



Id. No. 079-00170 Reg. R13-2937A  
Company Rhodes Brick & Block Company  
Facility Red House Region 4  
Initials REM

**west virginia department of environmental protection**

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**ENGINEERING EVALUATION / FACT SHEET**

**BACKGROUND INFORMATION**

Application No.: R13-2937A *After-the-Fact*  
Plant ID No.: 079-00170  
Applicant: Rhodes Brick & Block Company  
Facility Name: Red House Facility  
Location: Putnam County  
NAICS Code: 327331  
Application Type: Modification  
Received Date: August 13, 2015  
Engineer Assigned: Thornton E. Martin Jr.  
Fee Amount: \$1,000  
Date Received: August 13, 2015  
Complete Date: September 08, 2015  
Applicant Ad Date: August 13, 2015  
Newspaper: *Charleston Gazette Mail*  
UTM's: Easting: 423.478 km Northing: 4266.701 km Zone: 17  
Description: Applicant proposes to modify their existing facility by adding six (6) additional storage bins for a purchased aggregate wholesale operation, three (3) of the storage bins were constructed in March 2015. This modification will also remove a permitted crusher (CRS-1) that was never installed and include additional stockpile, paved / unpaved haul road emissions associated with the wholesale operation.

**DESCRIPTION OF PROCESS**

**Block Plant** (Taken from Application R13-2937)

Cement is delivered by bulk tanker and pneumatically pumped into a 200 ton cement silo. Aggregates are delivered to the site and are stored in the aggregate stockpile area for the block plant. The stockpile area will have a concrete floor and 3 block walls and will hold 1,000 tons.

Aggregates will be moved from the stockpile area by end loader or truck to transfer hopper AB-1 and transfer hopper AB-2. Material from both transfer hoppers drop onto a conveyor belt and are transferred to the aggregate bin AB-3, which is inside a building. AB-3 drops material via a clam

shell gate into a weight bin. From the weight bin, material is dropped onto a conveyor belt. This conveyor will feed an aggregate holding hopper above the mixer. The aggregates are then dropped into a two cubic yard mixer.

Cement is conveyed from the cement silo with a screw conveyor to a weight hopper above the mixer. Cement is added to the mixer from the weight hopper. Liquid admixes, water and coloring are then added. After mixing, the material is discharged onto three mud conveyor belts. The material from the three belts are conveyed onto one mud belt that feeds the block machine. The block machine forms blocks from the wet material. The blocks are then stacked onto steel racks and loaded into the kilns. A Curetec steam generator is used to provide the heat that cures the blocks. After curing, the blocks are taken out of the kilns, run through a block cuber and transferred by fork lift to the block storage yard. The blocks are then loaded onto trucks as needed with a fork lift.

#### **Concrete Plant** (Taken from Application R13-2937)

Aggregates are delivered and stored in a 300 ton aggregate stockpile. The stockpile area will have a concrete floor and 3 block walls. An end loader picks up material from the stockpile area and loads it into a 72 ton, three compartment aggregate bin. Aggregate is dropped by clamshell into a weigh bin under the aggregate bin. Then the material is transferred from the weigh bin into the mixer by conveyor belt.

Cement is then conveyed from the cement silo by screw conveyor to the cement weigh bin above the mixer. The cement is then dropped from the weigh bin into the mixer. Next, admixes, coloring and water is added. The admixes are liquid and are added with a liquid pump. Coloring (when needed) will be added using pre-weighed bags that dissolve in the mixer. The half yard mixer blends the material and then discharges in onto one of two mud belts. Molds are poured at the end of the mud belts.

Blocks are removed from the molds after curing and transferred to the block storage area by fork lift. As needed, trucks will be loaded with blocks from the block storage area.

#### **Modification** (Taken from Application R13-2937A)

##### **A. Concrete Block & Brick Manufacturing (NAICS Code 327331)**

- The permitted 2,000 gallon diesel fuel storage tank (T-1) was replaced on July 29, 2014 with a 1,000 gallon capacity tank.
- The crusher (CRS-1) was never installed and is being removed from the permit with this modification.
- This modification adds 180 feet of paved haulroad consisting of 100 linear feet of concrete at the intersection of the plant entrance and State Route 62 and a set of truck scales measuring 60' in length with a 10' long concrete approach pad at each end.

##### **B. Proposed Wholesaling of Pre-Sized Limestone and Sand Products (NAICS Code 23320)**

- Three (3) bulk storage units, i.e., E3-6, E3-7 and E3-8 were constructed in March 2015

and currently contain limited amounts of off-site purchased pre-sized materials.

- Truck scales were installed in March 2015.
- Three (3) additional bulk storage units, i.e., E3-9, E3-10 and E3-11 will be constructed between the effective date of the approval of this modification and December 31, 2015.
- E3-6, E3-7 and E3-8 in conjunction with the truck scales, will begin being used to supply the local wholesale market with sand and/or pre-sized limestone products within one day after this modification becomes effective.

Table 1: Emission Units Summary

Emission ID No.	Emission Point ID	A M R <sup>1</sup>	Description	Year Installed/ Modified	Design Capacity	Control Equipment <sup>2</sup>
<b>Equipment</b>						
CM-1	TP17 TP18 TP19	M	Mixer Sicoma 2250	2012	80 TPH	FE
CM-2	TP31 TP32	M	Mixer Sicoma 565	2012	20 TPH	FE
SG-1	E2	M	Steam Generator NDG 750 Curetec	2012	2.5 MMBtu/hr	FE
BLC	N/A	M	Block Cuber	2012	1,700 ph	N
BLM	N/A	M	Block Machine	2012	1,700 ph	N
BLS	N/A	M	Block Stacker and Unstacker	2012	1,700 ph	N
CRS-1	TP8	A R	Crusher (Never Installed) removed with this modification	2012 2015	100 TPH	FE
<b>Conveyors</b>						
BC-1	TP7	M	Aggregate Conveyor Belt	2012	200 TPH	PE
BC-2	TP9	M	Aggregate Conveyor Belt	2012	200 TPH	PE
BC-3	TP12	M	Aggregate Conveyor Belt	2012	165 TPH	PE
BC-4	TP20	M	Mud Conveyor Belt	2012	80 TPH	N
BC-5	TP21	M	Mud Conveyor Belt	2012	80 TPH	N
BC-6	TP22	M	Mud Conveyor Belt	2012	80 TPH	N
BC-7	TP23	M	Mud Conveyor Belt	2012	90 TPH	N
BC-8	TP27	M	Aggregate Conveyor Belt	2012	145 TPH	PE
BC-9	TP33	M	Mud Conveyor Belt	2012	80 TPH	N
BC-10	TP34	M	Mud Conveyor Belt	2012	80 TPH	N
SC-1	TP15	M	Screw Conveyor	2012	3.5 TPH	APCD-1
SC-2	TP29	M	Screw Conveyor	2012	1.75 TPH	APCD-1
<b>Storage</b>						
AB-1	TP6	M	Aggregate Bin	2012	165 TPH	PE
AB-2	TP5	M	Aggregate Bin	2012	170 TPH	PE
AB-3	TP10	M	Aggregate Bin	2012	200 TPH	PE
AB-4	TP25	M	Aggregate Bin	2012	145 TPH	PE
AH-1	TP13	M	Aggregate Holding Hopper	2012	80 TPH	PE
WH-1	TP11	M	Aggregate Weight Bin	2012	165 TPH	PE
WH-2	TP16	M	Cement Weight Bin	2012	10 TPH	APCD-1
WH-3	TP26	M	Aggregate Weight Bin	2012	145 TPH	PE
WH-4	TP30	M	Cement Weight Bin	2012	2 TPH	APCD-1
CS-1	TP14 TP28	M	Cement Silo	2012	14 TPH	APCD-1

E3-1	TP2 TP3/TP4	M	Sand Storage Bin	2012	1,800 ft <sup>2</sup>	WS
E3-2	TP2 TP3/TP4	M	Limestone Storage Bin	2012	1,800 ft <sup>2</sup>	WS
E3-3	TP2 TP3/TP4	M	Stalite Storage Bin	2012	1,800 ft <sup>2</sup>	WS
E3-4	TP2 TP3/TP4	M	Sand Storage Bin	2012	640 ft <sup>2</sup>	WS
E3-5	TP2 TP3/TP4	M	Limestone Storage Bin	2012	640 ft <sup>2</sup>	WS
E3-6	TP35 TP36	A	Wholesale Limestone Storage Bin	March 2015	1,569.75 ft <sup>2</sup>	WS
E3-7	TP35 TP36	A	Wholesale Limestone Storage Bin	March 2015	1,569.75 ft <sup>2</sup>	WS
E3-8	TP35 TP36	A	Wholesale Limestone Storage Bin	March 2015	1,569.75 ft <sup>2</sup>	WS
E3-9	TP35 TP36	A	Wholesale Limestone Storage Bin	2015	1,569.75 ft <sup>2</sup>	WS
E3-10	TP35 TP36	A	Wholesale Limestone Storage Bin	2015	1,569.75 ft <sup>2</sup>	WS
E3-11	TP35 TP36	A	Wholesale Sand Storage Bin	2015	1,225 ft <sup>2</sup>	WS
<b>Tanks</b>						
T-1	E-3	A R	On-road Diesel	2012 2014	2,000 gal.	N
T-2	E-4	M	Off-road Diesel	2012	1,000 gal.	N
T-3	E-5	A	On-road Diesel	2014	1,000 gal.	N
<b>Control Equipment</b>					<b>Total Cloth Area (ft<sup>2</sup>)</b>	<b>Air/Cloth Ratio (ft/min)</b>
APCD-1			Baghouse – StaClean Diffuser - 16-8-BDS-Pulse Jet (used for loading/unloading cement weight bins and silo)	2012	196.8	5.1

A - Addition; M - Modification; R - Removal (Existing unmodified equipment to be included in the permit is labeled with an M.)  
 FE - Full Enclosure; PE - Partial Enclosure; WS - Water Spray; N - None; APCD-1 - Baghouse.

## SITE INSPECTION

Andy Grimm of the Division of Air Quality Enforcement Section performed a full, on-site, targeted inspection on June 16, 2015. The facility received a score of 30 - In Compliance.

Directions: Take State Route 62 North, go approximately 6.7 miles from the Poca, WV Volunteer Fire Department. The facility is on the left.

## ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

The estimated emission calculations were performed by the applicants' consultant and were checked for accuracy and completeness by the writer. All emission factors are based on AP-42, Fifth Edition, Revised 6/2006 for concrete batch plants (Section 11.12-8) and transfer

points (Section 11.12-2); Revision 11/2006 for unpaved roads (Section 13.2.2) and Revision 1/2011 for industrial paved roads (Section 13.2.1).

Fugitive emissions sources include those generated from the delivery and unloading of aggregate and sand by trucks, and the subsequent use of the wheel loader to transfer these materials to the bins or trucks. Fugitive emissions resulting from delivery and transfer by wheel loader are minimized by the use of water spray. Fugitive emissions generated from weighing the aggregate and sand is controlled by enclosing the weigh hopper for these materials.

Cement emissions are controlled by the use of a baghouse attached to an enclosed silo for the cement. Additionally, the baghouse will be used to control emissions when weighing the cement in the weigh hopper.

The baghouse is equipped with a device to measure pressure drop across the filter elements and is monitored and recorded daily. Filter elements are cleaned and/or replaced whenever the pressure drop is outside of the manufacturer's recommended operating parameters.

Estimated emissions are shown for the Red House facility based on 8,760 operating hours are summarized in the following tables:

Table 2: Existing Emissions Summary (R13-2937)

Source	PM		PM <sub>10</sub>	
	lb/hr	TPY	lb/hr	TPY
Transfer Points	11.77	51.65	5.48	24.01
Crusher	0.78	3.42	0.30	1.31
Steam Generator	0.02	0.09	0.02	0.09
Stockpiles	2.64	11.56	1.24	5.43
Unpaved HR	3.55	15.54	1.05	4.59
<b>Total</b>	<b>18.76</b>	<b>82.26</b>	<b>8.09</b>	<b>35.43</b>

Table 2a: Existing Emissions Summary (continued)

Source	SO <sub>2</sub>		NO <sub>x</sub>		VOC		CO	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Diesel Tanks	--	--	--	--	0.01	0.01	--	--
Steam Generator	0.01	0.01	0.27	1.16	0.02	0.07	0.23	0.98
<b>Total</b>	<b>0.01</b>	<b>0.01</b>	<b>0.27</b>	<b>1.16</b>	<b>0.03</b>	<b>0.08</b>	<b>0.23</b>	<b>0.98</b>

Table 3: Proposed Emissions Summary (R13-2937A)

Source	PM		PM <sub>10</sub>	
	lb/hr	TPY	lb/hr	TPY
Transfer Points	11.63	50.96	5.42	23.73
Steam Generator	0.02	0.09	0.02	0.09
Stockpiles	6.22	27.25	2.92	12.81
Unpaved HR	5.48	23.99	1.62	7.08
Paved HR	0.0006	0.00001	0.0011	0.0006
<b>Total</b>	<b>23.35</b>	<b>102.29</b>	<b>9.98</b>	<b>43.71</b>

Table 3a: Proposed Emissions Summary (continued)

Source	SO <sub>2</sub>		NO <sub>x</sub>		VOC		CO	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Diesel Tanks	--	--	--	--	--	0.0007	--	--
Steam Generator	0.01	0.01	0.27	1.16	0.02	0.07	0.23	0.98
<b>Total</b>	<b>0.01</b>	<b>0.01</b>	<b>0.27</b>	<b>1.16</b>	<b>0.02</b>	<b>0.071</b>	<b>0.23</b>	<b>0.98</b>

Table 4: Change in Emissions

Source	PM		PM <sub>10</sub>	
	lb/hr	TPY	lb/hr	TPY
Existing	18.76	82.26	8.09	35.43
Proposed	23.35	102.29	9.98	43.71
<b>Change</b>	<b>4.59</b>	<b>20.03</b>	<b>1.89</b>	<b>8.28</b>

Table 4a: Change in Emissions (continued)

Source	SO <sub>2</sub>		NO <sub>x</sub>		VOC		CO	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Existing	0.01	0.01	0.27	1.16	0.03	0.08	0.23	0.98
Proposed	0.01	0.01	0.27	1.16	0.02	0.071	0.23	0.98
<b>Change</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>-0.01</b>	<b>-0.01</b>	<b>0.00</b>	<b>0.00</b>

Additionally, total HAP emissions from the entire facility (mainly natural gas combustion but, also trivial amounts from material handling) will be 0.01 pound per hour and 0.03 tons per year.

## REGULATORY APPLICABILITY

NESHAPS and PSD have no applicability to the proposed facility. The proposed modification of a brick and block facility is subject to the following state and federal rules:

*45CSR2 To Prevent and Control Particulate Matter Air Pollution From Combustion of Fuel in Indirect Heat Exchangers*

Per §45-2-3.1 visible emissions from the source shall not exceed 10% opacity based on a six minute block average. Because the steam generator will use natural gas exclusively, this requirement should be met.

§45-2-4.1.b limits the amount of PM released into the air from indirect heat exchangers. However, §45-2-11 exempts units with a heat input under 10 MMBtu/hr. The steam generator is only 2.5 MMBtu/hr and is therefore exempt from the standard.

*45CSR10 To Prevent and Control Air Pollution From the Emission of Sulfur Oxides*

§45-10-10.1. exempts units with a heat input under 10 MMBtu/hr from most of the standards. The steam generator is only 2.5 MMBtu/hr. Therefore only the §45-10-4.1 prohibition of an in stack sulfur concentration greater than 2,000 ppm applies. Because the steam generator will use natural gas exclusively, this requirement should be met.

*45CSR13 Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation*

The proposed modification will be subject to the requirements of 45CSR13 because it involves the removal of equipment subject to 40 CFR 60 Subpart OOO. The net change in potential to discharge controlled emissions is less than six (6) pounds per hour and greater than ten (10) tons per year of a regulated air pollutant (PM), the applicant submitted the \$1000 application fee and published a Class I legal advertisement in the *Charleston Gazette Mail* on August 13, 2015 pursuant to Section 2.24.e. of 45CSR13.

*45CSR17 To Prevent and Control Particulate Matter Air Pollution from Materials Handling, Preparation, Storage and Other Sources of Fugitive Particulate Matter*

Per §45-17-3.1 no person shall cause, suffer, allow or permit fugitive particulate matter to be discharged beyond the boundary lines of the property on which the discharge originates or at any public or residential location, which causes or contributes to statutory air pollution.

*45CSR30 Requirements for Operating Permits*

This facility will remain classified as a Synthetic Minor for Title V. The uncontrolled emissions for PM (not including haulroads and stockpiles) are over 50 TPY and the facility is located in a PM<sub>2.5</sub> Non-Attainment Area (Putnam County).

The proposed modification of a brick and block facility will not be subject to the following state and federal rules:

*40CFR60, Subpart OOO Standards of Performance for Nonmetallic Mineral Processing Plants*

This facility was previously subject to 40 CFR 60, Subpart OOO as the facility was permitted to crush nonmetallic minerals as defined in the rule. With this modification, the crusher is being removed from the permit as it was never installed. Without any crushing or grinding mill at the facility, previous affected facilities defined under Subpart OOO are no longer relevant.

*40CFR60, Subpart Kb Standards of Performance for Volatile Organic Liquid Storage Vessels*

Subpart Kb applies to tanks with a capacity greater than 75 cubic meters (19,810 gallons). The two diesel storage tanks at the facility will be 1,000 each. Therefore, Subpart Kb does not apply.

*40CFR63, Subpart JJJJJJ National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial and Institutional Boilers*

Since the steam generator will be fired exclusively with natural gas, it is exempt from the requirements of Subpart JJJJJJ.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

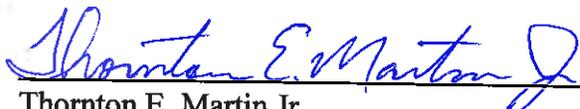
Total HAP emissions from the entire facility are less than 0.01 pounds per hour.

AIR QUALITY IMPACT ANALYSIS

Since the modification is defined as minor in 45CSR14, no modeling was performed.

RECOMMENDATION TO DIRECTOR

The information contained in this modification application indicates that compliance with all applicable regulations should be achieved when all proposed particulate matter control methods are in operation. Due to the location, nature of the process, and control methods proposed, adverse impacts on the surrounding area should be minimized. Therefore, the granting of a Rule 13 registration to Rhodes Brick & Block Company for the modification of their mix plant located in Red House, Putnam County, WV is hereby recommended.



Thornton E. Martin Jr.  
Permit Engineer

September 08, 2015

Date