

## **STATEMENT OF BASIS**

Boral Bricks, Phenix City Plant 4  
Phenix City, Alabama  
Russell County  
211-0020

This proposed renewal Title V Major Source Operating Permit is issued under the provisions of ADEM Admin. Code R. 335-3-16. The above named applicant has requested authorization to perform the work or operate the facility shown on the application and drawings, plans and other documents attached hereto or on file with the Air Division of the Alabama Department of Environmental Management, in accordance with the terms and conditions of this permit.

Boral Brick's current Title V Major Source Permit will expire on October 23, 2016. Under the provisions of ADEM Admin Code R. 335-3-16-.12 major sources are required to submit applications for permit renewal at least six months but not more than 18 months, before the date of expiration. Boral Brick's renewal application was due on April 23, 2016. The Department received Boral Brick's renewal application on April 22, 2016.

Boral Bricks Plant 4 manufactures clay facing brick and a limited amount of special clay brick shapes. The manufacturing process involves several steps including screening, grinding, mixing, extruding, coloring/coating, cutting, drying, and firing operations. Some of these operations are listed as trivial or insignificant activities.

The following are the significant sources of air pollutants at this facility:

- Tunnel Kilns
- Kiln Solid Fuel System (Hammermill/Scalping Screening)
- Clay Preparation

The facility is allowed to operate 8760 hours per year. Based on the Title V permit application, this facility is a potential major source for Particulate Matter, Sulfur Dioxide, Nitrogen Oxides, Carbon Monoxide, Hydrogen Chloride, and Hydrogen Fluoride. Furthermore, the facility's Title V permit application asserted that the facility is a minor source for Greenhouse Gases.

40 CFR Part 60 Subpart OOO – Standards of Performance for Nonmetallic Mineral Processing Plants applies to each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operations. Boral Bricks Plant 4 is subject to the applicable standards of this NSPS.

Boral Plant 4 is subject to the requirements of 40 CFR Part 63 Subpart JJJJ – National Emissions Standards for Hazardous Air Pollutants for Brick and Structural Clay Products Manufacturing. Boral Plant 4 must comply with the applicable requirements of this subpart by December 26, 2018. This subpart applies to the three tunnel kilns located at the facility.

## Tunnel Kilns

Green bricks are pulled through natural gas/sawdust/crushed peanut hull fired kilns to dehydrate, oxidize, vitrify, and flash the formed clay to create finished brick. The Tunnel Kiln operations consist of three tunnel kilns (sources TK-41-1, TK-42-1, and TK-42- 2) with emission points S-13, S-17, and S-18.

Plant 41's kiln burns a mixture of crushed peanut hulls/natural gas, sawdust/natural gas, 100% sawdust or 100% natural gas as fuel. The kiln combusts either 53% / 47% mix of peanut hulls to natural gas, 100% sawdust, , or any combination of sawdust and natural gas, or 100% natural gas. Emissions of PM, SO<sub>2</sub>, NO<sub>x</sub>, CO, VOC, HCl, HF, and other HAPs are generated from these tunnel kilns. No control device is used to control emissions from these sources.

These units are subject to the standards contained in 40 CFR 63 Subpart JJJJ, and must comply with the applicable requirements of this subpart beginning on December 26, 2018.

### Emission Standards

#### **Particulate Matter:**

The particulate emission rate from each kiln in this unit shall not exceed the allowable set by rule 335-3-4-.04.

$$E=3.59(P)^{0.62} \text{ (P < 30 tons/hr)}$$

$$E=17.31(P)^{0.16} \text{ (P } \geq \text{ 30 tons/hr)}$$

Where E=Emissions in lb/hr, P=Process weight in tons/hour

<b>Emission Point</b>	<b>P</b>	<b>E</b>
	<b>Tons/hr</b>	<b>lb/hr</b>
TK-41 (S-13)	9.99	14.96
TK-42-1 (S-17)	9.99	14.96
TK-42-2 (S-18)	9.99	14.96

ADEM Admin. Code R. 335-3-4-.04(1):

#### **Opacity:**

This source shall not emit particulate matter of an opacity of more than one 6-minute average greater than 20% in any 60-minute period. At no time shall any source discharge a 6-minute average opacity of particulate matter emissions greater than 40%.

ADEM. Code R. 335-3-4-.01(1)

#### **40 CFR 63 Subpart JJJJ**

These sources must meet the applicable emissions limits contained in Table 1 of 40 CFR 63 Subpart JJJJ beginning on December 26, 2018.

40 CFR §63.8405(a)

These sources must meet the applicable operating limits contained in Table 2 of 40 CFR 63 Subpart JJJJ beginning on December 26, 2018.

40 CFR §63.8405(b)

These sources must meet the applicable work practice standards contained in Table 3 of 40 CFR 63 Subpart JJJJ beginning on December 26, 2018.

40 CFR §63.8405(c)

#### Expected Emissions

Emissions are based on Peanut Hull/Natural Gas mixture, which would be maximum emissions from each kiln.

Emission Point	Pollutant	Emission Rate	
		lb/hr	TPY
S-13, 17, or 18	PM <sup>1</sup>	8.81	38.59
S-13, 17, or 18	SO <sub>2</sub> <sup>1</sup>	18.07	79.15
S-13, 17, or 18	NO <sub>x</sub>	13.67	59.86
S-13, 17, or 18	CO	15.04	65.90
S-13, 17, or 18	VOC	1.50	6.56
S-13, 17, or 18	HCl	1.70	7.44
S-13, 17, or 18	HF	8.21	35.97

<sup>1</sup> Emissions factors based on December 2006 stack test.

<sup>2</sup> Emissions factors based on March 2005 stack test Boral's Salisbury, NC facility

#### Periodic Monitoring

The following monitoring is utilized to provide reasonable assurance of compliance with the opacity and particulate matter standards. The kilns are heated by the combustion of peanut hulls and natural gas. The peanut hull feed system does not allow for measurement of peanut hulls combusted in the kiln on a short-term basis. A percentage of the burners used to fire the kiln are capable of combusting peanut hulls which results in peanut hull combustion supplying a percentage of the heat input previously provided by natural gas. Therefore, monitoring the monthly peanut hull usage and the daily natural gas usage so that the heat input from natural gas does not fall below the amount used during the emissions test, should be sufficient for indicating emissions based on peanut hull usage.

#### **Opacity and Particulate Matter**

The facility shall conduct emission tests for particulate emissions on Nos. TK-41-1, TK-42-1, and TK-42-2 tunnel kilns at intervals no more than four years

following the previous emissions test. The emission tests shall be conducted while operating at the maximum production level and the maximum crushed peanut hull firing rate.

The facility shall perform a visual check at least once per week, of the stack associated with each unit. This check shall be performed by a person familiar with Method 9. If instantaneous visible emissions in excess of 10% opacity are noted, and are not corrected within a period of 1 hour, then a Method 9 must be performed within 4 hours of the observations. Maintenance shall be performed as needed. All corrective action and observed problems shall be recorded.

After the corrective action has been performed, the permittee shall conduct another visual check to ensure that the visible emissions have been reduced.

The facility shall maintain a record of all inspections, to include visible observations and Method 9 observations performed to satisfy the requirements of periodic monitoring. This shall include all problems observed and corrective actions taken. Each record shall be maintained for a period of 5 years.

The permittee shall submit a written report of exceedence of the stack opacity to the Department semi-annually.

This kiln's production rate should be calculated according to the amount of bricks produced (in tons) in a 12-month period divided by the number of operating hours in the 12-month period. Monthly records and 12-month rolling total records of the production of fired products for each kiln and monthly operating hours of each kiln shall be maintained in a form suitable for inspection for a period of five (5) years.

The peanut hull usage (in lbs/hr) shall be calculated according to the amount of peanut hulls combusted (in pounds) each month divided by the number of kiln operating hours in each month. Monthly records of the amount of crushed peanut hulls combusted for each kiln and monthly operating hours of each kiln shall be maintained in a form suitable for inspection for a period of five (5) years.

The sawdust usage (in lbs/hr) shall be calculated according to the amount of sawdust combusted (in pounds) each month divided by the number of kiln operating hours in each month. Monthly records of the amount of sawdust combusted for each kiln and monthly operating hours of each kiln shall be maintained in a form suitable for inspection for a period of five (5) years.

Records of the daily amount of natural gas usage for each kiln shall be maintained in a form suitable for inspection for a period of five (5) years.

MACT Subpart JJJJ Monitoring, Reporting, and Recordkeeping

For each affected kiln that is subject to the emission limits specified in Table 1 to this subpart, you must prepare and implement a written operation, maintenance, and monitoring (OM&M) plan according to the requirements in §63.8425.

40 CFR §63.8420(c)

The permittee must meet the applicable monitoring requirements contained in 40 CFR §63.8450.

40 CFR §63.8450

The permittee must demonstrate compliance with the applicable emission standards and work practice standards contained in 40 CFR §63.8470.

40 CFR §63.8470

The permittee must submit each report in Table 9 to 40 CFR 63 Subpart JJJJ that applies to you.

40 CFR §63.8485(a)

The permittee must keep the records required by 40 CFR §63.8490.

40 CFR §63.8490

**These units are not subject to CAM because a control device is not used to control emissions.**

## **Kiln Solid Fuel System**

At Plant 41 sawdust and crushed peanut hull, used to fuel tunnel kiln 1 (source TK-41-1), are delivered via enclosed live feed trailers and unloaded to screw conveyors. The unprocessed feed from the trailer unloading system is then routed to hammermill (HM2), where it is ground to a proper size for use as fuel. The ground fuel is then sent to a high efficiency cyclone (CY1) where it is recovered and routed to the scalping screen (SS1). Any ground fuel that does not pass the scalping screening process is recycled to the hammermill for further grinding. The fuel which passes the scalping screen is then sent to a bucket elevator where it is routed to a surge hopper for distribution into the kiln's solid fuel distributor. The solid fuel distributor then appropriately supplies solid fuel to Plant 41's kiln 1.

At Plant 42 sawdust and crushed peanut hull, used to fuel tunnel kilns 1 and 2 (sources TK-42-1 and TK-42-2), are delivered via enclosed live feed trailers and unloaded to screw conveyors. The unprocessed feed from the trailer unloading system is then routed to hammermill (HM3), where it is ground to a proper size for use as fuel. The ground fuel is then sent to a high efficiency cyclone (CY2) where it is recovered and routed to the scalping screen (SS2). Any ground fuel that does not pass the scalping screening process is recycled to the hammermill for further grinding. The fuel which passes the scalping screen is then sent to a bucket elevator where it is routed to a surge hopper for distribution into the kiln's solid fuel distributor. The solid fuel distributor then appropriately supplies solid fuel to Plant 42's kilns 1 and 2.

These units would not be subject to 40 CFR 60 Subpart OOO, "Standards of Performance for Nonmetallic Mineral Processing Plants" because the sawdust and peanut hulls are not classified as nonmetallic minerals.

### Emission Standards

#### **Particulate Matter:**

Particulate matter emissions from the Hammermill (HM-2) shall not exceed the allowable set by 335-3-4-.04.

Particulate matter emissions from the Hammermill (HM-3) shall not exceed the allowable set by 335-3-4-.04.

$$E=3.59(P)^{0.62} \quad (P < 30 \text{ tons/hr})$$

$$E=17.31(P)^{0.16} \quad (P \geq 30 \text{ tons/hr})$$

Where E=Emissions in lb/hr, P=Process weight in tons/hour

<b>Emission Point</b>	<b>P</b>	<b>E</b>
	<b>Tons/hr</b>	<b>lb/hr</b>
HM-2	3.6	7.94
SS-2	3.6	7.94
HM-3	7.2	12.2
SS-3	7.2	12.2

ADEM Admin. Code R. 335-3-4-.04(1)

**Opacity:**

This source shall not emit particulate matter of an opacity of more than one 6-minute average greater than 20% in any sixty 60 minute period. At no time shall any source discharge a 6-minute average opacity of particulate matter emissions greater than 40%.

Expected Emissions

Source #	Pollutant	Emission Rate	
		lb/hr	TPY
HM-2	PM	0.07	0.32
SS-2	PM	0.07	0.32
HM-3	PM	0.14	0.63
SS-3	PM	0.14	0.63

Emissions based on AP-42 emissions factors.

Periodic Monitoring

The facility shall perform an observation once per week, while the units are in operation. If any visible emissions greater than normal are noted during the above-referenced visual check, corrective action must be initiated within two (2) hours to reduce the emissions.

After the corrective action has been performed, the permittee shall conduct another visual check to ensure that the visible emissions have been reduced.

**These units are not subject to CAM because the pre-controlled emissions do not exceed major source thresholds.**

## Clay Body Preparation

The Clay Body Preparation operations consist of fugitive emissions only. Clay from a railcar or truck is unloaded into a railhead hopper and apron feeder that feeds a conveyor belt to the primary crusher (PC-1) where it is crushed and conveyed to covered stockpiles. Crushed clay from the covered stockpiles and brick bats are fed to feeders and conveyed to the grinding and screening operation where the material is initially ground with a 384 muller grinder, screened and a portion of the material is re-ground through the hammermill (HM-1) until all material passes the screens. The hammermill is enclosed in a building. Based on emission calculations the initial grinding, the screening, and the conveying are considered insignificant activities. Emissions of PM are generated from these sources. There is no control device used to control emissions from these sources. The Primary Crusher (PC-1) was constructed in 1985, and the Hammermill (HM-1) was constructed in 1987. The Primary Crusher (PC-1) and Hammermill (HM-1) are subject to 40 CFR 60 Subpart OOO, "Standards of Performance for Nonmetallic Mineral Processing Plants". All other sources were constructed prior to 1983

### Emission Standards

#### **Particulate Matter:**

Particulate matter emissions from the Primary Crusher (PC-1) shall not exceed the allowable set by 335-3-4-.04.

Particulate matter emissions from the Hammermill (HM-1) shall not exceed the allowable set by 335-3-4-.04.

$$E=3.59(P)^{0.62} \text{ (P < 30 tons/hr)}$$

$$E=17.31(P)^{0.16} \text{ (P } \geq \text{ 30 tons/hr)}$$

Where E=Emissions in lb/hr, P=Process weight in tons/hour

<b>Emission Point</b>	<b>P</b>	<b>E</b>
	<b>Tons/hr</b>	<b>lb/hr</b>
PC-1	211	40.8
HM-1	400	45.1

ADEM Admin. Code R. 335-3-4-.04(1)

#### **Opacity:**

From any crusher, at which a capture system is not used, fugitive emissions can not exhibit greater than 15 % opacity.

40 CFR 60 Subpart OOO, Table 3

Fugitive emissions cannot exceed 10 % opacity from any transfer point on belt conveyors or from any other affected facility.

40 CFR 60 Subpart OOO, Table 3

Building openings from buildings enclosing NSPS Subpart OOO affected units must not exceed 7 percent opacity.

40 CFR 60.672(e)(1)

Vents from a building enclosing NSPS Subpart OOO affected units must meet the applicable stack emission limit and compliance requirements in Table 2 of Subpart OOO.

40 CFR 60.672(e)(2)

### Expected Emissions

Source #	Pollutant	Emission Rate
PC-1	PM	12.45 lbs/hr
HM-1	PM	1.00 lb/hr

Emissions based on AP-42 emissions factors.

### Periodic Monitoring

#### **Opacity and Particulate Matter**

An observation of each emission point associated with this source will be accomplished at least weekly. If any visible emissions greater than normal are noted during the above-referenced visual checks, corrective action shall be initiated within 2 hours to reduce the emissions.

After the corrective action has been performed, the permittee shall conduct another visual check to ensure that the visible emissions have been reduced.

Records of all visual checks and corrective actions taken shall be maintained in a form suitable for inspection and kept on site for a period of at least 5 years.

The permittee shall submit a written report of exceedences to the Department semi-annually.

**These units are not subject to CAM because a control device is not used to control emissions.**