volatile organic compounds, and carbon monoxide before air pollution control devices, are each no more than five tons per year and whose potential emissions of hazardous air pollutants before air pollution control devices, are each below 1000 pounds per year.

Per the applicability determination request, the proposed redundant Pugmill System installed at 3M's facility in August 2019 (3M later confirmed this system was installed on January 5, 2020 – see NOV response received January 20, 2021 via email) has a maximum operating capacity of approximately 11.2% greater than the existing pugmill system (ID No. F6771). 3M indicates that the two systems cannot operate at the same time; thus, the worst-case emissions scenario is accounted for by calculating potential emissions from the redundant pugmill system. In addition, 3M indicates that the calculation methodology used to calculate emissions from the existing pugmill as part of the last Title V permit renewal and the Title V renewal application dated February 24, 2009 does not account for the sources total enclosure as an emissions reduction (70%) as noted in the permit renewal calculations. Emissions from the 2020 renewal application are provided in Table 1 and Table 2 below:

[3] United States Environmental Protection Agency (US EPA) AP-42: Fifth Edition Compilation of Air Emissions Factors, Volume 1: Stationary Point and Area Sources, Chapter 11: Mineral Products Industry – 11.19.2 Crushed Stone Processing and Pulverized Mineral Processing (8/2004). Chapter 11 has been revised since the January 1995 version.

Table 1: Existing Pugmill Emissions

Equipment	Pollutant	Max Throughput (ton/hr)	Emission Factor (lbs/ton)	Wet Suppression (%)	PTE (lb/hr)	PTE (tpy)
Existing Pugmill - F6771	PM	All capacity, throughput and emission factors are the same as those submitted in previous applications. Please refer to 3M's application dated 2/24/2009 for this information.			0.171	0.751
	PM10				0.063	0.275

Table 2: New Pugmill Emissions

Equipment	Pollutant	Existing Pugmill PTE (lb/hr)	Existing Pugmill PTE (tpy)	Max Throughput (% increase)	PTE (lb/hr)	PTE (tpy)
New Pugmill	PM	0.171	0.751	11.2%	0.191	0.835
	PM10	0.063	0.275	11.2%	0.070	0.306

As previously stated, a review of historical documents, including the 2009 confidential application provided by 3M and excerpts from the 2003 application obtained from RRO, Ms. Pittman, indicate that the existing pugmill (ID No. F6771) was correctly permitted. Both the 2003 and 2009 applications provide an uncontrolled EF (lb/ton) with a primary control description of "total enclosure with wet suppression" with corresponding control efficiency and a secondary control description of "bldg enclosure" with corresponding control efficiency. Both indicate potential uncontrolled PM emissions exceed 5 tpy. It should also be noted, as discussed in email correspondence above, that the existing pugmill (ID No. F6771) has been on 3M's permit since 2001 (based on available historical permitting documents). Since 2001, 3M's permit has been renewed twice (renewed Permit Nos. 09006T03 and 09006T06), with no change in operating or control scenarios for the pugmill discussed in historical documents. As indicated above, per review for 3M's Title V fee class permit for a Greenfield facility (issued permit No. 09006R00), both control efficiencies (i.e., total enclosure with wet suppression and building enclosure) were taken into account during permitting. In fact, the wet suppression control efficiency applied was 97% and 90% for the enclosure (not 70% as 3M stated in the applicability determination). Thus, the existing pugmill (ID No. F6771) was correctly permitted and subject to NSPS OOO (refer to NSPS OOO applicability discussion below).

The redundant pugmill system has an 11.2% greater capacity per 3M's renewal application; thus, the worse-case uncontrolled potential PM emissions are also greater than 5 tpy. The fact that both the existing and new pugmill systems cannot operate at the same time is irrelevant in this case. Hence, 3M constructed and installed the redundant Pugmill System without obtaining a permit to construct and operate said pugmill system. Pursuant to Table 1 to Subpart OOO, 3M also failed to provide notification of the date construction or reconstruction commenced.

Per inspection report dated December 10, 2019, there is no mention of a new pugmill system. In addition, the inspection report indicates the most recent stack test performed at this facility was on August 8, 2007. The testing was performed to satisfy NSPS Subpart OOO requirements. Thus, 3M failed to perform the required startup notification and initial performance test within 180 days of initial startup pursuant to 40 CFR 60.8 and 40 CFR 60.675 of Subpart OOO (refer to NSPS OOO excerpts below).

The renewal application submittal received by the Division on June 2, 2020, does not provide a description of the pugmill system, nor does the historical permit reviews [refer to excerpt from renewal permit No. 09006T03 above].

A review of industry data (please refer to Attachment 5 below),[4] indicates pugmills are continuous or batch mixing plants that mix multiple materials into a homogeneous mixture very rapidly. Pugmills are used for a variety of industry sectors as discussed in more detail below:

Industrial pugmills are powerful, reliable solutions for continuous mixing processes, particularly those with abrasive aggregates. High quality consistent continuous mixes can be obtained using accurate dosing and weighing equipment to ensure that the materials (i.e., dry materials and/or wet and dry materials, binding agents, drying agents, water, etc.) entering the pugmill are in correct proportions. If the aggregate enters the mixer before the water or cement starts flowing, the aggregate will leave the mixer just like it came in.

Pugmills are suitable for producing mineral mixtures for road base, Roller Compacted Concrete (RCC), landfill bentonite liners, and for drying sludges with reagents. These pugmills offer higher production rates of 50 to 1000 tons per hour.

Pugmills are used in landfills to dry waste sludges by adding drying agents in the mixer so that the dried sludge can be landfilled. Pugmills are also used to stabilize waste dust such as fly ash, bed ash, and cement kiln dust. Newer applications include using pugmills to dry drilling fluids from the oil and gas industries, tunnel boring machines, and liquids from hydro excavation.

An example pugmill (i.e., mixer) from Enviroflo Engineering accepts dry material and water (i.e., wet suppression) is added via spray to control dust. The Enviro Dust Conditioner is a dust control device designed to add water, or in some cases a wetting agent to dry granular materials so as to "dampen down" or condition the product prior to off-loading from a storage hopper or bunker. Water conditioning reduces or in some cases eliminates the release of dust to atmosphere from the product as it falls into an open vehicle, skip or onto the ground below.

As discussed during a recent training class presented through the Mid-Atlantic Regional Air Management Association (MARAMA) on January 24th and 25th, 2022:[5]

"Pugmills are normally used at asphalt plants … Pugmills are operated with or without water (i.e., wet suppression). … wet or chemical suppression are used as preventative air pollution control measures for particulate ... wet suppression is normally used when fine particulates have an economic value in addition to meeting air pollution control laws … wet suppression is typically a spray bar with spray nozzles used to control fugitive dusts … the spray nozzles always need attention because they get plugged often."

Wet dust suppression consists of introducing water or amended water into the material flow, causing the fine particulate matter to be confined and remain with the material flow rather than becoming airborne. Dust collection involves hooding and enclosing dust-producing emission points and exhausting emissions to a collection device.[6]

"Wet suppression techniques include application of water, chemicals and/or foam, usually at crusher or conveyor feed and/or discharge points. Such spray systems at transfer points and material handling

[4] https;//thompsonrock.com/everything-you-need-to-know-about-pugmills/
http://www.envirofloeng.com/images/Enviroflo%20Dust%20Conditioner.pdf
[5] National Air Compliance Training (NACT) Course 246: Aggregate, Hot Mix Asphalt, and Concrete Batching Operations (Mohsen Nazemi and Thomas Marriott, Instructors, January 24 – 25, 2022).
[6] US EPA Regulatory and Inspection Manual for Nonmetallic Mineral Processing Plants (Revised). November 1997. (Section 2.3, page 26)

operations have been estimated to reduce emissions 70 to 95 percent. Spray systems can also reduce loading and wind erosion emissions from storage piles of materials 80 to 90 percent (%). Control efficiencies depend upon local climatic conditions, source properties and duration of control effectiveness. Wet suppression has a carryover effect downstream of the point of application of water or other wetting agents, as long as the surface moisture content is high enough to cause the fines to adhere to the larger rock particles."[7]

Based on the renewal application, historical permitting for this facility and available information, this review engineer finalized the draft permit and review for internal review (i.e., RRO and SSCB) on December 4, 2020. Comments were received from SSCB on December 9, 2020 and RRO on December 11, 2020. On December 11, 2020, RRO also issued an NOV to 3M for Unpermitted Emission Source; 40 CFR 60 NSPS OOO.

After a Teams call between this review engineer and Mr. Navis of 3M on December 15, 2020, a draft of the renewal permit was sent to 3M on December 16, 2020 for review and comment.

On January 14, 2021, a Teams call between 3M (Pittsboro and corporate) and DAQ (RCO and RRO) staff, per 3M's requests was held. Per 3M, the goal of the call was to provide an understanding of what the pugmill system is, confirm 3M's understanding of the Divisions applicability interpretation of said regulations, and to explain 3M's position towards each alleged violation. During the call, discussions regarding the redundant pugmill system recently installed at 3M's facility and the recent NOV received for installing and operating the dual pugmill system without a permit, as well as permitting of the pugmill going forward occurred.

During the Teams call on January 14, 2021, 3M indicated that the wet suppression should be considered an integral part of the process; thus, the emissions would be below Title V permitting thresholds. In addition, 3M contends that they are not in violation of 40 CFR 60, Subpart OOO because they do not believe the pugmills are affected sources under NSPS OOO. These are two separate issues (i.e., Title V and NSPS OOO applicability) and are discussed in greater detail below.

3M's questions regarding Title V and NSPS OOO applicability were discussed with RRO (Mr. Mahler) and this review engineers' supervisor (Mr. Pullen). Mr. Mahler suggested that the questions be posted to the Divisions Permit Coordinators Teams Chat discussion on January 20, 2021 by Ms. Pittman, RRO.[8] The responses were forwarded to this review engineer from RRO via email on January 26, 2021. Comments from the Permit Coordinators Teams Chat were reviewed by this review engineer and are incorporated in the following discussion:

"The permitting question is separate from the NSPS applicability and would depend on the potential emissions before controls. It would also seem to me that unless the operation of the mixer is somehow interlocked with a flow switch of some type for the wet suppression system, then that wet suppression system should be considered a control and not an inherent part of the process. I would doubt that if you shut off the water to the wet suppression that the pugmill shuts down under normal circumstances. Therefore, it is not necessary to the process and is not an inherent part of the process."

a. Title V applicability – Is wet suppression considered an integral part of the process or "after controls"?

[7] ESA - San Joaquin County, CA, Appendix D: Air Quality Calculations. Sand and Gravel Processing (pages 2-3) www.sjgov.org/commdev/cgi-bin/cdyn.exe/handouts

[8] Teams Chat through Dena Pittman, RRO: Title V and NSPS OOO applicability question posted to the Divisions Permit Coordinators Teams Chat discussion on January 20, 2021.

As discussed earlier in this review, historical documents provide an uncontrolled EF (lb/ton) with a primary control description of "total enclosure with wet suppression" with corresponding control efficiency and a secondary control description of "building enclosure" and corresponding control efficiency which indicate potential uncontrolled PM emissions exceed 5 tpy.

After the January 14, 2021 Teams call, a more thorough review of the US EPA and Division policies, other agency permits and guidance documents indicate that wet suppression is considered a method of controlling emissions from process operations in crushed stone plants (e.g., US EPA AP-42 – Chapter 11, Control of Air Emissions from Process Operations in the Rock Crushing Industry,[9] Dust Control Handbook for Industrial Minerals Mining and Processing,[10] Texas Commission on Environmental Quality[11] and Eastern Washington Region[12]).

Excerpts from 3M's response to the NOV dated January 19, 2021, received by the Division on January 20, 2021 follow:

1. 3M Pittsboro complies with North Carolina General Statute 143-215.108

3M respectfully disagrees with the Notice of Violation. 3M Pittsboro is in compliance with North Carolina General Statute 143-215.108 because the pugmill system meets the definition of *"Insignificant activities because of size or production rate"* in accordance to regulation 15A NCAC 02Q.0503(8), and therein is exempt from permitting requirements in accordance to regulation 15A NCAC 02Q.0102(h)(5).

3M supports this claim by providing supporting potential-to-emit calculations and its methodology. The PM/PM_{10} emission factors used for calculating emissions from the pugmill system are from AP-42, Table 11.19.2-2 and specific to Conveyor Transfer Point (uncontrolled).

3M Pittsboro is a Title V facility; therefore, 15A NCAC 02Q .0102(h)(5) does not apply. Pursuant to 15A NCAC 02Q .0503 Definitions: (8) "Insignificant activities because of size or production rate" means any activity whose emissions would not violate any applicable emissions standard and whose potential emission of particulate, sulfur dioxide, nitrogen oxides, volatile organic compounds, and carbon monoxide before air pollution control devices, are each no more than five tons per year and whose potential emissions of hazardous air pollutants before air pollution control devices, are each below 1000 pounds per year (lb/yr).

AP-42[13] Table 11.19.2-2 also contains a controlled EF with a footnote "b" that states "Controlled sources (with wet suppression) are those that are part of the processing plant that employs current wet suppression technology similar to the study group. … Plants that employ substandard control measures as indicated by visual observations should use the uncontrolled factor with an appropriate control efficiency that best reflects the effectiveness of the controls employed." This corroborates the Divisions decision that wet suppression is not an integral part of the process. Whether 3M uses the pugmill with wet suppression to

[9] US EPA, Division of Stationary Source Enforcement, Control of Air Emissions from Process Operations in the Rock Crushing Industry, EPA-340/1-79-002, February 1979.
[10] The National Institute for Occupational Safety and Health (NIOSH) Dust Control Handbook for Industrial Minerals Mining and Processing. Second Edition. March 2019.
[11] Texas Commission on Environmental Quality (Permit Number 141957)
[12] Eastern Washington Region (Notice of Construction Application – Lane Mountain Company, March 2019)
[13] Ibid 3. Table 11.19.2-2 (English Units). EMISSION FACTORS FOR CRUSHED STONE PROCESSING OPERATIONS (lb/Ton)

control emissions or controls the waste by dry add-on control, the end of the screening process still produces wastes (i.e., waste pile, ID No. FWP).

The pugmill system is a unique process and does not have distinguished emission factors; thus, these factors have historically always been used. 3M acknowledges these factors are not specific to pugmills, and as a conservative measure, 3M has always added a safety factor of 2 for said reason.

The maximum throughput of the new dual pugmill system is 250 tons per hour. The new dual pugmill is considered one system with two pugmills operating parallel to one another. The two pugmills within this dual system cannot operate at the same time.

In addition, 3M has always accounted for its use of water during the process and has applied an 87.3% reduction factor. As previous submissions suggest, this was stated to be a control efficiency via "wet suppression." However, it has always been 3M's belief that this is not in fact control. The addition of water at this stage is integral to the process of making wetted fines. Water is not added to control emissions, but to be mixed and create a waste slurry with the larger waste fines, which then allow the smaller dust fines to adsorb, all in an effort to create a waste stream that can be handled in a safer and more efficient manner. If water is not added, the pugmill cannot operate as it was designed to, and the final waste product cannot be produced.

Typical moisture contents of this slurry range from 8-9%. AP-42, Table 11.19.2-2, footnote "b" suggests that controlled sources utilizing wet suppression systems to control emissions had moisture contents in the range of 0.55% - 2.88%. This finding supports the fact that 3M's water additions are excessive if only to control emissions. 3M acknowledges that the addition of water inherently reduces emissions; however, it is a part of the unique process by necessity, thus should be accounted for in its potential-to-emit calculations.

The EFs (lb/ton) for conveyor transfer points from AP-42, Table 11.19.2-2[14] are provided below for convenience:

Source	TSP	PM10	PM2.5
Conveyor Transfer Point (SCC 3-05-020-06)	0.0030	0.00110	ND
Controlled Conveyor Transfer Point (SCC 3-05-020-06)	0.00014	0.000046	0.000013

Uncontrolled EFs from a conveyor transfer point times a safety factor of two (i.e., 0.003 x 2 = 0.006) was used for the pugmill, as presented in Table 1 of 3M's NOV response inserted below:

[14] Ibid 13

Table 1: Existing and New Pugmill Emissions

Equipment	Pollutant	Max Throughput (ton/hr)	Emission Factor (lbs/ton)	Water Reduction Factor[1] (%)	PTE (lb/hr)	PTE (tpy)
Existing Pugmill - F6771	PM	225	6.00E-03	87.3%	0.171	0.751
	PM10	225	2.20E-03	87.3%	0.063	0.275
New Dual Pugmill System	PM	250	6.00E-03	87.3%	0.191	0.834
	PM10	250	2.20E-03	87.3%	0.070	0.306

1. Water reduction factor is a legacy factor, which is shown to be a conservatively low factor. When comparing AP-42, Table 11.19.2-2 uncontrolled and controlled emission factors for conveyor transfer points, it is accounted for that wet suppression achieves 95.33% efficiency for PM and 95.82% for PM_{10}.

A review of permits from other agencies[15] also indicates the pugmill emissions are based on emissions expected from a "transfer point" (e.g., uncontrolled EF of 1.2 pound per hour PM; controlled EF of 0.15 lb/hr PM), consistent with 3M's application (e.g., uncontrolled EF of 1.5 lb/hr PM; controlled EF of 0.171 lb/hr PM). Based on the above table provided in 3M's NOV response, uncontrolled EFs on a pound per hour (lb/hr) basis times maximum potential hours of operation equates to:

$$250\ \frac{ton\ capacity}{hr}\ x\ 0.006\frac{lb\ PM}{ton} = 1.5\frac{lb\ PM}{hr}\ x\ 8{,}760\frac{hrs}{yr}\ x\frac{ton}{2{,}000\ lb} =\ 6.57\ tpy\ PM$$

Pursuant to 15A NCAC 02Q .0503(8), the pugmill does not qualify as an insignificant activity due to uncontrolled PM PTE exceeding 5 tpy. The pugmill is subject to Title V permitting.

$$6.57\ tpy\ PM\ x\ \left[1-\left(\frac{87.3}{100}\right)\right]\ =\ 0.834\ tpy\ PM$$

OR

$$1.5\frac{lb\ PM}{hr}\ x\ \left[1-\left(\frac{87.3}{100}\right)\right] = 0.1905\frac{lb\ PM}{hr}\ x\frac{8{,}760}{2{,}000} =\ 0.834\ tpy\ PM$$

In addition, a query of the US EPA's Applicability Determination Index (ADI)[16] for Nonmetallic Mineral Processing (Control Number 9800003) regarding wet suppression indicates wet suppression is not a federally enforceable method of controlling emissions from a nonmetallic mineral processing facility subject to NSPS OOO unless it is incorporated as a permit condition. The ADI is included at the end of this review for convenience.

3M's permit only contains "wet suppression" and "enclosure" in the existing pugmill emission source description {i.e., Enclosed pugmill with wet suppression (dust and waste processing) (ID No. F6771)}, which is not federally enforceable. Per the ADI, this review engineer proposes incorporating a permit condition that reflects the method of controlling particulate emissions by wet suppression as incorporated into other NC permits. The "wet suppression" applied at the pugmill is considered a method of

[15] Ibid 11 and 12

[16] US EPA Applicability Determination Index (ADI) Control Number 9700004 – Subpart OOO-Crushed Stone Pugmill System and 9800003 – Nonmetallic Mineral Processing (both ADI's are included at end of this review).

controlling emissions of particulate (and opacity) from pugmills and similar types of affected sources at nonmetallic processing plants. Based on the above information, the use of "wet suppression" is considered an add on control and not integral to the operation. This approach is consistent with permitting of pugmills at similar NC sources, as well as other agencies. In one NC permit (a different industry sector), wet suppression was found to be PSD Best Available Control Technology (BACT).[17]

- ✓ Information provided during the January 14, 2021 Teams call between DAQ and 3M staff, indicated that the pugmill system is located at the end of the screening process. It is enclosed (per the application and permit). At the pugmill, dust or baghouse fines (consistency of baby powder) and other waste material (from crushing) are combined. Particulate emissions are controlled by the enclosure and addition of water (i.e., wet suppression). The pugmill has "two screws" that blend the wastes (to approximately 9-10 percent moisture) as it passes through the pugmill prior to being conveyed to outside storage.
- ✓ Pugmills are operated with or without wet suppression depending on the material inputs (i.e., are they inherently wet or dry?)
- ✓ Wet or chemical suppression are used as preventative air pollution control measures for particulate.
- ✓ Wet suppression is not integral to the process.

3M's permit will be revised to reflect wet suppression as a method of control in the permit and Title V equipment database. 3M's permit will also be revised to incorporate the appropriate monitoring, recordkeeping, and reporting requirements, as incorporated into other NC permits, to ensure practical enforceability. The Division continues to use uncontrolled PTE to determine Title V applicability (same as previous reviews); thus, the redundant pugmill system will remain on 3M's permit as drafted.

b. Is the pugmill an affected source under NSPS Subpart OOO—Standards of Performance for Nonmetallic Mineral Processing Plants?

Conveyor system => Pugmill => Conveyor system

Based on conversations and information shared during the January 14, 2021 Teams call, the pugmill is located at the end of the screening process. It is enclosed (per the application and permit). At the pugmill, dust (consistency of baby powder) and other waste material (from crushing) are combined. Particulate emissions are controlled by the enclosure and addition of water (i.e., wet suppression). The pugmill has "two screws" that blend the wastes (to approximately 9-10 percent moisture) as it passes through the pugmill prior to being conveyed to outside storage.

3M believes that NSPS OOO is not applicable because the pugmill does not meet the definition for an affected facility in 40 CFR 60.670(a)(1) as provided under NSPS OOO 40 CFR 60.670 Applicability and designation of affected facility included below under Subpart OOO for convenience.

Excerpts from 3M's response to the NOV dated January 19, 2021, received by the Division on January 20, 2021 follow:

[17] Edgecombe Power (Facility ID No. 3300146) "In 1989, this facility underwent a PSD review and BACT determination. Wet suppression [chemical /water spray] was found to be BACT for these sources."

2. 3M Pittsboro's pugmills are not subject to 40 CFR Part 60, Subpart OOO

3M contends Pittsboro's pugmill systems are not subject to 40 CFR Part 60, Subpart OOO because they do not meet the applicability criteria of an affected source in accordance to 40 CFR Part 60.670.

For NSPS OOO, the affected source is each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, and enclosed truck or railcar loading station as defined below and in 40 CFR Part 60.671. Pittsboro's pugmills are essentially a mixing process where waste fines, dust fines, and water are mixed together to produce a wetted waste material for easier handling. The pugmill does not meet the definition of an affected source for reasons described below.

A few comments from the Divisions Permit Coordinators Teams Chat[18] indicate that the EPA seems divided on applicability of NSPS OOO to the pugmill. A review of the US EPA website for Nonmetallic Mineral Processing – New Source Performance Standards (NSPS)[19] contains a couple of links with historical documents reviewed in more detail after receiving comments from the Divisions Permit Coordinators Teams Chat members.

A more thorough review of the EPA's ADI database revealed an ADI for Subpart OOO – Crushed Stone Pugmill System (Control No. 9700004).[20] This ADI indicates that a new pugmill system installed at a crushing plant is subject to Subpart OOO. EPA considers operation of an affected facility part of the main plant if it is used to process material initially processed in the main plant, which is the case at 3M's Pittsboro facility.

- **NSPS OOO applicability:**

Title 40: Protection of Environment – PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES
Subpart OOO—Standards of Performance for Nonmetallic Mineral Processing Plants
Source: 74 FR 19309, Apr. 28, 2009, unless otherwise noted.

40 CFR 60.670 Applicability and designation of affected facility.
(a)(1) Except as provided in paragraphs (a)(2), (b), (c), and (d) of this section, the provisions of this subpart are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station.[21] Also, crushers and grinding mills at hot mix asphalt facilities that reduce the size of nonmetallic minerals embedded in recycled asphalt pavement and subsequent affected facilities up to, but not including, the first storage silo or bin are subject to the provisions of this subpart.

[18] Ibid 8
[19] US EPA Stationary Sources of Air Pollution, Nonmetallic Mineral Processing: New Source Performance Standards (NSPS) https://www.epa.gov/stationary-sources-air-pollution/nonmetallic-mineral-processing-new-source-performance-standards
[20] Ibid 16. ADI – Control Number 9700004.
[21] Ibid 16. ADI – Control Numbers 9700004 and 9800003.

(2) The provisions of this subpart do not apply to the following operations: All facilities located in underground mines; plants without crushers or grinding mills above ground; and wet material processing operations (as defined in 40 CFR 60.671).
(b) An affected facility that is subject to the provisions of subparts F or I of this part or that follows in the plant process any facility subject to the provisions of subparts F or I of this part is not subject to the provisions of this subpart.
(c) Facilities at the following plants are not subject to the provisions of this subpart:
(1) Fixed sand and gravel plants and crushed stone plants with capacities, as defined in 40 CFR 60.671, of 23 megagrams per hour (25 tons per hour) or less;
(2) Portable sand and gravel plants and crushed stone plants with capacities, as defined in 40 CFR 60.671, of 136 megagrams per hour (150 tons per hour) or less; and
(3) Common clay plants and pumice plants with capacities, as defined in 40 CFR 60.671, of 9 megagrams per hour (10 tons per hour) or less.
(d)(1) When an existing facility is replaced by a piece of equipment of equal or smaller size, as defined in 40 CFR 60.671, having the same function as the existing facility, and there is no increase in the amount of emissions, the new facility is exempt from the provisions of 40 CFR 60.672, 60.674, and 60.675 except as provided for in paragraph (d)(3) of this section.
…
(e) An affected facility under paragraph (a) of this section that commences construction, modification, or reconstruction after August 31, 1983, is subject to the requirements of this part.
(f) Table 1 of this subpart specifies the provisions of subpart A of this part 60 that do not apply to owners and operators of affected facilities subject to this subpart or that apply with certain exceptions.

- ✓ Both the existing pugmill and the redundant pugmill system are affected facilities subject to NSPS OOO per 40 CFR 60.670(a) and (e) as presented above.
- ✓ The new dual pugmill system is larger in size than the existing pugmill; thus, the exemption under 40 CFR 60.670(d)(1) does not apply.
- ✓ Per the NOV response, 3M confirmed that the existing pugmill (ID No. F6771) was decommissioned on December 17, 2019. Subsequently, thereafter, the new dual pugmill system (ID No. F6772) went into service on January 5, 2020.
- ✓ The existing pugmill will be removed from and the new pugmill will be added to 3M's permit during processing of this renewal.

40 CFR 60.671 Definitions.
All terms used in this subpart, but not specifically defined in this section, shall have the meaning given them in the Act and in subpart A of this part.
…
Belt conveyor means a conveying device that transports material from one location to another by means of an endless belt that is carried on a series of idlers and routed around a pulley at each end.

Bucket elevator means a conveying device of nonmetallic minerals consisting of a head and foot assembly which supports and drives an endless single or double strand chain or belt to which buckets are attached.
…
Capture system means the equipment (including enclosures, hoods, ducts, fans, dampers, etc.) used to capture and transport particulate matter generated by one or more affected facilities to a control device.

Control device means the air pollution control equipment used to reduce particulate matter emissions released to the atmosphere from one or more affected facilities at a nonmetallic mineral processing plant.

Conveying system means a device for transporting materials from one piece of equipment or location to another location within a plant. Conveying systems include but are not limited to the following: Feeders, belt conveyors, bucket elevators and pneumatic systems.
…
Nonmetallic mineral processing plant (NMPP) means any combination of equipment that is used to crush or grind any nonmetallic mineral wherever located, including lime plants, power plants, steel mills, asphalt concrete plants, portland cement plants, or any other facility processing nonmetallic minerals except as provided in 40 CFR 60.670 (b) and (c)[22] (refer to excerpt above).

Portable plant means any nonmetallic mineral processing plant that is mounted on any chassis or skids and may be moved by the application of a lifting or pulling force. In addition, there shall be no cable, chain, turnbuckle, bolt or other means (except electrical connections) by which any piece of equipment is attached or clamped to any anchor, slab, or structure, including bedrock that must be removed prior to the application of a lifting or pulling force for the purpose of transporting the unit.

Production line means all affected facilities (crushers, grinding mills, screening operations, bucket elevators, belt conveyors, bagging operations, storage bins, and enclosed truck and railcar loading stations) which are directly connected or are connected together by a conveying system.

Saturated material means, for purposes of this subpart, mineral material with sufficient surface moisture such that particulate matter emissions are not generated from processing of the material through screening operations, bucket elevators and belt conveyors. Material that is wetted solely by wet suppression systems is not considered to be "saturated" for purposes of this definition.

Screening operation means a device for separating material according to size by passing undersize material through one or more mesh surfaces (screens) in series, and retaining oversize material on the mesh surfaces (screens). Grizzly feeders associated with truck dumping and static (non-moving) grizzlies used anywhere in the nonmetallic mineral processing plant are not considered to be screening operations.
…
Size means the rated capacity in tons per hour of a crusher, grinding mill, bucket elevator, bagging operation, or enclosed truck or railcar loading station; the total surface area of the top screen of a screening operation; the width of a conveyor belt; and the rated capacity in tons of a storage bin.

Stack emission means the particulate matter that is released to the atmosphere from a capture system.

Storage bin means a facility for storage (including surge bins) of nonmetallic minerals prior to further processing or loading.

Transfer point means a point in a conveying operation where the nonmetallic mineral is transferred to or from a belt conveyor except where the nonmetallic mineral is being transferred to a stockpile.
…
Vent means an opening through which there is mechanically induced air flow for the purpose of exhausting from a building air carrying particulate matter emissions from one or more affected facilities.

Wet material processing operation(s) means any of the following:

(1) Wet screening operations (as defined in this section) and subsequent screening operations, bucket elevators and belt conveyors in the production line that process saturated materials (as defined in this section) up to the first crusher, grinding mill or storage bin in the production line; or (2) Screening

[22] Ibid 2. There is no exemption for pugmills provided in NSPS OOO 40 CFR 60.670 (b) and (c).

operations, bucket elevators and belt conveyors in the production line downstream of wet mining operations (as defined in this section) that process saturated materials (as defined in this section) up to the first crusher, grinding mill or storage bin in the production line.

Wet mining operation means a mining or dredging operation designed and operated to extract any nonmetallic mineral regulated under this subpart from deposits existing at or below the water table, where the nonmetallic mineral is saturated with water.

Wet screening operation means a screening operation at a nonmetallic mineral processing plant which removes unwanted material or which separates marketable fines from the product by a washing process which is designed and operated at all times such that the product is saturated with water.

Please note: Subpart OOO exempts the wet material processing operations (wash screen and all downstream production equipment, up to the next crusher or storage bin in the production line). This is not the same as wet suppression. A wet suppression system is the use of water as a means of dust suppression. Water sprays, either directed by nozzles at transfer points, crusher exits and screening operations or applied manually by spray hose at muck piles (piles of rock blasting) significantly reduce emissions. A wet suppression system as the name implies prevents or suppresses the tendency of the particles to become airborne.[23]

Enclosure is a control mechanism. Enclosures frequently used for maintenance, noise abatement, weather proofing, etc. are not to be confused with enclosures built for air pollution control. Partial enclosure (significantly restricts air flow): 70% efficient (dry basis) [example: hooded transfer]. Enclosure (completely restricts air flow while allowing opening for material flow): 90% efficient (dry basis) [example: enclosed screening deck unit or fines mill][24]

40 CFR 60.672 Standard for particulate matter (PM).

(a) Affected facilities must meet the stack emission limits and compliance requirements in Table 2 of this subpart within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under 40 CFR 60.8. The requirements in Table 2 of this subpart apply for affected facilities with capture systems used to capture and transport particulate matter to a control device.

(b) Affected facilities must meet the fugitive emission limits and compliance requirements in Table 3 of this subpart within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under 40 CFR 60.11. The requirements in Table 3 of this subpart apply for fugitive emissions from affected facilities without capture systems and for fugitive emissions escaping capture systems.

(c) [Reserved]

(d) Truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher is exempt from the requirements of this section.

(e) If any transfer point on a conveyor belt or any other affected facility is enclosed in a building, then each enclosed affected facility must comply with the emission limits in paragraphs (a) and (b) of this section, or the building enclosing the affected facility or facilities must comply with the following emission limits:

(1) Fugitive emissions from the building openings (except for vents as defined in 40 CFR 60.671) must not exceed 7 percent opacity; and

[23] Ibid 9

[24] Memorandum from John Seitz to EPA Air Directors entitled "Options for Limiting the Potential to Emit (PTE) of a Stationary Source Under Section 112 and Title V of the Clean Air Act," dated January 25, 1995

(2) Vents (as defined in 40 CFR 60.671) in the building must meet the applicable stack emission limits and compliance requirements in Table 2 of this subpart.

(f) Any baghouse that controls emissions from only an individual, enclosed storage bin is exempt from the applicable stack PM concentration limit (and associated performance testing) in Table 2 of this subpart but must meet the applicable stack opacity limit and compliance requirements in Table 2 of this subpart. This exemption from the stack PM concentration limit does not apply for multiple storage bins with combined stack emissions.

- ✓ Wet suppression per Table 11.19.2.2[25] of AP-42 and NSPS OOO is not considered a wet material processing operation; thus, not exempt from NSPS OOO per 40 CFR 60.670(2). In addition, per EPA ADI, wet suppression is not a federally enforceable method of controlling emissions from a nonmetallic mineral processing facility subject to NSPS OOO unless it is incorporated as a permit condition.
- ✓ Based on information provided with each application (i.e., 2003 and 2009), industry data and US EPA's ADI[26], the pugmill is subject to NSPS OOO (i.e., not exempt as provided in 40 CFR 60.670 (b) and (c)).

Per NOV response, the existing pugmill was decommissioned on December 17, 2019 and the redundant pugmill system went into service on January 5, 2021 in its place. Thus, the new "redundant" pugmill is subject to the following:

- ✓ The new "redundant" pugmill system is subject to VE requirements of less than 7% opacity and a PM limit of 0.032 g/dscm (0.014 gr/dscf), with exceptions as noted below [See Table 2 of Subpart OOO and 40 CFR 60.672 (d) through (f)].
- ✓ Pursuant to Table 2 to Subpart OOO:

For * * *	The owner or operator must meet a PM limit of * * *	And the owner or operator must meet an opacity limit of * * *	The owner or operator must demonstrate compliance with these limits by conducting * * *
Affected facilities (as defined in 40 CFR 60.670 and 60.671) that commence construction, modification, or reconstruction on or after April 22, 2008	0.032 g/dscm (0.014 gr/dscf)[a]	Not applicable (except for individual enclosed storage bins) 7 percent for dry control devices on individual enclosed storage bins	An initial performance test according to 40 CFR 60.8 of this part and 40 CFR 60.675 of this subpart; and Monitoring of wet scrubber parameters according to 40 CFR 60.674(a) and 40 CFR 60.676(c), (d), and (e); and

[a] Exceptions to the PM limit apply for individual enclosed storage bins and other equipment. See 40 CFR 60.672(d) through (f).

This subpart allows two options for compliance with particulate emissions standards:

- ❖ gram per dry standard cubic meter (g/dscm), or
- ❖ grains per dry standard cubic foot (gr/dscf)

[25] Ibid 13

[26] Ibid 16. ADI – Control Numbers 9700004 and 9800003.

$$\frac{0.032\ grams}{standard\ cubic\ meter} \times \frac{15.432\ grains}{gram} \times \frac{cubic\ meters}{35.315\ cubic\ feet} = \frac{0.01398\ grains}{standard\ cubic\ feet}$$

3M uses the control device outlet grain loading rate in grains per standard cubic feet (gr/dscf) for controlled sources. The controlled emission rate of 0.01 grains per standard dry cubic foot is less than PM emission limit allowed by this standard; hence, compliance is indicated.

As discussed above, 3M's questions regarding Title V and NSPS OOO applicability were posted to the Divisions Permit Coordinators Teams Chat discussion on January 20, 2021 by Ms. Pittman, RRO.[27] Regional staff comments from this discussion not already incorporated into this review above are summarized below:

One comment pulled from the 1997 Federal Register (https://www.govinfo.gov/content/pkg/FR-1997-06-09/html/97-14856.htm) regarding "proposed exemption of wet screening operations" states that pugmills are exempt because they are considered a wet screening operation. Wet screening operations are exempt from NSPS OOO; however, as discussed above, these operations are different than a wet suppression system, which is not exempt.

A few comments from the group indicate that the EPA seems divided on applicability of NSPS OOO to the pugmill. A review of the US EPA website for Nonmetallic Mineral Processing – New Source Performance Standards (NSPS)[28] contains a couple of links with historical documents reviewed in more detail after receiving comments from the Divisions Permit Coordinators Teams Chat discussion:

Background Information Document (BID) takes you to, Metallic Mineral Processing Plants – Background Information for Promulgated Standards[29] which includes discussions of affected and non-affected sources, which is consistent with the definitions of 40 CFR 60.671 for nonmetallic mineral processing plant (NMPP) and production line.

April 28, 2009 – Final Rule[30]: III. Summary of the Final Amendments to Subpart OOO and Changes Since Proposal – The NMPP NSPS applies to affected facilities for which construction, modification, or reconstruction commenced on or after August 31, 1983, at plants that process any of the following 18 nonmetallic minerals: Crushed and broken stone, sand and gravel, clay, rock salt, gypsum (natural or synthetic), sodium compounds, pumice, gilsonite, talc and pyrophyllite, boron, barite, fluorospar, feldspar, diatomite, perlite, vermiculite, mica, and kyanite. The affected facilities are each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, and enclosed truck or railcar loading station. The final amendments to the NMPP NSPS (Subpart OOO of 40 CFR part 60) are summarized below, including Table 1 of the preamble (excerpt below):

[27] Ibid 8
[28] Ibid 19
[29] US EPA, Office of Air Quality, Metallic Mineral Processing Plants – Background Information for Promulgated Standards, EPA-450/3-81-009c, January 1984.
[30] Federal Register / Vol. 74, No. 80 / Tuesday, April 28, 2009 / Rules and Regulations. 40 CFR Part 60 New Source Performance Standards Review for Nonmetallic Mineral Processing Plants; and Amendment to Subpart UUU Applicability; Final Rule. https://www.federalregister.gov/documents/2009/04/28/E9-9435/new-source-performance-standards-review-for-nonmetallic-mineral-processing-plants-and-amendment-to, III. Summary of the Final Amendments to Subpart OOO and Changes Since Proposal (pages 19295 - 19299).

TABLE 1—SUMMARY OF THE FINAL AMENDMENTS TO SUBPART OOO

Citation	Change
§ 60.670(a)(2)	Exempt wet material processing operations; clarify rule does not apply to plants with no crushers or grinding mills.
§ 60.670(d)(1)	Amend to clarify that like-for-like replacements have no emissions increase.
§ 60.670(f)	Revise to conform with amended Table 1 to subpart OOO.
§ 60.671	Add definitions of: Crush or crushing, saturated material, seasonal shut down, and wet material processing operations.
	Amend definition of screening operation to exempt static grizzlies.
	Amend definition of nonmetallic mineral to include gypsum (natural or synthetic).
	Amend definition of storage bin to correct typographical error by changing "or" to "of".
	Amend definitions of "capture system" and "control device" to replace the words "process operations" with "affected facilities".
§ 60.672(a) and (b)	Revise to reference Tables 2 and 3 to subpart OOO and to better match General Provisions language regarding compliance dates. Tables 2 and 3 to subpart OOO contain revised emission limits and testing/monitoring requirements.
§ 60.672(c)	Reserve because superseded by Table 3 to subpart OOO.
§ 60.672(e)	Revise cross-references. Replace Method 22 (40 CFR part 60, Appendix A–7) no visible emissions limit for building openings with 7 percent fugitive opacity limit.
§ 60.672(f) and (g)	Consolidate paragraphs to refer to Table 2 to subpart OOO.
§§ 60.672(h) and 60.675(h)	Remove 60.672(h) and reserve 60.675(h) because wet material processing exempted.
§ 60.674	Renumber (a) and (b) as (a)(1) and (2).
	Add periodic inspections for affected facilities that commence construction, modification, or reconstruction on or after April 22, 2008, that use wet suppression or rely on water carryover from upstream wet suppression water sprays. Add monitoring requirements for baghouses on affected facilities that commence construction, modification, or reconstruction on or after April 22, 2008 (Method 22 visible emission inspections or use of bag leak detection systems).
	Add paragraph (e) to cite as an alternative the baghouse monitoring requirements in the Lime Manufac-

…

B. How is EPA amending subpart OOO applicability and definitions?

Wet material processing. As proposed, we are adding two definitions and making other amendments to exempt from subpart OOO wet material processing operations that have no potential for PM emissions. Wet material processing operations include: (a) Wet screening operations and subsequent screening operations, bucket elevators and belt conveyors in the production line that process saturated materials up to the first crusher, grinding mill or storage bin in the production line; or (b) screening operations, bucket elevators and belt conveyors in the production line downstream of wet mining operations that process saturated materials up to the first crusher, grinding mill or storage bin in the production line. We also are adding a definition of ''saturated material'' to describe the type of material intended to be exempted from this final rule. Through the definitions of ''wet material processing operation'' and ''saturated material'' (as well as other existing definitions of ''wet mining operation'' and ''wet screening operation''), we are exempting from coverage under subpart OOO mineral material that is wet enough on its surface to remove the possibility of PM emissions being generated from processing of the material through screening operations, bucket elevators and belt conveyors. Material that is wetted solely by wet suppression systems designed to add surface moisture for dust control is not considered to be ''saturated material'' for purposes of this exemption.

…

D. What are the final monitoring requirements for subpart OOO? Monitoring for fugitive emissions limits. Fugitive emissions from subpart OOO affected facilities are often controlled by wet suppression. In wet suppression systems, water (with or without surfactant) is sprayed on nonmetallic minerals at various locations in the process line but not necessarily at every affected facility. Carryover of water sprayed at affected facilities upstream in the process line is often sufficient to control fugitive emissions from affected facilities downstream in the process. Partial enclosures or other means may also be used to reduce fugitive emissions instead of or in addition to water sprays or water carryover. Subpart OOO does not specify any particular technique for reducing fugitive emissions. Rather, subpart OOO specifies fugitive emission limits that must be met. Continuous compliance requirements for wet suppression

systems are addressed in subpart OOO due to the prevalence of wet suppression as a control technique for NMPP.

As proposed, monthly periodic inspections of wet suppression water sprays are required for affected facilities with wet suppression that commence construction, modification, or reconstruction on or after April 22, 2008. The periodic inspections (which are specified in 40 CFR 60.674(b) and 40 CFR 60.676(b)) apply for affected facilities with fugitive emissions that are controlled by either: (a) Direct water sprays located at the affected facility, or (b) water carryover from upstream water sprays (for affected facilities exempted from the 5-year repeat performance test under 40 CFR 60.674(b)(1)). The purpose of the inspections is to ensure that water is flowing to the discharge water spray nozzles in the wet suppression system. If, during an inspection, water is not flowing properly, corrective action must be initiated within 24 hours and completed as expediently as practical. The requirement to complete corrective action as expediently as practical was added in response to public comment. We added 40 CFR 60.674(b)(1) to this final rule to specify the testing exemption and to require NMPP to designate (at the time of the initial performance test) which upstream water spray(s) will be periodically inspected for water flow to indicate continuous compliance with the fugitive emission limits for each affected facility being exempted from the 5-year repeat performance testing.

…

IV. Summary of Significant Comments and Responses on Subpart OOO[31]

…

A. Need for New Source Performance Standards Comment: In addition to other comments requesting exemption of the salt industry from subpart OOO (which are addressed in the Summary of Public Comments and Responses document), one commenter requested that EPA exempt salt operations (rock salt and sodium chloride) from subpart OOO because most salt operations do not operate crushers or grinders above ground. The commenter stated that subpart OOO was intended to cover open pit mining and noted that the applicability prerequisite of the rule is that a facility must have a crusher or grinder. The commenter stated that underground mines are exempt from the rule (assuming there are no secondary or tertiary crushers above ground) yet also have crushers/grinders located underground and can have screening and process equipment above ground that produce emissions. The commenter explained that salt is produced at three types of facilities (solution mines, solar production, and traditional underground mines). Some of the commenter's plants are subject to subpart OOO because they operate small above ground crushers (which are located indoors) for one production line at solution and solar operations. The commenter stated that many salt operations are enclosed in buildings and operate with dust collectors for product quality reasons and to reduce dust inside the building.

Response: The 1997 NSPS action (62 FR 31351, June 9, 1997) added 40 CFR 60.670(a)(2) to subpart OOO to clarify that the provisions of subpart OOO do not apply to all facilities located in underground mines and plants without crushers or grinding mills. It was noted in the proposal and promulgation notices for the 1997 NSPS action that emissions from crushers or other facilities in underground mines are vented in the general mine exhaust and cannot be distinguished from emissions from drilling and blasting operations which are mining operations not covered by the standards. It was the original intent of the NSPS that standalone screening operations at plants without crushers or grinding mills are not subject to the NSPS (i.e., because the original definition of ''nonmetallic mineral processing plant'' refers to equipment used to crush or grind nonmetallic minerals). Consistent with the intent of the original NSPS and the 1997 clarifications, we are amending 40 CFR 60.670(a)(2) to clarify that plants without crushers or grinding mills above ground are not subject to subpart OOO. Plants with any above ground crushers or grinding mills (including those located in buildings) for which construction, modification, or reconstruction commenced after August 31, 1983, remain subject to the provisions of subpart OOO.

[31] Ibid 30. IV. Summary of Significant Comments and Responses on Subpart OOO (page 19299)

Subpart OOO specifically addresses emissions from affected facilities located in buildings and provides options for measurement of these emissions.

…

40 CFR 60.671 Definitions. All terms used in this subpart, but not specifically defined in this section, shall have the meaning given them in the Act and in subpart A of this part.

…

Nonmetallic mineral processing plant means any combination of equipment that is used to crush or grind any nonmetallic mineral wherever located, including lime plants, power plants, steel mills, asphalt concrete plants, portland cement plants, or any other facility processing nonmetallic minerals except as provided in 40 CFR 60.670 (b) and (c).

…

Production line means all affected facilities (crushers, grinding mills, screening operations, bucket elevators, belt conveyors, bagging operations, storage bins, and enclosed truck and railcar loading stations) which are directly connected or are connected together by a conveying system.

- ✓ All of 3M's comments, as wells as comments received from the Divisions Permit Coordinators Teams Chat were taken into consideration.
- ✓ Based on the information discussed throughout this review to date, nothing contradicts the initial pugmill determination. Hence, it is DAQ's opinion that Title V and NSPS OOO apply to the pugmill.
- ✓ The appropriate Title V and NSPS OOO regulatory requirements will be added to the renewed permit.

❖ **Insignificant Activities** – Form D4 Exempt and Insignificant Activities Summary and Appendix B: Insignificant Activities List Markup

3M requests to remove sources currently listed on the insignificant activities list under "Sources in Office Area" because these sources are not associated with production areas at 3M Pittsboro.

- ✓ These sources (ID Nos. IS-24 through IS-26, IS-28 and IS-29) are considered insignificant activities pursuant to 15A NCAC 02Q .0503 Definitions (7) "Insignificant activities because of category" and were added during processing of 3M's initial Title V permit (Permit No. 09006T01) due to applicability of 02Q .0503 versus applicability of 02Q .0102 Activities Exempted from Permit requirements when applying for their Title V fee class Greenfield "R" permit. Thus, they will remain as currently permitted.

3M requests that IS-A11 currently listed as Chatham County Water Tower be removed because this source is not owned or operated by 3M. Chatham County owns and operates this source. A review of historical documents indicates that when originally permitted on May 14, 2001 this source was listed as a storage tank. The source description was revised during renewed permit 09006T03 to Water holding tank (1,025 gallon capacity); and subsequently revised to Chatham County Water Tower during renewed permit T06. The review for renewed permit T06, table of changes indicates "Updated IS-A11 with emission source description of "Chatham County Water Tower"." This storage tank was listed on the draft renewed permit as it was on 3M's renewed permit T03 with a request for confirmation from the facility and/or RRO.

- ✓ Per facility comments on the draft permit, IS-A11 will be removed from the permit:
  As confirmed on 12/16/2020 via email to Judy, the water holding tank (1,025-gallon) is no longer onsite. The Chatham County Water Towers are not owned or operated by 3M Pittsboro. 3M Requests IS-A11 be taken out of the permit.

In addition, 3M requests to consolidate the following groups of insignificant activities into one:

1) crusher building exhaust fans (ID Nos. IS-2 through IS-5)
2) screen building exhaust fans (ID Nos. IS-6 through IS-9)
3) color building exhaust fans (ID Nos. IS-10 through IS-17)
4) finished granule storage building exhaust fans (ID Nos. IS-18 through IS-21)

These sources have been listed individually since processing of 3M's initial Title V permit (Permit No. 09006T01) pursuant to 15A NCAC 2Q .0503. Per Form D4 – Exempt and Insignificant Activities Summary instructions:

> This form is used to generate a listing of activities exempt from permitting under 15A NCAC 02Q .0102 for Small or Synthetic Minor facilities or insignificant activities under 15A NCAC 02Q .0503 for Title V facilities.
>
> These rules may be found on the Divisions website:
> https://deq.nc.gov/about/divisions/air-quality/air-quality-planning/air-quality-rules-regulations
>
> For each emission source that qualifies as insignificant or exempt, list a description of the emission source, the size, design production throughput capacity, or maximum design heat input capacity, and the relevant rule under which this source is designated as insignificant or exempt.

✓ Although the above sources are similar, they have different descriptions (e.g., exhaust fan #1 or #2, exhaust vent, heater exhaust fan, etc.) and will remain on the insignificant activities list as currently permitted.

3M also requests addition of the following insignificant activities:

IS-A19 Diesel Storage Tank (280 gallon capacity)
IS-A20 Gasoline Storage Tank (280 gallon capacity)

Per the latest inspection report:
(VI) EXEMPT EMISSION SOURCES: Three fuel storage tanks were observed during the site tour that should be added to the insignificant activities list. Two of the tanks contain gasoline and diesel and are 280 gallons in size. This fuel is used to service onsite vehicles. The third 550-gallon tank contains diesel and services the fire pump engine.

✓ The 550 gallon diesel storage tank will be added to the renewed permit as IS-A21.
✓ IS-A19 Diesel Storage Tank (280 gallon capacity) and IS-A20 Gasoline Storage Tank (280 gallon capacity) will be added to the insignificant activities list.

Review of the above fuel storage tanks (ID Nos. IS-A19 through IS-A21) – potential applicable regulations discussion:

15A NCAC 02D .0902 APPLICABILITY
(a) The rules in this Section shall not apply except as specifically set out in this Rule.
(b) This Section applies to sources that emit greater than or equal to 15 pounds of volatile organic compounds per day unless specified otherwise in this Section.
(c) Rules 15A NCAC 02D .0925, .0926, .0927, .0928, .0931, .0932, .0933, and .0958 apply regardless of the level of emissions of volatile organic compounds unless the provisions specified in Paragraph (d) of this Rule are applied.

(d) This Section does not apply to: (1) sources that emit less than 800 pounds of volatile organic compounds per calendar month and that are: (A) bench-scale, on-site equipment used exclusively for chemical or physical analysis for quality control purposes, staff instruction, water or wastewater analyses, or non-production environmental compliance assessments; (B) bench-scale experimentation, chemical or physical analyses, training or instruction from not-for-profit, non-production educational laboratories; (C) bench-scale experimentation, chemical or physical analyses, training or instruction from hospitals or health laboratories pursuant to the determination or diagnoses of illness; or (D) research and development laboratory activities, provided the activity produces no commercial product or feedstock material; or (2) emissions of volatile organic compounds during startup or shutdown operations from sources that use incineration or other types of combustion to control emissions of volatile organic compounds whenever the off-gas contains an explosive mixture during the startup or shutdown operation if the exemption is approved by the Director as meeting the requirements of this Subparagraph.
(e) The following rules of this Section apply to facilities located statewide:
(1)15A NCAC 02D .0925, Petroleum Liquid Storage in Fixed Roof Tanks, for fixed roof tanks at gasoline bulk plants and gasoline bulk terminals;
(2)15A NCAC 02D .0926, Bulk Gasoline Plants;
(3)15A NCAC 02D .0927, Bulk Gasoline Terminals;
(4)15A NCAC 02D .0928, Gasoline Service Stations Stage I;
(5)15A NCAC 02D .0932, Gasoline Cargo Tanks and Vapor Collection Systems;
(6)15A NCAC 02D .0933, Petroleum Liquid Storage in External Floating Roof Tanks, for external floating roof tanks at bulk gasoline plants and bulk gasoline terminals;
(7)15A NCAC 02D .0948, VOC Emissions from Transfer Operations; and
(8)15A NCAC 02D .0949, Storage of Miscellaneous Volatile Organic Compounds.

- ✓ 02D .0902 (d) does not apply to 3M; thus, a review of the rules of this Section that apply statewide per 02D .0902(c) and (e) follows:

02D .0925:
(a) For the purpose of this Rule, the following definitions apply: (1) "Condensate" means hydrocarbon liquid separated from natural gas that condenses due to changes in the temperature or pressure and remains liquid at standard conditions. (2) "Crude oil" means a naturally occurring mixture that consists of hydrocarbons or sulfur, nitrogen or oxygen derivatives of hydrocarbons or mixtures thereof that is a liquid at standard conditions. (3) "Custody transfer" means the transfer of produced crude oil or condensate, after processing or treating in the producing operations, from storage tanks or automatic transfer facilities to pipeline or any other forms of transportation. (4) "External floating roof" means a storage vessel cover in an open top tank consisting of a double deck or pontoon single deck that rests upon and is supported by the petroleum liquid being contained and is equipped with a closure seal or seals to close the space between the roof edge and tank shell. (5) "Internal floating roof" means a cover or roof in a fixed roof tank that rests upon or is floated upon the petroleum liquid being contained, and is equipped with a closure seal or seals to close the space between the roof edge and tank shell.
(b) This Rule applies to all fixed roof storage vessels with capacities greater than 39,000 gallons containing volatile petroleum liquids whose true vapor pressure is greater than 1.52 pounds per square inch.
(c) This Rule does not apply to volatile petroleum liquid storage vessels: (1) equipped with external floating roofs; or (2) having capacities less than 416,000 gallons used to store produced crude oil and condensate prior to lease custody transfer.

- ✓ The fuel storage tanks are not fixed roof tanks; hence, this rule is not applicable.

02D .0926:
(a) For the purpose of this Rule, the following definitions apply: (1) "Average daily throughput" means annual throughput of gasoline divided by 312 days per year. (2) "Bottom filling" means the filling of a cargo tank or stationary storage tank through an opening flush with the tank bottom. (3) "Bulk gasoline plant" means a gasoline storage and distribution facility with an average daily throughput of less than 20,000 gallons of gasoline and that typically receives gasoline from bulk terminals by cargo tank transport, stores it in tanks, and subsequently dispenses it via account cargo tanks to farms, businesses, and service stations. (4) "Bulk gasoline terminal" means a gasoline storage facility that typically receives gasoline from refineries primarily by pipeline, ship, or barge; delivers gasoline to bulk gasoline plants or to commercial or retail accounts primarily by cargo tank; and has an average daily throughput of greater than or equal to 20,000 gallons of gasoline. (5) "Cargo tank" means the storage vessels of freight trucks or trailers used to transport gasoline from sources of supply to stationary storage tanks of bulk gasoline terminals, bulk gasoline plants, gasoline dispensing facilities, and gasoline service stations. (6) "Gasoline" means any petroleum distillate having a Reid Vapor Pressure (RVP) of 4.0 psi or greater. …
(b) This Rule applies to the unloading, loading, and storage facilities of all bulk gasoline plants, and of all cargo tanks delivering or receiving gasoline at bulk gasoline plants except stationary storage tanks with capacities less than 528 gallons.

- ✓ This rule is not applicable to IS-A19 or IS-A21 based on the definition of bulk gasoline plant and capacities. Fuel storage tank IS-A20 is a stationary storage tank greater than 528 gallons; however, based on the definitions of bulk gasoline plant and gasoline, the diesel storage tank is not subject to this rule. Diesel fuel has an RVP below 1 psi at 100 degrees Fahrenheit.

02D .0927:
(a) For the purpose of this Rule, the following definitions apply: (1)"Bulk gasoline terminal" means:(A) a pipeline breakout station of an interstate oil pipeline facility; or (B) a gasoline storage facility that typically receives gasoline from refineries primarily by pipeline, ship, or barge; delivers gasoline to bulk gasoline plants or to commercial or retail accounts primarily by cargo tank; and has an average daily throughput of more than 20,000 gallons of gasoline.

- ✓ This rule does not apply to the gasoline storage tank per definition of bulk gasoline terminal.

02D .0928:
(a) Definitions. For the purpose of this Rule, the following definitions apply: (1) "Coaxial vapor recovery system" means the delivery of the gasoline and recovery of vapors occurring through a single coaxial fill tube, which is a tube within a tube. Gasoline is delivered through the inner tube, and vapor is recovered through the annular space between the walls of the inner tube and outer tube. (2) "Delivery vessel" means cargo tanks used for the transport of gasoline from sources or supply to stationary storage tanks of gasoline dispensing facilities. (3) "Dual point vapor recovery system" means the delivery of the product to the stationary storage tank and the recovery of vapors from the stationary storage tank occurring through two separate openings in the storage tank and two separate hoses between the cargo tank and the stationary storage tank. (4) "Gasoline" means a petroleum distillate having a Reid vapor pressure of four psi or greater. (5) "Gasoline dispensing facility" means any site where gasoline is dispensed to motor vehicle gasoline tanks from stationary storage tanks. (6) "Gasoline service station" means any gasoline dispensing facility where gasoline is sold to the motoring public from stationary storage tanks. (7) "Line" means any pipe suitable for transferring gasoline. (8) "Operator" means any person who leases, operates, controls, or supervises a facility at which gasoline is dispensed. (9) "Owner" means any person who has legal or equitable title to the gasoline storage tank at a facility. (10) "Poppeted vapor recovery adaptor" means a vapor recovery adaptor that automatically and immediately closes itself when the vapor return line is disconnected and maintains a tight seal when the vapor return line is not connected. (11) "Stationary storage tank" means a gasoline storage container that is a permanent fixture. (12) "Submerged

fill pipe" means any fill pipe with a discharge opening that is entirely submerged when the pipe normally used to withdraw liquid from the tank can no longer withdraw any liquid, or that is entirely submerged when the level of the liquid is: (A) six inches above the bottom of the tank if the tank does not have a vapor recovery adaptor; or (B) 12 inches above the bottom of the tank if the tank has a vapor recovery adaptor. If the opening of the submerged fill pipe is cut at a slant, the distance is measured from the top of the slanted cut to the bottom of the tank. (13) "Throughput" means the amount of gasoline dispensed at a facility during a calendar month after November 15, 1990. (b) Applicability. This Rule applies to all gasoline dispensing facilities and gasoline service stations, and to delivery vessels delivering gasoline to a gasoline dispensing facility or gasoline service station. (c) Exemptions. This Rule does not apply to: (1) transfers made to storage tanks at gasoline dispensing facilities or gasoline service stations equipped with floating roofs or their equivalent; (2) stationary tanks with a capacity of not more than 2,000 gallons that are in place before July 1, 1979, if the tanks are equipped with a permanent or portable submerged fill pipe; (3) stationary storage tanks with a capacity of not more than 550 gallons that are installed after June 30, 1979, if tanks are equipped with a permanent or portable submerged fill pipe; (4) stationary storage tanks with a capacity of not more than 2,000 gallons located on a farm or a residence and used to store gasoline for farm equipment or residential use if gasoline is delivered to the tank through a permanent or portable submerged fill pipe. This exemption does not apply in ozone non-attainment areas; (5) stationary storage tanks at a gasoline dispensing facility or gasoline service station where the combined annual throughput of gasoline at the facility or station does not exceed 50,000 gallons, if the tanks are permanently equipped with submerged fill pipes; or (6) any tanks used exclusively to test the fuel dispensing meters.

- ✓ This rule does not apply to the gasoline storage tank per exemptions for gasoline dispensing facilities (gdf) and tank capacity exemptions.

02D .0932:
(a) For the purposes of this Rule, the following definitions apply: (1) "Bottom filling" means the filling of a cargo tank or stationary storage tank through an opening flush with the tank bottom. (2) "Bulk gasoline plant" means a gasoline storage and distribution facility with an average daily throughput of less than 20,000 gallons of gasoline and that typically receives gasoline from bulk terminals by trailer transport, stores it in tanks, and subsequently dispenses it via account cargo tanks to local farms, businesses, and service stations. (3) "Bulk gasoline terminal" means: …
(4) "Cargo tank" means the storage vessels of freight trucks or trailers used to transport gasoline from sources of supply to stationary storage tanks of bulk gasoline terminals, bulk gasoline plants, gasoline dispensing facilities, and gasoline service stations. (5) "Cargo tank testing facility" means any facility complying with registration in 49 CFR Part 107, Subpart F. (6) "Cargo tank vapor collection equipment" means any piping, hoses, and devices on the cargo tank used to collect and route gasoline vapors in the tank to or from the bulk gasoline terminal, bulk gasoline plant, gasoline dispensing facility, or gasoline service station vapor control system or vapor balance system. (7) "Gasoline" means any petroleum distillate having a Reid Vapor Pressure (RVP) of 4.0 psi or greater. (8) "Gasoline dispensing facility" means any site where gasoline is dispensed to motor vehicle gasoline tanks from stationary storage tanks. (9) "Gasoline service station" means any gasoline dispensing facility where gasoline is sold to the motoring public from stationary storage tanks. (10) "Vapor balance system" means a combination of pipes or hoses that create a closed system between the vapor spaces of an unloading tank and a receiving tank such that vapors displaced from the receiving tank are transferred to the tank being unloaded. (11) "Vapor collection system" means a vapor balance system or any other system used to collect and control emissions of volatile organic compounds.
(b) This Rule applies to gasoline cargo tanks that are equipped for vapor collection and to vapor control systems at bulk gasoline terminals, bulk gasoline plants, gasoline dispensing facilities, and gasoline service stations equipped with vapor balance or vapor control systems. (c) For cargo tanks, the following requirements shall apply: …

(d) For bulk gasoline terminals and bulk gasoline plants equipped with vapor balance or vapor control systems, the following requirements shall apply: (1) The vapor collection system and vapor control system shall be designed and operated to prevent gauge pressure in the cargo tank from exceeding 18 inches of water and to prevent a vacuum of greater than six inches of water. (2) During loading and unloading operations there shall be: (A) no vapor leakage from the vapor collection system such that a reading equal to or greater than 100 percent of the lower explosive limit at one inch around the perimeter of each potential leak source as detected by a combustible gas detector using the test procedure described in 15A NCAC 02D .2615; and (B) no liquid leaks. (3) If a leak is discovered that exceeds the limit in Subparagraph (2) of this Paragraph: (A) For bulk gasoline plants, the vapor collection system or vapor control system shall not be used beyond 15 days after the leak has been discovered, unless the leak has been repaired and the system has been retested and found to comply with Subparagraph (2) of this Paragraph; (B) For bulk gasoline terminals, the vapor collection system or vapor control system shall be repaired following the procedures in 15A NCAC 02D .0927. (4) The owner or operator of a vapor collection system at a bulk gasoline plant or a bulk gasoline terminal shall test, according to 15A NCAC 02D .0912, the vapor collection system at least once per year. If after two complete annual checks no more than 10 leaks are found, the Director shall allow less frequent monitoring. If more than 20 leaks are found, the Director shall require the frequency of monitoring be increased. (5) The owner or operator of vapor control systems at bulk gasoline terminals, bulk gasoline plants, gasoline dispensing facilities, and gasoline service stations equipped with vapor balance or vapor control systems shall maintain records of all certification testing and repairs. The records shall identify each vapor collection system, or vapor control system; the date of the test or repair; and, if applicable, the type of repair and the date of retest.

- ✓ This rule only applies to the gasoline storage tanks (i.e., gdf) if they have vapor control systems. Neither the application nor latest inspection report mention vapor control. Thus, it is assumed that this rule is not applicable.

02D .0933:
(a) For the purpose of this Rule, the following definitions shall apply: (1) "Condensate" means hydrocarbon liquid separated from natural gas that condenses due to changes in the temperature or pressure and remains liquid at standard conditions. (2) "Crude oil" means a naturally occurring mixture consisting of hydrocarbons or sulfur, nitrogen or oxygen derivatives of hydrocarbons or mixtures thereof that is a liquid in the reservoir at standard conditions. (3) "Custody transfer" means the transfer of produced crude oil or condensate, after processing or treating in the producing operations, from storage tanks or automatic transfer facilities to pipelines or any other forms of transportation. (4) "External floating roof" means a storage vessel cover in an open top tank consisting of a double deck or pontoon single deck that rests upon and is supported by the petroleum liquid being contained and is equipped with a closure seal or seals to close the space between the roof edge and tank shell. …

- ✓ This rule is not applicable to the storage tanks since they are not external floating roof tanks.

02D .0948:
(a) This Rule applies to operations transferring volatile organic compounds from a storage tank to cargo tanks or railroad tank cars not specified by 15A NCAC 02D .0926, .0927, or .0928.

- ✓ This rule is not applicable to the fuel storage tanks used for on-site vehicles and the fire pump engine.

02D .0949:
(a) This Rule applies to the storage of volatile organic compounds in stationary tanks, reservoirs, or other containers with a capacity greater than 50,000 gallons not regulated by 15A NCAC 02D .0925 or .0933.

- ✓ This rule is not applicable to the fuel storage tanks because they are below capacity thresholds.

❖ **Minor Modifications:**

A. Minor modification (Application No. 1900104.21A) – 3M Pittsboro proposes to add two new pickups from existing permitted conveyors and route each pickup to an existing permitted baghouse. The facility proposes to add two tower filters to the enclosures near each transfer point. Additionally, 3M Pittsboro requests to make administrative amendments to the IDs and descriptions of two existing permitted sources which have been mistakenly identified. As previously discussed, this minor modification was processed and permit No. 09006T07 issued on September 17, 2021. The changes are incorporated into this renewal application.

Please refer to the technical review for a discussion of regulatory requirements and other details.

B. Minor modification (Application No. 1900104.21B) – 3M proposes to add one existing portable backup conveyor and one existing conveyor to permit number 09006T06 through a minor modification request pursuant to 15A NCAC 02Q .0515. The application was received on July 15, 2021 and deemed complete for processing on July 27, 2021. This minor modification was processed and permit No. 09006T08 issued on January 13, 2022. The changes are incorporated into this renewal application.

Please refer to the technical review for a discussion of regulatory requirements and other details. In addition to email correspondence with 3M requesting clarifications on the wet suppression application taking place at the pugmill, not the conveyors as indicated in their application.

C. Minor modification (Application No. 1900104.21C) – As taken from the application cover letter: 3M Pittsboro proposes to replace equipment ES3537B (M Screener #2), ES3537G (M Screener #4), ES3537H (M Screener #5), and ES3537I (M Screener #6) with new M Screeners. The M screeners are used to separate different sizes of crushed aggregate from the Live M Feed Bin and load the screened aggregate onto Conveyor #14, #19, and #21. The replacement is being done due to normal wear that these pieces of equipment experience over several years of use. The units will remain connected to existing baghouses (CDB 2 and CDB 4) and a new pickup point will be added but there will be no increase of airflow through the baghouse. The new M Screeners will have a larger screening area, but the screening throughput is limited by upstream conveyors; therefore, no emissions increase will be expected from the replacement. The new M Screeners are subject to 40 CFR Part 60, Subpart OOO (NSPS OOO).

3M Pittsboro has installed a new cone crusher to replace an existing cone crusher unit (ES2426.2). The replacement is being done due to normal wear that these pieces of equipment experience over several years of use. The new crusher will have a larger electric motor, but the throughput is limited by downstream equipment; therefore, no emissions increase will be expected from the replacement. The new cone crusher is subjected to NSPS OOO. The unit will remain connected to an existing baghouse (CDB1).

3M Pittsboro proposes to install a diverter chute for the cone crusher to allow for screening of material prior to crushing. The diverter chute will allow material to be screened prior to crushing to allow any correct sized material to bypass the crusher. There will be no increase to throughput for the conveyor that the diverter chute is discharging to or out of the screener; therefore, no emissions increase will be expected from the modification. The conveyors are subjected to NSPS OOO. The units will remain connected to an existing baghouse (CDB 2) with an additional pickup point for the chute.

3M Pittsboro proposes to install a metal detector, diverter valve, and diverter chute to remove separated metal from the aggregate and discharge it out of the building. The proposed equipment is subject to NSPS OOO. The proposed chute discharge will be uncontrolled.

3M Pittsboro recently determined that D Screen Bin #1 (ES8913A) has a loadout chute (not currently permitted) that is subject to NSPS OOO. The loadout chute would discharge to trucks if D Screen Bin #1 (ES8913A) needs to be emptied for any reason. The other D Screen Bins do not have loadout chutes.

3M Pittsboro is including documentation to demonstrate that Elevator 12 is an insignificant activity per Regulation 15A NCAC 02Q.0503(8). Elevator 12 is not subject to 40 CFR Part 60, Subpart OOO (NSPS OOO).

3M Pittsboro has changed baghouse bag manufacturers that have a different bag filter area than was originally permitted for the site. The updated baghouse filter areas are included with this application.

All new units subject to Subpart OOO will undergo initial performance testing for PM and opacity testing will be completed in accordance with 40 CFR Part 60, Subpart OOO.

This application was received on November 1, 2021 and deemed incomplete for processing. A completeness additional information request was sent to 3M on November 12, 2021. The facility submitted additional information on December 14, 2021 (hard copies received by the Division on December 15, 2021) which provided the necessary elements to deem the application administratively complete for a ten-day letter approving the requested changes. However, the additional technical information necessary to process this minor modification has not been received to date.

- Due to the length of time since the initial drafting of 3M's renewal (December 2020), the additional information needed to process the above minor modification (**1900104.21C**), the need to incorporate the dual pugmill and associated monitoring, recordkeeping and reporting requirements into 3M's permit, and 3M's request for modifications/corrections to permit No. 09006T08 issued on January 13, 2022 (discussed in more detail below) to correct the wet suppression monitoring requirements, DAQ (RCO and RRO) determined on February 1, 2022 it was best to proceed with processing of the renewal (with requested applicability determination for the dual pugmill), then process the outstanding minor modification (1900104.21C). However, during internal discussions on March 10, 2022, it was decided that during processing of this renewal everything necessary to bring the facility back into compliance will be incorporated as we (the Division) understand them to be (due to the outstanding additional technical information request) and allow the facility to make comments on the draft. This minor modification will be included in the renewal based on the application submittal and available data.

The proposed emission sources being requested as part of the minor application (1900104.21C) mentioned above will be subject to the following regulations (as indicated on Form A1 – Minor) included as Attachment 1 to this review:

<u>15A NCAC 02D .0510, "Particulates from Sand, Gravel, or Crushed Stone Operations"</u>
(a) The owner or operator of a sand, gravel, or crushed stone operation shall not cause, allow, or permit any material to be produced, handled, transported or stockpiled without taking measures, such as application of a dust or wet suppressant, soil stabilizers, covers, or add-on particulate control devices, to reduce to a minimum any particulate matter from becoming airborne to prevent exceeding the ambient air

quality standards beyond the property line for particulate matter, both PM_{10} and total suspended particulates (TSP). (b) Fugitive non-process dust emissions from sand, gravel, or crushed stone operations shall be controlled by 15A NCAC 02D .0540. (c) The owner or operator of any sand, gravel, or crushed stone operation shall control process-generated emissions:

(1) from crushers with wet suppression; and
(2) from conveyors, screens, and transfer points, such that the applicable opacity standards in 15A NCAC 02D .0521 or .0524 are not exceeded.

As discussed above under the pugmill applicability (excerpt from 09006R00), the crushers (ID Nos. ES607.2, ES2426.2, ES4347.2, ES233 (previously ES2729.2), ESA4, ESA9) will be enclosed and controlled with two collection systems using fabric filter control. They are required to employ wet suppression to the extent necessary to comply with the applicable opacity standards should the enclosures and fabric filter controls prove to be insufficient.

Per review for 3M's Initial Title V permit (No. 09006T01):
Note: The processes at this Roofing and Granule facility that are located inside of the Crushing and Screening Buildings are dry operations, and do not employ wet suppression. These systems are enclosed and use baghouses to control emissions of particulate. The sources located outside of these buildings may employ wet suppression (pugmill, and waste stacker).

Sources subject to 15A NCAC 02D .0524 are not required to comply with 02D .0521 if 02D .0524 has an applicable opacity standard or visible emission (VE).

- ✓ This renewal with modification does not change this rule applicability. This condition was updated per current guidance. Continued compliance is expected.

<u>15A NCAC 02D .0521, "Control of Visible Emissions"</u>
Per 15A NCAC 02D .0521(d), for sources manufactured after July 1, 1971, visible emissions (VE) shall not be more than 20 percent (%) opacity when averaged over a six-minute period. However, six-minute averaging periods may exceed 20% if: (1) No six-minute period exceeds 87 percent opacity; (2) No more than one six-minute period exceeds 20 percent opacity in any hour; and (3) No more than four six-minute periods exceed 20 percent opacity in any 24-hour period. Paragraph (g) to 02D .0521 applies to sources required to install, operate, and maintain continuous opacity monitoring systems (COMS).

This Rule shall apply to all fuel burning sources and to other processes that may have a VE. Sources subject to a VE standard in Rules 15A NCAC 02D .0506, .0508, .0524, .0543, .0544, .1110, .1111, .1205, .1206, .1210, .1211, or .1212 of this Subchapter (02D .0500) shall meet that standard instead of the standard contained in this Rule. This Rule does not apply to engine maintenance, rebuild, and testing activities where controls are infeasible, but it does apply to the testing of peak shaving and emergency generators. In deciding if controls are infeasible, the Director shall consider emissions, capital cost of compliance, annual incremental compliance cost, and environmental and health impacts.

The Permittee will be required to ensure compliance with 02D .0521 through monthly VE monitoring, recordkeeping, and reporting (MRR) for all sources not subject to 02D .0524.

- ✓ The use of wet suppression and particulate mitigation practices required by 02D .0510 and 02D .0524 will ensure compliance with this standard. Continued compliance is expected.

<u>15A NCAC 02D .0524, "New Source Performance Standards"</u>

- NSPS – 40 CFR 60, Subpart OOO last amended on April 28, 2009

NSPS Subpart OOO, 02D .0524 applies to all emission sources marked as subject to NSPS, Subpart OOO in the equipment table of 3M's permit. The DAQ has determined that the Permittee may show initial compliance with NSPS requirements for stack and fugitive emissions from affected facilities within a building by showing that each individual affected unit complies with the particulate and opacity requirements or show that the building and its vents comply with the particulate and opacity requirements of Table 2 and 3 to Subpart OOO.

- ✓ The Permit has been updated with the latest requirements (Please refer to NSPS OOO applicability discussion(s) throughout this review and Section 6 below for additional NSPS applicability). Continued compliance is expected.

15A NCAC 02D .0540, "Particulates from Fugitive Dust Emission Sources"
This regulation requires that the owner or operator of a facility required to have a permit pursuant to 15A NCAC 02Q or a source subject to a requirement pursuant to 15A NCAC 02D shall not cause or allow fugitive dust emissions to cause or contribute to substantive complaints or visible emissions in excess of that allowed pursuant to 02D .0540(e). The owner or operator shall implement (develop and submit) a fugitive dust control plan if fugitive non-process dust emissions from a facility cause or contribute to substantive complaints, if ambient air quality measurements or dispersion modeling show a potential for a violation of an ambient air quality standard for particulates, or if the DAQ observes excessive fugitive non-process dust emissions from the facility beyond the property boundaries.

- ✓ This condition was revised per current guidance and moved to Section 2.2 A.1 of their revised permit during processing of minor modification (application No. 1900104.21A) to reduce redundancy throughout the permit.
- ✓ No further updates are necessary as part of this renewal with modification. Continued compliance is expected.

15A NCAC 02D .0614, "Compliance Assurance Monitoring"
The compliance assurance monitoring (CAM) rule requires owners and operators to conduct monitoring to provide a reasonable assurance of compliance with applicable requirements under the act. Monitoring focuses on emissions units that rely on pollution control device equipment to achieve compliance with applicable standards. Please refer to Section 6 below.

All of the above regulations are being updated during processing of the renewal; therefore, the proposed sources will be added as newly affected sources under these regulations. Specifically, the items requested as replacement units under NSPS OOO will be added as new due to the lack of supporting documentation required to deem them "like-kind" replacements pursuant to 40 CFR 60.670(d)(1).

Pursuant to 40 CFR 60 Subpart OOO – "Standards of Performance for Nonmetallic Mineral Processing Plants," each owner or operator seeking to comply with 40 CFR 60.670, Applicability, and designation of affected facility (d) must submit the information required by 40 CFR 60.676, Reporting and Recordkeeping, (a) for equipment replacement(s) when an existing facility is replaced by a piece of equipment of equal or smaller size, as defined in 40 CFR 671, having the same function as the existing facility and there is no increase in the amount of emissions, the new facility is exempt from the provisions of 40 CFR 60.672, 40 CFR 60.674 and 40 CFR 60.675 except as provided for in 40 CFR 60.670(d)(3). This information was requested in an additional information request sent to the facility on November 12, 2021. The facility submittal a partial response to this additional information request on December 14, 2021; however, the information pursuant to 40 CFR 60.676(a) was not included in this response. Thus, the items are considered new, not replacements.

The following items are new affected sources under NSPS OOO and will be added to the revised permit:

Emission Source ID No.	Emission Source Description	Process Description	Materials Entering Process	Maximum Design Capacity (ton/hr)	Requested Capacity Limitation (ton/hr)
TBD	G Crusher No.1 Diverter Chute	A diverter valve will separate undersized aggregate from the Plant Feed Conveyor #1 and send the undersized aggregate to the diverter chute before sending to the cone crusher. The chute will carry the separated undersized aggregate and drop onto Conveyor #3, which will later be transferred to the dryers.	Undersized Aggregate	1,092	535
TBD	Metal Diverter Chute	A metal detector will identify metal in the aggregate that was not removed by a magnet. The metal detector will trigger a diverter valve will divert separated metal and aggregate outside via the diverter chute. A metal detector will identify metal in the aggregate that was not removed by a magnet. The metal detector will trigger a diverter valve will divert separated metal and aggregate outside via the diverter chute.	Aggregate with metal	1	1
TBD	D Screener Bin No. 1 Discharge Chute	The loadout chute would discharge to trucks if D Screen Bin #1 (ES8913A) needs to be emptied for any reason.	Finished granule	360	360

- 3M Pittsboro is including documentation to demonstrate that Elevator 12 is an insignificant activity per Regulation 15A NCAC 02Q.0503(8). Elevator 12 is not subject to 40 CFR Part 60, Subpart OOO (NSPS OOO). The only documentation provided with the application are summarized below:

Per Form D4 – Exempt and Insignificant Activities Summary, Elevator 12 is 50 tph.

Appendix A: Emission Calculations indicate that Elevator 12 EFs (lb/ton) and emissions (tpy) per AP-42 based on wet suppression conveyor transfer points, Chapter 11.19.2 are:

PM – 0.0001 lb/ton and PM10 – 0.0000 lb/ton; 0.03 tpy PM and 0.01 tpy PM10 with a control efficiency of 99 percent.

DAQ evaluation:
To determine Title V applicability uncontrolled PTE must be evaluated. The EFs (lb/ton) for conveyor transfer points from AP-42, Table 11.19.2-2[32] are provided below for convenience:

Source	TSP	PM10	PM2.5
Conveyor Transfer Point (SCC 3-05-020-06)	0.0030	0.00110	ND
Controlled Conveyor Transfer Point (SCC 3-05-020-06)	0.00014	0.000046	0.000013

$$50\ \frac{ton\ capacity}{hr}\ x\ 0.003\frac{lb\ PM}{ton} = 0.15\frac{lb\ PM}{hr}\ x\ 8{,}760\frac{hrs}{yr}\ x\frac{ton}{2{,}000\ lb} =\ 0.657\ tpy\ PM$$

[32] Ibid 13

$$50\ \frac{ton\ capacity}{hr}\ x\ 0.0011\frac{lb\ PM10}{ton} = 0.055\frac{lb\ PM10}{hr}\ x\ 8{,}760\frac{hrs}{yr}\ x\frac{ton}{2{,}000\ lb} =\ 0.241\ tpy\ PM10$$

Pursuant to 15A NCAC 02Q .0503(8), Elevator 12 does qualify as an insignificant activity due to uncontrolled PM PTE not exceeding 5 tpy. Although the elevator is subject to NSPS OOO pursuant to 40 CFR 60.670(a) applicability and per definitions found in 40 CFR 60.671.

Per the cover letter to 3M's Addendum (May 13, 2022) NSPS OOO does not apply to Elevator 12 (ID No. IES-30) because it moves dust from baghouses in the coloring portion of the Pittsboro plant.

Based on revised information provided by 3M and a review of UUU (coloring plant):

NSPS UUU - 40 CFR 40 CFR 60.730(a), "…feed and product conveyors are not considered part of the affected facility under NSPS UUU. …"

Pursuant to 40 CFR 60.730(a), the NSPS designation was removed from Elevator 12.

- Corrections to bagfilter surface areas (Application No. 1900104.21C)

3M Pittsboro has changed baghouse bag manufacturers that have a different bag filter area than was originally permitted for the site. The updated baghouse filter areas are included with this application. Refer to summary table under Section 4 above.

❖ **Corrections to issued Permit No. 09006T08 – Wet Suppression**

Per January 14, 2022 call with Mr. Navis of 3M, regarding the issuance of their last permit. Issuance was coming at them as a surprise since they had not had a chance to review a second draft and they would like to discuss, possibly schedule a meeting next week. Mr. Navis and this review engineer discussed the permit application, draft permit, comments received from 3M on the draft, the request for clarification sent to the facility on December 22, 2021, and the issued permit on January 13, 2022.

Per Mr. Navis, wet suppression is only from the pugmill, not the conveyors (i.e., 25 and 25A) as listed in their recently issued permit and there is nothing for the on-site team to review (i.e., monitor). This review engineer explained that the permit was drafted based on the application submittal. The comments provided by 3M on December 22, 2021 did not match the application (refer to email below) and no response to the December 22, 2021 email was received from 3M. The permit for a minor modification must be issued within 90 days of receipt of a complete application pursuant to 15A NCAC 02Q .0515. We discussed possible ways to correct the language and correct the permit. Also, to make sure how the process flowed I confirmed with Mr. Navis:

[Dual pugmill to Conveyor 25 to Conveyor 25A to FWP waste pile]

- December 22, 2021 email to Mr. Navis of 3M:

Ryan,
I had a chance to do a quick review of the comments provided on 3M's draft permit earlier today for the backup and 25A conveyors.

Based on my interpretation of the application submittal (Form A1-minor, Form B9, Appendix A – Emission calculations) and email correspondence on October 22, 2021, the proposed waste stack

conveyor No. 25A is controlled by wet suppression, as drafted. In addition, existing enclosed waste stacker conveyor No. 25 (pugmill to outside storage) is also controlled by wet suppression, which was added to the emission source description during this minor modification. As requested, "enclosed" will be removed from the description for ES25A. I assumed this was enclosed due to the Form A1-minor writeup and other permitted sources prior to the waste pile being enclosed; yet, after reviewing the application submittal, it is not listed on Form B or B9 as being enclosed.

Form A1-minor:
"Conveyor 25 (ID No. F72) is an enclosed conveyor and is further controlled by wet suppression and feeds Conveyor 25A which transfers waste material to the outside waste piles."

Form B9:
"Waste Stacker Conveyor No. 25A transfers waste material to outside waste piles. Conveyor 25A is fed by Conveyor No. 25 (F72) which is controlled by wet suppression. Control via wet suppression is assumed for Conveyor 25A since it is immediately preceded by Conveyor No. 25 (F72)."

Appendix A:

Air Emission Calculations
3M Pittsboro

Permit Identification Number	Emission Source Description	Design Capacity (tons/hr)	Max. Potential Material Throughput (tons/hr)	Emission Factor References	Uncontrolled Emission Factor (lb/ton)	1° Control Description	Maximum Annual PM10 Emissions Determination					
							1° Control Efficiency	2° Control Description	2° Control Efficiency	Hourly Emissions (lb/hr)	Annual PM10 Emissions (lb/yr)	Annual PM10 Emissions (tpy)
IS-32	Backup Portable Conveyor	NA	50	A	0.0011	NA	0.0000	NA	0.000	0.055	482	0.241
to be determined	Waste Stacker Conveyor No. 25A	NA	225	A	0.0011	Wet Suppression (from immediately preceeding Conveyor No. 25)	0.9700	NA	0.000	0.007	65	0.033

(A) PM and PM10 emission factors for "Conveyor Transfer Point" from AP-42, Chapter 11.19.2, Table 11.19.2-2 (08/04).

If neither of these sources (i.e., F72 and ES25A) are controlled by wet suppression, please provide updated application forms, emission calculations and information to support removing "wet suppression" from the draft permit.

Comments on the pugmill will be addressed during processing of the renewal, the applicability determination for removal of the existing pugmill (ID No. F6771) and addition of the new dual pugmill (ID No. F6772). The new dual pugmill was also listed as being enclosed and controlled by wet suppression.

Information provided during the January 14, 2021, Teams call between DAQ and 3M staff, indicated that the pugmill system is located at the end of the screening process. It is enclosed (per the application and permit). At the pugmill, dust (consistency of baby powder) and other waste material (from crushing) are combined. Particulate emissions are controlled by the enclosure and addition of water (i.e., wet suppression). The pugmill has "two screws" that blend the wastes (to approximately 9-10 percent moisture) as it passes through the pugmill prior to being conveyed to outside storage. It was requested by the DAQ that if this is not the case, please provide updated application forms and information to support removing "wet suppression" from the description of the pugmill in the draft renewal permit (application No. 1900104.20A).

Note: Please send your response through the responsible official (e.g., copy RO on email) of record.

- January 25, 2022 email from Mr. Navis:

Hi Judy,

Last week we discussed the recent Minor Modification Issuance and additional water suppression monitoring requirements. I clarified there is no water suppression directly applied at Conveyor #25 and Conveyor #25A. In actuality, the material that is conveyed is a slurry of water, dust fines, and waste fines, and therefore, inherently reduces/minimizes particulate emissions. The water is applied just upstream of these conveyors at the pugmills via a spraying mechanism. The new weekly and monthly monitoring conditions related to water suppression are in accordance to permit conditions, **2.1(A)(1)(e)** and **2.1(A)(2(d)(ii)** and are directly associated with conveyors 25 and 25A; therefore, 3M is led to believe the DEQ would assume the inspections to be taken at these conveyors. However, for reasons stated above, it seems most appropriate for these inspections to be taken at the pugmills. 3M requests DEQ to confirm if the inspections can be made at the pugmills instead. 3M recognizes the discrepancy and plans to request language revisions when the DEQ begins further action on the Title V renewal. Please reach out if there are any questions.

This email was forwarded to RRO that same day.

- February 17, 2021 this review engineer emailed Mr. Navis about the renewal application

Ryan,

I wanted to let you know I have begun working on 3M's renewal permit. As discussed, the Division will process revisions to the wet suppression language and incorporate the dual pugmill into 3M's renewed permit.

Kindly provide the clarification(s) for issued permit No. 09006T08 versus what 3M is asking for now for the discrepancies discussed on January 14th and 18th which contradicted what was presented in the application (No. 1900104.21B) as outlined in the December 22, 2021 email.

NOTE: DAQ will process the minor modification (application No. 1900104.21C) after incorporating these changes into the renewal.

Please let me know if you have any questions, concerns or we need to discuss. Best,

- February 23, 2022

Thanks Judy.

We will work on providing you the necessary information. On January 25th (email below), 3M requested for DAQ to clarify and confirm if 3M Pittsboro can conduct the applicable inspections at the pugmill instead of the conveyors. Can DAQ provide that confirmation or provide any additional clarification?

Thanks,
Ryan

- February 24, 2022

Hello Ryan,

Please see the attached stack test review letter that was mailed on 2/15. It may still be on the way to its destination. We provide clarification to your question in the second paragraph. Please let me know if you have additional questions.

Thank you,
Taylor

- To date, 3M has not provided the clarifications for their permit to be processed with the renewal. Changes to the permit will be made based on the Divisions understanding through email correspondence and telephone conversations with Mr. Navis.

As discussed in detail under NSPS OOO applicability above, monthly periodic inspections of wet suppression water sprays are required for affected facilities with wet suppression that commence construction, modification, or reconstruction on or after April 22, 2008.[33]

- ✓ 3M's permit was modified to only include wet suppression application at the pugmill (ID No. F6771).
- ✓ Wet suppression was removed from conveyors 25 and 25A and replaced with water carryover per telephone conversation and email correspondence with 3M on January 14, 2022 and January 25, 2022, respectively.
- ✓ The appropriate monitoring, recordkeeping and reporting requirements were added to the revised permit.

❖ **Minor Modification and 502(b)(10):**

Minor modification (Application No. 1900104.22A) – As taken from the application cover letter:
3M Pittsboro proposes to install one new silo and two new conveyors and a new baghouse. Additionally, the facility proposes to replace one of its existing crushers with a new crusher. As part of this Minor Modification, 3M has requested additional related administrative changes to be made with respect to permit naming conventions. Additionally, 3M has included proposed permit conditions for this minor modification that reflect the proposed conditions of Permit Section 2.1 A from the Title V Renewal and Application 21C draft that was submitted by 3M to DAQ (Ms. Judy Lee) via email on 5/13/2022. The drafted and proposed permit conditions immediately follow Form Al-MINOR (refer to Attachment 1 of this review) within this application. To minimize submittals to DAQ 3M Pittsboro has also included a 502(b)(10) Notification Form within this application for an additional unrelated change.

Grade Silo No. 4, Enclosed Conveyor No. 20B, and Enclosed Conveyor No. 26A
The new grade silo will be designated as Grade Silo No. 4 (ID No. ES5155D). The silo will have a maximum nominal capacity of 5,000 tons. One of the new conveyors will be designated as Enclosed Conveyor No. 20B (Two Pickups) (ID No. ES20B) and have a maximum throughput capacity of 225 tons per hour. This conveyor will feed from the top of existing Grade Silo No. 3 and convey material to the new Grade Silo No. 4. The second new conveyor will be designated as Enclosed Conveyor No. 26A (Two Pickups) (ID No. ES26A) and have a maximum throughput capacity of 400 tons per hour. This conveyor will feed from the new Grade Silo No. 4.

[33] Ibid 30. III. Summary of the Final Amendments to Subpart OOO and Changes Since Proposal (page 19298).

The new grade silo and its ancillary conveyors will work in parallel with 3M Pittsboro's existing silo equipment. This new process cannot functionally operate simultaneously with the existing silo operations. The new installations will have the same throughput capacities as the existing capacities and will not increase site throughput or debottleneck upstream or downstream processes in anyway. The grade silo loading processes are currently limited by the upstream systems including Conveyor No. 20 and Elevator 1. Downstream conveyors and elevators leading to the Coloring Plant will not change or debottleneck in any way. No changes are being made to any additional assets; therefore, 3M Pittsboro's facility-wide potential emissions will not increase, which allows this new installation to be authorized under a minor modification.

The new silo and conveyors are considered Affected Facilities subject to New Source Performance Standard (NSPS) Subpart OOO.

Grade Silo Baghouse No. 2

The new grade silo baghouse will be designated as Grade Silo Baghouse No. 2 (CDB21). This baghouse will control emissions from the new grade silo and the transfer points from the new conveyors referenced above. Dust fines from this baghouse will then discharge onto Conveyor No. 23C. Conveyor No. 23C will not be modified in any way and will not increase its throughput or its potential emissions. The new baghouse will have a maximum exhaust flow of 19,150 CFM; therefore, requires a professional engineering (PE) certification per 15A NCAC 02Q .0112. A PE certification has been included within this application on all appropriate forms.

As part of this application, 3M has included a request via an Administrative Amendment for DAQ to change the formal source name of Grade silo baghouse (CDB5) to “Grade Silo Baghouse No. 1” for consistent naming convention.

C Crusher No. 2A

Additionally, the facility will be replacing G Crusher No. 1 (ID No. ES2426. 2) with a new cone crusher. The new cone crusher will be designated as C Crusher No. 2A (ID No. ES232). The replacement is being done due to normal wear that these pieces of equipment experience over time several years of use. The throughput will not increase and is still limited by downstream processes; therefore, no emissions increases will occur from the replacement. The new crusher will be controlled by Crusher Baghouse No. 1 (CDB1) like the previous crusher.

As part of this application, 3M has included a request via an Administrative Amendment for DAQ to change the formal source name of C crusher (ID No. ES607. 2) to “C Crusher No. 1” and additionally change its emission source ID to “ES206.” The new crusher is considered an Affected Facility subject to New Source Performance Standard (NSPS) Subpart OOO.

502(b)(10) Change Notification

As part of this submittal 3M Pittsboro has included a 502(b)(10) Change Notification. The change is related to its three cooler (ID Nos. ESCPC1, ESCPC2, and ESCPC3) operations. The supplier of 3M Pittsboro's slate oil raw material will potentially be changing compositions; therefore, 3M proposes to utilize the new slate oil for its processes. The change is anticipated to begin May 26, 2022. 3M Pittsboro understands there is a seven-day notice period before the change can commence. VOC analytical test results indicate the new VOC content will be lower than the existing slate oil VOC content. Slate oil application rates will not change; therefore, emissions will decrease when this new slate oil is used. 3M provides this notification to use both the existing and new composition of the slate oil interchangeably as needed. There are no existing permit conditions applicable to the use of slate oil in the current Title V permit. 3M does not propose to add any new permit conditions; therefore, 3M has not included any interim conditions. A 502(b)(10) Change Notification was determined to be most appropriate in this

scenario because DAQ's definition of "modification" in accordance with 15A NCAC 02Q .0103(23), is considered any physical change or change in the method of operations that results in a "change of emissions." The definition does not explicitly include "increase in emissions." The new slate oil will decrease emissions, which is a change in emissions, and therefore meets the DAQ definition.

A review of the modification request, Form B – Specific Emission Source Information and control device Forms C1 indicate that the potential controlled increase in PM10 to the baghouses are equal to:

Emission Source ID No(s).	Emission Source Description	Control Device ID No.	Max. Design Capacity (tph)	After Controls PTE (lb/hr) PM10	After Controls PTE (tpy) PM10
ES5155D	Grade Silo No. 4	CDB21	225	0.000396	0.00173
ES20B	Enclosed conveyor No. 20B (two pickups)	CDB21	225	0.000198	0.000867
ES26A	Enclosed conveyor No. 20B (two pickups)	CDB21	400	0.000352	0.00154
ES232	C crusher No. 2A	CDB1	300	0.000576	0.00252
Total increase in controlled PM10 (lb/hr)				**0.00152**	

Example calculations:

Per discussion provided on Form B (ID Nos. ES5155D, ES20B, ES26A), the PM and PM10 emission factors used are for "conveyor transfer point" from AP-42, except for ES5155D which is based on twice the factor. Per Form B for the crusher (ID No. ES232), the PM and PM10 EF used are for "tertiary crushing" from AP-42. AP-42 has no data (ND) for secondary crushing; 3M used EFs for tertiary crushing* to be conservative. The EFs (lb/ton) for conveyor transfer points and crushing from AP-42, Table 11.19.2-2[34] are provided below for convenience:

Source	TSP	PM10	PM2.5
Conveyor Transfer Point (SCC 3-05-020-06)	0.0030	0.00110	ND
Controlled Conveyor Transfer Point (SCC 3-05-020-06)	0.00014	0.000046	0.000013
Tertiary Crushing (SCC 3-05-020-06)*	0.0054	0.0024	ND

Per Form B9, enclosed conveyor No. 26A (ID No. ES26A) has a maximum design capacity of 400 tph. The control efficiencies for PM and PM10 are 99.97% and 99.92%, respectively.

- Uncontrolled potential to emit (PTE) emissions from ES26A are calculated below:

$$225\ \frac{ton\ capacity}{hr}\ x\ 0.006\frac{lb\ PM}{ton} = 1.35\frac{lb\ PM}{hr}\ x\ 8{,}760\frac{hrs}{yr}\ x\frac{ton}{2{,}000\ lb} =\ 5.91\ tpy\ PM$$

$$225\ \frac{ton\ capacity}{hr}\ x\ 0.0022\frac{lb\ PM10}{ton} = 0.495\frac{lb\ PM10}{hr}\ x\ 8{,}760\frac{hrs}{yr}\ x\frac{ton}{2{,}000\ lb} =\ 2.17\ tpy\ PM10$$

[34] Ibid 13

- Controlled potential to emit (PTE) emissions from ES26A are calculated below:

$$5.91\ tpy\ PM\ x\ \left[1-\left(\frac{99.97}{100}\right)\right]\ =\ 0.00177\ tpy\ PM$$

OR

$$0.495\frac{lb}{hr}PM10\ x\ \left[1-\left(\frac{99.92}{100}\right)\right]\ =\ 0.000396\frac{lb}{hr}PM10 * 4.38 = 0.00173\ tpy\ PM10$$

The proposed emission sources requested as part of this minor application (1900104.22A) referenced above will be subject to the following regulations (as indicated on Form A1 – Minor, included as Attachment 1 to this review):

- 15A NCAC 02D .0510
- 15A NCAC 02D .0524 – NSPS OOO

All regulations applicable to new emission sources added or existing emission sources modified as part of this minor modification request have been discussed in detail above. No changes to the MRR requirements contained in the draft renewal permit are required for this minor modification other than addition of the new emission sources and revision of the modified sources (e.g., ID No., description, etc.).

Response from Mr. Bland to 3M on May 19, 2022:
On May 18, 2022, the North Carolina Division of Air Quality (NCDAQ) received a 502(b)(10) Notification from 3M Pittsboro – Industrial Mineral Products located at 4191 Highway 87 South, Moncure, NC. However, as there is no change to your air permit required as a result of the potential change in slate oil composition, no 502(b)(10) is required.

Pursuant to 15A NCAC 02Q .0111 "Applicability Determinations," if you are uncertain if future changes require a permitting action, a request for a determination can be submitted to NCDAQ prior to submitting a permit application or 502(b)(10) Notification.

As this conclusion is based on information provided in the correspondence dated May 17, 2022, please be advised that changes in the described modification and/or information absent from your description could alter NCDAQ's determination that no 502(b)(10) Notification or permit modification is required.

In addition to the above regulations pertaining to changes associated with this renewal with modifications, 3M is currently and will remain subject to the following regulations:

<u>15A NCAC 02D .0515, "Particulates from Miscellaneous Industrial Processes"</u>
This regulation sets a standard for particulate matter emissions from any industrial process for which no other emission control standard is applicable. The allowable emission rates for particulate matter (PM) from any stack, vent, or outlet, resulting from any industrial process for which no other emission control standards are applicable, shall not exceed the level calculated with the equations provided in 15A NCAC 02D .0515 based on maximum design capacities and process weight rates.

The allowable emission rates for PM from these industrial processes shall not exceed the level calculated with the equation below for process rates less than or equal to 30 tons per hour (tph):

$E = 4.10(P)^{0.67}$

For process rates greater than 30 tph, the allowable emission rates for PM shall not exceed the level calculated with the following equation:

$E = 55.0(P)^{0.11} - 40$

For both equations,

E = the maximum allowable emission rate for PM in pounds per hour (lb/hr); calculated to three significant figures, and
P = equals the process rate in tons per hour (tph)

Process rate means the total weight of all materials introduced into any specific process that may cause any emission of PM. Solid fuels charged are considered as part of the process weight, but liquid and gaseous fuels and combustion air are not. For a cyclical or batch operation, the process rate is derived by dividing the total process weight by the number of hours in one complete operation from the beginning of any given process to the completion thereof, excluding any time during which the equipment is idle. For a continuous operation, the process rate is derived by dividing the process weight for a typical period of time by the number of hours in that typical period of time.

This rule applies to emission sources located at the 3M Pittsboro facility. These sources were evaluated based on the design capacities presented in the application(s) when originally permit. Continued compliance is expected.

15A NCAC 02D .0516, "Sulfur Dioxide Emissions from Combustion Sources"
Emissions of sulfur dioxide from any source of combustion that is discharged from any vent, stack or chimney shall not exceed 2.3 pounds of sulfur dioxide (SO_2) per million Btu input. SO_2 formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard.

A source subject to an emission standard for sulfur dioxide in Rules .0524, .0527, .1110, .1111, .1205, .1206, .1210, or .1211 of Subchapter 02D shall meet the standard in that particular rule instead of the 2.3 lb SO_2/million Btu standard of this Rule. Fuel combustion sources subject to SO_2 emission standards under new source performance standards (NSPS) per 02D .0524 or maximum achievable control technology (MACT) standards per 02D .1111 are required to meet the NSPS or MACT standards instead of this regulation.

This rule applies to emission sources located at the 3M Pittsboro facility. These sources were evaluated based on the design capacities presented in the application(s) when originally permit. Continued compliance is expected.

15A NCAC 02D .0958, "Work Practices for Sources of Volatile Organic Compounds"
Effective November 1, 2016, pursuant to 15A NCAC 02D .0902 Applicability (f) the rules in this Section apply to facilities subject to Section 182(b)(2) of the Clean Air Act with potential to emit 100 or more tons per year of VOC and to facilities with potential to emit less than 100 tons per year of volatile organic compounds in categories for which the United States Environmental Protection Agency (USEPA) has issued Control Technique Guidelines (CTG) that are located in the following moderate nonattainment areas for the 1997 8-hour ozone standard as designated in 40 CFR 81.334 prior to January 2, 2014:

15A NCAC 02D .0958 is applicable only to the following counties/areas in NC:

- Cabarrus County;

- Gaston County;
- Lincoln County;
- Mecklenburg County;
- Rowan County;
- Union County; and
- Davidson Township and Coddle Creek Township in Iredell County

Thus, this rule does not apply in Chatham County. This regulation was removed from 3M's permit during processing of a minor modification (application No. 1900104.21A) submitted during processing of 3M's renewal. Due to the application type and processing schedule, the minor modification was processed separately. All necessary changes will be incorporated into 3M's renewal.

15A NCAC 02D .1806, "Control and Prohibition of Odorous Emissions"
This condition is applicable facility-wide and is state enforceable only. This condition was updated per current guidance. Continued compliance is anticipated.

15A NCAC 02Q .0317, "Avoidance Conditions" for 15A NCAC 02D .1111 MACT
Please refer to Section 6 below.

15A NCAC 02Q .0711, "Emission Rates Requiring a Permit"
Please refer to Section 7 below.

6. NSPS, NESHAP/MACT, PSD, Attainment Status, 112(r), CAM, and RACT:

New Source Performance Standards (NSPS)
The facility is currently subject to New Source Performance Standards (NSPS). NSPS, contained in 40 CFR Part 60 and 15A NCAC 02D .0524, require new, modified, or reconstructed sources to control emissions to the level achievable by the best-demonstrated technology as specified in the applicable provisions.

The facility is currently subject to the following NSPS:

- ❖ NSPS – 40 CFR 60, Subpart OOO:
  Many of the crushing and screening operations at this facility are subject to 40 CFR 60, Subpart OOO [i.e., the NSPS for nonmetallic mineral processing plants]. During this renewal process NSPS OOO was applied to the new dual pugmill and additional new or modified affected sources added through minor modifications (application Nos. 1900104.21C and 1900104.22A) as discussed under Section 5 above.
- ❖ NSPS – 40 CFR 60, Subpart UUU:
  The four dryers at this facility (ID Nos. ES1415, ESCPPH1, ESCPPH2, and ESCPPH3) as subject to 40 CFR Part 60, Subpart UUU [i.e., the NSPS for calciners and dryers in mineral industries]. This renewal application did not result in any changes to NSPS UUU applicability.
- ❖ NSPS – 40 CFR 60, Subpart IIII:
  Per Table 3 to Subpart IIII of Part 60 – Certification Requirements for Stationary Fire Pump Engines and as stated in 40 CFR 60.4202(d) you must certify new stationary fire pump engines beginning with the 2009 model year for engine power 175< HP > 750. The diesel-fired emergency fire water pump (ID No. IS-FP) rated at 290 horsepower and installed in 2002 is exempt from certification and 40 CFR 60, Subpart IIII. [40 CFR 60.4200(a)(1)(ii)]

- ✓ The renewed permit includes appropriate Subpart language. Compliance is expected.

National Emission Standards for Hazardous Air Pollutants (NESHAP)/Maximum Achievable Control Technology (MACT)

Under Title III of the Clean Air Act (CAA), a major source is defined as any new or existing source with the PTE any single HAP at a rate greater than 10 tons per year and/or the PTE total combination of HAPs at a rate of greater than 25 tpy. HAP emissions, per the HAP list of Section 112 (Air Toxics) (b) List of Pollutants of the CAA, at these rates would classify the facility as a major source of HAPs. The NESHAPs are found in 40 CFR Part 63 of the CAA. These standards require application of technology-based emissions standards referred to as Maximum Achievable Control Technology (MACT) or Generally Available Control Technology (GACT).

3M previously requested an avoidance condition for HAPs to remain a Title III minor source. After taking the requested limits, the facility will be limited to no more than 10 tpy of any single HAP and no more than 25 tpy of total HAPs. Therefore, the facility will be a Title III minor source and considered an area source under 40 CFR Part 63. Thus, subjecting them to area source standards. Refer to 02Q .0317 avoidance condition in Section 2.2 B of the renewed permit.

Current Permit No. 09006T08 does not list any sources at this facility as subject to 40 CFR Part 63 [i.e., national emission standards for hazardous air pollutants (NESHAP)] for Title III major sources. However, the facility is currently required to comply with the Stationary Reciprocating Internal Combustion MACT (40 CFR Part 63 Subpart ZZZZ) for area sources of HAP.

40 CFR Part 63 Subpart ZZZZ

The diesel-fired emergency fire water pump (ID No. IS-FP) rated at 290 horsepower and installed in 2002 is considered an existing emergency stationary Compression Ignition (CI) RICE; thus, subject to the requirements of Subpart ZZZZ. As specified in 40 CFR 63.6640(f), if you own or operate an emergency stationary RICE, you must operate the emergency stationary RICE according to the requirements in paragraphs 40 CFR 63.6640(f)(1) through (4). The diesel-fired emergency fire water pump (ID No. IS-FP) has the potential to emit less than five tpy of criteria pollutants. The pump is exempt from permitting per 02Q .0503(8), and it is currently listed on the insignificant activities list.

This renewal does not affect applicability of Subpart ZZZZ; however, as part of this renewal the following changes to the insignificant activities list were made:

- ✓ Revised IS-FP by removing asterisks, [constructed prior to June 12, 2006] and footnote ** - Compliance date of May 3, 2013.

As mentioned under Section 5, the facility has a 280 gallon gasoline storage tank (ID No. IS-A20) that has been added to the insignificant activities list as part of this renewal. This tank is subject to area source MACT Subpart CCCCCC as discussed below:

Title 40: Protection of Environment
PART 63—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES
Subpart CCCCCC—National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities
40 CFR 63.11110 What is the purpose of this subpart?
This subpart establishes national emission limitations and management practices for hazardous air pollutants (HAP) emitted from the loading of gasoline storage tanks at gasoline dispensing facilities (GDF). This subpart also establishes requirements to demonstrate compliance with the emission limitations and management practices.

40 CFR 63.11111 Am I subject to the requirements in this subpart?
(a) The affected source to which this subpart applies is each GDF that is located at an area source. The affected source includes each gasoline cargo tank during the delivery of product to a GDF and also includes each storage tank.
(b) If your GDF has a monthly throughput of less than 10,000 gallons of gasoline, you must comply with the requirements in 40 CFR 63.11116.
(c) If your GDF has a monthly throughput of 10,000 gallons of gasoline or more, you must comply with the requirements in 40 CFR 63.11117.
(d) If your GDF has a monthly throughput of 100,000 gallons of gasoline or more, you must comply with the requirements in 40 CFR 63.11118.

Per response to email exchanges with 3M on November 12, 2020 and November 14, 2020, Ms. Blissenbach indicated that this project has been reassigned to Ryan Navis. Mr. Navis called on November 16, 2020 to discuss the renewal application and requested information. Mr. Navis indicated he would get back to me with the monthly throughput of the tanks and the initial startup date of the pugmill. Based on the last two years of data (2019-2020) provided by Mr. Navis on December 16, 2020 via email, the monthly throughput of the gasoline storage tank (ID No. IS-A20) is less than 10,000 gallons. Thus, 3M must comply with the requirements in 40 CFR 63.11116.

The rule reference has been added to the renewed permit and compliance is expected. There are no additional NESHAP or MACT that apply to this renewal.

Prevention of Significant Deterioration (PSD)/New Source Review (NRS)
A major stationary source under Prevention of Significant Deterioration (PSD) rules is defined as any one of 28 named source categories in 40 CFR 51.166(b)(1)(i)(a) that has the potential to emit (PTE) 100 tpy of any regulated pollutant or any other stationary source that has the PTE 250 tpy of any PSD regulated pollutant (other than GHG). GHG emission sources are deemed major if they exceed the PSD threshold of 100,000 tpy of GHG and are PSD major for another pollutant.

This facility does not fall into one of the categories listed at 40 CFR 51.166(b)(1)(i)(a) with a 100 tpy threshold and does not qualify as a major stationary source for PSD purposes under 40 CFR 51.166(b)(1)(i)(b) since it does not emit or have the PTE of any NSR regulated pollutant at rates in excess of 250 tons per consecutive 12-month period.

Pursuant to 40 CFR 51.166(b)(4), PTE means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

The facility is currently classified as a Minor stationary source for the purpose of the PSD permitting program (see 15A NCAC 02D .0530). This renewal application does not affect this status.

Attainment Status/Increment Tracking
Chatham County is currently classified as "Unclassifiable or Attainment" or "Can Not Be Classified or Better than National Standards" for all Criteria Pollutants {Particulate (TSP), Sulfur Dioxide (NAAQS), Carbon Monoxide, Ozone (1-Hour Standard), PM2.5 (Annual NAAQS), PM2.5 (24-hour NAAQS), NO2 (Annual Standard), NO2 (1-Hour Standard), Ozone (8-Hour NAAQS), Lead (NAAQS)} based on the Electronic Code of Federal Regulations (e-CFR) data found under:

Title 40: Protection of Environment - CHAPTER I: ENVIRONMENTAL PROTECTION AGENCY, SUBCHAPTER C: AIR PROGRAMS
PART 81: DESIGNATION OF AREAS FOR AIR QUALITY PLANNING PURPOSES
Subpart C – Section 107 Attainment Status Designations - 40 CFR 81.334 – North Carolina.

Chatham County triggered the minor source baseline for PM_{10} and SO_2 on May 30, 1984; and for NO_X on October 20, 1994. Increment tracking is not triggered for this renewal since emissions of PM_{10}, SO_2, and NO_X are not affected.

However, increment tracking is triggered by the applicability determination for the pugmill included with the renewal application. The redundant pugmill (ID No. F6772) will result in an increase in PM_{10} of 0.55 pounds per hour (lb/hr) based on the pugmill's maximum capacity of 250 tph as provided in the NOV response letter received by the Division on January 20, 2021.

As a result of the minor modification (1900104.21C) increment is triggered with an expected controlled PTE increase in PM_{10} of 0.90 lb/hr.

As a result of the minor modification (1900104.22A) increment is triggered with an expected controlled PTE increase in PM_{10} of 0.0015 lb/hr.

A statement will be added to the permit cover letter with a total increase of 1.45 lb/hr PM_{10}.

Compliance Assurance Monitoring (CAM)
Compliance assurance monitoring (CAM) is intended to provide a reasonable assurance of compliance with applicable requirements under the Clean Air Act (CAA) for large emission units that rely on pollution control device equipment to achieve compliance. Monitoring is conducted to determine that control measures, once installed or otherwise employed, are properly operated, and maintained so that they continue to achieve a level of control that complies with applicable requirements. The CAM approach establishes monitoring for the purpose of:
(1) documenting continued operation of the control measures within ranges of specified indicators of performance (such as emissions, control device parameters, and process parameters) that are designed to provide a reasonable assurance of compliance with applicable requirements;
(2) indicating any excursions from these ranges; and
(3) responding to the data so that the cause or causes of the excursions are corrected.

The CAM rule (40 CFR 64, 15A NCAC 02D .0614) applies to each pollutant specific emissions unit (PSEU) at major Title V facilities that meets a three-part test. The PSEU must:

- be 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,
- use any control device to achieve compliance with any such emission limitation or standard, and
- have 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 (tpy), required for a source to be classified as a major source (i.e., 100 tpy for criteria pollutants or 10/25 tpy for HAPs).

Note that the term "control device" means equipment, other than inherent process equipment, that is used to destroy or remove air pollutant(s) prior to discharge to the atmosphere. The term "control device" does not include passive methods such as lids or seals or inherent process equipment provided for safety or material recovery. See 40 CFR 64.2(a).

This renewal does not trigger a CAM analysis because: (1) although this facility is a Title V facility with potential emissions that exceed major source levels without considering controls; (2) there are no sources

subject to an emission limitation or standard that use a control device to meet an applicable standard that are being modified; therefore, no new CAM plan submittal is required for the renewal.

Appendix A: Emission Calculations received with the minor modification (application No. 1900104.21C) indicates that no new or modified controlled emission sources have an uncontrolled PTE that exceed the major source threshold (i.e., PM/PM10/PM2.5 greater than 100 tpy) as summarized below:

Emission Source ID No.	Emission Source Description	CD No.
ES2426.2	G crusher No. 1	CDB 1
ES8913D	Undersize conveyor No. 3	CDB 2
ES8913E	C bin feed conveyor No. 4	CDB 2
ES3537B	M Screener #2	CDB 2
ES3537C (Form C1 – list CDB 2)	M Screener #3	CDB 4 (corrected to CDB 2)
ES3537G	M Screener #4	CDB 4
ES3537H	M Screener #5	CDB 4
ES3537I	M Screener #6	CDB 4
TBD	Elevator #12	N/A
TBD	Metal Diverter Valve	N/A
TBD (max 1092 tph - req 535 tph)	G Crusher No. 1 Diverter Chute	N/A
TBD	D Screener Bin No. 1 Discharge Chute	N/A

The facility currently has three kilns (ID Nos. ESCPK1, ESCPK2, and ESCPK3) and three roofing granule mixing units (ID Nos. ESCPM1, ESCPM2, and ESCPM3) that are subject to CAM requirements (for PM_{10}). The specific CAM plan can be found in Section 2.2 C of the facility's permit. In general, 3M must perform pressure drop measurements from the subject control device as specified in the CAM plan and perform the required maintenance and monitoring (refer to Appendix A CAM Plan of the renewal application for more details).

Due to the many changes included with the recent minor modifications (application Nos. 1900104.21A and 1900104.21B) in addition to the minor modification (application No. 1900104.21C) and pugmill applicability determination being rolled into this renewal, a CAM analysis[35] was performed by this review engineer using the before control emission rate in pounds per hour (lb/hr) and the corresponding overall efficiency of 99.9% as provided on Form C1 – Control Device (Fabric Filter) for controlled emission sources.

Per this analysis, the following control devices inlet emissions are greater than 100 tpy of PM10 or PM including PM10; hence, CAM is triggered (sources currently subject to CAM in 3M's permit are indicated by CAM next to their ID No.):

[35] US EPA Office of Air Quality Planning and Standards, Emission Measurement Center, Technical Guidance Document: Compliance Assurance Monitoring. Revised Draft. MRI Project No. 4701-05. August 1998. https://www.epa.gov/air-emissions-monitoring-knowledge-base/compliance-assurance-monitoring-technical-guidance-document

Control Device ID No.	Controls Emissions from which emission source ID No(s)
CDB2	ES16-A, ES32.1, ES32A, ES32B, ES340-A, ES1721A, ES1721B, ES1721C, ES1721D, ES1721E, ES3537A, ES3537B, ES3537C, ES3537D, ES3537E, ES3537F, ES8913A, ES8913B, ES8913C, ES8913D, ES8913E, ES8913F
CDB3	~~ESC23A.2~~, ESC22.2 (ID No. changed during processing of 1900104.21A), ES1415
CDB9	ESCPPH1
CDB10	ESCPPH2
CDB11	ESCPM1 **CAM**
CDB12	ESCPM2 **CAM**
CDB19	ESCPM3 **CAM**
CDB13	ESCPK1 **CAM**
CDB14	ESCPK2 **CAM**
CDB20	ESCPA6, ESCPK3 **CAM**

Pursuant to 40 CFR 64.2 (b) Exemptions, emission limitations or standards proposed by the Administrator after November 15, 1990 pursuant to Section 111 or 112 of the Act are exempt.

- Sources controlled by bagfilter 2 **(ID No. CDB2)** and 3 **(ID No. CDB3)** are subject to 40 CFR 60, Subpart OOO (proposed August 31, 1983); thus, not exempt.
- Sources controlled by bagfilter 9 **(ID No. CDB9)** and 3 **(ID No. CDB10)** are subject to 40 CFR 60, Subpart UUU (proposed April 23, 1986); thus, not exempt.

Whether emission standards amended after Nov. 15, 1990 are exempt from CAM would depend on the nature of the amendment and whether the amended rule includes monitoring requirements that satisfy CAM. Currently, only one such rule has been identified. An amendment to subpart L of Part 61 (National Emission Standard for Benzene Emissions from Coke By-Product Recovery Plants).[36]

Example emissions calculation for determining CAM applicability (based on data submitted by the facility for their renewal and proposed changes for this minor modification) follow:

❖ Total PM10 from all *existing and proposed* processes listed above controlled by bagfilter 2 **(ID No. CDB2)**:

Assume bagfilter efficiency of 99.9% for PM10:

Before Control Emission Rate (lb/hr) = 50.229 lb/hr x 8,760 hr/yr x ton/2,000 lb =

220.003 tons of PM10 sent to bagfilter 2 at 99.9% capture efficiency =
{220.0 * (1 – (99.9/100))} = 219.78 tpy captured by the bagfilter and 0.22 tpy vented to atmosphere

The emissions from the collection of crushing and screening processes (e.g., conveyors, bins, screens, etc.) are subject to an emissions limit, therefore, the collection of processes is the PSEU whether the emissions are routed to a common control device or to separate control devices.

[36] Ibid 35 (Page 1-9)

TOTAL input to the crushing and screening bagfilter 2 **(ID No. CDB2)** = 220.0 tons PM10 to the PSEU

Therefore, the proposed changes to the PSEU, consisting of crushing and screening operations **(ID Nos. ES16-A, ES32.1, ES32A, ES32B, ES340-A, ES1721A, ES1721B, ES1721C, ES1721D, ES1721E, ES3537A, ES3537B, ES3537C, ES3537D, ES3537E, ES3537F, ES8913A, ES8913B, ES8913C, ES8913D, ES8913E, ES8913F)** trigger CAM applicability since the bagfilter **(ID No. CDB2)** has pre-controlled emissions of greater than 100 tons PM_{10}.

The bagfilters listed in the table above that are currently not subject to CAM will be added to Section 2.2 C of the renewed permit.

- ✓ The appropriate monitoring, recordkeeping and reporting requirements will be added for newly affect CAM sources.
- ✓ The CAM plan was revised per current guidance and reformatted to a tabular format.

Per email correspondence from SSCB, Mr. Parekh on March 29, 2022, the draft CAM conditions were revised with the latest guidance. For sources subject to NSPS UUU, the COMS is installed due to applicable regulation. Therefore, as per 40 CFR 64.3(d)(1), the COMS should be used as an indicator instead of the pressure drop (ΔP).

40 CFR 64.3(d)(1):

(d) ***Special criteria for the use of continuous emission, opacity or predictive monitoring systems.***
(1) If a continuous emission monitoring system (CEMS), continuous opacity monitoring system (COMS) or predictive emission monitoring system (PEMS) is required pursuant to other authority under the Act or state or local law, the owner or operator shall use such system to satisfy the requirements of this part.

The draft permit containing updated CAM requirements in Section 2.2 C.1 through Section 2.2 C.3 was provided to 3M for comments on April 1, 2022 with comments received from 3M on May 13, 2022 (as indicated in Section 3 above). As a result, 3M provided a revised CAM analysis with their application addendum found in Appendix E: CAM Assessment (provided as Attachment 8 for ease of review). In part, 3M states:

The Line 1 and 2 Preheaters (ESCPPH1, ESCPPH2), the to-be-constructed Line 3 Preheater (ESCPPH3), and the CNS Dryer (ES1415) each are subject to an NSPS UUU particulate matter emissions limit. "Particulate matter" in this instance includes PM10 (40 CFR 60.2). Draft Permit - T09, Condition 2.1.D.2.e.i. requires installation and operation of a COMS for a continuous compliance determination for compliance with the NSPS UUU limit. The Line 1 and 2 Preheaters and the CNS Dryer are exempt from CAM pursuant to 40 CFR 64.2(b)(l)(vi) since a continuous compliance determination method is specified by Draft Permit -T09, Condition 2.1.D.2.e.i. for compliance with the NSPS UUU emissions limit. Once constructed, the Line 3 Preheater will not be subject to CAM for PM10 for the NSPS UUU PM limit assuming maximum process rate and control configurations do not change from what is currently represented in PTE calculations.

Per email correspondence from SSCB, pursuant to 40 CFR 64.3(d)(1) discussed above, if the COMS is required by rule, the Permittee shall use COMS as an indicator to satisfy CAM requirements. You can have CAM exemption pursuant to 40 CFR 64.2(b)(1)(vi) while using control device provided you meet continuous compliance determination method (CCDM) as specified in 40 CFR 64.1. The current condition in 3M's permit does not meet the CCDM requirements (refer to Section 2.2 C.3 discussion below per July 13, 2022 email correspondence).

Based on the above, CAM remains applicable to the Line 1 and 2 preheaters (ID Nos. ESCPPH1 and ESCPPH2) and the CNS Dryer (ID No. ES1415) as indicated in the draft renewal permit provided to 3M.

A revised CAM analysis was performed based on the information (i.e., revised emission rates and control device efficiencies) provided by 3M in the addendum (Attachment 8). Per this CAM analysis (refer to Attachment 2), the following control devices inlet emissions are greater than 100 tpy of PM10 (or PM including PM10); hence, CAM is triggered for the same sources as previously indicated, except for sources controlled by bagfilter CDB2. New revised emissions data and control efficiencies provided for sources controlled by bagfilter CDB2 with 3M's addendum are less than 100 tpy PM10; hence, CAM is no longer triggered for these sources. In addition, the bagfilter (CD No. CDB18) controlling the to be constructed Line 3 Preheater (ID No. ESCPPH3) was triggered (greater than 100 tpy PM10) as indicated by 3M:

Control Device ID No.	Controls Emissions from which emission source ID No(s)
CDB3	~~ESC23A.2~~, ESC22.2 (ID No. changed during processing of 1900104.21A), ES1415 **CAM triggered during this renewal process**
CDB9	ESCPPH1 **CAM triggered during this renewal process**
CDB10	ESCPPH2 **CAM triggered during this renewal process**
CDB18	ESCPPH3 **CAM triggered based on information provided with addendum**
CDB11	ESCPM1 **CAM previously triggered**
CDB12	ESCPM2 **CAM previously triggered**
CDB19	ESCPM3 **CAM previously triggered**
CDB13	ESCPK1 **CAM previously triggered**
CDB14	ESCPK2 **CAM previously triggered**
CDB20	ESCPA6, ESCPK3 **CAM previously triggered**

Therefore, CAM applies to the above listed control devices and emission sources (refer to Attachment 2 or 8 for more information).

The facility provided comments based on the following questions/inquiries from DAQ/SSCB:
Section 2.2 C.1.d:

Per SSCB: Has the facility installed a Data Acquisition and Handling System (DAHS) for continuous monitoring and recording of the data record a data point every 5 minutes?

3M response: Please reference Appendix G of the Title V Addendum.

Per SSCB: Has facility provided information to demonstrate compliance with 15A NCAC 02D .0515, using a daily average (24-hr average)?
If the emission unit is not major after control, then, indicator range could be an instantaneous ΔP recorded once daily based on historical data. OR
If the emission unit is major after control, then, indicator range could be a 3-hr average with continuous monitoring and recording of ΔP based on stack test/historical data.

3M response: Please reference Appendix G of the Title V Addendum and reach out with additional questions.

In the CAM table under "Data collection procedure" 3M provided the following additional response: Instantaneous differential pressure (dP) measurements are recorded for the Line 1 and 2 Mixer Baghouses, Line 1 Kiln Baghouses A and B, and Line 2 Kiln Baghouses A and B once every 1 second in Historian.

Each day, the previous day's 5-minute average records for each source are calculated from the 1 second values and stored via an automated SQL query of the Historian data, then these records are exported to a Daily Differential Pressure PDF Report that is automatically saved to the plant's environmental records files. The Report displays the average 5-minute records and a calculated hourly and daily average dP for the Line 1 and 2 Mixer Baghouses, Line 1 Kiln Baghouses A and B, and Line 2 Kiln Baghouses A and B and 2 Kilns.

RCO Permitting question to SSCB (July 12, 2022): Under Section 2.2 C.1 – based on revised emissions data - bagfilters/emission sources are major after control. Is the condition as drafted acceptable or do I need to include information from 3M's response in the CAM table under "Data collection procedure"?

SSCB (response received July 13, 2022): The drafted condition is acceptable; however, you can add the additional information provided by the facility in CAM table under "Data Collection Procedure." The "Averaging Period" in the CAM table should be an "hourly." Because a daily average of ΔP is not an appropriate averaging period to demonstrate compliance for an hourly emission standard (02D .0515).

DAQ response: Based on information provided on Forms C1 of the addendum, bagfilters CDB11 through CDB14, CD19 and CD20 are major after controls. Per email correspondence with SSCB, the indicator range was changed from daily to an hourly average with continuous monitoring and recording of ΔP as provided by 3M.

Section 2.2 C.2.a:
3M comment: These units, either individually or when combined by stack, do not have pre-controlled PM10 PTE >Part 70 major source thresholds for any regulated pollutant and are not subject to CAM. Please remove this section. This was addressed in Appendix E of the Title V Addendum.

DAQ response: Based on information provided on Forms C1 of the addendum, CDB2 emissions are now below the 100 tpy PM10 threshold; however, CDB3 still exceeds threshold and will be subject to CAM.

Section 2.2 C.2.d:
DAQ comment: Please confirm or provide appropriate indicator range.
3M response: No comment.

RCO Permitting question to SSCB (July 12, 2022): Under Section 2.2 C.2 – based on revised emissions data bagfilter CDB2 sees less than 100 tpy PM10, yet CDB3 still sees greater than 100 tpy PM10. The facility claims that CAM is not triggered for either. I want to confirm that we still subject the emissions sources controlled by the bagfilter (based on what the bagfilter sees) that has greater than 100 tpy PM10 before controls?

SSCB (response received July 13, 2022): The CAM applicability is based on what is coming out from the emissions sources regardless of whether the emissions are going into a single control device or multiple control devices. Based on if the emissions sources in Section 2.2 C.2 subject to NSPS OOO, have

combined total pre-control emissions less than the major source threshold then CAM does not apply to these emissions sources.

DAQ response: Based on information provided on Forms C1 of the addendum, bagfilter CDB3 is major after controls. Per email correspondence with SSCB, CAM is triggered. 3M did not comment on this section; therefore, the condition remains as permitted.

Section 2.2 C.3.d:
DAQ comment: Please provide DAHS information. Refer to SSCB comments above.

3M response: Please reference Appendix G of the Title V Addendum. Edits provided are requested updates to Draft -T09 identified during draft review that were not specifically addressed in the Title V Addendum.

In the CAM table under "Data collection procedure" 3M provided the following additional response: Instantaneous opacity measurements from the COMS are recorded once every 10 seconds in a data acquisition and handling hardware system.

The software Airvision is used to automatically calculate and record 6-minute block averages for opacity from the 10-second instantaneous measurements recorded in the DAHS hardware.

RCO Permitting question to SSCB (July 12, 2022):
Under Section 2.2 C.3 – based on the information provided by 3M for their DAHS is the condition as drafted acceptable or do I need to make changes? Also, the facility claims that CAM is not triggered for these sources due to the sources being subject to NSPS UUU:
"The Line 1 and 2 preheaters and the CNS dryer are exempt from CAM pursuant to 40 CFR 64. 2(b)(l)(vi) since a continuous compliance determination method is specified by Draft Permit -T09, Condition 2.1.D.2.e.i. for compliance with the NSPS UUU emissions limit."

SSCB (response received July 13, 2022): The emissions sources in Section 2.2 C.3 are not CAM exempt. The COMS specified in Draft Permit -T09, Condition 2.1.D.2.e.i does not provide data in the units of emission standard (NSPS UUU - PM limit). Therefore, it does not meet continuous compliance determination method as specified in 40 CFR 64.1 for CAM exemption pursuant to 40 CFR 64.2(b)(1)(vi).

Also, the indicator range should not be set at the compliance level (10% opacity standard – NSPS UUU). It should be at 8% or 9%. The opacity greater than 10% would indicate a violation of emission standard instead of an excursion.

DAQ response: Based on information provided on Forms C1 of the addendum, the emission sources listed under Section 2.2 C.3.a controlled by bagfilters CDB3, CDB9 and CDB10 are subject to CAM per SSCB because the COMS data does not meet the CCDM as specified in 40 CFR 64. Per email correspondence with SSCB, the indicator range was revised to 9%. The additional information provided by 3M was included in the CAM table.

The monitoring, recordkeeping and reporting requirements under CAM will remain as drafted with the exception of incorporation of additional information provided by 3M on the draft renewal permit (April 1, 2022) and information in Appendix G of the addendum for their COMS and DAHS for continuous monitoring and recording of the data as approved and discussed by SSCB above.

112(r) – Clean Air Act Section 112(r) requirements – Pursuant to 15A NCAC 02D .2100 "Risk Management Program," if the Permittee is required to develop and register a risk management plan pursuant to Section 112(r) of the Federal CAA, then the permittee is required to register this plan with the USEPA in accordance with 40 CFR Part 68.

Per Form A3 – 112(r) Applicability Information, the facility is not subject to Section 112(r) of the CAA requirements because it does not store any of the regulated substances in quantities above the thresholds in the Rule. However, the facility voluntarily is in compliance with the General Duty provisions of the rule.

Per the latest inspection report, 3M is subject to the 112(r)-program general duty clause but does not maintain regulated chemicals onsite above the threshold quantities, which would require a risk management plan.

This permit renewal does not affect this status.

RACT – This facility is not located in one of the areas listed in 02D .0902(f) or 02D .1402(d) and is therefore not subject to the existing source Reasonably Available Control Technology (RACT) requirements.

This permit renewal does not affect this status.

7. Facility Wide Air Toxics (State Enforceable Only)

3M's current Permit No. 09006T08 includes permit conditions under 02D .1100 and 02Q .0711 based on a previous application submittal (application No. 1900104.11A). The permit includes a list of those TAPs that are emitted from the facility at rates below their associated toxic air pollutant (TAP) permitting emissions rates (TPERs) and requiring the Permittee to either (1) maintain records sufficient to demonstrate that facility-wide emissions of those TAPs are below the associated TPER, or (2) obtain a permit to emit a TAP before exceeding the TPER associated with that TAP as well as 02D .1100 modeled emission rates. Please refer to 3M's Air Dispersion Modeling Review performed by Mr. Charles Buckler, Meteorologist II, Air Quality Analysis Branch (AQAB) dated October 1, 2012. The analysis shows compliance on a facility wide basis for all the pollutants Acceptable Ambient Levels (AALs).

Excerpt from review for issued permit No. 09006T04:
The following Table provides the Maximum Modeled Impacts (ug/m^3) – Table 1 of the October 1, 2012 modeling Memorandum from Mr. Chuck Buckler, Air Quality Analysis Branch (AQAB).

Pollutant	Average Period	Maximum Allowable Emissions (lb/hr)/(lb/yr)	Impact	AAL	% of AAL
Arsenic	Annual	7.88E-05/0.69	5.1E-05	2.3×10^{-4}	22.2
Cadmium	Annual	4.33E-04/3.79	2.8E-04	5.5×10^{-3}	5.5

The facility's emissions inventory (EI) data was compared to the above TAP limits in 3M's current permit and were both below their respective 02D .1100 modeled emission rates.

There is no increase in TAP emissions requested as part of this renewal or minor modifications (the only pollutant of concern with the minor modification(s) was PM). The permit conditions were updated per current guidance.

A review of the facilities site PTE summary provided via email on June 16, 2022 indicates the facility-wide pounds per year (lb/yr) for cadmium is 3.82 which exceeds the above 02D .1100 limit in 3M's current permit. As indicated previously, per the 2021 EI data, both arsenic and cadmium are below their permitted maximum allowable emissions.

The emissions submitted by 3M were PTE; thus, actual emissions of cadmium may not have gone over the permitted limit. An engineering review of cadmium indicates the increase would be minimal and approximately 6% of the AAL for cadmium.

The non-specific chromium TPER (of 0.0056 lb/yr) was exceeded during the past four EI years (2021 – 0.013, 2020 – 2.54, 2019 – 3.02 lb/yr and 2018 – 3.30 lb/yr) based on a review of EI data by this review engineer. The facility is below the TPER for soluble chromium (of 0.013 lb/day) and bioavailable chromium (of 0.0056 lb/yr).

Since the Renewal, Minor Modifications and the 502(b)(10) do not trigger a toxics review, this information was forwarded to the regional office for further review.

8. Facility Emissions Review

The actual emissions of the last five years are listed on the first page of this review (CY for current year – 2020). Based on the emissions inventory, the actual emissions of all HAPs are below major source applicability thresholds.

Excerpt from Initial Title V review (09006R00):
Potential emissions from all sources at this facility are provided in the following table:

Criteria Pollutants

Pollutant	Potential Emission
PM-10	105.6 tpy
Sulfur dioxide	0.7 tpy
Nitrogen oxides	115.9 tpy
Carbon monoxide	97.4 tpy
Volatile organic compounds	24.4 tpy
Lead	1 lb/yr

Excerpt from Title V review (09006T02):
Permit Modification: The Permittee submitted application 1900104.10A to: (1) allow the use of a second dust suppressant in the 3 coolers, ID Nos. ESCPC1, ESCPC2, and ESCPC3, and (2) add a synthetic minor condition for hazardous air pollutants (HAP) pursuant to 2Q .0317. Note that the new dust suppressant will decrease the potential emissions of volatile organic compounds (VOC) but increase the potential emissions of HAP. This application is being processed under the procedure of 2Q .0501(c)(2) at the request of the Permittee.

II Regulatory Review:
The modifications requested via permit application 1900104.10A affect the 3 coolers (ID Nos. ESCPC1, ESCPC2, and ESCPC3) and the facility-wide sources of VOC, HAP, odorous emissions, and toxic air

pollutants (TAP). The rules affected by this application include 2D .0515, 2D .0521, 2D .0958, 2D .1806, 2Q .0317 and 2Q .0711.

A. Three coolers (ID Nos. ESCPC1, ESCPC2, and ESCPC3)
Hot roofing granules are expelled from the kilns at this facility and sent into these coolers. Once in the coolers the fired granules are agitated with an acid/water solution and dust suppressant mixture. Air is forced through the granules, promoting convective heat transfer from granule to air. The heated air is vented to atmosphere via the cooler stacks. The cooled granules are next transported to finished granule storage and eventually to truck loaders for off-site shipment.
[Taken from application 1900104.10A and the technical review associated with Permit No. 09006T01 – the initial Title V permit for this facility.]

The modifications associated with 1900104.10A will reportedly reduce potential VOC emissions from 160.09 tons per consecutive 12-month period to 86.49 tons per consecutive 12-month period and, therefore, do not trigger a PSD review.
*end of excerpt

A review of the facility site PTE summary provided via email on June 16, 2022 provides the following facility-wide PTE before and after controls:

Pollutant	Potential Emissions – Before controls/limitations (tpy)	Potential and Actual Expected Emissions – After controls/limitations (tpy)
Particulate Matter (PM)	147,201.0	218.7
PM<10 microns (PM_{10})	128,300.0	143.9
PM<2.5 microns ($PM_{2.5}$)	128,300.0	17.2
Sulfur Dioxide (SO2)	1.0	1.0
Nitrogen Oxides (NOx)	180.1	180.1
Carbon Monoxide (CO)	146.1	146.1
Volatile Organic Compounds (VOC)	70.0	70.0
Hazardous Air Pollutants (HAP)	41.1	<25
Single HAP (Methanol)	29.7	<10

9. Compliance Status

DAQ has reviewed the compliance status of this facility. During the most recent inspection conducted on May 28, 2021, Matthew Mahler of the RRO completed a permit cross-check with Ms. Kyna Patterson, Process Engineer at 3M and found insignificant and significant equipment that need to be added to the permit or modified. The information was forwarded to RCO, and 3M has since submitted permit modifications to correct these items as discussed under Section 1 above.

In the last five years, the facility was issued three Notice of Violations (NOV):

- On August 12, 2021 for Failure to Obtain a Minor Modification Permit.
- On December 11, 2020 for Unpermitted Emission Source; 40 CFR 60 NSPS OOO.

- ❖ On April 23, 2018 for failing to conduct daily calibrations on its COMS unit, which services the dryers. During the most recent inspection, conducted on December 10, 2019 by Matt Mahler of the RRO, the facility appeared to be in compliance with the applicable requirements of their current air permit.

During the inspection conducted on December 10, 2019, three (3) exempt emission sources were observed that should be added to the insignificant activities list. Two of the tanks contain gasoline and diesel and are 280 gallons each. This fuel is used for onsite vehicles. The third 550 gallons tank contains diesel and services the fire pump engine.

As discussed under Section 5 above, these sources have been added to the insignificant activities list.

As stated above, the facility has submitted three minor modifications (applications No. 1900104.21A, 1900104.21B and 1900104.21C) to correct the latest NOVs and bring the facility back into compliance. In addition, an addendum was provided on May 13, 2022 to formally document the inclusion of the Enclosed East and West Pugmill System (ID No. F6772) and incorporate updates to the baghouse descriptions as requested through a minor modification (i.e., 21C) and additional changes incorporated into the Title V renewal. Please refer to the technical reviews for those modifications for further details and Section 5 above. The following Title V Compliance Certifications were submitted with each application:

Form E5 – Title V Compliance Certification (Required) submitted with renewal application No. 1900104.20A was signed by Mr. Arnett on May 26, 2020 certifying that the facility is currently in compliance with the exception of reported TV deviations that have since been resolved.

Form E5 – Title V Compliance Certification (Required) submitted with application No. 1900104.21A was signed by Mr. Arnett on March 25, 2021 certifying that:

- ✓ the facility is currently in compliance with all applicable requirements, and
- ✓ the proposed minor modification meets the criteria for using the procedures set out in 02Q .0515 and requests that these procedures be used to process the permit application.

Form E5 – Title V Compliance Certification (Required) submitted with application No. 1900104.21B was signed by Mr. Arnett on July 14, 2021 certifying that:

- ✓ the proposed minor modification meets the criteria for using the procedures set out in 02Q .0515 and requests that these procedures be used to process the permit application,
- ✓ the facility is not currently in compliance with all applicable requirements, and
- ✓ as required, the facility completed Form E4 – Emission Source Compliance Schedule

Form E5 – Title V Compliance Certification (Required) submitted with application No. 1900104.21C was signed by Mr. Arnett on December 13, 2021 certifying that:

- ✓ the proposed minor modification meets the criteria for using the procedures set out in 02Q .0515 and requests that these procedures be used to process the permit application,
- ✓ the facility is not currently in compliance with all applicable requirements, and
- ✓ as required, the facility completed Form E4 – Emission Source Compliance Schedule

Form E5 – Title V Compliance Certification (Required) submitted with the renewal and application No. 1900104.21C addendum was signed by Mr. Arnett on May 10, 2022 certifying that:

- ✓ the proposed minor modification meets the criteria for using the procedures set out in 02Q .0515 and requests that these procedures be used to process the permit application,
- ✓ the facility is not currently in compliance with all applicable requirements, and
- ✓ as required, the facility completed Form E4 – Emission Source Compliance Schedule

Due to the time lapse between the initial renewal submittal, a new Form A – General Facility Information was provided with the renewal and application No. 1900104.21C addendum signed by Mr. Arnett on May 10, 2022.

Form E5 – Title V Compliance Certification (Required) submitted with application No. 1900104.22A was signed by Mr. Arnett on May 16, 2022 certifying that:

- ✓ the proposed minor modification meets the criteria for using the procedures set out in 02Q .0515 and requests that these procedures be used to process the permit application,
- ✓ the facility is not currently in compliance with all applicable requirements, and
- ✓ as required, the facility completed Form E4 – Emission Source Compliance Schedule

Upon issuance of this renewed permit with inclusion of the pugmill (ID No. F6772) and minor modifications (application Nos. 1900104.21C and 1900104.22A) received by the Division on November 19, 2021 with amendments received on December 15, 2021 and May 13, 2022 (for the renewal and 21C); and May 18, 2022 (for 22A), the facility is expected to be in compliance with their Title V permit and any outstanding NOV resolved.

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

A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Consistent with 15A NCAC 02Q .0525, the EPA will have a concurrent 45-day review period. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit, and each final permit pursuant shall be provided to EPA. Also, pursuant to 02Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice is provided to the public under 02Q .0521 above.

EPA's 45 Day Review Period
U.S. EPA, Region IV was provided a draft permit for review on XXXX. EPA 45-day review period ended on XXXX. XXXX comments were offered or received.

Public Notice
The 30-day public notice of the draft permit was posted on the NCDAQ website on XXXX. XXXX comments were offered or received.

11. Conclusions/Comments/Recommendations and Other Regulatory Considerations

a. Professional Engineering Seal
Pursuant to 15A NCAC 02Q .0112 "Application requiring a Professional Engineering Seal," a professional engineer's seal (PE Seal) is required to seal technical portions of air permit applications for new sources and modifications of existing sources as defined in Rule .0103 of this Section that involve:
(1) design;
(2) determination of applicability and appropriateness; or
(3) determination and interpretation of performance; of air pollution capture and control systems.

- ✓ A Professional Engineering Seal (PE Seal) is not required for this renewal application pursuant to 15A NCAC 02Q .0112 – Applications Requiring Professional Engineer Seal.
- ✓ A PE Seal was required for minor modification (application No. 1900104.21C) and was provided on Form D5 of the application amendment. Mr. Paul Roepnack (PE Seal Number 033610) of Stantec sealed the C Forms (PAGES 22-35) of the application on November 10, 2021.
- ✓ A PE Seal was required for minor modification (application No. 1900104.22A) and was provided on Form D5 of the application. Ms. Kathryn Swor (PE Seal Number 053608) of Stantec sealed the Form B, Form B6, Form B9, Form C1, Form E2, and Form E3 (as identified at the top of each page) of the application on May 16, 2022.

b. Zoning Consistency Determination
A Zoning Consistency Determination pursuant to 15A NCAC 2Q .0507(d) is required if expanding or adding new sources in accordance with G.S. 143-215.108(f) that bears the date of receipt entered by the clerk of the local government; or consists of a letter from the local government indicating that all zoning or subdivision ordinances are met by the facility.

- ✓ A zoning consistency determination (ZCD) is not required for this renewal application pursuant to 15A NCAC 02Q .0507(d).
- ✓ A ZCD was required for minor modification (application No. 1900104.21C) due to the addition of equipment (i.e., expansion) at the facility. The ZCD was received on December 15, 2021 signed by Mr. Vance McNees, Zoning Official, Chatham County on December 14, 2021 indicating that the proposed operation is consistent with the applicable zoning ordinances.
- ✓ A ZCD was required for minor modification (application No. 1900104.22A) due to the addition of equipment (i.e., expansion) at the facility. The ZCD was received on May 18, 2022 signed by Mr. Vance McNees, Zoning Official, Chatham County on May 16, 2022 indicating that the proposed operation is consistent with the applicable zoning ordinances.

c. Comments

The revised draft renewal incorporating minor modification (1900104.21C) was sent to 3M on April 1, 2022 for review and comments. DAQ received comments within the draft permit on May 13, 2022 from 3M in addition to an addendum (refer to Attachment 8 below) to formally document the inclusion of the Enclosed East and West Pugmill System (ID No. F6772) and incorporate updates to the baghouse descriptions as requested through a minor modification (i.e., 21C) and additional changes incorporated into the Title V renewal.

Per email correspondence with Ms. Russell of 3M on April 28, 2022, 3M agrees NSPS OOO applies to the pugmill because the pugmill is a process continuation of the crushing and screening operations that process non-metallic minerals and is connected by conveyor, so it is an NSPS OOO source.

Changes/clarifications have been addressed throughout this technical review, were appropriate, and the renewal permit. In addition, changes included in the summary of changes table. The only remaining significant issue of concern is the inclusion or removal of wet suppression/water carryover as a control measure for the pugmill (ID No. F6772) and stacker conveyors (ID Nos. F72 and ES25A) for compliance with applicable regulations (i.e., 02D .0510 and subsequently 02D .0524 for visible emissions/opacity requirements).

With the addendum 3M requests to remove all of the proposed wet suppression/water carryover requirements for the pugmill and downstream conveyors. Per 3M, the pugmill meets applicable emission limits without emissions control, and “wet suppression” or “water carryover” is not required

as emissions control for the pugmill by state or federal regulations. DAQ reviewed the information provide in the addendum (excerpts) and has provided comments below:

- ❖ Pugmill applicability discussion (refer to Section 5, pages 15 - 37 above for more detail):

As a recap, discussed under Section 5 above, per review for 3M's Title V fee class permit for a Greenfield facility (issued permit No. 09006R00), both control efficiencies (i.e., total enclosure with wet suppression and building enclosure) were taken into account during permitting of the existing pugmill (ID No. F6771 located at 3M's Pittsboro facility.

During 3M's review of their initial draft renewal, 3M indicated that the newly installed redundant pugmill (ID No. F6772) was not a significant emission source and did not require Title V permitting, nor was the pugmill subject to NSPS OOO. DAQ determined that the pugmill is a Title V source and subject to NSPS OOO as previously permitted and indicated in 3M's application(s).

- ❖ Corrections to issued Permit No. 09006T08 – Wet Suppression (refer to Section 5, pages 48 – 51 above for more detail):

Per Mr. Navis, wet suppression is only from the pugmill, not the conveyors (i.e., 25 and 25A) as listed in their recently issued permit and there is nothing for the on-site team to review (i.e., monitor). This review engineer explained that the permit was drafted based on the application submittal. The comments provided by 3M on December 22, 2021 did not match the application and no response to the December 22, 2021 email was received from 3M. Thus, DAQ issued the minor modification within the 90 days.

During discussions between 3M staff and DAQ (RCO and RRO) it was determined that we would address corrections to minor modification (issued Permit No. 09006T08) during processing of 3M's renewal.

The revised draft renewal permit sent to 3M on April 1, 2022 included wet suppression as control for the pugmill and water carryover for the conveyors (ID Nos. F72 and ES25A). 3M requested a meeting with DAQ to discuss the draft permit, compliance, CAM and the pugmill, specifically, which occurred on April 21, 2022. During this meeting, 3M indicated that wet suppression was not required by the pugmill and they would like more time to provide revised forms and supporting documentation that supports their claim that water was inherent to the process.

The following discussion goes through DAQ's final evaluation of the pugmill:

- ✓ Air Pollution Control Equipment or Inherent Process Equipment (refer to Attachments 5, 6, 7 and 8 below for more detailed information):

Appendix C: Pugmill Narrative (Request to remove "wet suppression" requirements and language from Draft Title V Operating Permit 09006-T09) [Addendum received on May 12, 2022] This document provides details on 3M's request to remove all references to and requirements associated with wet suppression as required particulate control for the Enclosed East and West Pugmill (F6772), and for water carryover as required particulate emissions control for the Enclosed Waste Stacker Conveyor No. 25 (F72) and the Waste Stacker Conveyor 25A (ES25A), in draft Title V Operating Permit No. 09006T09.

Pugmills are industrial mixers used in a variety of applications. 3M Pittsboro uses the Enclosed East and West Pugmill ("Pugmill") to mix rock processing waste from baghouses and other plant waste sources with water. The purpose of the Pugmill at 3M Pittsboro is not for emissions control. The purpose of the Pugmill at 3M Pittsboro is to improve the physical characteristics of the waste for ease of handling and

transport. Water addition to the Pugmill for mixing with rock processing waste is inherent to normal Pugmill operation and is not functionally intended for emissions or dust control. Operation of the Pugmill without water addition for mixing would not be considered normal Pugmill operation.

The Operations and Maintenance Manual for the Pugmill (e-mailed to Ms. Judy Lee on May 9, 2022) contains no references to emission or dust control as a purpose for water addition to the Pugmill. Further, there is no reference in the Manual to the Pugmill's purpose as emissions or dust control.

DAQ response: Correct. The pugmill is not used for control.

The addition of water to the process (i.e., pugmill mixer) is the preventative control measure to suppress dust emissions and comply with the visible emissions and opacity limits of 02D .0510 and subsequently 02D .0524 due to applicability of NSPS OOO.

Based on a review of the manual provided by 3M via email on May 9, 2022 and Thompson Rock Mixers data (refer to Attachment 5), the pugmill (i.e., mixer) is designed to operate with or without water (p. 41 of manual). The use of "water/wet suppression" is not required to operate the pugmill (refer to Attachment 6 below, Sections 1 & 3), it is an optional add on; therefore, a preventative control measure to suppress dust, not inherent to the process as DAQ determined previously.

Per conversation with a representative from Thompson Rock Mixers on May 20, 2022, the pugmill is used to either dry out material prior to the landfill or make the material wet to control dust. If material entering the pugmill is dry (i.e., dry controls prior to), then you would have to add water to control dust from the pugmill (i.e., mixing).

- Per Forms B & B9 (Addendum received May 12, 2022):

  The Enclosed East and West Pugmill System (ID No. F6772) contains two pugmills operating in parallel to one another. The two pugmills within this system cannot operate at the same time. The pugmill system is a totally enclosed system where waste fines, dust fines, and water meet and are mixed to form a waste slurry stream.

  Water is not added to control emissions but is added to be mixed to create the waste slurry with the larger waste fines. This then allows the smaller dust fines to adsorb all in an effort to create a final waste stream that can be handled in a safer and practical manner. Water is considered to be an inherent part of the process. Without water, the pugmill cannot operate as designed and would more than likely malfunction. Additionally, this pugmill system is located inside a building. PM and PM10 emission factors used to quantify emissions are equal to twice the factor for "Conveyor Transfer Point" from AP-42, Chapter 11. 19.2, Table 11. 19.2-2 (08/04). These emissions estimates are considered to be abundantly conservative considering the unit is an enclosed piece of equipment and located inside a building.

  Enclosed Waste Slacker Conveyor No. 25 (ID No. F72) is fed a wetted slurry waste material from the East and West Pugmill System. This conveyor then feeds to Waste Stacker Conveyor No. 25A. The PM and PM 10 emission factors used are for "Conveyor Transfer Point" from AP-42, Chapter 11. 19.2, Table 1 1. 19.2-2 (08/04). These emissions estimates are considered to be abundantly conservative considering that these factors represent an uncontrolled conveyance of a dry mineral material. 3M has taken no credit for the fact that the waste material conveyed contains water and inherently significantly reduces particulate emissions.

Waste Stacker Conveyor No. 25A (ID No. ES25A) is fed a wetted slurry waste material from Enclosed Waste Stacker Conveyor No. 25. This conveyor then unloads to the outside waste pile (ID No. FWP). The PM and PM10 emission factors used are for "Conveyor Transfer Point" from AP42, Chapter 11.19.2, Table 1 1. 19.2-2 (08/04). These emissions estimates are considered to be abundantly conservative considering that these factors represent an uncontrolled conveyance of a dry mineral material. 3M has taken no credit for the fact that the waste material conveyed contains water and inherently significantly reduces particulate emissions.

DAQ response: 3M Pittsboro uses only dry controls prior to the pugmill. As drafted, the revised renewal permit subjects the pugmill and downstream conveyors to the applicable requirements under 15A NCAC 02D .0510 and 02D .0524.

Wet dust suppression consists of introducing water or amended water into the material flow, causing the fine particulate matter to be confined and remain with the material flow rather than becoming airborne. Dust collection involves hooding and enclosing dust-producing emission points and exhausting emissions to a collection device.[37]

Wet suppression or dry controls are required pursuant to 02D .0510 to reduce to a minimum any particulate matter from becoming airborne to prevent exceeding the ambient air quality standards beyond the property line for particulate matter, both PM_{10} and total suspended particulates. To comply with 02D .0510 process generated emissions must be controlled such that the applicable opacity standards in 02D .0524 are not exceeded. Pursuant to 40 CFR 60.672, visible emissions (VE) shall not exceed 7% due to fugitive emissions. Typically, DAQ assumes 10% emitted from enclosures (i.e., 90% capture),[38] consistent with other state agencies, which indicates compliance is potentially not demonstrated for the pugmill through use of only an enclosure.

❖ AP-42, Chapter 11.19.2.2 Emissions and Controls (excerpt)[39]

The moisture content of the material processed can have a substantial effect on emissions. This effect is evident throughout the processing operations. Surface wetness causes fine particles to agglomerate on or to adhere to the faces of larger stones, with a resulting dust suppression effect. However, as new fine particles are created by crushing and attrition and as the moisture content is reduced by evaporation, this suppressive effect diminishes and may disappear. Plants that use wet suppression systems (spray nozzles) to maintain relatively high material moisture contents can effectively control PM emissions throughout the process. Depending on the geographical and climatic conditions, the moisture content of mined rock can range from nearly zero to several percent. Because moisture content is usually expressed on a basis of overall weight percent, the actual moisture amount per unit area will vary with the size of the rock being handled. On a constant mass-fraction basis, the per-unit area moisture content varies inversely with the diameter of the rock. The suppressive effect of the moisture depends on both the absolute mass water content and the size of the rock product. Typically, wet material contains >1.5 percent water. A variety of material, equipment, and operating factors can influence emissions from crushing. These factors include (1) stone type, (2) feed size and distribution, (3) moisture content, (4) throughput rate, (5) crusher type, (6) size reduction ratio, and (7) fines content. Insufficient data are available to present a matrix of rock crushing emission factors detailing the above classifications and variables. Available data indicate that PM-10 and PM-2.5 emissions

[37] Ibid 6. [Section 2.3, page 26]
[38] Based on guidance by the Texas Commission on Environmental Quality (TCEQ) entitled "Rock Crushing Plants" (Feb. 2002), a control efficiency of 90% should be applied for work performed fully enclosed. [Refer to technical review for West Fraser, Inc., permit No. 03937T25 issued on June 20, 2017]
[39] Ibid 3

from limestone and granite processing operations are similar. Therefore, the emission factors developed from the emissions data gathered at limestone and granite processing facilities are considered to be representative of typical crushed stone processing operations. Emission factors for filterable PM, PM-10, and PM-2.5 emissions from crushed stone processing operations are presented in Tables 11.19.2-1 (Metric units) and 11.19.2-2 (English units.)

…

Footnotes below Table 11.19.2-2 (English Units). Emission Factors for Crushed Stone Processing Operations (lb/ton)[a]

a. Emission factors represent uncontrolled emissions unless noted. Emission factors in kg/Mg of material throughput. SCC = Source Classification Code. ND = No data.
b. Controlled sources (with wet suppression) are those that are part of the processing plant that employs current wet suppression technology similar to the study group. The moisture content of the study group without wet suppression systems operating (uncontrolled) ranged from 0.21 to 1.3 percent, and the same facilities operating wet suppression systems (controlled) ranged from 0.55 to 2.88 percent. Due to carry over of the small amount of moisture required, it has been shown that each source, with the exception of crushers, does not need to employ direct water sprays. Although the moisture content was the only variable measured, other process features may have as much influence on emissions from a given source. Visual observations from each source under normal operating conditions are probably the best indicator of which emission factor is most appropriate. Plants that employ substandard control measures as indicated by visual observations should use the uncontrolled factor with appropriate control efficiency that best reflects the effectiveness of the controls employed.

DAQ response: A review of the addendum, regulatory documents, pugmill manual, etc. has not altered DAQ's interpretation of the pugmill operation, nor has applicability of 15A NCAC 02D .0510 and 02D .0524 changed. As provided in detail above, per AP-42 plants that employ substandard control measures should use the uncontrolled emission factor. 3M utilized the uncontrolled emission factors to conservatively demonstrate that applicable regulations are met without controls as demonstrated during the pugmill NSPS OOO initial performance testing conducted on December 1, 2021. This is not accurate. The initial performance testing was performed while the pugmill operated with the addition of water (i.e., wet suppression) and the conveyors with water carryover.

DAQ interprets the comment from Form B9 (above) to mean there is no interlock to prevent the pugmill from operating without water; thus, the addition of water (i.e., wet suppression as defined above) is the particulate emission control technique to prevent or suppress dust and ensure compliance with 02D .0510 and 02D .0524 (02D .0524 does not require wet suppression; however, if a facilities uses wet suppression they must follow the MRR contained in NSPS OOO).

The DAQ does not agree with 3M that the addition of water at the pugmill is inherent to the process.

However, to reduce the facility's burden for complying with MRRR for both applicable regulations, DAQ revised the 02D .0510 condition to align with the requirements of NSPS OOO. Compliance with 02D .0510 is satisfied by compliance with the monitoring, recordkeeping, and reporting requirements (MRRR) of 02D .0524.

Pursuant to 02D .0510, wet suppression or dry add-on controls are required for particulate from the pugmill (mixer). Based on 3M's previous application submittals and permitting history, to comply with applicable requirements under 15A NCAC 02D .0510 and 02D .0524, the Permittee is required to utilize wet suppression to the extent necessary.

In conclusion, additional information provided by 3M with this addendum has not changed DAQ's initial evaluation that the pugmill is a Title V source subject to NSPS OOO requirements and that wet suppression is considered a method of controlling emissions of particulate (and opacity) from pugmills and similar types of affected sources at nonmetallic processing plants and is not inherent to the process.

d. Recommendations
The permit renewal application for 3M Pittsboro – Industrial Mineral Products in Moncure, Chatham County, North Carolina has been reviewed by DAQ to determine compliance with all procedures and requirements. DAQ has determined that this facility is complying or will achieve compliance, as specified in the permit, with all requirements that are applicable to the affected sources.

- ✓ The regional office recommends issuance of the permit and was presented with a DRAFT permit and review prior to notice (refer to Section 3 above).
- ✓ The DAQ recommends the issuance of renewed Air Permit No. **09006T09** to 3M Pittsboro – Industrial Mineral Products in Moncure, Chatham County, North Carolina.

Attachment 1: Form A1 – Minor (original applications No. 1900104.21C and 1900104.22A)
Attachment 2: CAM Analysis (revised per addendum)
Attachment 3: US EPA's Applicability Determination Index (ADI 9700004 and 9800003)
Attachment 4: Appendix to the North Carolina Air Quality Rules (15A NCAC .02D .0510)
Attachment 5: Industry Data (Pugmill Information/Brochure)
Attachment 6: Pugmill Manual (relevant pages**)**
Attachment 7: US EPA's November 27, 1995 Memorandum – Criteria for Determining Whether Equipment is Air Pollution Control Equipment or Process Equipment
Attachment 8: 3M Pittsboro Addendum (5-12-22)

Attachment 1 – Form A1-Minor

- Application No. 21C:

REVISED 10/17/2014

Title V Minor Modification (Prior to Permit Revision)

FORM A1 - MINOR

MINOR MODIFICATION QUALIFICATION CHECKLIST

☑	This change does not violate any existing requirement in the current Title V air quality permit.
☑	This change does not result in any significant change in existing monitoring, reporting or recordkeeping provisions in my current permit.
☑	This change does not require a case-by-case determination (e.g. BACT)
☑	This change is not a modification under Title I of the federal Clean Air Act.
☑	This change is not a significant modification. (See 15A NCAC 2Q .0516)
☑	This change does not require a change to an existing permit term that was taken to avoid an applicable requirement. (e.g. PSD avoidance condition)
☑	This change does not require a permit under the NC Toxics program.

MINOR MODIFICATION DESCRIPTION

SM Pittsboro proposes to replace equipment ES3537B (Megatex Screener #2), ES3537G (Megatex Screener #4), ES3537H (Megatex Screener #5), and ES3537C (Megatex Screener #3) with new Megatex Screeners. The Megatex screeners are used to separate different sizes of crushed aggregate from the Live Megatex Feed Bin and load the screened aggregate onto Conveyor #14, #19, and #21. The replacement is being done due to normal wear that these pieces of equipment experience over several years of use. The units will remain connected to existing baghouses (CDB 2 and CDB 4) and a new pick up point will be added but there will be no increase of airflow through the baghouse. The new Megatex Screeners will have larger screening area, but the screening throughput is limited by upstream conveyors; therefore, no emissions increase will be expected from the replacement. The new Megatex Screeners are subject to 40 CFR Part 60, Subpart OOO (NSPS OOO).

SM Pittsboro has installed a new cone crusher to replace an existing cone crusher unit (ES2426.2). The replacement is being done due to normal wear that these pieces of equipment experience over several years of use. The new crusher will have a larger electric motor, but the throughput is limited by downstream equipment; therefore, no emissions increase will be expected from the replacement. The new cone crusher is subjected to NSPS OOO. The unit will remain connected to an existing baghouse (CDB 1).

SM Pittsboro proposes to install a diverter chute for the cone crusher to allow for screening of material prior to crushing. The diverter chute will allow material to be screened prior to crushing to allow any correct sized material to bypass the crusher. There will be no increase to throughput for the conveyor that the diverter chute is discharging to or out of the screener; therefore, no emissions increase will be expected from the modification. The conveyors are subjected to NSPS OOO. The units will remain connected to an existing baghouse (CDB 2).

SM Pittsboro proposes to install a metal detector, diverter valve, and diverter chute to remove separated metal from the aggregate and discharge it out of the building. The proposed equipment are subject to NSPS OOO. The proposed chute discharge will be uncontrolled.

SM Pittsboro recently determined that D Screen Bin #1 (ES8913A) has a loadout chute (not currently permitted) that is subject to NSPS OOO. The loadout chute would discharge to trucks if D Screen Bin #1 (ES8913A) needs to be emptied for any reason. The other D Screen Bins do not have loadout chutes.

SM Pittsboro is including documentation to demonstrate that Elevator 12 as an insignificant activity per Regulation 15A NCAC 02Q.0503(8). Elevator 12 is not subject to 40 CFR Part 60, Subpart OOO (NSPS OOO).

SM Pittsboro has changed baghouse bag manufacturers that have a different bag filter area than was originally permitted for the site. The updated baghouse filter areas are included with this application.

All new units subject to Subpart OOO will undergo initial performance testing for PM and opacity will be completed in accordance with 40 CFR Part 60, Subpart OOO.

APPLICABLE REGULATIONS TO THE PROPOSED MODIFICATION (attach additional sheets if necessary)

Emission Source	ID No.	Applicable Standard	Applicable Requirement	Proposed Monitoring, Recordkeeping, and Reporting
Megatex Screener #2	ES3537B	PM, Visible Emissions	15A NCAC 02D .0510, 15A NCAC 02D .0524 (40 CFR Part 60, Subpart OOO), 15A NCAC 02D .0540	N/A
Megatex Screener #3	ES3537C	PM, Visible Emissions	15A NCAC 02D .0510, 15A NCAC 02D .0524 (40 CFR Part 60, Subpart OOO), 15A NCAC 02D .0540	N/A
Megatex Screener #4	ES3537G	PM, Visible Emissions	15A NCAC 02D .0510, 15A NCAC 02D .0524 (40 CFR Part 60, Subpart OOO), 15A NCAC 02D .0540	N/A
Megatex Screener #5	ES3537H	PM, Visible Emissions	15A NCAC 02D .0510, 15A NCAC 02D .0524 (40 CFR Part 60, Subpart OOO), 15A NCAC 02D .0540	N/A
Undersize conveyor No. 3	ES8913D	PM, Visible Emissions	15A NCAC 02D .0510, 15A NCAC 02D .0524 (40 CFR Part 60, Subpart OOO), 15A NCAC 02D .0540	N/A
C bin feed conveyor No. 4	ES8913E	PM, Visible Emissions	15A NCAC 02D .0510, 15A NCAC 02D .0524 (40 CFR Part 60, Subpart OOO), 15A NCAC 02D .0540	N/A
G crusher No. 1	ES2426.2	PM, Visible Emissions	15A NCAC 02D .0510, 15A NCAC 02D .0524 (40 CFR Part 60, Subpart OOO), 15A NCAC 02D .0540	N/A
Metal Diverter chute	TBD	PM, Visible Emissions	15A NCAC 02D .0510, 15A NCAC 02D .0524 (40 CFR Part 60, Subpart OOO), 15A NCAC 02D .0540	N/A
G Crusher No.1 Diverter chute	TBD	PM, Visible Emissions	15A NCAC 02D .0510, 15A NCAC 02D .0524 (40 CFR Part 60, Subpart OOO), 15A NCAC 02D .0540	N/A
D Screener Bin #1 Loadout Chute	TBD	PM, Visible Emissions	15A NCAC 02D .0510, 15A NCAC 02D .0524 (40 CFR Part 60, Subpart OOO), 15A NCAC 02D .0540	N/A
Elevator 12	N/A	N/A	15A NCAC 02Q.0503(8)	N/A

ATTACH A COPY OF THE PROPOSED PERMIT CONDITIONS FOR EACH REQUIREMENT THAT APPLIES TO THE PERMIT MODIFICATION.

SPECIFIC PERMIT TERMS AND PROVISIONS AFFECTED BY THIS MODIFICATION (attach additonal sheets if necessary)

Source & ID No.	Permit Condition	Specify Provisions Which No Longer Apply
N/A		

Upon receipt of the completeness determination letter, you may make the modification in accordance with 15A NCAC 2Q .0515(f). A determination of application completeness by the DAQ is not a determination that each change qualifies as a minor permit modification. It is the responsibility of the applicant to ensure each proposed change meets the criteria of 15A NCAC 2Q .0515. The applicant assumes all financial risks associated with construction and operation without a permit revision. You shall comply with both the applicable requirements governing the change and the proposed permit conditions until final action is taken on the permit application. You need not comply with the existing permit terms and conditions you seek to modify. However, if you fail to comply with the proposed monitoring, the Director may enforce the terms and conditions of the existing permit that you seek to modify. You must certify compliance with the proposed permit terms on the annual compliance certification. The permit shield in 15A NCAC 2Q .0512(e) does not extend to this modification.

- Application No. 22A:

REVISED 10/17/2014 | **Title V Minor Modification (Prior to Permit Revision)** | **FORM A1 - MINOR**

MINOR MODIFICATION QUALIFICATION CHECKLIST

☑	This change does not violate any existing requirement in the current Title V air quality permit.
☑	This change does not result in any significant change in existing monitoring, reporting or recordkeeping provisions in my current permit.
☑	This change does not require a case-by-case determination (e.g. BACT)
☑	This change is not a modification under Title I of the federal Clean Air Act.
☑	This change is not a significant modification. (See 15A NCAC 2Q .0516)
☑	This change does not require a change to an existing permit term that was taken to avoid an applicable requirement. (e.g. PSD avoidance condition)
☑	This change does not require a permit under the NC Toxics program.

MINOR MODIFICATION DESCRIPTION

Provide Description of Modification (e.g. Adding emergency generator)
3M Pittsboro proposes to install one new silo and two new conveyors and a new baghouse. Additionally, the facility proposes to replace one of its existing crushers with a new crusher. Finally, to minimize submittals to DAQ, 3M Pittsboro has also included a 502b(10) Notification Form within this application.

The new grade silo will be designated as Grade Silo No. 4 (ID No. ES5155D). The silo will have a maximum nominal capacity of 5,000 tons. One of the new conveyors will be designated as Enclosed Conveyor No. 20B (Two Pickups) (ID No. ES20B) and have a maximum throughput capacity of 225 tons per hour. This conveyor will feed from the top of existing Grade Silo No. 3 and convey material to the new Grade Silo No. 4. The second new conveyor will be designated as Enclosed Conveyor No. 26A (Two Pickups) (ID No. ES26A) and have a maximum throughput capacity of 400 tons per hour. This conveyor will feed from the new Grade Silo No. 4. The new grade silo and its ancillary conveyors will work in parallel with 3M Pittsboro's existing silo equipment. This new process cannot functionally operate simultaneously with its existing silo operations. The new installations will have the same throughput capacities as the existing capacities and will not increase site throughput or debottleneck the process in anyway. The grade silo loading processes are currently limited by the upstream systems including Conveyor No. 20 and Elevator 1. No changes are being made to these assets; therefore, 3M Pittsboro's facility-wide potential emissions will not increase, which allows this new installation to be authorized under a minor modification.

The new grade silo baghouse will be designated as Grade Silo Baghouse No. 2 (CDB21). This baghouse will control emissions from the new grade silo and the transfer points from the new conveyors referenced above. Dust fines from this baghouse will then discharge onto Conveyor No. 23C. Conveyor No. 23C will not be modified in any way and will not increase its throughput or its potential emissions. The new baghouse will have a maximum exhaust flow of 19,150 CFM; therefore, requires a professional engineering (PE) certification per 15A NCAC 02Q .0112. A PE certification has been included within this application on all appropriate forms. As part of this application, 3M has included request per an Administrative Amendment for DAQ to change the formal source name of CDB5 from "Grade silo baghouse" to "Grade Silo Baghouse No. 1" for consistent naming convention.

Additionally, the facility will be replacing G Crusher No. 1 (ID No. ES2426.2) with a new cone crusher. The new cone crusher will be designated as C Crusher No. 2A (ID No. ES232). The replacement is being done due to normal wear that these pieces of equipment experience over time several years of use. The throughput will not increase and is still limited by downstream processes; therefore, no emissions increases will occur from the replacement. The new crusher will be controlled by Crusher Baghouse No. 1 (CDB1) like the previous crusher. No modification to the baghouse will occur; therefore, no PE certification is required for this specific aspect of the application.

APPLICABLE REGULATIONS TO THE PROPOSED MODIFICATION (attach additional sheets if necessary)

Emission Source	ID No.	Applicable Standard	Applicable Requirement	Proposed Monitoring, Recordkeeping, and Reporting
Grade Silo No. 4	ES5155D	Work Practice Standards	**15A NCAC 02D .0510**	Proposed permit conditions are in accordance to the proposed conditions of Permit Section 2 (2.1)(A) from the Title V Renewal and Application 21C draft submitted by 3M to DAQ (Ms. Judy Lee) via email on 5/13/2022. See following pages.
Grade Silo No. 4	ES5155D	PM: 0.032 grams per dry standard cubic meter Fugitive Opacity: 7 percent	**15A NCAC 02D .0524 [40 CFR Part 60, Subpart OOO]**	Proposed permit conditions are in accordance to the proposed conditions of Permit Section 2 (2.1)(A) from the Title V Renewal and Application 21C draft submitted by 3M to DAQ (Ms. Judy Lee) via email on 5/13/2022. See following pages.

- Application No. 22A (continued):

Enclosed Conveyor No. 20B (Two Pickups)	ES20B	Work Practice Standards	**15A NCAC 02D .0510**	Proposed permit conditions are in accordance to the proposed conditions of Permit Section 2 (2.1)(A) from the Title V Renewal and Application 21C draft submitted by 3M to DAQ (Ms. Judy Lee) via email on 5/13/2022. See following pages.
Enclosed Conveyor No. 20B (Two Pickups)	ES20B	PM: 0.032 grams per dry standard cubic meter Fugitive Opacity: 7 percent	**15A NCAC 02D .0524 [40 CFR Part 60, Subpart OOO]**	Proposed permit conditions are in accordance to the proposed conditions of Permit Section 2 (2.1)(A) from the Title V Renewal and Application 21C draft submitted by 3M to DAQ (Ms. Judy Lee) via email on 5/13/2022. See following pages.
Enclosed Conveyor No. 26A (Two Pickups)	ES26A	Work Practice Standards	**15A NCAC 02D .0510**	Proposed permit conditions are in accordance to the proposed conditions of Permit Section 2 (2.1)(A) from the Title V Renewal and Application 21C draft submitted by 3M to DAQ (Ms. Judy Lee) via email on 5/13/2022. See following pages.
Enclosed Conveyor No. 26A (Two Pickups)	ES26A	PM: 0.032 grams per dry standard cubic meter Fugitive Opacity: 7 percent	**15A NCAC 02D .0524 [40 CFR Part 60, Subpart OOO]**	Proposed permit conditions are in accordance to the proposed conditions of Permit Section 2 (2.1)(A) from the Title V Renewal and Application 21C draft submitted by 3M to DAQ (Ms. Judy Lee) via email on 5/13/2022. See following pages.
C Crusher No. 2A	ES232	Work Practice Standards	**15A NCAC 02D .0510**	Proposed permit conditions are in accordance to the proposed conditions of Permit Section 2 (2.1)(A) from the Title V Renewal and Application 21C draft submitted by 3M to DAQ (Ms. Judy Lee) via email on 5/13/2022. See following pages.
C Crusher No. 2A	ES232	PM: 0.032 grams per dry standard cubic meter Fugitive Opacity: 7 percent	**15A NCAC 02D .0524 [40 CFR Part 60, Subpart OOO]**	Proposed permit conditions are in accordance to the proposed conditions of Permit Section 2 (2.1)(A) from the Title V Renewal and Application 21C draft submitted by 3M to DAQ (Ms. Judy Lee) via email on 5/13/2022. See following pages.

ATTACH A COPY OF THE PROPOSED PERMIT CONDITIONS FOR EACH REQUIREMENT THAT APPLIES TO THE PERMIT MODIFICATION.

SPECIFIC PERMIT TERMS AND PROVISIONS AFFECTED BY THIS MODIFICATION (attach additional sheets if necessary)

Source & ID No.	Permit Condition	Specify Provisions Which No Longer Apply
Grade Silo No. 4 (ES5155D	Permit Section 2 (2.1)(A) of Title V Renewal/Application 21C draft permit.	NA
Enclosed Conveyor No. 20B (Two Pickups) (ES20B)	Permit Section 2 (2.1)(A) of Title V Renewal/Application 21C draft permit.	NA
Enclosed Conveyor No. 26A (Two Pickups) (ES26A)	Permit Section 2 (2.1)(A) of Title V Renewal/Application 21C draft permit.	NA
C Crusher No. 2A (ES232)	Permit Section 2 (2.1)(A) of Title V Renewal/Application 21C draft permit.	NA

Upon receipt of the completeness determination letter, you may make the modification in accordance with 15A NCAC 2Q .0515(f). A determination of application completeness by the DAQ is not a determination that each change qualifies as a minor permit modification. It is the responsibility of the applicant to ensure each proposed change meets the criteria of 15A NCAC 2Q .0515. The applicant assumes all financial risks associated with construction and operation without a permit revision. You shall comply with both the applicable requirements governing the change and the proposed permit conditions until final action is taken on the permit application. You need not comply with the existing permit terms and conditions you seek to modify. However, if you fail to comply with the proposed monitoring, the Director may enforce the terms and conditions of the existing permit that you seek to modify. You must certify compliance with the proposed permit terms on the annual compliance certification. The permit shield in 15A NCAC 2Q .0512(a) does not extend to this modification.

Attachment 2 – CAM Analysis (revised per May 13, 2022 addendum)

Control Device ID No.	Controls Emissions from which emission source(s) ID No(s)	Pollutants Collected and Overall Control Efficiency (%)		Before Control Emission Rate (lb/hr)		After Control Emission Rate (lb/hr)*		Before Control Emission Rate (tpy)		After Control Emission Rate (tpy)*		CAM applies?
		PM	PM10	PM	PM10	PM	PM10	PM	PM10	PM	PM10	
CDB1	ES123, ES412, ES607.1, ES607.2, ES2327A, ES2426.1, ES3031, ES3941, ES4347.1, ES4347.2, ESC3, ESC23A.1, ES232	99.97	99.92	16.09	5.81	0.0048	0.0046	70.47	25.45	0.021	0.020	No
CDB2	ES16-A, ES32.1, ES32A, ES32B, ES340-A, ES1721A, ES1721B, ES1721C, ES1721D, ES1721E, ES3537A, ES3537B, ES3537C, ES3537D, ES3537E, ES3537F, ES8913A, ES8913B, ES8913C, ES8913D, ES8913E, ES8913F	99.97	99.92	39.53	13.87	0.0119	0.0111	173.14	60.75	0.052	0.049	No
CDB3	ESC22.2, ES1415	99.92	99.92	13,697.48	PM includes PM10	10.9580	10.9580	59,994.96	59,994.96	47.996	47.996	Yes
CDB4	ES16-B, ES33A, ES33B, ES340-B, ES1822A, ES1822B, ES1822C, ES1822D, ES2327B, ES3537G, ES3537H, ES3537I, ESC3537J, ES8913K, ESC23C	99.97	99.92	26.16	9.21	0.0078	0.0074	114.58	40.34	0.034	0.032	No
CDB5	ES16-C, ES32.2, ES38, ES39, ES2327, ES2729.1, ES233 (previously ES2729.2), ES4042, ES4043, ES4044, ES4448.1, ES4448.2	99.97	99.92	9.68	3.83	0.0029	0.0031	42.40	16.78	0.013	0.013	No

Control Device ID No.	Controls Emissions from which emission source(s) ID No(s)	Pollutants Collected and Overall Control Efficiency (%)		Before Control Emission Rate (lb/hr)		After Control Emission Rate (lb/hr)*		Before Control Emission Rate (tpy)		After Control Emission Rate (tpy)*		CAM applies?
		PM	PM10	PM	PM10	PM	PM10	PM	PM10	PM	PM10	
CDB6	ES49A, ES49B, ES50, ES57, ES58, ES59, ES5155A, ES5155B, ES5155C	99.97	99.92	4.58	1.68	0.0014	0.0013	20.06	7.36	0.006	0.006	No
CDB7	ES23C, ES63A, ES63B, ES68A, ES68B, ES6466, ES6466SC, ES6970	99.97	99.92	1.47	0.54	0.0004	0.0004	6.44	2.36	0.002	0.002	No
CDB8	ESCPL1-280A, ESCPL1-280B, ESCPL1-280C, ESCPL2-280A, ESCPL2-280B, ESCPL2-280C, ESCPL1-600, ESCPL2-600, ESCPL3-600, ESCP900, ESCPA9, ESCPA10, ESCPCC, IS-ESCP1, IS-ESCP2, IS-ESCP3, IS-ESCP4, IS-ESCPC-8, IS-ESCPL1-8, IS-ESCPL2-8 (previously ESCP1012A, ESCP1012B, ESCP1012C, ESCP1012D, ESCPPFC1, ESCPPFC2)	99.97	99.92	2.70	0.99	0.0008	0.0008	11.83	4.34	0.004	0.003	No
CDB9	ESCPPH1	99.92	99.92	1,257.32	PM includes PM10	1.0059	1.0059	5,507.06	5,507.06	4.406	4.406	Yes
CDB10	ESCPPH2	99.92	99.92	1,257.32	PM includes PM10	1.0059	1.0059	5,507.06	5,507.06	4.406	4.406	Yes
CDB11	ESCPM1	99.97	99.92	2,630.67	1,244.24	0.7892	0.9954	11,522.33	5,449.77	3.457	4.360	Yes
CDB12	ESCPM2	99.97	99.92	2,630.67	1,244.24	0.7892	0.9954	11,522.33	5,449.77	3.457	4.360	Yes
CDB13	ESCPK1	99.97	99.92	2,668.32	PM includes PM10	0.8005	2.1347	11,687.24	11,687.24	3.506	9.350	Yes

Control Device ID No.	Controls Emissions from which emission source(s) ID No(s)	Pollutants Collected and Overall Control Efficiency (%)		Before Control Emission Rate (lb/hr)		After Control Emission Rate (lb/hr)*		Before Control Emission Rate (tpy)		After Control Emission Rate (tpy)*		CAM applies?
		PM	PM10	PM	PM10	PM	PM10	PM	PM10	PM	PM10	
CDB14	ESCPK2	99.97	99.92	2,668.32	PM includes PM10	0.8005	2.1347	11,687.24	11,687.24	3.506	9.350	Yes
CDB15	ESCPL1-280A, ESCPL1-280B, ESCPL1-280C, ESCPL2-280A, ESCPL2-280B, ESCPL2-280C, ESCPL1-600, ESCPL2-600, ESCPL3-600, ESCP900, ESCPA9, ESCPA10, ESCPCC	99.97	99.92	19.16	6.74	0.0057	0.0054	83.92	29.52	0.025	0.024	No
CDB16	ESA1, ESA5, ESA6, ESA7, ESA11	99.97	99.92	22.64	7.92	0.0068	0.0063	99.16	34.69	0.030	0.028	No
CDB17	ESA2, ESA3, ESA4, ESA8, ESA9, ESA12	99.97	99.92	7.06	2.81	0.0021	0.0022	30.92	12.31	0.009	0.010	No
CDB18	ESCPPH3	99.92	99.92	1,257.32	PM includes PM10	1.0059	1.0059	5,507.06	5,507.06	4.406	4.406	Yes
CDB19	ESCPM3	99.97	99.92	2,630.67	1,244.24	0.7892	0.9954	11,522.33	5,449.77	3.457	4.360	Yes
CDB20	ESCPA6, ESCPK3	99.92	99.92	2,668.32	PM includes PM10	2.1347	2.1347	11,687.24	11,687.24	9.350	9.350	Yes
CDB21	ES5155D, ES20B, ES26A	99.97	99.92	3.23	1.18	0.0010	0.0009	14.15	5.17	0.004	0.004	No
								146,811.95	128,166.24	88.14	102.53	
*based on overall control efficiency provided on Form C1 (99.97% PM, 99.92% PM10)								**Before Controls PTE PM (tpy)**		**After Controls PTE PM (tpy)**		

Attachment 3 – US EPA's Applicability Determination Index

U.S. Environmental Protection Agency
Applicability Determination Index

Control Number: 9700004

Category: NSPS
EPA Office: Region 4
Date: 07/20/1995
Title: Subpart OOO-Crushed Stone Pugmill System
Recipient: Methier, Ronald
Author: Harper, Jewell

Subparts: Part 60, OOO, Nonmetallic Mineral Processing

Abstract:

Q. Is a new pugmill system installed at a crushing plant subject to Subpart OOO?

A. Yes. EPA considers operation of an affected facility part of the main plant if it is located on a contiguous plant site and is used to process material initially processed in the main plant. It is not necessary for the pugmill to be attached to the main plant by conveyor or feeder, or for grinding or crushing to occur in the pugmill for it to be subject to Subpart OOO.

Letter:

4APT-AEB Jul 20, 1995

Mr. Ronald Methier
Chief
Air Protection Branch
Environmental Protection Division
Georgia Department of Natural Resources
4244 International Parkway, Suite 120
Atlanta, Georgia 30354

SUBJ: Applicability of New Source Performance Standards (NSPS) Subpart OOO to Crushed Stone Puqmill System Located at Vulcan Materials Company (VM), Columbus, Georgia

Dear Mr. Methier:

This is to acknowledge a letter from Mr. Edward A. Cutrer of your staff dated June 28, 1995, requesting the Environmental Protection Agency (EPA) to make a determination regarding the applicability of Subpart OOO for the referenced facility. After reviewing the information enclosed with Mr. Cutrer's letter, we have determined that the new pugmill system at VM is subject to Subpart OOO (Standards of Performance for Nonmetallic Mineral Processing Plants).

According to the information enclosed in Mr. Cutrer's letter, on April 24, 1995, the Georgia Department of Natural Resources (GDNR) amended VM's permit to include the installation of a pugmill system that consisted of four loader bins and four feeder belts subjecting it to Subpart OOO. However, in their June 5, 1995, letter, the company proposed to install a new five bin, instead of the four bin pugmill system, but requested that the new pugmill system not be subject to Subpart OOO. The company's basis for this request is as follows: a) the pugmill system will not be attached to the main plant by conveyor or feeder, although it is located at the same site as the crushing plant; and b) the pugmill system is a mixing process that does not employ crushing or grinding.

After considering the relevant issues, we have determined that it is not necessary for the pugmill system to be attached to the main plant by conveyor or feeder for it to be subject to Subpart OOO. Similarly, it is not necessary for grinding or crushing to occur at the pugmill system for it to be subject to Subpart OOO. In previous similar determinations, EPA has concluded that it would be reasonable to consider operation os any affected facility, wherever located, part of the main plant if it is located on a contiguous plant site and is used to process material initially processed in the main plant. Therefore, any affected equipment in the pugsill system at VM (conveyor belts, storage bins, etc.) would be subject to theprovisions of Subpart 000.

If you have any questions regarding the determination provided in this letter, please contact Mr. Mirza P. Baig of my staff at 404/347-3555, extension 4147.

Sincerely yours,

Jewell A. Harper
Chief
Air Enforcement Branch
Air, Pesticides and Toxics
Management Division

cc: Mr. Edward A. Cutrer, GADNR

U.S. Environmental Protection Agency
Applicability Determination Index

Control Number: 9800003

Category: NSPS
EPA Office: Region 4
Date: 02/27/1996
Title: Nonmetallic Mineral Processing
Recipient: Joy, James A.
Author: Harper, Jewell A.

Subparts: Part 60, OOO, Nonmetallic Mineral Processing

References: 60.671

Abstract:

Q: Does Subpart OOO apply to any combination of equipment used in processing nonmetallic mineral both prior to and after the initial crushing or grinding operation, and is wet dust suppression a federally enforceable condition of compliance under Subpart OOO?

A: Any equipment used in processing nonmetallic minerals, including equipment located prior to the initial crusher (e.g., field conveyors, wash screen, or grizzlies), are subject to the provisions of Subpart OOO. Wet dust suppression is not a federally enforceable method of controlling emissions at facilities that are subject to the provisions of Subpart OOO, unless it is incorporated as a permit condition.

Letter:

February 27, 1996

Mr. James A. Joy, III. P.E.,
Chief
Bureau of Air Quality Control
South Carolina Dept. of Health & Environmental Control 2600 Bull Street Columbia, SC 29201

SUBJ: Request by Becker Minerals, Inc. (BMI) SC for Determination of Applicability of 40 CFR Part 60, Subpart OOO (Standards of Performance for Nonmetallic Mineral Processing Plants)

Dear Mr. Joy:

This is to acknowledge a letter from Mr. N.F. Wills of BMI dated January 27, 1995, requesting an Environmental Protection Agency (EPA) determination regarding the applicability of the referenced subpart to their facility. A copy of this letter is enclosed. After reviewing their request, we have advised BMI that we will forward our response directly to South Carolina Department of Health and Environmental Control (SCDHEC), since the implementation of this subpart has been delegated to SCDHEC.

Based upon our review, we have determined that in a nonmetallic mineral processing plant, Subpart OOO applies to any combination of equipment used in processing nonmetallic mineral both prior to and after the initial crushing or grinding operation. We have also determined that wet dust suppression is not a federally enforceable condition of compliance under Subpart OOO.

In their January 27, 1995, letter, BMI has concluded that Subpart OOO is applicable only to the equipment located after the initial crusher in nonmetallic mineral processing plants. The basis for this conclusion according to the company is:

a) The definitions of production lines, initial crushers, and capacity in Subpart OOO,

b) Certain portions of the preamble to this subpart, and

c) Section 2.1 of EPA publication 340/1-90-010 (Regulatory and Inspection Manual for Nonmetallic Mineral Processing Plants).

In similar previous determinations, EPA has concluded that any equipment used in processing nonmetallic minerals, including equipment located prior to the initial crusher (e.g., field conveyors, wash screen, or grizzlies), are subject to the provisions of Subpart OOO. The basis for this conclusion is that a nonmetallic mineral processing plant under 40 CFR 60.671 is defined as any combination of equipment that is used to crush or grind any nonmetallic mineral, wherever located. Under this definition, any equipment used prior to the initial crusher or grinder is not precluded from applicability under Subpart OOO. For more details, we are enclosing copies of these determinations.

Regarding the second issue raised in BMI's letter, we believe that wet dust suppression is an acceptable means of controlling particulates or visible fugitive emissions, but Subpart OOO does not mandate installing wet suppression. Therefore, we believe that wet dust suppression is not a federally enforceable method of controlling emissions at facilities that are subject to the provisions of Subpart OOO. However, if the owner or operator of a facility that is subject to Subpart OOO proposes wet suppression as a method of controlling emissions and it is incorporated as a permit condition, then wet dust suppression can be a federally enforceable condition of compliance. If you have any questions regarding this letter, please contact Mr. Mirza P. Baig of my staff at (404) 347-3555, voice mail number 4147.

Sincerely yours,

Jewell A. Harper
Chief
Air Enforcement Branch
Air, Pesticides and Toxics Management Division

Attachment 4 – Appendix to the North Carolina Air Quality Rules (15A NCAC .02D .0510)

Appendix to the North Carolina Air Quality Rules

SAND, GRAVEL, CRUSHED STONE: 15A NCAC 2D .0510

Recycled Asphalt Product Crushers

Recycled asphalt product (RAP) crushers manufactured, reconstructed, or modified after August 31, 1983, are subject to 40 CFR Part 60, Subpart OOO (**15A NCAC 2D .0524**). If the RAP crusher is not covered under the new source performance standard, it is covered under **15A NCAC 2D .0510**. Under **15A NCAC 2D .0510**, RAP crushers are not considered stone crushing operations and, therefore, are not required to employ water spray.*

Wet Suppression at Crushers

15A NCAC 2D .0510(c) requires the use of wet suppression at the crusher. According to the hearing record, the phrase "crushers with wet suppression" is synonymous with "use wet suppression at the crusher." If the material being crushed is not naturally wet, spray bars should be employed to wet the material. If the material being crushed is naturally wet, no spray bars are required. (A material is naturally wet if it is noticeably saturated with water as mined.) In any event, the material should be sufficiently wet such that the visible emissions standard is not violated at the crusher or at any conveyor, screen, or transfer point. This same interpretation applies to crushers covered under **15A NCAC 2D .0509**, Particulates from Mica or Feldspar Processing Plants, and **.0511**, Particulates from Lightweight Aggregate Processes.†

For the purposes of Title V applicability, potential emissions from rock quarries have been calculated assuming water spray at the crusher. Inspectors should ask the facility to explain the procedures for activating its water suppression system. If the facility does not turn on the water spray until visible emissions are present, its operation is dry, and its potential emissions need to be recalculated accordingly. Any facility that does not run wet material at all times should have its potential emissions calculated on a dry basis. If any quarry insists on operating its crusher without water

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*Alan Klimek to Regional Supervisors, *et al.*, "Requirements for RAP crushers under 2D .0510," 21 Nov. 1996 (memorandum).

†Brock Nicholson to Regional Supervisors, *et al.*, "Wet Suppression at Crushers," 25 Sept. 1998 (memorandum).

spray, then its potential emissions need to be recalculated to account for the lack of water spray. The exception would be crushing material that is naturally wet. Wet suppression needs to be used at all times for potential emissions to be calculated on a wet basis.*

LIGHTWEIGHT AGGREGATE: 15A NCAC 2D. 0511

To qualify for the lightweight aggregate rule, the material (clay, slate, or shale) would have to be heated to a temperature high enough to cause the water trapped in the ore to explode and thereby filling the material with air pockets. Pearlite and vermiculite are two such materials.†

Crushing at lightweight aggregate facilities is subject to the same ambient dispersion modeling requirements as quarries.‡

WOOD PRODUCTS FINISHING: 15A NCAC 2D .0512

Finishing of Wood

Finishing of wood includes giving final touches to embellish or to perfect; giving a desired surface effect; anything used to give a desired surface effect, as paint, varnish, etc.; the method in which the surface, as of furniture, is painted, varnished, smoothed, etc.¶

Spray Booths

Uncontrolled spray booths in existence (September 6, 1984) may be permitted in compliance with **15A NCAC 2D .0512** if the ambient standards and PSD increments are protected, and regional evaluation indicates no excessive particulate off property. If off-property impacts are causing an

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*Ibid.

†Thom Allen to Patrick Ballard, "2D .0511," 14 Jan. 2002 (e-mail).

‡Lee A. Daniel to Fred R. Allen, "Revision to Dispersion Modeling Requirements for Crushing Operations," 23 Mar. 1990 (letter).

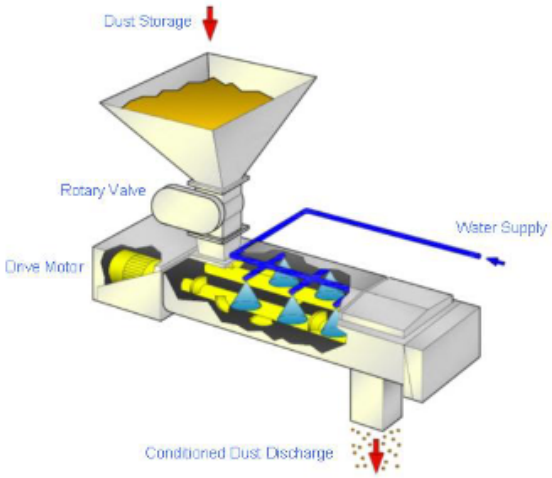
¶Fin Johnson to Regional Supervisors and Air Quality Staff, "DEM Policy Concerning Particulates from Wood Finishing, Air Regulations 15 NCAC 2D .0512 and .0515," 6 Sept. 1984 (memorandum).

Attachment 5 – Industry Data (Pugmill Information/Brochure)

ENVIROFLO
ENGINEERING
An Ecolab Company

Enviroflo Engineering
Dust Control Contractors to the Minerals Extraction & Processing Industry
Nalco Limited PO Box 11, Northwich, Cheshire, CW8 4DX
www.envirofloeng.com sales@envirofloeng.com
T +44 (0) 1606 744 88 F +44 (0) 1606 765 68

ENVIRO DUST CONDITIONER



The Enviro Dust Conditioner is a dust control device designed to add water, or in some cases, a wetting agent to dry granular materials so as to 'dampen down' or condition the product prior to off-loading from a storage hopper or bunker. Water conditioning reduces or in some cases eliminates the release of dust to atmosphere from the product as it falls into an open vehicle, skip or onto the ground below.

It is normal to feed the product volumetrically by means of a rotary valve. The conditioner has a number of paddles mounted on two parallel shafts and these shafts are driven by means of a geared motor. The water is added via a solenoid valve to the product in the conditioner by means of a number of centrifugal sprays and the product and water are mixed together during the passage along the length of the conditioner. A discharge opening is provided at the end of the conditioner.

Featuring:

- ★ Heavy duty construction to suit abrasive products and abrasive applications.
- ★ Quick release top covers to gain access to the spray and paddle area.
- ★ Safety switch on top covers to prevent paddle rotation should covers be removed.
- ★ Centrifugal involute nozzles to reduce clogging.
- ★ Individually adjusted paddle tips for optimum mixing.
- ★ Individually removable paddle tips for convenient replacement or maintenance.
- ★ Solenoid valve and water control valve on pipework to control introduction of water.
- ★ Flanged inlet connection and spigot outlet connection (spigot outlet to suit the fitting of a vehicle loading sock).
- ★ Drive motor and heavy duty gearbox with flexible coupling to drive shaft followed by spur gear drive to the second shaft.

http://www.envirofloeng.com/images/Enviroflo%20Dust%20Conditioner.pdf

Though people often identify pugmills as a mixer to add moisture back to dried potter's clay, there are also many industrial applications for larger pugmills to mix large volumes of material. These pugmills are used to add water into a mixture, mix several dry materials, or to dry large volumes of liquids or sludges.

What Is a Pugmill?

Pugmills are mixers that mix multiple materials into a homogeneous mixture very rapidly. Smaller pugmills are used to recycle and reclaim clay in pottery studios. These pugmills can also be used to de-aerate and add moisture back to the clay to make it usable again. Industrial pugmills are powerful, reliable solutions for continuous mixing processes, particularly those with abrasive aggregates. Pugmills are suitable for producing mineral mixtures for road base, Roller Compacted Concrete, landfill bentonite liners, and for drying sludges with reagents. These pugmills offer higher production rates of 50 to 1000 tons per hour.

What Do Pugmills Do?

Pugmills are used in rock quarries across the US to add water to aggregate to make road base. They are also used on construction sites to make Cement Treated Base, Roller Compacted Concrete, and Flex Base.

Pugmills are used in landfills to dry waste sludges by adding drying agents in the mixer so that the dried sludge can be landfilled. Pugmills are also used to stabilize waste dust such as fly ash, bed ash, and cement kiln dust. Newer applications include using pugmills to dry drilling fluids from the oil and gas industries, tunnel boring machines, and liquids from hydro excavation.

How Does a Pugmill Work?

Pugmills generate rapid mixing action using the counter-rotation of the the two mixing shafts as well as the inclined position of the mixing blades resulting in an intense vertical and horizontal mixing motion. High quality consistent continuous mixes can be obtained using accurate dosing and weighing equipment to ensure that the materials entering the pugmill are in the corrector proportions.

The Continuous Pugmill Mixer

The BHS Sonthofen LFK Continuous Mixer or Pugmill is a twin shaft mixer engineered in Germany. The mixing system works with two horizontal mixing shafts equipped with synchronized mixing arms with adjustable paddle tips. The paddle tips accelerate the aggregates being mixed and generate intensive relative movements which create a homogenous mixture in a short 8-10 second retention time.

How the Continuous Pugmill Differs from a Batch Mixer

In a batch mixer, all ingredients are charged into the mixer in a pre-defined sequence, and then mixed, discharged, and the charging process begins again. In a continuous mixer or pugmill, material is constantly entering and exiting the mixer. The materials must enter the mixer in the correct proportions. The mixing results in continuous mixers depend on metering accuracy and metering sequence of the incoming materials. Errors in the timing of the metering cannot be corrected by the mixer. If the aggregate enters the mixer before the water or cement starts flowing, the aggregate will leave the mixer just like it came in. Thompson Rock Mixers' PLC controls and onsite startup assistance eliminate these errors.

Wide Range of Applications

The BHS LFK mixer has excellent resistance to wear, is easy to maintain, and has outstanding energy efficiency. It is ideal for mixing road base with water, Roller Compacted Concrete (RCC), Cement Treated Base (CTB), flex base, cold mix asphalt, and lime addition for asphalt plants.

Standard Features

Standard Features on every pugmill that set us apart:

1. Automatic grease lubrication system for the (4) axial face shaft seals.
2. Large clean-out doors in the trough of the mixer allow for easy maintenance access.
3. Electromagnetic locking system prevents the top doors from being opened during operation.
4. BHS patented worm gear drives and maintenance-free elastic couple eliminate the hassle and expense of timing gears.
5. Bolt-on wear plates protect the inlet and discharge end walls from premature wear, and bolt-on cast wear liners for the mixing trough.

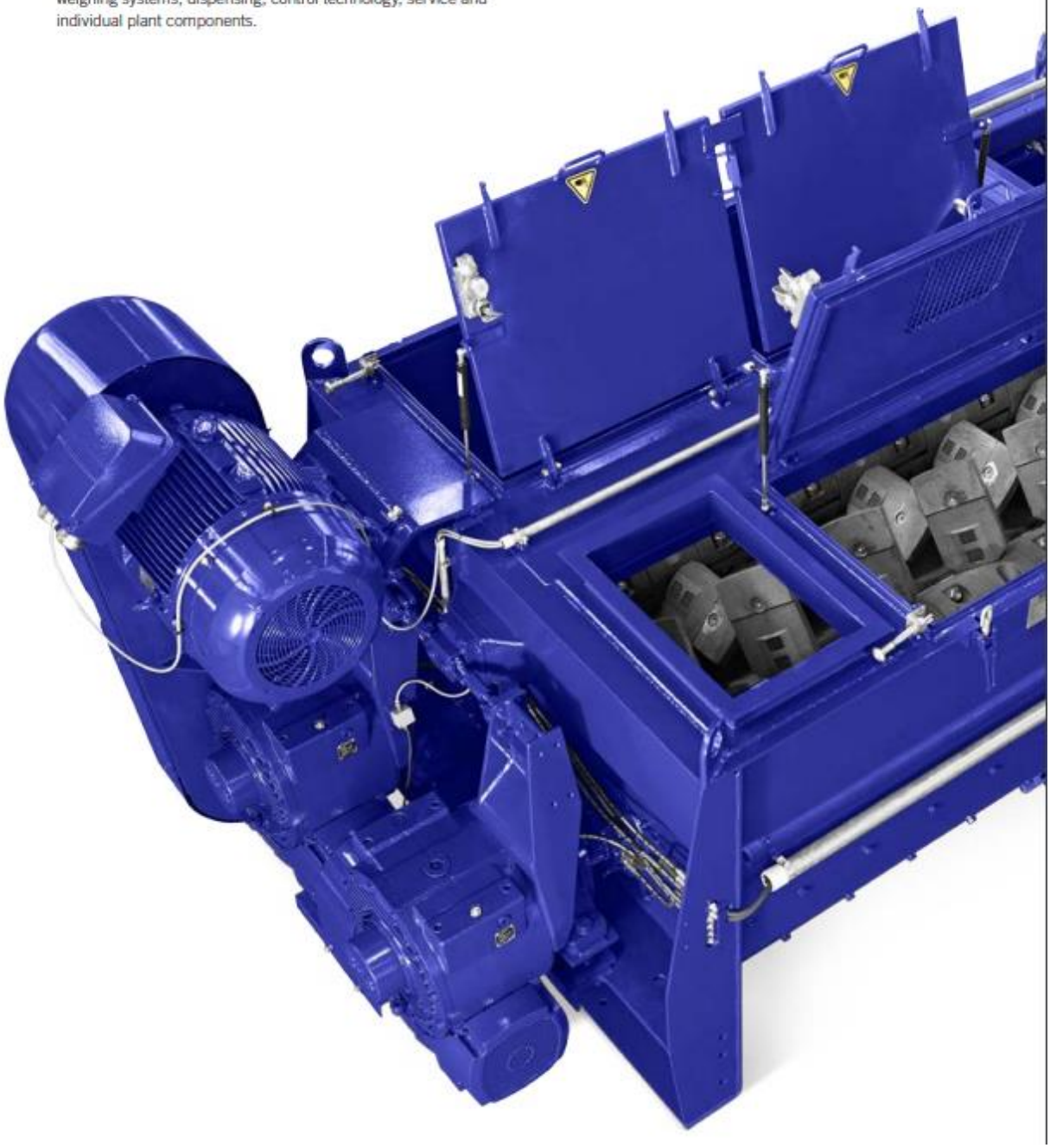
Contact us for specifications, pricing, and delivery details on our pugmill systems.

https://thompsonrock.com/everything-you-need-to-know-about-pugmills/

TWIN-SHAFT CONTINUOUS MIXER

BHS twin-shaft continuous mixer

The BHS twin-shaft continuous mixer is a powerful, reliable solution for continuous mixing processes, particularly those with coarse aggregates. This mixer is especially suitable for producing mineral mixtures, RCC, landfill liners, lean concrete, heavy concrete and dry mixtures, etc.
BHS also offers complete continuous mixing systems, including weighing systems, dispensing, control technology, service and individual plant components.



Consistent high quality mixtures

The counter-rotation of the two mixing shafts as well as the inclined position of the mixing tools result in an intense vertical and horizontal mixing motion. A mixture that is formula-compliant and of a consistently high quality is ensured in conjunction with BHS weighing and dispensing equipment.

Material bed protects against wear

A natural bed of materials that is formed in the mixing trough during operation serves as protection against wear. For special applications, it is possible to design the mixer with a round trough and with tiles made of a special cast chromium steel.

Proven drive technology

The drives installed by BHS ensure high operational reliability, energy efficiency and long service life. The worm gearing is specially designed for the BHS twin-shaft continuous mixer and is highly efficient. The drive power is transmitted reliably by a V-belt drive. A torque support enables the drive to be freely suspended, thereby preventing shock loads within the transmission.

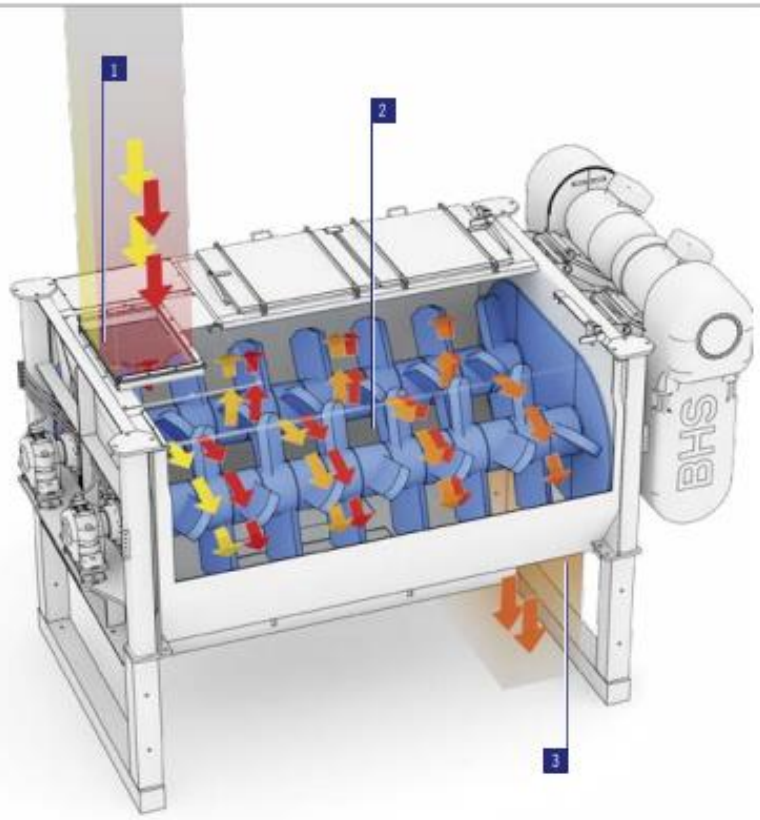
Maintenance-friendly and robust design

BHS mixers are characterized by a sturdy and durable design, providing safe and easy access for maintenance work. BHS twin-shaft continuous mixers have large maintenance doors at the top and at the bottom.

Investment security and operational reliability

Even in the most adverse conditions, the robust, durable design ensures maximum operational reliability and thus long-term investment security.

FUNCTION, AREAS OF USE AND APPLICATION EXAMPLES



Feed area 1

The input material is fed continuously to the mixing tools, which convey it through the mixer. The water is introduced through special nozzles.

Mixing section 2

The counter-rotation of the two mixing shafts and the inclined position of the mixing tools ensure an intense vertical and horizontal mixing motion as well as continuous transport of the mixture materials.

Discharge area 3

The finished mix leaves the mixer in a constant flow and can be fed to the downstream processing operations.

Areas of use	Applications
Lean concrete / RCC	Road construction, hydro dam concrete, blinding concrete
Mineral mixtures	Road construction, path construction, ground stabilization
Fine-particle and dry mixtures	Dry mortar, cement blendings, fly ash, foundry sand
Environment and waste disposal	Landfill sealing, backfill, pumpable mixtures, mine filling
Heavy concrete	Tube coating
Soils	Gardening soil, soil improvers

Twin-Shaft Continuous Mixer (LFK)
Technical data

Performance Data

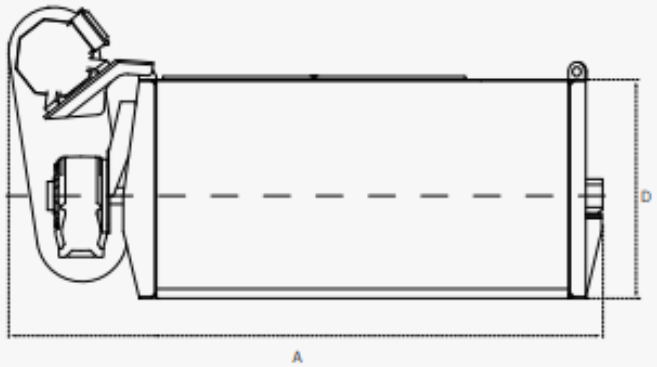
Type	Mixing circle diameter	Mixing distance	Mixing throughput [1]			Feed size (max.)	Drive power
			Lean concrete/RCC	Mineral mixes	Fines (dry) [2]		
LFK 0626	24.8 in	102 in	110 - 240 tph	110 - 250 tph	55 - 140 tph	1.75 in	30 hp
LFK 0726	29.5 in	102 in	165 - 350 tph	165 - 385 tph	75 - 240 tph	2.50 in	50 hp
LFK 0926	35.5 in	102 in	220 - 600 tph	220 - 750 tph	120- 360 tph	2.50 in	75 hp
LFK 1130	43.3 in	118 in	380 - 930 tph	380 - 1,300 tph	210 - 600 tph	3.00 in	2 x 50 hp

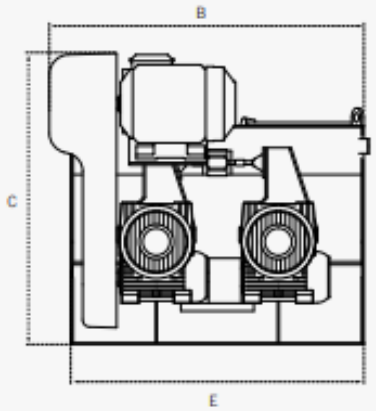
Dimensions and weights

Type	A	B	C	D	E	Weight [3]
LFK 0626	137.8 in	49.20 in	48.00 in	47.24 in	52.36 in	6,800 lbs
LFK 0726	143.7 in	56.70 in	58.26 in	47.24 in	59.06 in	11,250 lbs
LFK 0926	155.51 in	78.74 in	73.23 in	54.53 in	72.83 in	13,500 lbs
LFK 1130	167.32 in	93.31 in	80.71 in	63.00 in	88.98 in	21,800 lbs

[1] Throughput capacity for other aggregates available on request.
[2] Material density 1.00 t/m³.
[3] Weight for standard model without accessories.

All technical data shown here refer to the standard version.
The technical data for customer-specific versions may vary from the information shown here.
All technical data may change due to development.
Subject to modification without notice.





BHS-Sonthofen GmbH, An der Eisenschmelze 47, 87527 Sonthofen, Germany
Phone +49 8321 6099-0, Fax +49 8321 6099-220, info@bhs-sonthofen.com, www.bhs-sonthofen.com

TRANSFORMING MATERIALS INTO VALUE

https://thompsonrock.com/brochures/BHS%20LFK%20Pugmill%20Thompson%20Rock%20Mixers%20US.pdf

Attachment 6 – Pugmill Manual (relevant pages)

LFK 0726

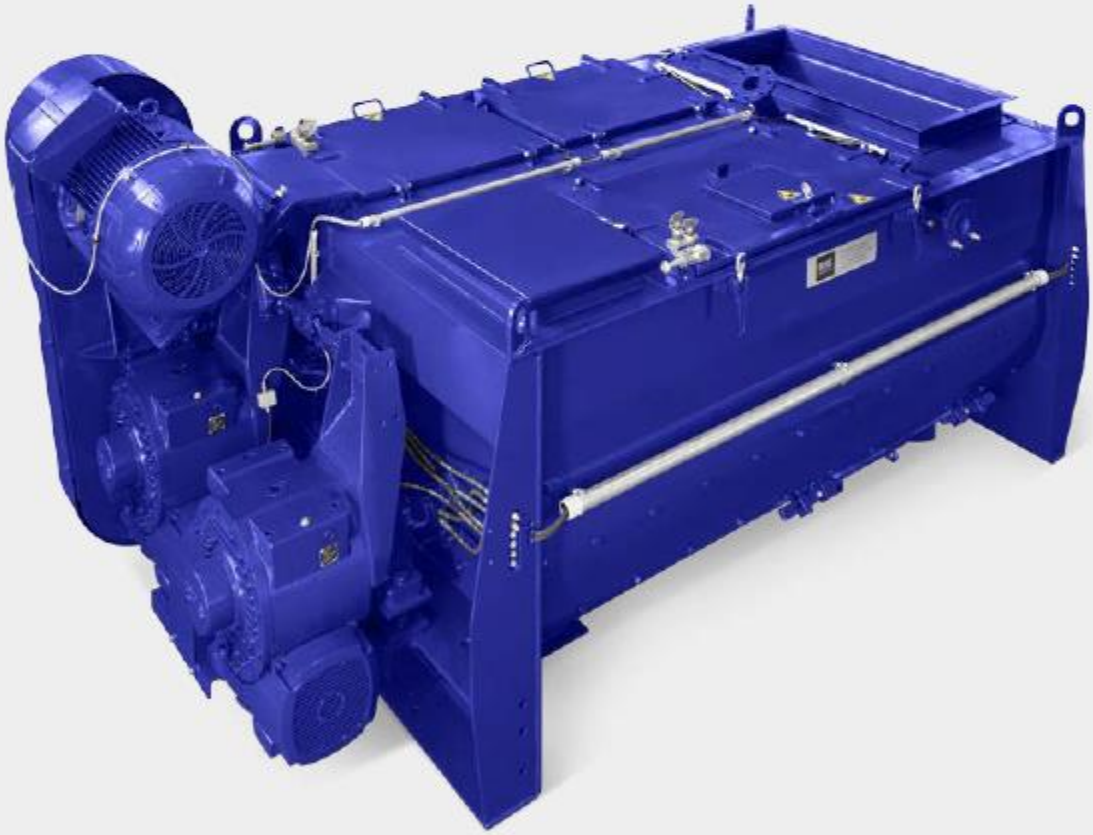
Twin-Shaft Continuous Mixer

Customer Documentation

B-26725-107-01+02

BHS SONTHOFEN

TRANSFORMING
MATERIALS
INTO VALUE



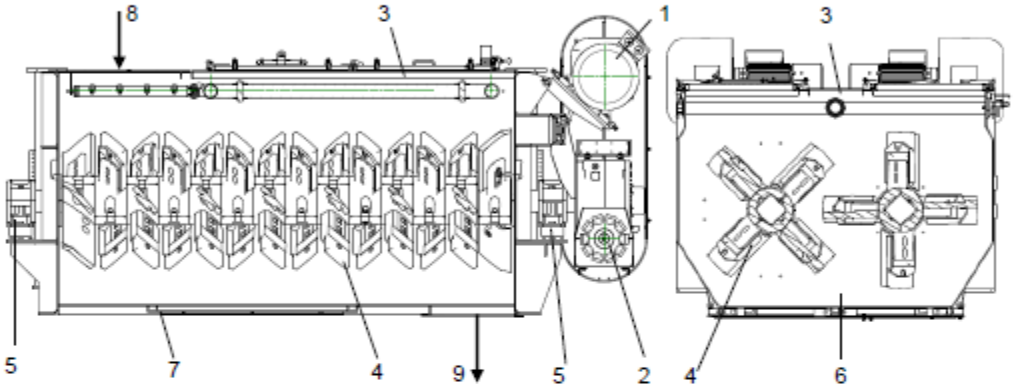
BHS-Sonthofen GmbH
An der Eisenschmelze 47
D-87527 Sonthofen

info@bhs-sonthofen.de
www.bhs-sonthofen.de

Picture similar

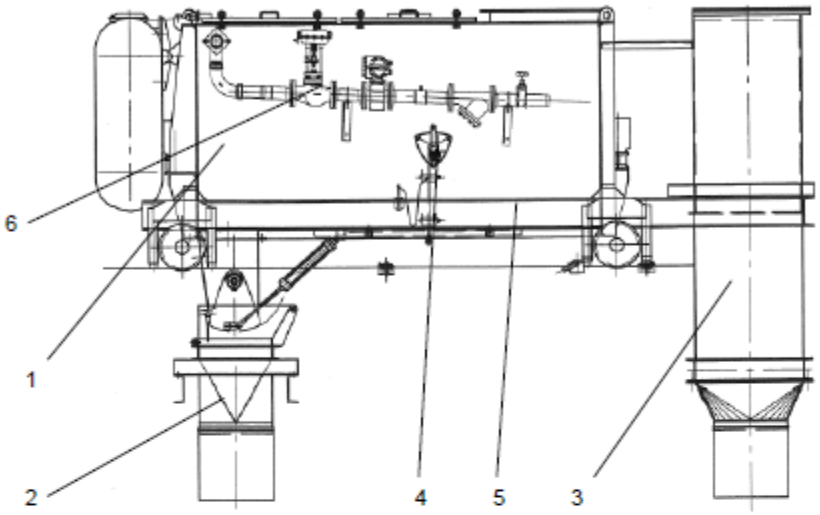
1. General drawing

1.1 Without undercarriage



1. Motor
2. Gear box
3. Trough cover
4. Mixing shafts with mixing mechanism
5. Pedestal bearing
6. Mixing trough
7. Bottom discharge flap for emergency discharge
8. Inlet
9. Discharge

1.2 With undercarriage



1. Mixer without undercarriage
2. Delivery hopper
3. Loading chute for direct loading
4. Winch for bottom discharge flap (option)
5. Undercarriage (Option)
6. Water metering system (option)

1.3 Additional equipment (option)

- Water metering system
- Input hopper
- Discharge hopper
- Supporting structure
- Operators platform
- Undercarriage
- Winch for bottom discharge flap

2. Service and inspection schedule

Checking period From h	To h	Item	Module	Maintenance unit	Scope of checking and servicing
8	10		Drive	V-belt (new)	- Check V-belt tension (see Technical Documents), adjust tension if necessary - Short inspection intervals and tension adjustment until no more settling phenomena are observed.
8	10		Hydraulic system	Units	- see Technical Documents
8	10		Mixer	Trough interior Mixing mechanism Trough cover	- Cleaning inside and outside depending on properties of mixing material - Briefly cleaning in between is more effective and less of an effort than one general clean-up at the end of the shift. - Clean with jet of pressurized water (50-80 bar) - When working with moist mixing materials, spray trough cover with concrete remover after cleaning. - Do not clean electrical equipment (motor, solenoid valve, limit switch, pumps, etc.) with pressurized steam or pressurized water. - Allow V-belt to dry. NOTE! Only re-grease mixing shaft sealing after cleaning trough interior, see Lubrication.
40	50		Mixing mechanism	Mixing blade Mixing arm Mixing shaft	- Remove deposits of hardened cement paste. - Check for wear, see Technical Documents. - Replace worn parts if necessary. - Tight seat of mixing arms on shaft (For screw torque values, see Technical Documents) - Tight seat of mixing blade on mixing arm
40	50		Drive	Gear unit	- Gear unit temperatures measured by means of contacting thermometer in the vicinity of the drive shaft: . 25°C - 45°C above ambient temperature . Maximum temperature 90°C
40	50		Drive	Motor Gear unit Coupling	- Noise - Unbalance - Wear - Proper fit - Grease or oil leakage - Temperature - Clean cooling fins - For further instructions, see Technical Documents

3. Mode of operation and function

3.1 Basic principles

- Twin-shaft mixer
- Continuous operation
- Horizontal mixing section
- Use for mineral grain mixes
  - with and without binder
  - dry and wet

3.2 Process sequence in mixer

- Metering of individual components via inlet hopper or primary funnel
- Metering of liquid components via water-controlled system
  - Dosing via irrigation in inlet hopper section
- Compulsory mixing and horizontal transportation to discharge hopper
- Continuous discharge of mixed product via discharge hopper

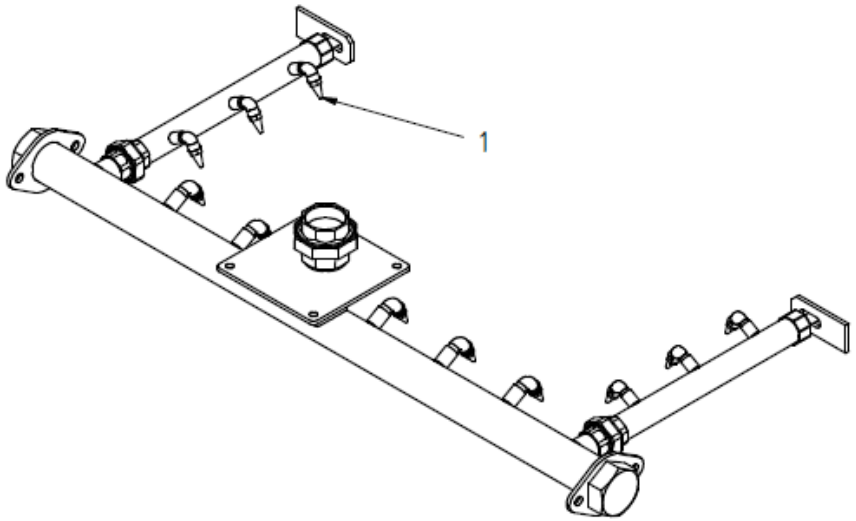
3.3 Feeding

- **NOTE!**
  The mixing results of mixers in continuous operation mainly depend on metering accuracy and metering sequence.
  Errors in the timing of the metering cannot be subsequently corrected by the mixer
- Varying mixing materials require constant monitoring of the mixing process and possibly parameter adjustment.

- **ATTENTION!**
  Remove bulky components from the feeding material (e. g. by magnetic separator).
  Danger of mixing shaft or mixing arm bending!
- Automatic operation
  - Ensure blockage-free operation and overload protection
  - Feeding monitored by control technique (checking for overfilling, video monitoring, drive power consumption)
  - Inspection of batcher units
- Manual operation
  - Ensure blockage-free operation and overload protection
  - Feeding monitored by machine operator and feeder unit control

Pos	QTY	Part #	ARTICLE SHORT DESCRIPTION 1	ARTICLE SHORT DESCRIPTION 2	DIM/TYPE	MATERIAL	STANDARD	WEIGHT
1	1	900382800	NOTICE		MASCHINEN/ANLA			0,00
2	1	902025079	TROUGH WEARING PARTS	SPARE PARTS DRAWING				
3	1	902007333	MIXING SHAFT WITH BEARING					0,00
4	1	902007334	MIXING TOOLS					
5	1	902034122	MIXER DRIVE	SPARE PARTS DRAWING				
6	1	902034123	EQUIPMENT DRIVE	SPARE PARTS DRAWING				
7	1	902007404	LUBRICATION PIPE					
8	1	902027896	CENTRAL LUBRICATION GREASE	SPARE PARTS DRAWING				
9	1	902027893	TROUGH COVER	SPARE PARTS DRAWING				
10	1	902026795	WATER SPRAYING	SPARE PARTS DRAWING				
			END OF BOM!					

SPARE PARTS LIST	LFKR1130	SPARE PARTS LIST	BHS SONTHOFEN
	902034106		



LFK	**WASSERBERIESELUNG** WATER SPRAYING	**BHS** SONTHOFEN
902026795 001 A	ERSATZTEILZEICHNUNG SPARE PARTS DRAWING	

Pos	QTY	Part #	ARTICLE SHORT DESCRIPTION 1	ARTICLE SHORT DESCRIPTION 2	DIM/TYPE	MATERIAL	STANDARD	WEIGHT
1	12	920003745			3/8 Z	MS		0,10
			END OF BOM!					

SPARE PARTS LIST	LFK	WATER SPRAYING	BHS SONTHOFEN
	902026795	SPARE PARTS DRAWING	

Attachment 7 – US EPA's November 27, 1995 Memorandum – Criteria for Determining Whether Equipment is Air Pollution Control Equipment or Process Equipment

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK. NC 27711

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

NOV 27 1995

Mr. Timothy J. Mohin
Government Affairs Manager
Environment, Health and Safety
Intel Government Affairs
888 17th Street Northwest, #860
Washington, DC 20006-3939

Dear Mr. Mohin:

Thank you for the additional information you provided regarding the exhaust conditioners used in tool operations in the semiconductor industry. We agree with your assessment that, for potential to emit calculations, the exhaust conditioners should be considered as an inherent part of the process.

Criteria for Determining Whether Equipment is Air Pollution Control Equipment or Process Equipment

For purposes of determining a source's potential to emit, it is necessary to calculate the effect of air pollution control equipment. Current Environmental Protection Agency (EPA) regulations and policy allow air pollution control equipment to be taken into account if federally enforceable requirements are in place requiring the use of such air pollution control equipment. There are, however, situations for which case-by-case judgements are needed regarding whether a given device or strategy should be considered as air pollution control equipment, or as an inherent part of the process. The EPA believes that the following list of questions should be considered in making such case-by-case judgements as to whether certain devices or practices should be treated as pollution controls or an inherent to the process:.

1. Is the primary purpose of the equipment to control air pollution?

2. Where the equipment is recovering product, how do the cost savings from the product recovery compare to the cost of the equipment?

3. Would the equipment be installed if no air quality regulations are in place?

If the answers to these questions suggest that equipment should be considered as an inherent part of the process, then the effect of the equipment or practices can be taken into account in calculating potential emissions regardless of whether enforceable limitations are in effect.

Analysis of the criteria for the semiconductor tools listed

No information supplied to date by Intel suggests that product recovery by the exhaust conditioners is significant. That EPA believes that the first and third criteria are satisfied.

Criteria 1. The exhaust conditioners described in your letter are small treatment systems that are local to the point-of-use of process tools such as etching and deposition processes. The primary purposes are to: (1) increase the uptime of the process tools, (2) to minimize safety hazards, and (3) to prevent impurities from entering other processes.

Criteria 3. The information you have provided suggests strongly that air quality regulations are not the driving factor for installation of the equipment. Moreover, the fact that they are "interlocked" with the process chambers suggests that the process cannot operate unless the exhaust conditioner is in use.

Therefore, based upon a review of the information presented the exhaust conditioners are considered by the EPA to be inherent to the process and can be considered in potential emission calculations without federally enforceable requirements.

Cautions

The above determination regarding the use of the localized exhaust conditioners in the semiconductor industry is case-specific. This determination is not intended to set a precedent for localized pollution control equipment for other source types without a similar case-specific review.

While many types of point-of-use and interlocked treatment device may be considered as "inherent," there does exist, of course, air pollution control equipment at semiconductor facilities that may not meet the above criteria. For example, a remote water scrubber located at the roof of a building would generally be considered an air pollution control device.

If you have any further questions regarding this matter, please call Timothy Smith at (919) 541-4718, or Tony Wayne at (919) 541-5439.

sincerely,

David Solomon
Acting Group Leader
Integrated Implementation Group

cc: Chief, Air Branch, Regions I-X
Regional PTE Contacts

Attachment 8 – 3M Pittsboro Addendum (5-12-22)

{Attach Addendum to email for notice/EPA review}

3M Addendum (5-12-22)