NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date: XXXXX XX, 2024

Region: Winston-Salem Regional Office
County: Rockingham
NC Facility ID: 7900038
Inspector's Name: Dylan Wright
Date of Last Inspection: 08/30/2023
Compliance Code: 3 / Compliance - inspection

Facility Data

Applicant (Facility's Name): Pine Hall Brick Co., Inc.

Facility Address:
Pine Hall Brick Co., Inc.
634 Lindsey Bridge Road
Madison, NC 27025

SIC: 3251 / Brick And Structural Clay Tile
NAICS: 327121 / Brick and Structural Clay Tile Manufacturing

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

Permit Applicability (this application only)

SIP: 02D .0515, .0516, .0521, .1109 (removed), .1806
NSPS: Subparts OOO and IIII
NESHAP: Subparts ZZZZ, JJJJJ, and CCCCCC
PSD: No
PSD Avoidance: 02Q .0317
NC Toxics: 02D .1100 and 02Q .0711
112(r): N/A
Other: N/A

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Geoffrey Roberson Technical Services Director (336) 548-6007 PO Box 836 Madison, NC 27025	Geoffrey Roberson Technical Services Director (336) 548-6007 PO Box 836 Madison, NC 27025	Geoffrey Roberson Technical Services Director (336) 548-6007 PO Box 836 Madison, NC 27025

Application Data

Application Number: 7900038.22A
Date Received: 12/22/2021
Application Type: Renewal
Application Schedule: TV-Renewal

Existing Permit Data
Existing Permit Number: 03997/T29
Existing Permit Issue Date: 03/12/2020
Existing Permit Expiration Date: 09/30/2022

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10		Total HAP	Larges
2022	4.82	42.20	8.97	156.36	7.55		37.84	25 [Hydrogen fluori
2021	4.45	38.96	8.76	148.59	7.06		37.90	25 [Hydrogen fluori
2020	3.88	33.89	7.04	122.65	6.10		32.43	21 [Hydrogen fluori
2019	4.30	38.23	8.14	145.73	6.80		36.18	24 [Hydrogen fluori
2018	4.01	35.99	7.33	136.38	6.43		32.28	21 [Hydrogen fluori

Review Engineer: Emily Supple

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

Comments / Recommendations:
Issue 03997/T30
Permit Issue Date: XXXXX XX, 2024
Permit Expiration Date: XXXXX XX, 2029

1. Purpose of Application

Pine Hall Brick Co., Inc. (Pine Hall) currently operates under Title V Air Quality Permit 03997T29 with an expiration date of September 30, 2022. Pine Hall has submitted this permit application to renew the Title V permit. This application was submitted on December 22, 2021 which is at least six months before the expiration date, so the existing permit will remain in effect until this application is processed.

2. Facility Description

According to recent permit reviews and inspection reports, Pine Hall manufactures brick including clay pavers, engraved bricks, face bricks and shaped bricks. Plant 5 manufactures clay pavers, while Plant 4 makes the other types of brick. Plant 3 has not operated since 2011. Kilns at Plants 3 and 4 can burn wood in addition to natural gas, while Plant 5 kilns can burn only natural gas. Plant 4 kilns are also permitted to burn propane.

3. History/Background/Application Chronology

History/Background

October 6, 2017	Permit No. 03997T27 issued pursuant to Application No. 7900038.17A. The purpose of this permitting action was to renew Permit No. 03997T26. The expiration date was set to September 30, 2022.
March 27, 2018	Application No. 7900038.18A received on March 27, 2018. Payment was received on the same day. This application served as a one-step significant modification to modify the 112(j) Case by Case MACT language to allow control device bypass during routine maintenance for the Plant 4 brick kilns.
August 31, 2018	Permit No. 03997T28 issued pursuant to Application No. 7900038.18A. The purpose of this permitting action was a one-step significant modification to modify the 112(j) Case by Case MACT language to allow control device bypass during routine maintenance for the Plant 4 brick kilns.
January 8, 2020	Application No. 7900038.20A received on January 8, 2020. Payment was received on the same day. This application served as a minor modification to add an additional bagfilter on the two Plant 4 tunnel kilns.
March 12, 2020	Permit No. 0399T29 issued pursuant to Application No. 7900038.20A. The purpose of this permitting action was a minor modification to add an additional bagfilter on the two Plant 4 tunnel kilns.

Application Chronology

December 22, 2021	Application No. 7900038.22A was received for renewal of Permit No. 03997T29. The acknowledgement letter was sent on January 18, 2022.
October 24, 2023	Pine Hall conducted a performance test on the Plant 4 and Plant 5 kilns to demonstrate compliance with MACT Subpart JJJJJ.
December 20, 2023	Pine Hall submitted a Notification of Compliance Status for MACT Subpart JJJJJ requesting alternate monitoring requirements under Subpart JJJJJ.
March 18, 2024	DAQ sent a letter to Pine Hall requesting the facility to submit a request for alternate monitoring requirements under Subpart JJJJJ to the EPA for approval. The facility submitted the request to EPA on March 27, 2024.

March 20, 2024	DAQ sent an NOV/NRE to Pine Hall for exceedances of permitted toxic emissions limits for arsenic, chromium, and nickel observed during the performance test conducted October 24, 2023.
April 11, 2024	Pine Hall sent an updated toxics dispersion modeling analysis for arsenic, chromium, and nickel.
May 3, 2024	Addendum to Application No. 7900038.22A was received from Pine Hall requesting removal of the toxic emission limits for sources subject to MACT Subpart JJJJJ.
May 29, 2024	Draft sent to supervisor for initial review.
June 19, 2024	Draft sent to applicant/RO/SSCB. No comments were received from SSCB or the regional office.
July 3, 2024	Comments received from Mark Huncik on behalf of Pine Hall Brick. Comments are addressed in Section 13 below.
July 17, 2024	An online meeting was held between DAQ and Pine Hall Brick to discuss the facility's comments on the draft permit.
July 18, 2024	Pine Hall submitted updated Forms D4 and E5 for the addition of sawdust storage silos as insignificant sources.
XXXX XX, 2024	Draft goes to public notice/EPA review.
XXXXX XX, 2024	Permit Issued.

4. Permit Modification/Emission Changes and TVEE Discussion

With this application, the facility has requested revisions to several sources on the insignificant activities list. Additionally, the 112(j) Case by Case MACT condition will be removed from the permit and MACT Subpart JJJJJ (Brick MACT) will be added to the permit.

The Plant 3 brickmaking room (ID No. 3ES-BRICKROOM) was moved to the insignificant sources list (New ID No. I-3ES-BRICKROOM) because this source vents indoors.

Table of Changes

Page No.	Section	Description of Changes
Cover and throughout	--	• Updated all dates and permit revision numbers. • Updated to current shell language and formatting
4	Equipment List	• Removed 02D .1109 designations to affected sources • Added MACT JJJJJ designations to affected sources
11	2.1 C.1.c	• Added an annual internal inspection requirement for Plant 4 kilns' bagfilters (ID Nos. 4ES-BF and 4ES-BF2)
22-32	2.2 B.1	• Added MACT Subpart JJJJJ condition
33-44	Insignificant Activities	• Updated insignificant activities table • Added sawdust storage silos (ID Nos. I-4WHS-SILO1 and I-4WHS-SILO2) • Added Plant 3 brickmaking to insignificant activities list and removed this source from the permitted emission sources
45-52	General Conditions	• Updated to the latest version of DAQ shell version 8.0 07/10/2024

Title V Equipment Editor (TVEE)

Several changes were required to TVEE including:

- Designation of MACT JJJJJ under the brick kilns' equipment descriptions
- Removal of 02D .1109 designation under the brick kilns' equipment descriptions
- Several updates to insignificant activities

TVEE was reviewed and approved by Connie Horne on XXXXX XX, 2024.

5. Regulatory Review

Pine Hall is subject to the following regulations:

- 15A NCAC 02D .0515, Particulates from Miscellaneous Industrial Processes
- 15A NCAC 02D .0516, Sulfur Dioxide Emissions from Combustion Sources
- 15A NCAC 02D .0521, Control of Visible Emissions
- 15A NCAC 02D .0524, New Source Performance Standards (40 CFR 60 Subpart OOO)
- 15A NCAC 02D .1100, Control of Toxic Air Pollutants
- 15A NCAC 02D .1109, Case-by-case MACT for 40 CFR 63 Subpart JJJJJ
- 15A NCAC 02D .1111, Maximum Achievable Control Technology (40 CFR 63 Subpart JJJJJ)
- 15A NCAC 02D .1806, Control and Prohibition of Odorous Emissions
- 15A NCAC 02Q .0317, Avoidance of Prevention of Significant Deterioration (PSD)
- 15A NCAC 02Q .0711, Emission Rates Requiring a Permit

a. 15A NCAC 02D .0515, Particulates from Miscellaneous Industrial Processes

This rule applies to stacks, vents, or outlets emitting particulates from industrial processes with no other applicable standards. The allowable emission rate is in terms of pounds per hour and is calculated using the following equation:

For process rates up to 30 tons per hour:

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

For process rates greater than 30 tons per hour:

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

Where: E = Allowable emission rate in pounds per hour
P = Process weight in tons per hour

The following emission sources are subject to regulation under 02D .0515:

- Plant 3 combination brick kiln and wood fuel drying system (ID Nos. 3ES-LK3.1, 3ES-LK3.2, and ES-DRY2);
- Plant 4 brick kilns (ID Nos. 4ES-LKD4.1 and 4ES-LKD4.2);
- Plant 4 brick packing room and brick making room (ID Nos. 4ES-BRICKROOM-P and 4ES-BRICKROOM-M);
- Plant 4 wood dust silos (ID Nos. 4-WHS-LKD4.1 and 4-WHS-LKD4.2); and
- Plant 5 combination brick dryer and kiln systems (ID Nos. 5ES-LKD5.1 and 5ES-LKD5.2)

Table 5.1: Allowable Emission Rate vs. Actual Emission Rate

Emission Source ID	Maximum Process Rate (ton/hr)	Emission Factor[c] (lb/ton)	Actual PM Emission Rate (lb/hr)	Allowable PM Emission Rate (lb/hr)	In Compliance?
3ES-LK3.1	10	1.01	10.1	19.2	Yes
3ES-LK3.2	10	1.01	10.1	19.2	Yes
4ES-LKD4.1	13.5	0.0455	0.61	23.4	Yes
4ES-LKD4.2	13.5	0.0455	0.61	23.4	Yes
4ES-BRICKROOM-P	27[a]	-	3	37.3	Yes
4ES-BRICKROOM-M	27[a]	-	.003	37.3	Yes
4-WHS-LKD4.1	6.75[b]	-	0.21	9.3	Yes
4-WHS-LKD4.2	6.75[b]	-	0.21	9.3	Yes
5ES-LKD5.1	11.95	0.05	0.60	21.6	Yes
5ES-LKD5.2	11.95	0.05	0.60	21.6	Yes

[a] Maximum process rates for the Plant 4 brick packing room and brick making room (ID Nos. 4ES-BRICKROOM-P and 4ES-BRICKROOM-M) are assumed to be equal to the maximum Plant 4 brick production: 2 kilns (ID Nos. 4ES-LKD4.1 and 4ES-LKD4.2) operating at 13.5 tons per hour, each.
[b] The firing rate of wood dust at the Plant 4 kilns was permitted at 6.75 tons per hour across both kilns. The transfer rate to the usage silos is likely higher than this rate; however, it is acceptable and conservative to use this firing rate value to determine the PM emission limit for the exhaust at the usage silo bin vents.
[c] Emission factors taken from the most recent Air Quality Emissions Inventory (CY2022 AQEI)

It is important to note that, in Table 5.1 above, the Plant 3 and Plant 4 kilns are permitted to burn wood, a solid fuel, which should be included in the overall maximum process rate. The maximum process rate for these sources has not been adjusted to include wood combustion, so the allowable emission rates given above are assumed to be conservative, as increasing the maximum process rate to accommodate the use of wood fuel would only increase the allowable emission rate.

Table 5.1 above shows that the actual PM emission rate of each affected emission source is below the applicable allowable PM emission rate, so compliance is indicated.

All associated bagfilter and cyclone control devices (ID Nos. 3CY3.1, 3CY3.2, 4ES-BF, 4ES-BF2, 4CY-2T.1, 4CY-2T.2, 4CY-2T.3, 4CY-2T.4, P4-BF, 4-WHS-BVF-1, and 4-WHS-BVF-2) shall be visually inspected on a monthly basis with an annual external (or internal for bagfilters) inspection of the structural integrity. Each kiln (ID Nos. 3ES-LK3.1, 3ES-LK3.2, 4ES-LKD4.1, 4ES-LKD4.2, 5ES-LKD5.1, and 5ES-LKD5.2) shall be visually inspected on a monthly basis, and every six months, conduct a visual inspection of the kiln fuel combustion system.

No changes to these requirements are necessary with this permit renewal.

b. 15A NCAC 02D .0516, Sulfur Dioxide Emissions from Combustion Sources

This rule requires that emissions of sulfur dioxide from any source of combustion, including air pollution control devices, discharged from any vent, stack, chimney, or flare shall not exceed 2.3 pounds of sulfur dioxide per million Btu heat input.

A source subject to an emission standard for sulfur dioxide in Rules 02D .0524, .0527, .1110, .1111, .1206, or .1210 shall meet the standard in that particular rule instead of the emission standard under 02D .0516. No combustion sources at Pine Hall are subject to a sulfur dioxide standard under any of those rules, so the combustion sources at Pine Hall are subject to the sulfur dioxide emission standard under 02D .0516.

The following combustion sources at Pine Hall are subject to regulation under 02D .0516:

- Plant 3 brick kilns (ID nos. 3ES-LK3.1 and 3ES-LK3.2);
- Plant 4 brick kilns (ID Nos. 4ES-LKD4.1 and 4ES-LKD4.2);
- Plant 5 brick kilns (ID Nos. 5ES-LKD5.1 and 5ES-LKD5.2).

The SO2 emission factor for wood waste combustion is 0.025 pounds of SO2 per million Btu heat input as per the NC DAQ Wood Waste Combustion emissions spreadsheet (Revision L).

The SO2 emission factor for natural gas combustion, as per the NC DAQ Natural Gas Combustion emissions spreadsheet (Revision N), is 0.6 pounds per million standard cubic foot (for sources which combust at a rate below 100 million Btu per hour) which converts to 0.001 pounds per million Btu when a heating value of 1,020 Btu per standard cubic foot is assumed.

The SO2 emission factor for propane combustion, as per the NC DAQ LPG Combustion emissions spreadsheet (Revision F), is 0.000164 pounds per million Btu.

The emissions factors for wood waste, natural gas, and propane combustion indicate that the emission limit of 2.3 pounds of SO2 per million Btu heat input will not be exceeded. Compliance is expected.

Due to the inherently low sulfur content of natural gas, propane, and wood fuel, emissions of SO2 are expected to be negligible; thus, no monitoring, recordkeeping, or reporting is required to demonstrate compliance with 02D .0516.

No changes to the current permit requirements are necessary with this permit renewal.

c. 15A NCAC 02D .0521, Control of Visible Emissions

For sources manufactured after July 1, 1971, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period. However, except for sources required to install COMs, six-minute averaging periods may exceed 20 percent opacity 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.

A source subject to an emission standard for visible emissions in Rules 02D .0506, .0508, .0524, .1110, .1111, .1206, or .1210 of 15A NCAC shall meet the standard in that particular rule instead of the standard contained in 02D .0521.

Emission sources associated with the grinding building are subject to NSPS Subpart OOO (15A NCAC 02D .0524), so these sources shall meet the visible emissions standards included in Subpart OOO. NSPS Subpart OOO applicability is discussed in Section 6 below.

The remaining sources at Pine Hall are subject to the 20% opacity standard under 02D .0521, including:

- Plant 3 combination brick kiln and wood fuel drying system (ID Nos. 3ES-LK3.1, 3ES-LK3.2, and ES-DRY2);
- Plant 4 brick kilns (ID Nos. 4ES-LKD4.1 and 4ES-LKD4.2);
- Plant 4 brick packing room and brick making room (ID Nos. 4ES-BRICKROOM-P and 4ES-BRICKROOM-M);
- Plant 4 wood dust silos (ID Nos. 4-WHS-LKD4.1 and 4-WHS-LKD4.2); and
- Plant 5 combination brick dryer and kiln systems (ID Nos. 5ES-LKD5.1 and 5ES-LKD5.2)

Pine Hall shall conduct monthly or weekly (as applicable) visible emissions observations for each source above for any visible emissions above normal. Appropriate action must be taken to correct any above-normal emissions as soon as practicable. Records of the observations must be maintained onsite in a logbook available for inspection upon request.

No other changes to the current permit requirements are necessary with this permit renewal.

d. 15A NCAC 02D .1100, Control of Toxic Air Pollutants

See Section 7 below for a discussion of air toxics.

e. 15A NCAC 02D .1109, Case-by-case MACT for 40 CFR 63 Subpart JJJJJ

On March 13, 2007, the D.C. Circuit Court vacated the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Brick & Structural Clay Products Manufacturing, which had been promulgated under 40 CFR 63, Subpart JJJJJ. As a result, the site-specific Maximum Achievable Control Technology (MACT) standards required under CAA §112(j) Case-by-case MACT (02D .1109) were triggered.

On October 26, 2015, the new MACT Subpart JJJJJ was published in the Federal Register. This new rule features operating limits, emission limits, work practice standards, and performance testing requirements for both small and large tunnel kilns.

According to 15A NCAC 02Q .0526(o)(2), when a MACT standard is promulgated after the date that a permit is issued pursuant to 02D .1109, the owner or operator of an affected source shall comply with the promulgated standard by no later than eight years after such standard is promulgated. Thus, the compliance date for MACT Subpart JJJJJ occurred on December 28, 2023. Since this date, the Case-by-case MACT condition has expired, and the facility shall be in compliance with Subpart JJJJJ. The requirements of this MACT have been discussed in Section 6 below.

02D .1109 (Case-by-case MACT) shall be removed with this permit renewal.

f. 15A NCAC 02D .1111, Maximum Achievable Control Technology (40 CFR 63 Subpart JJJJJ)

See Section 6 below for a discussion of MACT applicability.

g. 15A NCAC 02D .1806, Control and Prohibition of Odorous Emissions

This Rule applies to all operations that may produce odorous emissions that can cause or contribute to objectionable odors beyond the facility's boundaries. The owner or operator of the facility shall not operate without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility's boundary.

No changes to the current permit requirements are necessary with this permit renewal.

h. 15A NCAC 02Q .0317, Avoidance of Prevention of Significant Deterioration (PSD)

This Rule applies to the Plant 3 and Plant 4 kilns and limits emissions of carbon monoxide (CO) to less than 250 tons per year, combined total for both plants. Plant 4 has a production limit of 232,000 tons per year of brick production.

Note: Plant 5 kilns were permitted some time after the Plant 3 and Plant 4 kilns. Pine Hall was still a minor source under PSD, so Plant 5 has a PSD avoidance limit of 250 tons per year itself. However, since potential emissions of CO from Plant 5 kilns are only 105 tons per year, no PSD avoidance condition is needed in the permit for these sources.

The facility complies with this condition by keeping records of the monthly brick production, and by calculating, on a monthly basis, the CO emissions for each 12-month period.

No changes to the current permit requirements are necessary with this permit renewal.

i. 15A NCAC 02Q .0711, Emission Rates Requiring a Permit

See Section 7 below for a discussion of air toxics.

6. NSPS, NESHAP, PSD, 112(r), and CAM Applicability

a. NSPS

Pine Hall is currently subject to the following NSPS (40 CFR Part 60) regulations:

- NSPS Subpart OOO
- NSPS Subpart JJJJ

NSPS Subpart OOO

The Plant 3 grinding building sources including two Leahy vibrating screens (ID Nos. 3VS3.4A and 3VS3.4B), two Simplicity vibrating screens (ID Nos. 3VS3.4C and 3VS3.4D), one conveyor belt from the primary crusher (ID No. 3C-32), and one primary jaw crusher (ID No. 3JC-1) are subject to NSPS Subpart OOO.

The requirements of Subpart OOO are outlined as follows:

§60.670(a)(1): Subpart OOO applies to 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.

§60.672(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. The Table 3 requirements include:

- 10 percent opacity limit for each non-crusher affected source not enclosed within a building that commenced construction, modification, or reconstruction after August 31, 1983 but before April 22, 2008; and
- 12 percent opacity limit for each crusher affected source not enclosed within a building that commenced construction, modification, or reconstruction on or after April 22, 2008.

§60.672(e): If any transfer point on a conveyor belt or any affected facility is enclosed in a building, then each enclosed affected facility must comply with the emission limits in §60.672(a) and (b), or the building enclosing the facility or facilities must comply with the following emission limits:

- 7 percent opacity limit for fugitive emissions from the building openings (except for vents as defined in §60.671); and
- 0.05 grams per dry standard cubic meter from vents that commenced construction, modification, or reconstruction after August 31, 1983 but before April 22, 2008.

In addition to the requirements under Subpart OOO, DAQ has applied standard monitoring, recordkeeping, and reporting requirements to ensure compliance with this rule including monthly visible emissions observations, recordkeeping of the visible emissions observations, and a semiannual reporting requirement.

The only change necessary to this permit condition is to update the emission limit for enclosed affected facilities that commenced construction, modification, or reconstruction after August 31, 1983 but before April 22, 2008. The permit lists an emission limit of 5 grams per dry standard cubic meter, but Subpart OOO lists an emission limit of 0.05 grams per dry standard cubic meter. It is believed that this is a typo as

the permit listed the correct number up until the T27 revision, and the facility would have conducted the initial performance test for the correct emission limit of 0.05 grams per dry standard cubic meter.

No further changes to the current permit requirements are necessary.

NSPS Subpart JJJJ

Pine Hall operates three emergency generators subject to NSPS Subpart JJJJ:

- I-GEN – Natural gas-fired emergency engine, 11 kilowatt, maximum capacity
- I-GEN3 – Natural gas-fired emergency engine, 22 kilowatt, maximum capacity

The remaining generators on site (ID Nos. I-GEN1 and I-GEN2) are not subject to NSPS Subpart JJJJ as these emergency engines were constructed prior to January 1, 2009 (see §60.4230(a)(4)(iv)).

The requirements of Subpart JJJJ are outlined as follows:

§60.4230(a)(4)(iii):	Subpart JJJJ is applicable to owners and operators of stationary spark ignition (SI) internal combustion engines (ICE) including SI ICE that commence construction after June 12, 2006 where the stationary SI ICE are manufactured on or after July 1, 2008, for engines with a maximum engine power less than 500 HP.
§60.4233(a):	Owners and operators of stationary SI ICE with a maximum engine power less than or equal to 19 kW (25 HP) manufactured on or after July 1, 2008, must comply with the emission standards in §60.4231(a). **I-GEN only.**
§60.4233(d):	Owners and operators of emergency stationary SI ICE with a maximum engine power greater than 19 kW (25 HP) and less than 75 kW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards in Table 1 to this subpart. **I-GEN3 only.**
§60.4234:	Owners and operators of stationary SI ICE must operate and maintain stationary SI ICE that achieve the emission standards as required in §60.4233 over the entire life of the engine.
§60.4237(c):	Owners and operators of emergency stationary SI ICE that is less than 130 HP, was built on or after July 1, 2008, and does not meet the standards applicable to non-emergency engines, a non-resettable hour meter must be installed upon startup of the emergency engine.
§60.4243(a):	Owners and operators of stationary SI ICE that is manufactured after July 1, 2008, and must comply with the emission standards specified in §60.4233(a) through (c), must comply by purchasing an engine certified to the emission standards in §60.4231(a) through (c), as applicable, for the same engine class and maximum engine power. **I-GEN only.** (1) If the certified stationary SI ICE is operated and maintained according to the manufacturer's emission-related written instructions, records must be kept of conducted maintenance to demonstrate compliance, but no performance testing is required. The requirements specified in 40 CFR Part 1068, Subparts A through D, must be met as they apply. If the engine's settings are adjusted according to and consistent with the manufacturer's instructions, the stationary SI ICE will not be considered out of compliance.

§60.4243(b): Owners and operators of stationary SI ICE that must comply with the emission standards specified in §60.4233(d) through (e), must demonstrate compliance with one of the methods specified in paragraphs (1) and (2) of this section:

(1) Purchasing an engine certified according to procedures specified in this subpart, for the same model year and demonstrating compliance according to one of the methods specified in paragraph (a) of this section. **I-GEN3 only.**

§60.4243(d): Owners and operators of emergency SI ICE must operate the emergency stationary ICE according to the requirements in paragraphs (d)(1) through (3). In order for the engine to be considered an emergency SI ICE under this subpart, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (d)(1) through (3), is prohibited. If the engine is not operated according to the requirements in paragraphs (d)(1) through (3), the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary ICE in emergency situations.

(2) The emergency SI ICE may be operated for the purpose specified in paragraph (d)(2)(i) for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph (d)(3) of this section counts as part of the 100 hours per calendar year.

> (i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state, or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission officer, or the insurance company associated with the engine.

(3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing provided in paragraph (d)(2). Except as provided in paragraph (d)(3)(i), the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

§60.4245(a): Owners and operators of stationary SI ICE must keep records of the information in paragraphs (a)(1) through (4) of this section.

(1) All notifications submitted to comply with this subpart and all documentation supporting any notification.

(2) Maintenance conducted on the engine.

(3) If the stationary SI internal combustion engine is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR parts 1048, 1054, and 1060, as applicable.

(4) If the stationary SI ICE is not a certified engine or is a certified engine operating in a non-certified manner and subject to §60.4243(a)(2), documentation that the engine meets the emission standards.

No reporting requirements apply under NSPS Subpart JJJJ. No changes to the requirements of the current permit are necessary with the permit renewal.

b. NESHAP

Pine Hall is currently subject to the following NESHAP (40 CFR Part 63) regulations:

- NESHAP Subpart ZZZZ
- NESHAP Subpart JJJJJ
- NESHAP Subpart CCCCCC

NESHAP Subpart ZZZZ

Pine Hall operates four emergency generators which are subject to the requirements of Subpart ZZZZ, including:

- Main Office, natural gas-fired, 11 kW engine (ID No. I-GEN)
- 41 Kiln Emergency Generator, natural gas-fired, 157 HP engine (ID No. I-GEN1)
- 42 Kiln Emergency Generator, natural gas-fired, 157 HP engine (ID No. I-GEN2)
- Customer Service Center Generator, natural gas-fired, 22 kW engine (ID No. I-GEN3)

I-GEN and I-GEN3

The emergency engines (ID Nos. I-GEN and I-GEN3) are subject to the following Subpart ZZZZ requirements:

§63.6590(c): An affected source subject to 40 CFR 60 Subpart JJJJ shall meet the requirements of Subpart ZZZZ by meeting the requirements of 40 CFR 60 Subpart JJJJ. No further requirements apply for such engines under this part.

The emergency engines comply with NSPS Subpart JJJJ, as discussed above, so no additional requirements apply with Subpart ZZZZ.

No changes to the permit are necessary for these insignificant sources.

I-GEN1 and I-GEN2

According to the permit application, the I-GEN1 generator was built on October 28, 2005 and was sold and/or installed at Pine Hall on November 28, 2007. The I-GEN2 generator was built on March 9, 2008 and was sold and/or installed at Pine Hall on July 23, 2008.

Since these engines were installed on or after June 12, 2006, both engines are considered to be "new" emergency engines under Subpart ZZZZ (see §63.6590(a)(2)(ii)).

Per §63.6590(c)(6), a new or reconstructed emergency engine with a site rating of less than or equal to 500 HP located at a major source of HAP emissions shall meet the requirements of Subpart ZZZZ by meeting the requirements of 40 CFR Part 60 (NSPS), Subpart JJJJ.

As discussed above, neither of these emergency engines are subject to NSPS Subpart JJJJ as they were manufactured prior to January 1, 2009.

No further requirements apply for these engines under this part.

NESHAP Subpart JJJJJ

Pine Hall has three plants on site with brick kilns:

- Plant 3 – Two natural gas/wood-fired brick kilns (ID Nos. 3ES-LK3.1 and 3ES-LK3.2), 10 tons per hour fired brick capacity, each, controlled by two simple cyclones.
- Plant 4 – Two natural gas/propane/wood-fired combination brick kilns (ID Nos. 4ES-LKD4.1 and 4ES-LKD4.2), 13.5 tons per hour fired brick capacity, each, controlled by a dry lime adsorber (DLA) and two bagfilters.
- Plant 5 – Two natural gas -fired combination brick dryer and kiln systems (ID Nos. 5ES-LKD5.1 and 5ES-LKD5.2), 11.95 tons per hour fired brick capacity, each, with no controls.

Performance testing has been conducted for Plant 4 and Plant 5 kilns. Plant 3 is not currently in operation, so performance testing will be conducted within 180 days of startup of this source.

Pine Hall submitted a Notification of Compliance Status on December 20, 2023. In this notification:

- The facility requested the alternative standard for routine control device maintenance at Kilns 4.1 and 4.2 as provided by §63.8420(d). However, per §63.8420(d) and §63.8510(c)(6), use of the routine control device maintenance alternative standard must be requested and approved by the EPA (NC DAQ does not have delegated authority for this provision). DAQ sent a letter on March 18, 2024 indicating that the facility must request approval from the EPA directly. The facility sent a letter to EPA requesting approval on March 27, 2024.

- The facility opted to monitor pressure drop across the Plant 4 bagfilters in lieu of monitoring pressure drop across the DLA. This control scenario is not covered under Table 2 to this subpart, and no operating limits are provided for this control scenario by the MACT. §63.8445(h) requires that sources subject to this subpart that are equipped with air pollution control devices that are not specifically addressed in Table 2 to this subpart must submit a request for approval of alternative monitoring procedures to the Administrator (US EPA). On March 18, 2024, DAQ sent a letter to the facility indicating that the facility must request approval from the EPA directly. The facility sent a letter to EPA requesting approval on March 27, 2024.

- The facility opted to monitor bypass stack damper position at the Plant 4 kilns and did not establish the operating limit for average pressure drop across the DLA, as required by Table 4 to this subpart. DAQ determined that this constitutes a major change to the testing requirements, and DAQ cannot approve this procedure as per as per §63.8510(c)(2). On March 18, 2024, DAQ sent a letter to the facility indicating that the facility must request approval from EPA directly. The facility sent a letter to EPA requesting approval on March 27, 2024.

The performance testing conducted on Plant 5 has been reviewed and compliance determined by SSCB on March 18, 2024. A compliance determination cannot be made for the Plant 4 kilns until EPA approves or denies the facility's requested compliance options as discussed above.

The following provisions under Subpart JJJJJ apply to Pine Hall Brick:

Applicability

§63.8385: Subpart JJJJJ applies to a brick and structural clay products (BSCP) manufacturing facility that is located at, or is part of, a major source of HAP emissions.

§63.8390(a): Subpart JJJJJ applies to each existing, new, or reconstructed affected source at a BSCP manufacturing facility.

§63.8390(b)(1): All tunnel kilns at a BSCP manufacturing facility are an affected source. A tunnel kiln with a design capacity equal to or greater than 10 tons per hour of fired product is a large tunnel kiln, and a tunnel kiln with a design capacity less than 10 tons per hour of fired product is a small tunnel kiln. Plant 4 and 5 kilns at Pine Hall are considered to be large tunnel kilns. Plant 3 kilns at Pine Hall will be limited to less than 10 tons per hour, maximum process rate, in order to be classified as small tunnel kilns.

§63.8390(f): An affected source is existing if it is not new or reconstructed. All kilns at Pine Hall are considered to be existing sources, constructed prior to December 18, 2014.

§63.8395(a): For the existing large tunnel kilns, the facility must comply with this subpart by no later than the sunset date of the 112(j) provisions. The 112(j) provisions, as discussed above, sunset on December 27, 2023, so compliance with this Subpart is required by December 28, 2023.

Emission Limits, Operating Limits, and Work Practice Standards

§63.8405(a): The emission limits given in Table 1 to this subpart must be met, as applicable:

Table 1 to Subpart JJJJJ Emission Limits for Existing Large and Small Tunnel Kilns

Source	Emission Limit	Alternate Emission Limit
Collection of all tunnel kilns at facility, including all process streams	HF, HCl, and Cl_2 emissions must not exceed 57 lb/hr, HCl equivalent	N/A
Each existing small tunnel kiln at facility, including all process streams	PM emissions must not exceed 0.37 lb/ton of fired product	(i) PM emissions must not exceed 0.0021 gr/dscf at 17% O_2, or (ii) Non-Hg HAP metals emissions must not exceed 0.11 lb/hr
	Hg emissions must not exceed 3.3 E-04 lb/ton of fired product	(i) Hg emissions must not exceed 91 micrograms/dscf at 17% O_2, or (ii) Hg emissions must not exceed 0.0019 lb/hr
Each existing large tunnel kiln at facility, including all process streams	PM emissions must not exceed 0.036 lb/ton of fired product	(i) PM emissions must not exceed 0.0029 gr/dscf at 17% O_2, or (ii) Non-Hg HAP metals emissions must not exceed 0.0057 lb/hr
	Hg emissions must not exceed 4.1 E-05 lb/ton of fired product	(i) Hg emissions must not exceed 7.7 micrograms/dscf at 17% O_2, or (ii) Hg emissions must not exceed 5.5 E-04 lb/hr

§63.8405(b): The operating limits given in Table 2 to this subpart must be met, as applicable:

Table 2 to Subpart JJJJJ Operating Limits for Existing Large Tunnel Kilns

Source	Operating Limit
Tunnel kiln equipped with a DLA (Plant 4 Kilns)	(a) Maintain the average pressure drop across the DLA for each 3-hour block period at or above the average pressure drop established during the performance test for HF/HCl/Cl_2, or if bypass stack damper position is monitored, initiate

	corrective action within 1 hour after the bypass damper is opened allowing the kiln exhaust gas to bypass the DLA and complete corrective action in accordance with the OM&M plan
	(b) Maintain an adequate amount of limestone in the limestone hopper, storage bin, and DLA at all times; maintain the limestone feeder setting at or above the level established during the performance test for HF/HCl/Cl_2 in which compliance was demonstrated
	(c) Use the same grade of limestone from the same source as was used during the HF/HCl/Cl_2 performance test in which compliance was demonstrated; maintain records of the source and grade of limestone
	(d) Maintain no visible emissions (VE) from the DLA stack
Tunnel with no add-on control (Plant 5 Kilns)	(a) Maintain no VE from the stack
	(b) Maintain the kiln process rate at or below the kiln process rate determined according to §63.8445(g)(1)

§63.8405(c): The work practice standards given in Table 3 to this subpart must be met, as applicable:

Table 3 to Subpart JJJJJ Work Practice Standards for Existing Tunnel Kilns

Source	Work Practice Standard	Requirements
Each existing, new, or reconstructed tunnel kiln	Minimize dioxin/furan emissions	(i) Maintain and inspect the burners and associated combustion controls
		(ii) Tune the specific burner type to optimize combustion
Each existing, new, or reconstructed tunnel kiln during periods of startup	Minimize HAP emissions	(i) Establish the startup push rate for each kiln, the minimum air pollution control device (APCD) inlet temperature for each APCD, and temperature profile for each kiln without an APCD, and include them in your first compliance report as specified in §63.8485(c)(8)
		(ii) After initial charging of the kiln with loaded kiln cars, remain at or below the startup push rate for the kiln until the kiln exhaust reaches the minimum APCD inlet temperature for a kiln with an APCD or until the kiln temperature profile is attained for a kiln with no APCD
		(iii) If the kiln has an APCD, begin venting the exhaust from the kiln through the APCD by the time the kiln exhaust

		temperature reaches the minimum APCD inlet temperature
Each existing, new, or reconstructed tunnel kiln during periods of shutdown	Minimize HAP emissions	(i) Do not push loaded kiln cars into the kiln once the kiln exhaust temperature falls below the minimum APCD inlet temperature if the kiln is controlled by an APCD or when the kiln temperature profile is no longer maintained for an uncontrolled kiln
		(ii) If your kiln has an APCD, continue to vent the exhaust from the kiln through the APCD until the kiln exhaust temperature falls below the minimum inlet temperature for the APCD
Each existing, new, or reconstructed tunnel kiln during periods of routine control device maintenance	Minimize HAP emissions	(i) Develop and use a temperature profile for each kiln
		(ii) Develop and follow maintenance procedures for each kiln that, at a minimum, specify the frequency of inspection and maintenance of temperature monitoring devices and controls that regulate air-to-fuel ratios
		(iii) Develop and maintain records for each kiln, as specified in §63.8490(a)(3)

§63.8420(a): The facility shall be in compliance with the emission limitations (including operating limits) in this subpart at all times, except during periods that are approved for and in compliance with the alternative standard for routine control device maintenance as specified in §63.8420(d), and except during periods of startup and shutdown, at which time the facility must comply with the applicable work practice standard given in Table 3 to this subpart.

§63.8420(b): At all times, all affected sources, including associated air pollution control equipment and monitoring equipment, shall be operated and maintained in a manner consistent with safety and good air pollution control practices for minimizing emissions.

§63.8420(c): For each affected kiln that is subject to an emission limit specified in Table 1 to this subpart, the facility shall prepare and implement a written operation, maintenance, and monitoring (OM&M) plan according to the requirements of §63.8425.

§63.8420(d): An owner or operator of an affected kiln that is subject to an emission limit specified in Table 1 to this subpart that must perform routine maintenance on the control device may bypass the kiln control device and continue operating the kiln subject to the alternative standard established in this paragraph upon approval by the Administrator (US EPA), provided that the requirements of §63.8420(d)(1) through (5) are met:

(1) The facility must request to use the routine control device maintenance alternative standard from the Administrator no later than 120 calendar days before the compliance date specified in §63.8395. The request must justify the

need for the routine maintenance on the control device and the time required to accomplish the maintenance activities, describe the maintenance activities and the frequency, explain why they maintenance cannot be accomplished during kiln shutdowns, provide information stating whether the continued operation of the affected source will result in fewer emissions than shutting the source down while the maintenance is performed, describe how the facility plans to comply with §63.8420(b) during the maintenance, and provide any other documentation required by the Administrator.

(2) The routine control device maintenance must not exceed 4 percent of the annual operating uptime for each kiln.

(3) The request for the routine control device maintenance alternative standard, if approved by the Administrator, must be incorporated by reference in and attached to the affected source's Title V permit.

(4) The facility must minimize HAP emissions during the period when the kiln is operating and the control device is offline by complying with the applicable standard in Table 3 to this subpart.

(5) The facility must minimize the time period during which the kiln is operating and the control device is offline.

NC DAQ had previously approved the facility for routine control device bypass in a letter sent in March of 2007, and DAQ also modified the 112(j) condition in 2018 to allow control device bypass during routine maintenance. However, it was determined in the March 18, 2024 letter to Pine Hall that the facility must request approval for routine control device bypass from EPA directly. The facility sent a request to US EPA on March 27, 2024 to approve the alternative standard for routine control device bypass for the Plant 4 kilns.

§63.8420(e): The facility must be in compliance with the work practice standards in this subpart at all times.

Operation, Maintenance, and Monitoring (OM&M) Plan Requirements

§63.8425(a): The facility must prepare, implement, and revise as necessary an OM&M plan for each affected kiln at the facility that is subject to an emission limit in Table 1 to this subpart. The OM&M plan must be available for inspection upon request.

§63.8425(b): The OM&M plan must include the requirements specified in §63.8425(b)(1) through (13):

(1) Each process and APCD to be monitored, the type of monitoring device that will be used, and the operating parameters that will be monitored.

(2) A monitoring schedule that specifies the frequency that the parameter values will be determined and recorded.

(3) The limits for each parameter that represent continuous compliance with the emission limitations in § 63.8405. The limits must be based on values of the monitored parameters recorded during performance tests.

(4) Procedures for the proper operation and routine and long-term maintenance of each APCD, including a maintenance and inspection schedule that is consistent with the manufacturer's recommendations.

(5) Procedures for installing the CMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (e.g., on or downstream of the last APCD).

(6) Performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction system.

(7) Continuous monitoring system performance evaluation procedures and acceptance criteria (e.g., calibrations).

(8) Procedures for the proper operation and maintenance of monitoring equipment consistent with the requirements in §§ 63.8450 and 63.8(c)(1), (3), (7), and (8).

(9) Continuous monitoring system data quality assurance procedures consistent with the requirements in § 63.8(d)(1) and (2). The owner or operator shall keep these written procedures on record for the life of the affected source or until the affected source is no longer subject to the provisions of this part, to be made available for inspection, upon request, by the Administrator. If the performance evaluation plan in § 63.8(d)(2) is revised, the owner or operator shall keep previous (i.e., superseded) versions of the performance evaluation plan on record to be made available for inspection, upon request, by the Administrator, for a period of 5 years after each revision to the plan. The program of corrective action should be included in the plan required under § 63.8(d)(2).

(10) Continuous monitoring system recordkeeping and reporting procedures consistent with the requirements in §§ 63.8485 and 63.8490.

(11) Procedures for responding to operating parameter deviations, including the procedures in paragraphs (b)(11)(i) through (iii) of this section.

(i) Procedures for determining the cause of the operating parameter deviation.

(ii) Actions necessary for correcting the deviation and returning the operating parameters to the allowable limits.

(iii) Procedures for recording the times that the deviation began and ended and corrective actions were initiated and completed.

(12) Procedures for keeping records to document compliance.

(13) If you operate an affected kiln and you plan to take the kiln control device out of service for routine maintenance, as specified in § 63.8420(d), the procedures specified in paragraphs (b)(13)(i) and (ii) of this section.

(i) Procedures for minimizing HAP emissions from the kiln during periods of routine maintenance of the kiln control device when the kiln is operating and the control device is offline.

(ii) Procedures for minimizing the duration of any period of routine maintenance on the kiln control device when the kiln is operating and the control device is offline.

§63.8425(c): Changes to the operating limits in the OM&M plan require a performance test and must meet the requirements of §63.8425(c)(1) and (2):

(1) Submit a notification of performance test as specified in §63.7(b).

(2) Submit the performance test results and the revised operating limits as part of the Notification of Compliance Status required under §63.9(h).

§63.8425(d): Revisions to the inspection and maintenance procedures in the OM&M plan do not require a new performance test.

Performance Testing and Initial Compliance Demonstration

§63.8435: The performance test must be conducted within 180 days of the compliance date specified in §63.8395 and according to the provisions in §63.7(a)(2).

Pine Hall conducted the initial performance tests for the Plant 4 and Plant 5 kilns in October 2023, which is within 180 days of the compliance date of December 28, 2023. The Plant 3 kilns shall be tested within 180 days of startup of these sources, as they are currently shutdown and do not operate.

§63.8440(a): A performance test shall be conducted for each affected kiln at least every 5 years following the initial performance test.

§63.8445: Each performance test required by Table 4 to this subpart shall be conducted according to the applicable requirements in §63.8445(a) through (e):

(a) Each applicable performance test required by Table 4 to this subpart shall be conducted.

(b) All monitoring equipment shall be installed and calibrated before conducting the performance test.

(c) Each performance test shall be conducted according to the requirements of §63.7 and under the specific conditions in Table 4 to this subpart.

(d) Performance tests shall be conducted under such conditions as the Administrator specifies based on representative performance of the affected source for the period being tested. Representative conditions exclude periods of startup and shutdown. Performance tests shall not be conducted during periods of malfunction. The process information that is necessary to document operating conditions during the test and shall be recorded and include in such record an explanation to support that such conditions represent normal operation. Upon request, such records shall be made available for inspection as may be necessary to determine the conditions of performance tests.

(e) At least three separate 1-hour runs shall be conducted for each performance test.

§63.8445(f)(1): To determine compliance with the production-based PM and Hg emission limits in Table 1 to this subpart, the mass emissions per unit of production shall be calculated for each test run using Equation 1:

$$MP = \frac{ER}{P} \qquad \text{(Equation 1)}$$

Where:

MP = mass per unit of production in pounds of pollutant per ton of fired product
ER = mass emission rate of pollutant (HF, HCl, PM, or Hg) during each test run in pounds per hour
P = production rate during each performance test run in tons of fired product per hour.

§63.8445(f)(2): To determine compliance with the health-based standard for acid gas HAP for BSCP manufacturing facilities in Table 1 to this subpart, the HCl-equivalent emissions for HF, HCl, and Cl_2 shall be calculated for each tunnel kiln using Equations 2 and 3:

For each tunnel kiln, calculate the HCl-equivalent value:

$$E_i = E_{HCl} + \left[E_{HF}\left(\frac{RfC_{HCl}}{RfC_{HF}}\right)\right] + \left[E_{Cl_2}\left(\frac{RfC_{HCl}}{RfC_{Cl_2}}\right)\right] \qquad \text{(Equation 2)}$$

Where:
E_i = HCl-equivalent emissions for kiln i, kilograms (pounds) per hour
E_{HCl} = emissions of HCl, kilograms (pounds) per hour
E_{HF} = emissions of HF, kilograms (pounds) per hour
E_{Cl2} = emissions of Cl_2, kilograms (pounds) per hour
RfC_{HCl} = reference concentration for HCl, 20 micrograms per cubic meter
RfC_{HF} = reference concentration for HF, 14 micrograms per cubic meter
RfC_{Cl2} = reference concentration for Cl_2, 0.15 micrograms per cubic meter

For multiple tunnel kilns, sum the HCl-equivalent values for all tunnel kilns at the facility:

$$E_{total} = \sum_{i=1}^{n} E_i \qquad \text{(Equation 3)}$$

Compare this value to the health-based standard in Table 1 to this subpart.

§63.8445(g)(1): The facility shall establish each site-specific operating limit in Table 2 to this subpart that applies as specified in §63.8445(g)(1) and Table 4 to this subpart:
(i) If there is not an APCD installed on a kiln (Plant 5 kilns), calculate the maximum potential HCl-equivalent emissions for HF, HCl, and Cl_2 for each tunnel kiln using Equation 4:

$$E_{\max i} = (Cap_i)\left[(MP_{iHCl}) + (MP_{iHF})\left(\frac{RfC_{HCl}}{RfC_{HF}}\right) + \left(MP_{iCl_2}\right)\left(\frac{RfC_{HCl}}{RfC_{Cl_2}}\right)\right] \qquad \text{(Equation 4)}$$

Where:
$E_{max\ i}$ = maximum potential HCl-equivalent emissions for kiln i in pounds per hour
Cap_i = design capacity for kiln i, in tons of fired product per hour
MP_{iHCl} = mass of HCl per unit of production for kiln i, in pounds of HCl per ton of fired product
MP_{iHF} = mass of HF per unit of production for kiln i, in pounds of HF per ton of fired product
MP_{iCl2} = mass of Cl_2 per unit of production for kiln i, in pounds of Cl_2 per ton of fired product
RfC_{HCl} = reference concentration for HCl, 20 micrograms per cubic meter
RfC_{HF} = reference concentration for HF, 14 micrograms per cubic meter
RfC_{Cl2} = reference concentration for Cl_2, 0.15 micrograms per cubic meter

(ii) For multiple tunnel kilns, sum the maximum potential HCl-equivalent values for all tunnel kilns at the facility using Equation 5:

$$E_{\max total} = \sum_{i=1}^{n} E_{\max i} \quad \text{(Equation 5)}$$

Where:
$E_{max\ total}$ = maximum potential HCl-equivalent emissions for total of all kilns at facility in pounds per hour
$E_{max\ i}$ = maximum potential HCl-equivalent emissions for kiln i in pounds per hour
n = number of tunnel kilns at facility

(iii) For a single tunnel kiln, if the total facility maximum potential HCl-equivalent emissions ($E_{max\ total}$) are greater than the HCl-equivalent limit in Table 1 to this subpart, determine the maximum process rate for the tunnel kiln using Equation 6 that would ensure the total facility maximum potential HCl-equivalent emissions remain at or below the HCl-equivalent limit.

$$P_{\max i} = \frac{HCl-eq}{\left[(MP_{iHCl})+(MP_{iHF})\left(\frac{RfC_{Hcl}}{RfC_{HF}}\right)+(MP_{iCl_2})\left(\frac{RfC_{HCl}}{RfC_{Cl_2}}\right)\right]} \quad \text{(Equation 6)}$$

Where:
$P_{max\ i}$ = maximum process rate for kiln i in tons per hour
HCl-eq = HCl-equivalent limit in Table 1 to this subpart (57 pounds per hour)
MP_{iHCl} = mass of HCl per unit of production for kiln i in pounds of HCl per ton of fired product
MP_{iHF} = mass of HF per unit of production for kiln i in pounds of HF per ton of fired product
MP_{iCl2} = mass of Cl2 per unit of production for kiln i in pounds of Cl2 per ton of fired product
RfC_{HCl} = reference concentration for HCl (20 micrograms per cubic meter)
RfC_{HF} = reference concentration for HF, 14 micrograms per cubic meter
RfC_{Cl2} = reference concentration for Cl_2, 0.15 micrograms per cubic meter

(iv) For multiple tunnel kilns, if the total facility maximum potential HCl-equivalent emissions ($E_{max\ total}$) are greater than the HCl-equivalent limit in Table 1 to this subpart, determine the combination of maximum process rates that would ensure that total facility maximum potential HCl-equivalent remains at or below the HCl-equivalent limit. The maximum process rates shall become the operating limits for process rate and shall be included in the OM&M plan.

§63.8445(h): For each affected kiln that is equipped with an APCD that is not addressed in Table 2 to this subpart shall meet the requirements of §63.8445(h)(1) and (2):

(1) Submit a request for approval of alternative monitoring procedures to the Administrator no later than the notification of intent to conduct a performance test. The request shall contain the information specified in §63.8445(h)(1)(i) through (iv):

(i) A description of the alternative APCD.

(ii) The type of monitoring device or procedure that will be used.

(iii) The operating parameters that will be monitored.

(iv) The frequency that the operating parameter values will be determined and recorded to establish continuous compliance with the operating limits.

(2) Establish site-specific operating limits during the performance test based on the information included in the approved alternative monitoring procedures request and, as applicable, as specified in Table 4 to this subpart.

Pine Hall submitted a request to EPA on March 27, 2024 for approval to monitor fabric filter pressure drop rather than the pressure drop across the DLA for the Plant 4 kilns.

§63.8450(a): The facility shall install, operate, and maintain each continuous monitoring system (CMS) according to the established OM&M plan and the requirements in §63.8450(a)(1) through (5):

(1) Conduct a performance evaluation of each CMS according to the OM&M plan

(2) The CMS must complete a minimum of one cycle of operation for each successive 15-minute period.

(3) Determine and record the 3-hour block averages of all recorded readings, calculated after every 3 hours of operation as the average of the previous 3 operating hours.

(4) Record the results of each inspection, calibration, and validation check.

(5) At all times, maintain the monitoring equipment including, but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.

§63.8450(c): For each pressure measurement device, meet the requirements in §63.8450(a)(1) through (5) above and §63.8450(c)(1) through (7).

§63.8450(g): For each limestone feed system on a DLA, meet the requirements of §63.8450(a)(1), (4), and (5) and ensure on a monthly basis that the feed system replaces limestone at least as frequently as the schedule set during the performance test.

§63.8450(h): For each temperature measurement device, meet the requirements of §63.8450(a)(1) through (5) and §63.8450(h)(1) through (3).

§63.8455(a): Initial compliance shall be demonstrated with each emission limitation and work practice standard that applies according to the requirements of Table 5 to this subpart.

§63.8455(b): Each site-specific operating limit in Table 2 to this subpart that applies must be established.

§63.8455(c): The Notification of Compliance Status containing the results of the initial compliance demonstration shall be submitted according to the requirements of §63.8480(c).

Continuous Compliance Demonstration

§63.8470(a): Continuous compliance with each emission limit, operating limit, and work practice standard shall be demonstrated according to the methods specified in Table 6 to this subpart.

§63.8470(b): Each affected kiln that is equipped with an APCD that is not addressed in Table 2 to this subpart must demonstrate continuous compliance with each emission limit and each operating limit according to the methods specified in the approved alternative monitoring procedures request as specified in §63.8445(h)(1) and §63.8(f).

§63.8470(c): Each instance in which an emission limit or operating limit is not met must be reported. These instances are deviations from the emission limitations in this subpart and must be reported according to the requirements in §63.8485(c)(9).

§63.8470(e)(1): VE testing. Continuous compliance with the operating limits in Table 2 to this subpart for visible emissions (VE) must be demonstrated from tunnel kilns that are uncontrolled or equipped with an APCD, such as a DLA, according to the requirements of §63.8470(e)(1)(i) through (v):

(i) Perform daily VE observations of each kiln stack according to the procedures of Method 22 of 40 CFR Part 60, Appendix A-7. The Method 22 test must be conducted while the affected source is operating under normal conditions. The duration of each Method 22 test must be at least 15 minutes.

(ii) If VE are observed during any daily test, an opacity test must be conducted promptly according to the procedures of Method 9 of 40 CFR Part 60, Appendix A-4. If opacity greater than 10 percent is observed, corrective actions must be initiated and completed according to the OM&M plan.

(iii) The frequency of the Method 22 testing may be decreased from daily to weekly for a kiln stack of one of the following conditions is met:

(A) No VE are observed in 30 consecutive daily Method 22 tests for any kiln stack; or

(B) No opacity greater than 10 percent is observed during any of the Method 9 tests for any kiln stack.

(iv) If VE are observed during any weekly test and opacity greater than 10 percent is observed in the subsequent Method 9 test, corrective action must be promptly initiated and completed according to the OM&M plan, resume testing of that kiln stack following Method 22 on a daily basis, and maintain that schedule until one of the conditions in §63.8470(e)(1)(iii)(A) or (B) is met, at which time the frequency of the Method 22 testing may be decreased to a weekly basis.

(v) If greater than 10 percent opacity is observed during any test conducted using Method 9, these deviations must be reported following the requirements of §63.8485.

Notifications

§63.8480(a): All of the notifications in §63.7(b) and (c), 63.8(f)(4), and 63.9(b) through (e), (g)(1), and (h) that apply must be submitted by the dates specified.

§63.8480(b): All of the notifications specified in Table 8 to this subpart that apply must be submitted by the dates specified.

§63.8480(c): If a performance test or other initial compliance demonstration as specified in Tables 4 and 5 to this subpart are required, the Notification of Compliance Status as specified in Table 8 to this subpart must include the information in paragraphs (c)(1) and (2) of this section.

(1) The requirements in § 63.9(h)(2)(i).

(2) The operating limit parameter values established for each affected source with supporting documentation and a description of the procedure used to establish the values.

Reporting

§63.8485(a): A compliance report shall be submitted semiannually according to the requirements of §63.8485(b). This report must contain:

1. If there are no deviations from any emission limits or operating limits, a statement that there were no deviations from the emission limitations during the reporting period. If there were no periods during which the CMS was out-of-control as specified in the OM&M plan, a statement that there were no periods during which the CMS was out-of-control during the reporting period.

2. If there are deviations from any emission limit or operating limit during the reporting period, the report must contain the information in §63.8485(c)(9). If there were periods during which the CMS was out-of-control, as specified in the OM&M plan, the report must contain the information in §63.8485(d).

§63.8485(b): Each compliance report shall be submitted as specified:

(1) The first compliance report shall cover the period beginning on the compliance date that is specified for the affected source in §63.8395 and ending on either June 30 or December 31. The first reporting period must be at least 6 months, but less than 12 months.

(2) The first compliance report must be postmarked or delivered no later than July 31 or January 31 for compliance periods ending on June 30 and December 31, respectively.

(3) Each subsequent compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) Each subsequent compliance report must be postmarked or delivered no later than July 31 or January 31 for compliance periods ending on June 30 and December 31, respectively.

§63.8485(c): The compliance report shall contain the following information:

(1) Company name and address
(2) Statement by a responsible official with that official's name, title, and signature, certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.

(3) Date of report and beginning and ending dates of the reporting period.

(4) A description of control device maintenance performed while the control device was offline and the kiln controlled by the control device was operating, including the information specified in §63.8485(c)(4)(i) through (iii).

(5) A report of the most recent burner tune-up conducted to comply with the dioxin/furan work practice standard in Table 3 to this subpart.

(6) If there are no deviations, the compliance report must contain a statement that there were no deviations during the reporting period.

(7) If there were no periods during which the CMS was out-of-control as specified in the OM&M plan, the compliance report must contain a statement that there were no periods during which the CMS was out-of-control during the reporting period.

(8) The first compliance report must contain the startup push rate for each kiln, the minimum APCD inlet temperature for each APCD, and the temperature profile for each kiln without an APCD.

(9) For each deviation that occurs at an affected source, report such events in the compliance report by including the information in paragraphs (c)(9)(i) through (iii) of this section.

(i) The date, time, and duration of the deviation.

(ii) A list of the affected sources or equipment for which the deviation occurred.

(iii) An estimate of the quantity of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions.

§63.8485(d): For each deviation from an emission limitation (emission limit or operating limit) occurring at an affected source using a CMS to comply with the emission limitations in this subpart, the information in paragraphs (c)(1) through (4) and (c)(9), and paragraphs (d)(1) through (11) of this section must be included. This includes periods of startup, shutdown, and routine control device maintenance.

(1) The total operating time of each affected source during the reporting period.

(2) The date and time that each CMS was inoperative, except for zero (low-level) and high-level checks.

(3) The date, time, and duration that each CMS was out-of-control, including the pertinent information in the OM&M plan.

(4) Whether each deviation occurred during routine control device maintenance covered in the approved routine control device maintenance alternative standard or during another period, and the cause of each deviation (including unknown cause, if applicable).

(5) A description of any corrective action taken to return the affected unit to its normal or usual manner of operation.

(6) A breakdown of the total duration of the deviations during the reporting period into those that were due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

(7) A summary of the total duration of CMS downtime during the reporting period and the total duration of CMS downtime as a percent of the total source operating time during that reporting period.

(8) A brief description of the process units.

(9) A brief description of the CMS.

(10) The date of the latest CMS certification or audit.

(11) A description of any changes in CMS, processes, or control equipment since the last reporting period.

§63.8485(e): If a Title V operating permit has been obtained according to 40 CFR part 70 or 40 CFR part 71, all deviations as defined in this subpart must be reported in the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If a compliance report is submitted according to Table 9 to this subpart along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the compliance report includes all required information concerning deviations from any emission limitation (including any operating limit), then submitting the compliance report will satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submitting a compliance report will not otherwise affect any obligation to report deviations from permit requirements to the permitting authority.

§63.8485(f): Within 60 calendar days after the date of completing each performance test (as defined in § 63.2) required by this subpart, the results of the performance test must be submitted following the procedure specified in either paragraph (f)(1) or (f)(2) of this section.

(1) For data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (http://www.epa.gov/ttn/chief/ert/index.html) at the time of the test, the results of the performance test must be submitted to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). (CEDRI can be accessed through the EPA's Central Data Exchange (CDX) (http://cdx.epa.gov/).) Performance test data must be submitted in a file format generated through the use of the EPA's ERT or an alternate electronic file format consistent with the extensible markup language (XML) schema listed on the EPA's ERT Web site. If you claim that some of the performance test information being submitted is confidential business information (CBI), you must submit a complete file generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT Web site, including information claimed to be CBI, on a compact disc, flash drive, or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAPQS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT or alternate file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph.

(2) For data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT Web site at the time of the test, the results of the performance test must be submitted to the Administrator at the appropriate address listed in § 63.13.

Recordkeeping

§63.8490(a): The following records must be maintained:

(1) A copy of each notification and report submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status.

(2) Records of performance tests.

(3) Records relating to control device maintenance and documentation of any approved routine control device maintenance request if the alternative standard is requested per §63.8420(d).

§63.8490(b): Records must be kept of all monitoring activities required by Table 6 of this subpart to demonstrate continuous compliance.

§63.8490(c): The following records must also be maintained:

(2) For each deviation, record the following information:

(i) The date, time, and duration of the deviation.

(ii) A list of the affected sources or equipment.

(iii) An estimate of the quantity of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions.

(iv) Actions taken to minimize emissions in accordance with §63.8420(b) and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

(3) For each affected source, records of production rates on a fired-product basis.

(4) Records for any approved alternative monitoring or test procedures.

(5) Records of maintenance and inspections performed on the APCD.

(6) Current copies of the OM&M plan, including any revisions, with records documenting conformance.

(9) Records of burner tune-ups used to comply with the dioxin/furan work practice standard for tunnel kilns.

(10) For periods of startup and shutdown, records of the following information:

(i) The date, time, and duration of each startup and/or shutdown period, recording the periods when the affected source was subject to the standard applicable to startup and shutdown.

(ii) For periods of startup, the kiln push rate and kiln exhaust temperature prior to the time the kiln exhaust reaches the minimum APCD inlet temperature (for a kiln with an APCD) or the kiln temperature profile is no longer maintained (for a kiln with no APCD).

(iii) For periods of shutdown, the kiln push rate and kiln exhaust temperature after the time the kiln exhaust falls below the minimum APCD inlet temperature (for a kiln with an APCD) or the kiln temperature profile is no longer maintained (for a kiln with no APCD).

(11) All site-specific parameters, temperature profiles, and procedures required to be established or developed according to the applicable work practice standards in Table 3 to this subpart.

§63.8495(a) Records must be in a form suitable and readily available for expeditious review.

§63.8495(b) Records must be kept for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

§63.8495(c) Each record must be kept onsite for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record. Records may be kept offsite for the remaining 3 years.

Table 6.4: Summary of MACT Subpart JJJJJ Requirements

Section	Summary
Applicability	• MACT Subpart JJJJJ requirements apply to all brick kilns at Pine Hall including the Plant 3, Plant 4, and Plant 5 kilns. • All kilns are greater than or equal to 10 tons per hour maximum process rate, so all are classified as large tunnel kilns, except for Plant 3 kilns which will have a process rate limit listed in the permit, limiting the process rate to less than 10 tons per hour so that the Plant 3 kilns may be classified as small tunnel kilns. • All kilns are constructed before December 18, 2014 so all are classified as existing sources. • The compliance date is December 28, 2023. As of this date, the 112(j) provisions have expired and no longer apply.
Emission Limits	• Table 1 to the subpart contains all applicable emission limits. All Tunnel Kilns: • HF/HCl/Cl_2 emissions must not exceed 57 lb/hr HCl-equivalent, facility wide. For Existing Large Tunnel Kilns (Plants 4 and 5): • PM emissions must not exceed 0.036 lb/ton of fired product • Hg emissions must not exceed 4.1 E-05 lb/ton of fired product For Existing Small Tunnel Kilns (Plant 3): • PM emissions must not exceed 0.37 lb/ton of fired product • Hg emissions must not exceed 3.3E-04 lb/ton of fired product
Operating Limits	• Plant 4 kilns equipped with DLA: o Maintain average pressure drop across the DLA at or above average pressure drop established during testing for HF/HCl/Cl_2; or monitor bypass stack damper position (upon EPA's approval of routine control device bypass request) o Maintain adequate amount of limestone in the limestone hopper, storage bin, and DLA at all times; and maintain the limestone feeder setting at or above the level established during HF/HCl/Cl_2 testing

	○ Use the same grade of limestone from the same source as was used during HF/HCl/Cl_2 testing ○ Maintain no VE from the DLA stack • Plant 5 kilns with no controls: ○ Maintain no VE from the kiln stack ○ Maintain the kiln process rate at or below the kiln process rate determined according to the equations in §63.8445(g)(1), if applicable
Work Practice Standards	• Minimize dioxin/furan emissions: ○ Maintain and inspect burners and combustion controls; ○ Tune the specific burner type to optimize combustion • Minimize HAP emissions during startup: ○ Establish startup push rates for each kiln, minimum APCD inlet temperature for each APCD, and temperature profile for each kiln with no APCD ○ Operate at or below the startup push rate for each kiln until the kiln exhaust reaches the minimum APCD inlet temperature or until the kiln temperature profile is attained (for kilns with no APCD) ○ Begin venting exhaust from the kiln through the APCD, if applicable, by the time the kiln exhaust reaches the minimum APCD inlet temperature • Minimize HAP emissions during shutdown: ○ Do not push loaded kiln cars into the kiln once the kiln exhaust temperature falls below the minimum APCD inlet temperature or when the kiln temperature profile is no longer maintained (for a kiln with no APCD) ○ Continue to vent the kiln exhaust through the APCD, if applicable, until the kiln exhaust falls below the minimum inlet temperature for the APCD • Minimize HAP emissions during routine control device maintenance: ○ Develop and use a temperature profile for each kiln ○ Develop and follow a maintenance procedure for each kiln that, at a minimum, specifies the frequency of inspection and maintenance of temperature monitoring devices and controls that regulate air-to-fuel ratios • Develop and maintain records for each kiln
OM&M Plan	• Develop an OM&M plan following the requirements of §63.8425(b) and (c)

Performance Testing	• Kilns must be tested within 180 days of December 28, 2023. • Plant 4 and Plant 5 kilns have been tested. • Plant 3 kilns shall be tested within 180 days of startup of these sources. • All kilns shall be retested within 5 years of the initial performance test. • Compliance with the applicable emission limits should be determined using performance test results with Equations 1-3 above. • Maximum process rates for each kiln shall be determined, as applicable, using performance test results with Equations 4-6 above.
Initial Compliance Demonstration	• CMS shall be installed, operated, calibrated, and maintained for each monitored operating parameter including pressure drop, temperature, and bypass stack damper position (upon EPA's approval of request for routine control device bypass) • Ensure limestone feed system feeds limestone as often as schedule set during performance testing • Notification of Compliance Status required to be submitted within 60 calendar days following the completion of the initial performance test or within 30 days following completion of compliance demonstrations that do not include a performance test
Continuous Compliance Demonstration	• Ensure emission limits, operating limits, and work practice standards are met by operating CMS and other MRR (i.e. monthly limestone feed system monitoring, records of kiln process rates, records of burner tune-ups, I&M records, etc..) • Conduct VE testing and monitoring according to requirements and schedule under §63.8470(e)(1)
Notifications	• Notification requirements given in Table 8 to this subpart. Include: o Initial Notification of startup of affected source within 120 days after source becomes subject to this subpart o Notification of intent to conduct a performance test within 60 days before the test is scheduled to begin o Notification of Compliance Status within 60 days following completion of the performance test or within 30 days following completion of compliance demonstrations that do not include a performance test o Request to EPA for routine control device maintenance standard within 120 days before the required compliance date of December 28, 2023
Reporting	• Semiannual compliance report

	• All deviations from emission limits, operating limits, or work practice standards must be identified and reported in compliance report • Performance test results must be reported within 60 days following completion of the test and must be submitted to EPA via CEDRI
Recordkeeping	• Records must be kept of all: o Notifications submitted o Performance tests conducted o Control device maintenance and any requests to EPA for approval of routine control device maintenance standard o All monitoring activities o Production rates of each kiln o Current copy of OM&M plan o Burner tune-ups o All site-specific parameters, temperature profiles, and procedures required to be developed/followed
Other	• EPA approval pending for: o Request for routine control device maintenance alternative standard for Plant 4 kilns under §63.8420(d) o Request for alternative monitoring/testing procedures for Plant 4 kilns to monitor/test pressure drop across fabric filter in lieu of pressure drop across DLA • Plant 3 kilns are not currently in operation, and performance testing will be conducted within 180 days of startup of any Plant 3 kiln. • Performance testing has been conducted on the Plant 4 kilns. SSCB approval of the test results is pending EPA approval of the request for alternative monitoring/testing procedures to monitor/test pressure drop across the fabric filter in lieu of pressure drop across the DLA. • Performance testing has been conducted on the Plant 5 kilns. SSCB has reviewed the test results and determined compliance with the Subpart JJJJJ standards.

NESHAP Subpart CCCCCC

Under 40 CFR 63.11111, the affected source under Subpart CCCCCC is each gasoline dispensing facility located at an area source of HAPs. Since Pine Hall is classified as a major source of HAPs, this regulation does not apply to the gasoline tank on site (ID No. I-G-TANK1).

c. PSD

Pine Hall Brick is a PSD minor source located in Rockingham County, which is in attainment for all promulgated NAAQS standards. This county is triggered for minor source baseline dates for PM10, SO2, NOx, and PM2.5. This renewal application does not consume or expand increments for any pollutant.

d. 112(r)

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

e. CAM

The CAM rule (15A NCAC 02D .0614) applies to each pollutant specific emissions unit (PSEU) at facilities required to obtain a Title V permit that meets all three of the following criteria:

- the unit is subject to any (non-exempt: e.g. pre November 15, 1990, Section 111 or Section 112 standard) emission limitation or standard for the applicable regulated pollutant.

- the unit uses any control device to achieve compliance with any such emission limitation or standard.

- The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source (i.e., 100 tons per year for criteria pollutants or 10/25 tons per year for HAPs).

Pine Hall uses control devices (bagfilters, cyclones, and DLA) to limit emissions of particulate matter (PM10) and hydrogen chloride and fluoride (HCl and HF). Each are analyzed below:

- PM10 - Each source that uses a PM control device has potential PM10 emissions less than 100 tons per year. Therefore, no PM control device is subject to CAM.

- Hydrogen fluoride and hydrogen chloride - The facility uses a DLA to control acid gas emissions from Kiln 4. This control device is used to comply with two regulations: 02D .1100 and 02D .1111 (MACT Subpart JJJJJ).
    - 02D .1100 does not trigger CAM because it is not an applicable requirement.
    - 02D .1111 does not trigger CAM because the MACT standard is exempt per 02D .0614(b)(1)(A).

Therefore, there are no sources subject to CAM at this facility.

7. Facility Wide Air Toxics

On June 28, 2012, the North Carolina General Assembly passed air toxics reform legislation HB 952. The bill was signed by the governor and became law. Under the bill, any source that is covered under a MACT or Generally Achievable Control Technology (GACT) standard and any source covered under a 112(j) permit is exempt from regulation under the state air toxics rule, except in those circumstances when the Division of Air Quality's (DAQ) Director makes a written finding that emissions from such a source presents an unacceptable risk to public health (e.g., a Director's call).

On May 3, 2024, the facility submitted an addendum to the renewal application requesting that the toxics conditions be removed from the permit based on the exemption provided via 15A NCAC 02Q .0702(a)(27)(B).

On April 11, 2024, the facility submitted an updated dispersion modeling analysis for emissions of arsenic, chromium, and nickel from the brick kilns. This submittal was made in response to an NOV/NRE issued by DAQ to the facility on March 20, 2024 for exceedances of the air toxics emission limits for arsenic, chromium, and nickel observed during performance testing conducted in October 2023. This modeling analysis was reviewed and approved by AQAB on June 10, 2024. The highest modeled impact was arsenic at 88.57% of the AAL, modeled at the current permitted toxic emission rates, except for Kiln 5.1 which emissions are based on the highest test run value from the October 2023 performance testing.

The following Tables 7.1, 7.2, and 7.3 show the stack parameters, emission rates, and modeling results for the April 11, 2024 modeling analysis:

Table 7.1: Stack Parameters

Source ID	Source Description	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (ft)	Temperature (°F)	Exit Velocity (fps)	Stack Diameter (ft)
KILN3	Kiln at Plant 3	590477	4026208	177	71	140	80	3
KILN4	Kiln at Plant 4	590081	4026183	181	110	376	67	4
KILN51	Kiln at Plant 5	588717	4024899	193	30	323	38	4
KILN52	Kiln at Plant 5	588695	4024921	193	30	358	17	4

Table 7.2: Modeled Emission Rates

Source ID	Arsenic (lb/hr)	Chromium (lb/hr)	Nickel (lb/hr)
KILN3	6.21E-04	1.02E-03	1.44E-03
KILN4	8.41E-04	1.38E-03	1.94E-03
KILN51	8.83E-04	6.19E-03	4.87E-03
KILN52	3.71E-04	6.09E-04	8.60E-04

Table 7.3: Modeling Results

Pollutant	Averaging Period	Max. Conc. (µg/m3)	AAL (µg/m3)	% of AAL
Arsenic	Annual	0.00186	0.0021	88.57%
Chromium	24-hour	0.04848	0.62	7.82%
Nickel	24-hour	0.04154	0.6	6.92%

Prior to the April 11, 2024 modeling analysis, the facility conducted a Health-Based Compliance Alternative Analysis (HBCA), also referred to as a site-specific risk assessment, which was reviewed and approved by AQAB on March 14, 2012. The facility used this HBCA analysis to establish an alternative, health-based facility-wide HCl-equivalent emission rate to limit HCl and HF emissions from all affected tunnel kilns for the 112(j) provision which has now expired. Permit-allowable toxic emission rates were used for each source and a facility-wide impact was determined for each toxic air pollutant. A hazard index was calculated for each toxic air pollutant from the appropriate dose-response values from the EPA reference. The hazard indexes were summed for both chronic cancer, chronic non-cancer, and acute effects, with each summed hazard index totaling less than the threshold of 1.0.

Prior to the HBCA analysis, the facility conducted a dispersion modeling analysis which was reviewed and approved by AQAB on February 13, 2007. The facility modeled emission rates for each kiln at the maximum permitted process rate. The highest modeled impact was arsenic at 70% of the AAL.

Pine Hall conducted stack testing on the Plant 4 and Plant 5 kilns in October of 2023 to demonstrate compliance with the MACT Subpart JJJJJ emission limits. During testing, exceedances of the air toxics emission limits for arsenic, chromium, and nickel were observed at Kiln 5.1. As discussed above, an updated dispersion modeling analysis was conducted on April 11, 2024 for all kilns for emissions of arsenic, chromium, and nickel. The emission rates used in the updated modeling were the permitted toxic emission rates for each kiln except for Kiln 5.1 which emissions are based on the highest test run value from the October 2023 performance testing. The highest modeled impact was arsenic at 88.57% of the AAL.

The Plant 3 kilns have not been tested because they are currently out of operation. These kilns will be tested within 180 days of startup to demonstrate compliance with the MACT Subpart JJJJJ emission limits. If necessary, an updated modeling analysis will be conducted based on the results of the Plant 3 kiln's performance testing. Until then, the Plant 3 kilns are expected to be in compliance with the current permitted toxic emission limits.

Based on the history of toxics modeling demonstrating compliance with the AALs, toxic emissions from the kilns do not appear to present an unacceptable risk to human health. DAQ will remove the air toxics requirements from the permit with this renewal per the exemption via 15A NCAC 02Q .0702(a)(27)(B) for sources subject to MACT.

8. Facility Emissions Review

The facility wide potential emissions are not changing with this TV permit renewal. Actual emissions for criteria pollutants and HAPs for calendar years 2018 through 2022 are provided in the header of this permit review.

9. Compliance Status

DAQ has reviewed the compliance status of Pine Hall Brick.

During the most recent inspection, conducted on August 30, 2023 by Dylan Wright of WSRO, the facility appeared to be in compliance with all applicable requirements.

The following violations have occurred at the facility since the previous permit renewal:

- March 20, 2024 – NOV/NRE issued for exceedances of permitted toxic emissions limits for arsenic, chromium, and nickel observed during the performance test conducted October 24, 2023. The facility submitted an updated modeling analysis for emissions of arsenic, chromium, and nickel on April 11, 2024 in response to the NOV/NRE. The modeling analysis is currently under review by AQAB.

- August 11, 2020 – NOV/NRE issued for (1) operation of emergency generator (ID No. I-GEN1) for greater than 100 hours per year for non-emergency use, (2) failure to conduct weekly visible emissions observations (conducting monthly observations instead), and (3) failure to include all applicable violations in the Annual Compliance Certification for calendar year 2019 or the semiannual compliance reports. On December 16, 2020, a civil penalty of $2,268 was assessed against Pine Hall Brick. The civil penalty was paid in full on January 27, 2021. This violation has been resolved.

- April 24, 2019 – NOV issued for (1) failure to conduct monthly visible emissions observations for NSPS Subpart OOO affected sources, (2) failure to comply with the maintenance requirements of MACT Subpart ZZZZ for the emergency generator (ID No. I-GEN3), (3) operation of emergency generator (ID No. I-GEN1) for greater than 100 hours per year for non-emergency use, (4) operation of the bagfilter (ID No. 4ES-BF) outside of the permitted pressure drop operating range, and (5) failure to include all applicable violations in the Annual Compliance Certification for calendar year 2018. According to IBEAM, the facility submitted a response to the violation on May 17, 2019. No civil penalty was assessed. This violation has been resolved.

- February 16, 2016 – NOV issued for failure to conduct visible emissions observations on a weekly basis (conducting monthly observations instead) and for failure to report all violations in the Annual Compliance Certification for calendar year 2015. The facility responded to the violation on March 7, 2016. No civil penalty was assessed. This violation has been resolved.

The facility's Annual Compliance Certification was most recently received on January 22, 2024 and indicated compliance with all applicable requirements during calendar year 2023.

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 shall be provided to EPA.

11. Other Regulatory Considerations

- A P.E. seal is NOT required for this renewal application.
- A zoning consistency determination is NOT required for this renewal application.
- A permit fee was not required for the initial permit renewal application. A permit fee of $3,000 was assessed for the addendum to the permit renewal application submitted on May 3, 2024 since this updated the application schedule to a renewal with modification.
- The facility does not emit the new HAP, 1-bromopropane.
- EPA has promulgated a rule (88 FR 47029, July 21, 2023), with an effective date of August 21, 2023, removing the emergency affirmative defense provisions in operating permits programs, codified in both 40 CFR 70.6(g) and 71.6(g). EPA has concluded that these provisions are inconsistent with the EPA's current interpretation of the enforcement structure of the CAA, in light of prior court decisions[1]. Moreover, per EPA, the removal of these provisions is also consistent with other recent EPA actions involving affirmative defenses[2] and will harmonize the EPA's treatment of affirmative defenses across different CAA programs. As a consequence of this EPA action to remove these provisions from 40 CFR 70.6(g), it will be necessary for states and local agencies that have adopted similar affirmative defense provisions in their Part 70 operating permit programs to revise their Part 70 programs (regulations) to remove these provisions. In addition, individual operating permits that contain Title V affirmative defenses based on 40 CFR 70.6(g) or similar state regulations will need to be revised.

  Regarding NCDAQ, it has not adopted these discretionary affirmative defense provisions in its Title V regulations (15A NCAC 02Q .0500). Instead, DAQ has chosen to include them directly in individual Title V permits as General Condition (GC) J.

  Per EPA, DAQ is required to promptly remove such impermissible provisions, as stated above, from individual Title V permits, after August 21, 2023, through normal course of permit issuance. The General Conditions have been updated with this permitting action to remove General Condition J.

12. Conclusions, Comments, and Recommendations

Comments

The following comments on the draft permit were received from Mark Huncik on behalf of Pine Hall Brick on July 3, 2024:

Comment 1: Plant 5 can burn propane as well. The 30,000 gallon propane tank (ID No. I-PTANK) serves the Plant 5 kilns.

[1] NRDC v. EPA, 749 F.3d 1055 (D.C. Cir. 2014).

[2] In newly issued and revised New Source Performance Standards (NSPS), emission guidelines for existing sources, and NESHAP regulations, the EPA has either omitted new affirmative defense provisions or removed existing affirmative defense provisions. See, e.g., National Emission Standards for Hazardous Air Pollutants for the Portland Cement Manufacturing Industry and Standards of Performance for Portland Cement Plants; Final Rule, 80 FR 44771 (July 27, 2015); National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters; Final Rule, 80 FR 72789 (November 20, 2015); Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration Units; Final Rule, 81 FR 40956 (June 23, 2016).

DAQ Response: The permit will be updated to add propane to the list of fuels combusted in the Plant 5 kilns. No additional regulations or requirements apply with the addition of propane.

Comment 2: I-GEN was replaced with a 11kW natural gas generator (this information was provided to DAQ previously in 2019); this unit is subject to 40 CFR Part 60 Subpart JJJJ and 40 CFR Part 63 Subpart ZZZZ.

DAQ Response: The insignificant source (ID No. I-GEN) will be updated to reflect this change.

Comment 3: I-GEN3 at the Customer Service Center was replaced with a 22kW natural gas generator in Feb. 2024; this unit is subject to 40 CFR Part 60 Subpart JJJJ and 40 CFR Part 63 Subpart ZZZZ.

DAQ Response: The insignificant source (ID No. I-GEN3) will be updated to reflect this change.

Comment 4: 1-bromopropane is not emitted by the facility.

DAQ Response: The permit review will be updated to include this information.

Comment 5: The wood dust silo system consists of four (4) silos: two "storage silos" with capacities of 7,615 cubic feet each and two smaller "usage silos" with filters (4-WHS-LKD4.1 and 4-WHS-LKD4.2) with capacities of 718 cubic feet each (see attached Process Flow Diagram and pictures):

a. When being filled, the storage silos are vented to the sawdust screening building bagfilter which exhausts indoors to the wood dust screening building.

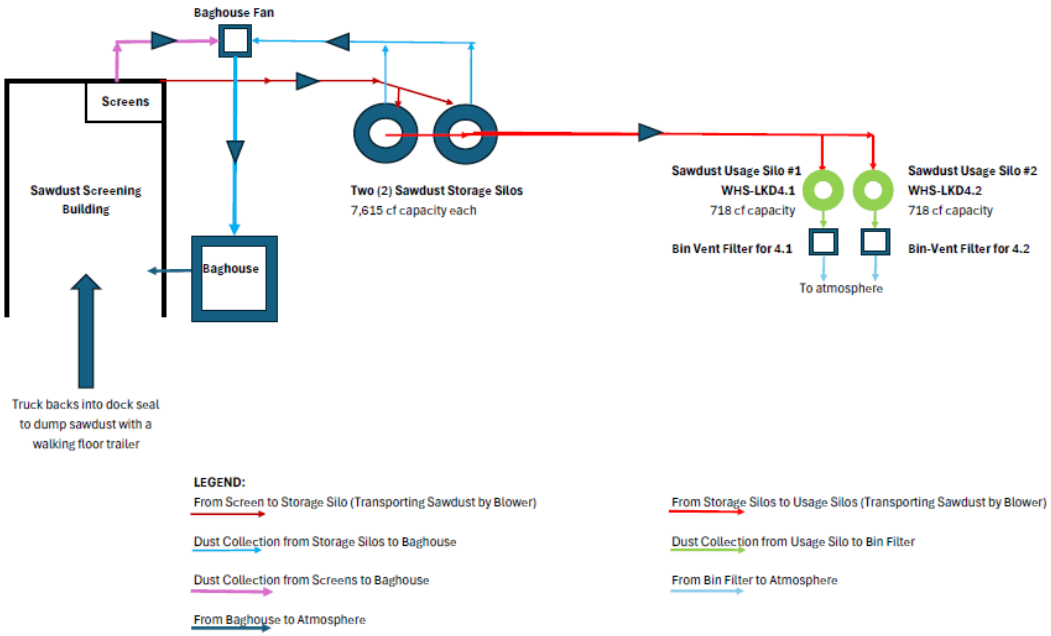
b. When transferring dust from the storage silos to the usage bin silos, air is vented to the bin filters atop the usage silos (4-WHS-BVF-1 and 4-WHS-BVF-2)

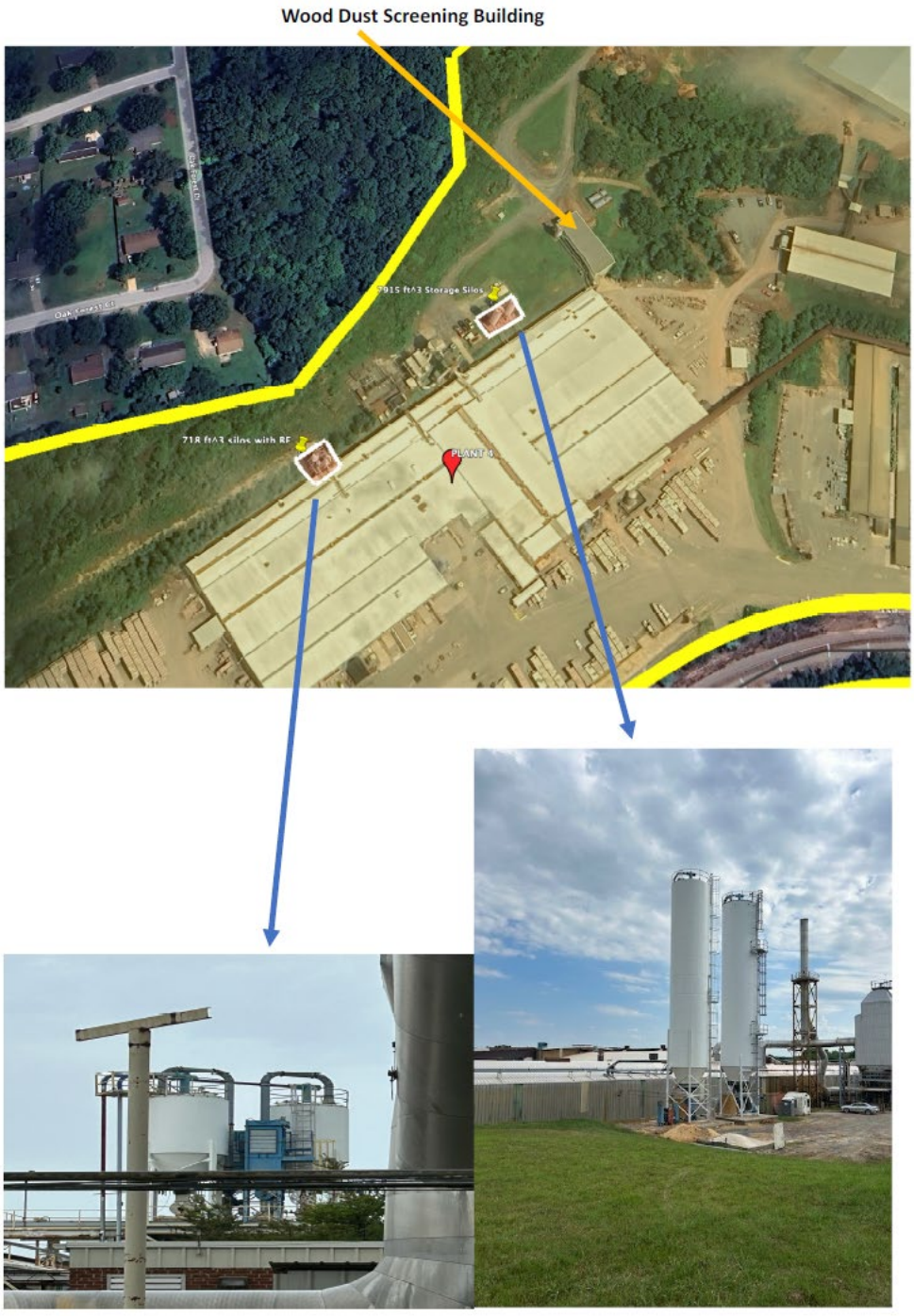
c. We believe the larger storage silos should also be listed in the permit along with the bin silos as they are part of the same wood dust handling system and use the bagfilter controls at the usage silos when transporting wood dust for use by the kilns

d. The firing rate of wood dust at the Plant 4 kiln was permitted at 6.75 tons/hr across both kilns. The transfer rate to the usage silos is likely higher than this rate, however it is acceptable (and conservative) to use the firing rate value to determine the PM emission limit for the exhaust at the usage silo bin vents. Thus, at 6.75 tons/hr split across the two usage silos/bin filters, each limit would be 9.3 lb/hr.

Plant 4 Sawdust Handling Operation

Pine Hall Brick Co., Inc. - Madison, North Carolina





DAQ Response: An online meeting occurred on July 17, 2024 between DAQ and Pine Hall Brick during which it was discussed whether the storage silos are required to be listed on the permit. It was determined during this meeting that the storage silos are not required to be listed as permitted equipment because (1) the sawdust screening building bagfilter vents indoors and (2) the storage silos share the same emission release point, the bin vent filters, with the currently permitted usage silos (ID Nos. 4-WHS-LKD4.1 and 4-WHS-LKD4.2). Thus, the storage silos will be listed as insignificant sources in Section 3 of the permit. The facility submitted revised Forms D4 and E5 via email on July 18, 2024. It was also noted in the email that the storage silo capacities should be updated to 7,915 cubic feet, each.

Additionally, based on Comment 5.d, the calculation in Section 5.a (02D .0515) has been updated with a more conservative maximum process rate calculation for the wood dust silos. The facility continues to remain in compliance with 02D .0515.

Comment 6: Plant 4 Brickmaking Room Bagfilter ID No. is "P4-BF", but is incorrectly listed as "PF-BF" in Section 2.1 E.

DAQ Response: Agree with comment. The permit will be revised with the correct ID No. for the Plant 4 Brickmaking Room Bagfilter.

Comment 7: P4 bagfilters – Acceptable pressure drop across one bagfilter if two kilns operating?

a. The Differential pressure across the baghouse in any situation should not exceed the established 0.5-14.0 inches of WC. All of this is based on the Baghouse Exhaust Fan and its maximum capacity.

b. Currently we are running 1 kiln and both baghouses and the diff pressure is in the 7-8 in of WC range. When we start the 2nd kiln we would expect it to increase to 11-12 in of WC and if we were to go to one BH we would expect it to possible increase to 13-14 in of WC. Anytime we have seen the pressure over 14 we have found a problem and corrected it promptly.

DAQ Response: The monitoring condition associated with 02D .0515 for the Plant 4 kilns will be updated to include a differential pressure drop limit of no greater than 14 inches of water (WC) during times when both kilns are venting to only one bagfilter.

Conclusions and Recommendations

The permit renewal application for Pine Hall Brick located in Madison, Rockingham County, North Carolina has been reviewed by DAQ to determine compliance with all procedures and requirements. DAQ has determined this facility is complying or will achieve compliance, as specified in the permit, with all requirements that are applicable to the affected sources. DAQ recommends the issuance of Air Permit No. 03997T30 after completion of public participation and EPA's review period.