

Air Permit Review

Permit Issue Date:

Region: Winston-Salem Regional Office
County: Rockingham
NC Facility ID: 7900038
Inspector's Name: Ray Stewart
Date of Last Inspection: 11/02/2006
Compliance Code: 3/In Compliance - Inspection

Facility Data			Permit Applicability (this application only)		
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			SIP: NSPS: NESHAP: PSD: PSD Avoidance: NC Toxics: 112(r): Other:		
Contact Data			Application Data		
Facility Contact	Authorized Contact	Technical Contact	Application Number: 7900038.06B & 7900038.07A Date Received: 03/06/2007 Application Type: Modification Application Schedule: TV-Significant Existing Permit Data Existing Permit Number: 03997/T19 Existing Permit Issue Date: 10/10/2006 Existing Permit Expiration Date: 02/28/2008		
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Review Engineer: Gautam Patnaik Review Engineer's Signature: _____ Date: _____		Comments / Recommendations: Issue 03997/T20 Permit Issue Date: Permit Expiration Date:			

1. Facility Description.

Pine Hall Brick Company, Inc. operates a brick manufacturing facility at this Rockingham County site.

2. Purpose of Application

- a) (Application # 7900038.06B) The applicant requested an increase in production of the kilns in plant 5 (ID Nos. 5ES-LKD5.1 and 5ES-LKD5.2) from a rate of 10.25 tons per hour of bricks per kin to 11.95 tons per hour of bricks per kiln. There would be no physical modification of the kilns nor would the firing rate increase. This increase would be achieved by stacking the bricks higher on each car.
- b) (Application # 7900038.07A) The applicant also requested an alternate monitoring requirement for compliance with the brick MACT. This change is approved and further described below in section 4. of the review.

The two applications are being consolidated and as per the decision of Donald R. van der Vaart, Chief of this Section. No additional fee is required for the second application.

3. Regulatory Review

i. 15A NCAC 02D. 0515: “Particulates from Miscellaneous Industrial Processes”

This application is for increasing the production rates in kilns (ID Nos. 5ES-LKD5.1 and 5ES-LKD5.2) from a rate of 10.25 tons per hour of bricks per kiln to 11.95 tons per hour of bricks per kiln. As per this regulation the emission of particulate matter from these sources are limited as follows:

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

where

E = allowable emission rate in pounds per hour

P = process weight rate in tons per hour

The allowable emissions rate of particulate matter from each of these sources based on the increased production rate will be 21.6 lbs per hour of particulate matter. There are no control device for the control of particulate matter emissions from these kilns. As per the applicant, the emissions of particulate matter from these sources is calculated to be 11.47 lbs per hour from each of the kilns. Thus, compliance is expected for this regulation since the emission rate of particulate matter is less than the allowable.

ii. 15A NCAC 2D .0516: “Sulfur Dioxide Emissions from Combustion Sources”

The affected brick dryers and kiln systems (ID Nos. 5ES-LKD5.1 and 5ES-LKD5.2) are natural gas-fired (28.88 million Btu per hour heat input, each). This heat input is not changing as a result of this modification. Based on the inherently low sulfur content of natural gas, compliance with this regulation is expected.

iii. 15A NCAC 2D .0521: “Control of Visible Emissions”

These sources are already subject to visible emissions of 20 percent opacity. Increasing the production rates at the kilns will not change the opacity standard for the sources.

Monitoring

The applicant will inspect the sources monthly to assure compliance. The applicant shall establish normal for the sources in the first 30 days following the following the production increase of each kilns (**ID Nos. 5ES-LKD5.1 and 5ES-LKD5.2**). If visible emissions from the sources are observed to be above normal appropriate action has to be taken to correct the above-normal emissions.

Recordkeeping

The results of the monitoring shall be maintained in a logbook on-site and made available to DAQ upon request.

Reporting

The applicant shall submit a semi annual summary report of the observations to DAQ.

State-Only Requirement:

iv. 15A NCAC 2D .1100: “Control of Toxic Air Pollutants”

This facility is already subject to a facility wide limit for the emissions of Ammonia, Arsenic, Benzene, Beryllium, Cadmium, Chlorine, Chromium, di (2-thylhexyl)phthalate, Formaldehyde, Hydrogen Chloride, Hydrogen Fluoride, Hydrogen Fluoride, Manganese, Mercury and Nickel. The increase in the production rates in kilns (ID Nos. 5ES-LKD5.1 and 5ES-LKD5.2) from a rate of 10.25 tons per hour of bricks per kin to 11.95 tons per hour of bricks per kiln will cause an increase in emissions of Hydrogen Fluoride, Hydrogen Chloride, Formaldehyde, Chromium, Manganese, Mercury, Nickel, di (2-thylhexyl)phthalate, Chlorine and Ammonia above the already permitted rates.

The applicant submitted a modeling protocol to demonstrate compliance by modeling. Mr. Jerry Freeman, of the Air Quality Analysis Branch (AQAB) stated in his memo on February 13, 2007 “The analysis successfully demonstrated compliance, on a source-by-source basis, for the toxic pollutants with the NC Acceptable Ambient Levels (AAL). The criteria pollutants for this particular project (increase), all modeled below Significant Impact Levels (SIL) and thus required no further modeling. He further added “In compliance with a new DAQ policy, TSP was analyzed utilizing receptors beginning at the property lines instead of a fencelines. For toxics, the largest impact occurred for arsenic at 70% of the AAL. For criteria pollutants, PM10 had the highest percentage impact, in regards to the applicable SIL, at 90%.”

The current permit lists the individual TAPs above the TPERs rate on a facility wide basis. The applicant stated that they have always demonstrated compliance based on a source by source (emission points) basis. Since the facility demonstrated compliance on a source by source basis, the facility wide emissions rate of the TAPs is being replaced by a source by source basis in the new permit. The emission factors (lbs/hour) stated in Mr. Freeman memo dated February 13, 2007, were used to tabulate the daily and the annual emissions rate for the concerned TAPs. The current permit will reflect the emission rates of TAPs as mentioned in the table below. The other restrictions required to demonstrate compliance with toxics remain the same:

Sources: TAPs (emission rate):	3ES-LK3.1 and 3ES-LK3.2	4ES-LKD4.1 and 4ES-LKD4.2	5ES- LKD5.1	5ES- LKD5.2
Ammonia lbs/hr	0.0	8.92	0.0	0.0
Arsenic lbs/year	5.439	7.367	3.249	3.249
Beryllium lb/yr	0.073	0.098	0.087	0.087
Benzene lbs/yr	508.08	683.28	297.84	297.84
Cadmium lbs/yr	3.854	5.203	1.568	1.568
Chlorine lb/day	0.624	0.84	0.36	0.36
Chromium lb/day	0.024	0.033	0.014	0.014
di (2-	0.96	1.296	0.573	0.573

thylhexyl)phthalate lbs/day				
Formaldehyde lbs/hr	3.303	4.464	0.001	0.001
Hydrogen Chloride lbs/hr	3.403	7.026	2.063	2.063
Hydrogen Fluoride lbs/hr	11.81	1.541	7.063	7.063
Hydrogen Fluoride lbs/day	283.44	36.984	169.512	169.512
Mercury lb/day	0.005	0.007	0.002	0.002
Manganese lb/day	0.230	0.309	0.081	0.081
Nickel lb/day	0.033	0.046	0.02	0.02

The modeling was done for the kilns (ID Nos. 5ES-LKD5.1 and 5ES-LKD5.2) with stack heights of 16.76 meters for the increased emissions rate. A foot note requires the stack heights be raised to 16.76 meters for each of the stacks prior to operating at the increased process rate of 11.76 tph for each kiln. The increased stack height is not required as long as the kilns operate at or below their previously permitted process rate of 10.25 tph each.

As per the applicant the total emission of ammonia is from kilns 4ES-LKD4.1 and 4ES-LKD4.2.

State-Only Requirement:

- v. 15A NCAC 2D .1806: “Control and Prohibition of Odorous Emissions”
All emission sources

The Kilns are subject to the State only odor regulation which requires the applicant not operate the facility 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.

- vi. 15A NCAC 2Q .0317: “Avoidance Conditions” for
15A NCAC 2D .1111: “Maximum Achievable Control Technology”

These kilns (ID Nos. 5ES-LKD5.1 and 5ES-LKD5.2) are not subject to the “National Emission Standards for Hazardous Air Pollutants for Brick and Structural Clay Products,” (40 CFR Part 63 Subpart JJJJ – Brick MACT), since the applicant shall restrict the operation rate of each kiln to less than 10 tons per hour fired product on a 12-month rolling average basis. This requirement is not changed, since as per the applicant the production rate increase requested is for short term period and the 12-month rolling average production rate will remain less than 10 tons per hour of bricks fired per kiln. The monitoring, recordkeeping and reporting conditions have not changed.

4. NSPS, NESHAPS, PSD, Attainment Status, 112(r), CAM

NSPS

Some of the sources in this facility are subject to the NSPS regulation (40 CFR 60.670, Subpart OOO), however the kilns (ID Nos. 5ES-LKD5.1 and 5ES-LKD5.2) are not subject to this regulation.

NESHAP/MACT

On September 29, 2006 the applicant had proposed to DAQ to “to monitor by-pass damper position” in lieu of the pressure drop requirement specified by Subpart JJJJJ for the dry limestone adsorber(s) (DLA). This was considered acceptable as per the letter dated February 23, 2007 written by Lee A. Daniel (Attached and on IBEAM), Chief of Technical Services Section.

The letter by Mr. Lee Daniel states “Rulemaking authority lies with EPA’s Office of Air Quality Planning and Standards (OAQPS). OAQPS representatives have set their own timetable for making changes to Subpart JJJJJ. However, that schedule is in no way affected by the timelines in any proposed or active North Carolina Special Orders by Consent (SOC) and therefore does not offer timely relief from the unworkable pressure drop requirements in the rule.

Given the situation described above, the North Carolina Division of Air Quality (DAQ) has adopted the position that we disagree with EPA’s assertion that your proposal constitutes an alternative standard. There are, after all, no numerical pressure drop limits written in the rule and there are separate pollutant specific emission standards that must be met. Having taken this position, we conclude that your proposal constitutes alternative monitoring only, which DAQ has the authority to approve.”

Mr. Daniel further adds “40 CFR 63.8420(e) allows for bypassing the control device for purposes of maintenance and specifies that the operator may apply for a “routine control device maintenance exemption.” It is understood that the normal maintenance recommendations offered by the DLA manufacturer(s) include daily operational checks of the bypass damper wherein the damper is opened and closed briefly to insure that it seals properly and does not stick on one position or the other. It is considered that this operational check is a valid component of the control device maintenance protocol and as such can be legitimately included as part of the routine control device bypass exemption.”

This approval was granted based on the following conditions:

1. Bypass damper position must be monitored and recorded at least every 15 minutes or in some equivalent way by the plant computer. It is our understanding that the position of the bypass damper is already monitored to provide the operator with a continuous status indication on the control room monitor via the plant computer. It is our expectation that the same computer will be programmed to record an open or closed status for the damper every 15 minutes. In the alternative, a daily report showing the amount of open and/or closed time for the previous 24 hours may be generated from the plant computer. As a third alternative, manual log sheets may be used. The reason for each bypass event must also be recorded. You should anticipate that the DAQ inspector will expect to examine these records during any routine Air Quality inspection.
2. Damper position monitoring is intended as the means of satisfying the requirements of Item 1(a) of Table 2 of 40 CFR.63 Subpart JJJJJ. Nevertheless, pressure drop shall still be

monitored as described in your September 29, 2006 proposal. Record pressure drop values every 15 minutes. No limits will be set for pressure drop at this time.

3. Records gathered per items 1 and 2 above must be retained at the Pine Hall Brick plant site for at least 5 years after the recorded date.
4. This approval pertains only to pressure drop monitoring for DLAs and alternatives for such monitoring. All other monitoring required by 40 CFR 63 Subpart JJJJJ, such as daily checks on limestone feeder settings, limestone level, etc., are unaffected by this approval and must be performed as specified in the subpart.
5. To the extent that pressure drop is discussed in any Operation, Maintenance and Monitoring Plan developed under 40 CFR 63.8425 or discussed as a trigger for corrective action or other maintenance activity in any Startup, Shutdown and Malfunction (SSM) plan developed according to 40 CFR 63.6(e), those plans must be revised as appropriate to reflect the substitution of bypass damper monitoring in lieu of pressure drop.

Thus, in the new permit the applicant is required to monitor and record the bypass damper position every 15 minutes in lieu of maintaining 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. The applicant however, has to monitor the pressure drop values across the DLA every 15 minutes. (These changes are outlined in red in the draft permit)

EPA had earlier removed the requirement that the source must follow their start-up, shutdown and malfunction (SSM) plan during the periods of SSM. The details of these for the Brick MACT (Subpart JJJJJ) were outlined in the Federal Register / Vol. 71, No. 76 issued on Thursday, April 20, 2006. These changes have been made to the Brick MACT language in the new permit (The draft permit has the [replacement language in blue](#)).

See – Review Section 8. Conclusion

PSD/NAAQS

The minor baseline dates for Rockingham County have been triggered for PM₁₀, SO₂ and NO_x since 9/25/1998. This modification will increase the emissions of PM₁₀ to 20.79 lbs per hour on a short term basis. (These kilns are subject to 10 tons per hour, fired product, per kiln, on a 12-month rolling average basis, to avoid Brick MACT.)

Since the emissions are directly proportional to production, the emission of PM₁₀ for a production rate of 10.25 tons per hour per kiln is estimated to be 17.83 lbs per hour from the two kilns, thus resulting in an increase of 2.96 lbs per hour of PM₁₀ from both the kilns by increasing the production rate. Since the emissions of PM₁₀ are more than 1.0 lbs per hour tracking for this criteria pollutants will be required at this time for PSD Class II increment purposes. Rockingham County is not in attainment with the 8-hour ozone standard, however Rockingham County is considered an EAC (Early Action Compact) area.

For the PSD applicability determination the applicant used consecutive two years (2004 and 2005) of the highest production rate for these kilns for the last five years (from 2001 to 2005). Based on the data provided the past actual emissions of PM₁₀ from these kilns was 61.6 tons per year. The future potential based on the increased production rates at these kilns is expected to be 76.1 tons per year (Note - These kilns 5ES-LKD5.1 and 5ES-LKD5.2 shall restrict the operation

rate of each kiln to less than 10 tons per hour fired product on a 12-month rolling average basis), the difference of the future annual potential emissions of PM₁₀ to past actual is 14.5 tons per year. Since this is less than the PSD significant rate of 15 tons per year for PM₁₀ emissions, a PSD review is not required.

Rockingham County is in attainment for PM_{2.5} pertaining to the ambient air quality standard. As per the applicant this facility is not a major source for PM_{2.5} and the emissions of particulate matter are very small with the major fraction being well above PM_{2.5}.

112(r)

This 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 thresholds in the Rule.

CAM

The title V permit for this facility has been subject to a renewal and there has been no CAM plan for any sources for this facility. The current modifications are for kilns (ID Nos. 5ES-LKD5.1 and 5ES-LKD5.2), there are no control devices for these sources and thus, a CAM review during this modification is not required.

5. Miscellaneous

A zoning consistency determination as per 2Q .0304(b) was required and provided.

This application did not require a " Professional Engineer Seal."

The latest inspection report done on 10/31/2006 by Mr. Ray Stewart indicates that the facility was in compliance.

The current permit does have a Part II. The new permit does not have a Part II since the draft permit is being subject to a public notice and an EPA review.

7. Applicant and Regional Office comments.

The applicant and the Regional Office were both given a copy of the draft permit and their comments provided on 4/16/07 and 4/5/07 respectively, were taken into account.

8. Conclusion

Since the draft permit was sent for comments to the Regional Office and the applicant for comments, the DC circuit court vacated the "Brick MACT" and the final mandate has not been issued yet. This application is being processed as a significant modification of the title V permit, with the required 30-day public comment period and 45-day US EPA review.

9. Permit Modification/Changes

The following table describes the modifications to the current permit as part of the modification process.

Page(s)	Section	Description of Change(s)
4	Source table	Increase maximum production rates for the kilns ID Nos. 5ES-LKD5.1 and 5ES-LKD5.2

Page(s)	Section	Description of Change(s)
15	2.1 D. 4. g. ii	Modification of operating limits for table 2 to and compliance language for subpart JJJJ.
16	2.1 D. 4. h. iii	Modification for general compliance requirements for subpart JJJJ.
18 and 19	2.1 D. 4. i. iii	Modification of table 4 to subpart JJJJ for initial compliance with emission limitations
23	2.1 D. 4. l. i	Modification of table 5 to subpart JJJJ for continuous compliance with emission limits and operating limits.
24	2.1 D. 4. l. iii. C.	Modification of SSM plans.
24	2.1 D. 4. l. iii	Modification for general compliance for subpart JJJJ to include bypass damper position
35 and 36	2.2. B. i.	Changes to TAPs emission rate for 2D .1100 from facility wide to a source by source basis.