west virginia department of environmental protection

Division of Air Quality
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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-0426B
Plant ID No.:	039-00110
Applicant:	Rhodes Brick & Block Company
Facility Name:	St. Albans Facility
Location:	Kanawha County
NAICS Code:	327331
Application Type:	Modification
Received Date:	October 14, 2016
Engineer Assigned:	Thornton E. Martin Jr.
Fee Amount:	$1,000
Date Received:	October 17, 2016
Complete Date:	December 27, 2016
Applicant Ad Date:	October 28, 2016
Newspaper:	*Charleston Gazette Mail*
UTM's:	Easting: 425.039 km Northing: 4251.883 km Zone: 17
Description:	Applicant proposes to make a like-kind replacement of the current cement silo (BS-1) and also the replacement of the existing shaker-style baghouse (BH-1) with a new, more efficient Pulse Jet Baghouse. Also, the Applicant would like to reflect an increase in various aggregate throughputs due to an anticipated increase in production once new equipment has been installed.

DESCRIPTION OF PROCESS

Existing (Taken from Application R13-0426B)

Aggregate is delivered to the facility via truck and then transferred to each material's respected storage area. Sand, limestone and light aggregate are transferred to their respective open stockpiles (Sand - OS-1 & OS-2; Limestone - OS-3 - OS-6; Light Aggregate - OS-9). These stockpiles use three-sided (partial) enclosures to control the fugitive emissions from loading, wind erosion and haul road traffic. Cinder is trucked into a large open stockpile (OS-8) on the west end of the property where it is stored with no fugitive control. The cinder from OS-8 is fed to a vibrating screen (SC-1) where it is separated into fine and oversized cinders. The fine cinders pass through the screen to truck and then are transferred to the cinder fines stockpile (OS-7). The oversized cinder unable to

pass through the screen is transferred to a hammer mill crusher (CR-1) where it is broken down into fines and then recycled to the vibrating screen via front end loader.

Sand, limestone, light aggregate and fine cinders are transferred to their respective aggregate hoppers (AH-1 - AH-4) via end-loader bucket transfer. Once these materials are in their respective aggregate hopper, the material is then fed via conveyor belt to the plant building and deposits in the weigh hopper. Cement from BS-1 is fed into the plant building and into the weigh hopper via screw conveyor.

Once the material is weighed, the weigh hopper transfers the aggregate batch into the block manufacturing process that is water saturated (no emission source). The material is compressed into block molds. The un-cured blocks are then placed on to steel pallets and are conveyed to an automated stacker or loader which places them in a curing rack. Each rack holds several hundred blocks. When a rack is full, it is rolled onto a set of rails and moved into a curing kiln. The kiln is an enclosed room with the capacity to hold several racks of blocks at a time. There are two basic types of curing kilns. The steam kiln holds the blocks for one to three hours at room temperature to allow them to harden slightly. Steam is then gradually introduced to raise the temperature at a controlled rate. When the curing temperature has been reached, the steam is shut off and the blocks are allowed to soak in the hot, moist air for 12-18 hours. After soaking, the blocks are dried by exhausting the moist air. The whole curing cycle takes about 24 hours.

The racks of cured blocks are rolled out of the kiln and the pallets of blocks are unstacked and placed on a chain conveyor. The blocks are pushed off the steel pallets. The blocks pass through a "cuber" which aligns each block and then stacks them. These cubes are carried outside with a forklift and placed in storage.

Modification (Taken from Application R13-0426B)

Cement is delivered to the facility via truck and then pneumatically transferred to the fully enclosed cement silo/storage bin (BS-1) at a maximum rate of 25 tons per hour. The point source emissions from the pneumatic transfer (T-28) from the truck to the cement silo (BS-1) are controlled by the baghouse (BH-1), which has a control efficiency of 99.98%. BS-1 feeds the currently permitted block processing facility. The proposed changes will be replacing the existing Cement Silo Storage and Shaker Style Baghouse.

Table 1: Emission Units Summary

Emission ID No.	Emission Point ID	AMR[1]	Description	Year Installed/ Modified	Design Capacity	Control Equipment[2]
Equipment						
BS-1	E01	A M	Cement Silo	1978 2017	37.5 ton	BH-1
CR-1	E03	E	Hammer Mill Crusher	1978	15,040 TPY	PE
SC-1	E04	E	Vibrating Screen	1978	15,040 TPY	FE
BLR-1	E05	E	Steam Generator	1978	2.5 MMBtu/hr	NA
OS-1	E06	E	Open Stockpile - Sand	1978	18,800 TPY	PE
OS-2	E07	E	Open Stockpile - Sand	1978	18,800 TPY	PE

Emission ID No.	Emission Point ID	A M R[1]	Description	Year Installed/ Modified	Design Capacity	Control Equipment[2]
OS-3	E08	E	Open Stockpile - Limestone	1978	22,560 TPY	PE
OS-4	E09	E	Open Stockpile - Limestone	1978	22,560 TPY	PE
OS-5	E10	E	Open Stockpile - Limestone	1978	22,560 TPY	PE
OS-6	E11	E	Open Stockpile - Limestone	1978	22,560 TPY	PE
OS-7	E12	E	Open Stockpile - Cinder (small)	1978	14,100 TPY	PE
OS-8	E13	E	Open Stockpile - Cinder (large)	1978	14,100 TPY	N
OS-9	E14	E	Open Stockpile - Light Aggregate	1978	18,800 TPY	PE
AH-1	E15	E	Aggregate Hopper - Sand	1978	3,760 tons	FE
AH-2	E16	E	Aggregate Hopper - Limestone	1978	3,760 tons	FE
AH-3	E17	E	Aggregate Hopper - Light Aggregate	1978	3,760 tons	FE
AH-4	E18	E	Aggregate Hopper - Cinder	1978	3,760 tons	FE
Tanks						
T-1	E19	E	Off road Diesel	1978	1,000	N
T-2	E20	E	On road Diesel	1978	1,000	N
Control Equipment					**Total Cloth Area (ft^2)**	**Air/Cloth Ratio (ft/min)**
BH-1	E02	A M	Baghouse – Belgrade Steel Tank Co.- Pulse Jet (used for loading/unloading cement silo)	1978 2017	330	4.8

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

SITE INSPECTION

Mike Kolb of the Division of Air Quality Enforcement Section performed a full, on-site, targeted inspection on August 25, 2014. The facility received a score of 30 - In Compliance. The writer deemed that a site inspection was unnecessary at this time based on the size and scope of the proposed modification.

Directions: Traveling along WV-817 S / Winfield Rd., take a left onto Co. Rte. 35/21. Take an immediate left onto Industrial Road and the site is on the right.

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. There is no emission change as a result of this modification. All emission factors are based on AP-42, Fifth Edition, Revised 6/2006 for concrete batch plants (Section 11.12-2); aggregate handling and storage piles (Section 13.2.4) 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 drop height. Fugitive emissions generated from weighing the aggregate and sand is controlled by enclosing the weigh hopper for these materials.

Cement transfer emissions are controlled by the use of a baghouse attached to an enclosed silo for the cement.

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 from the replaced equipment and increased throughputs will result in an increased potential to discharge 0.0007 TPY of particulate matter (PM) and 0.0004 TPY of particulate matter less than 10 microns in diameter (PM10). Emission estimates are shown for the St. Albans facility based on 1,880 operating hours and summarized in the following tables:

Table 2: Emissions Summary (R13-0426B)

Source	PM		PM_{10}	
	lb/hr	TPY	lb/hr	TPY
Transfer Points	0.66	0.62	0.31	0.29
Crusher/Screen	0.43	0.41	0.20	0.19
Steam Generator	0.02	0.02	0.01	0.01
Stockpiles	0.0003	0.0012	0.0001	0.0005
Paved HR	0.14	0.14	0.06	0.06
Total	**1.25**	**1.19**	**0.58**	**0.55**

Table 2a: Emissions Summary (continued)

Source	SO_2		NOx		VOC		CO		Total HAPs		CO_2e	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Tanks	--	--	--	--	0.001	0.002	--	--			--	--
Steam Generator	0.00	0.00	0.25	0.24	0.01	0.01	0.21	0.20	0.005	0.004	300	282
Total	**0.00**	**0.00**	**0.25**	**0.24**	**0.011**	**0.012**	**0.21**	**0.20**	**0.005**	**0.004**	**300**	**282**

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 net change in potential to discharge controlled emissions is less than six (6) pounds per hour and 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 October 28, 2016 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.

45CSR22 — Air Quality Management Fee Program

In accordance with 45CSR22 - "Air Quality Management Fee Program", the permittee shall not operate nor cause to operate the permitted facility or other associated facilities on the same or contiguous sites comprising the plant without first obtaining and having in current effect a Certificate to Operate (CTO). Such Certificate to Operate (CTO) shall be renewed annually, shall be maintained on the premises for which the Certificate has been issued, and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.

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 is not subject to 40 CFR 60, Subpart OOO as the facility is well under the limit of crushing nonmetallic minerals at 8 tons per hour (applicability: >25 TPH fixed and >125 TPH portable) as defined in the rule.

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 cement block plant located in St. Albans, Kanawha County, WV is hereby recommended.

Thornton E. Martin Jr.
Permit Engineer

December 27, 2016
Date

west virginia department of environmental protection

Division of Air Quality
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Phone: 304 926 0475 • Fax: 304 926 0479

Jim Justice, Governor
Austin Caperton, Cabinet Secretary
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MEMORANDUM

To: Memo To File

From: Thornton E. Martin Jr.

Date: February 16, 2017

Subject: Changes to Draft Permit
Rhodes Brick & Block Company – St. Albans Facility – Kanawha County, WV

ID #: 039-00110

APP #: R13-0426B

Comments received from the Applicant (Dated 1/25/2017):

Question 1
Same Question as in the Evaluation: If the St. Albans Plant (039-00110) is not an affected facility subject to OOO, does not meet the definition of a stationary source under 45CSR13 why is this facility required to have a permit?

Response: As you recall, it has been 39 years since the previous permit was issued to the Applicant for a source subject to 45CSR7 and 45CSR13. As a matter of policy, when this situation occurs, the Applicant must apply for a Permit to Modify according to Section 4.1.a. of 45CSR13 to bring the permit to the current revision.

Request 1
Please correct the following Table 1: Emission Units Summary
- ☐ Emission Units Summary Emission Point ID **E03,** Change from PE to FE.
- ☐ Emission Units Summary Emission Point ID **E04,** Change from FE to PE.
- ☐ Emission Units Summary Emission Point ID **E15,** Change from FE to PE.
- ☐ Emission Units Summary Emission Point ID **E16,** Change from FE to PE.
- ☐ Emission Units Summary Emission Point ID **E17,** Change from FE to PE.
- ☐ Emission Units Summary Emission Point ID **E18,** Change from FE to PE.

Response: Corrected Table under Section 1.0 Emission Units.

Request 2
Please correct Table 2: Emissions Summary (R13-0426B)
SLR had a mistake in the calculations that were submitted in the application.
□ Please increase the transfer point Controlled PM Limit to 0.81 PPH
□ Please increase the transfer point Controlled PM10 Limit to 0.40 PPH
□ Please increase the transfer point Controlled PM10 Limit to 0.37 TPY

Response: Corrected Table under Section 4.0 Source-Specific Requirements.

Request 3
Please consider the following changes to the associated permit term and conditions.
Could limits in Tables found in 4.1.1., and conditions 4.1.2., 4.1.10., 4.3.11 for HAPs and VOCs for the Diesel Tanks be removed based on the following:
The diesel tanks at this site are "De minimis source" according to 45CSR13 2.6 as it is an emissions unit listed in Table 45-13B. (Table 7.1-2 in Chapter 7 of the U.S. EPA publication "AP 42 has these values for the vapor pressure (in psia) of diesel oil:
40 deg F = 0.0031 80 deg F = 0.012
50 deg F = 0.0045 90 deg F = 0.016
60 deg F = 0.0074 100 deg F = 0.022
70 deg F = 0.0090
58. Storage vessels having less than 10,567 gallons capacity containing petroleum or organic liquids with a vapor pressure of 1.5 psia or less at storage temperature, provided that the emissions from all such organic liquid storage tanks, in the aggregate, are less than 2 tons per year for hazardous air pollutants or VOCs.

Response: Removed Diesel Tanks from Table under Section 4.0 Source-Specific Requirements.

Removed condition 4.1.2 Emissions of total Hazardous Air Pollutants from the facility shall not exceed 0.005 pounds per hour nor 0.004 tons per year.

Condition 4.1.10 is now 4.1.8 and Condition 4.3.11 is now 4.3.10. As to the de minimis list – that only means that such sources on their own usually are small enough not to trigger the permitting thresholds. When a source is required to get a permit then such source can and often should be placed in the permit – so we will not remove the language for the diesel tanks. Per Bev McKeone.

SLR is requesting that conditions in Tables found in 4.1.3, 4.1.16., 4.2.1.a through c, 4.3.4., and 4.3.15 for the Steam Boiler be removed based on the following:
The Steam Boiler (Generator) was determined to be below permitting modification thresholds in a permit determination in 2004 when installed. Please see the attached correspondence from the WVDEP DAQ Small Business Assistance Program Since the Boiler is less than 10MMBTU/Hr and is therefore exempted from testing and monitoring under 45CSR2.
45CSR2 8.*4.b. The owner or operator of a fuel burning unit(s) which combusts only natural gas shall be exempt from the requirements of subdivision 8.1.a and subsection 8.2. Testing and Monitoring*
If necessary, SLR suggests the following language in place of Condition 4.1.3
4.1.3. As the annual emission limits given in Table 4.1.1. are based on operating 8,760 hr/yr at a maximum design heat input capacity of 2.5 MM Btu/hr, there is no limit on the annual hours of operation or fuel usage for the Steam Boiler/Generator (BLR-1).
SLR suggests the following language in place of Condition 4.2.1.
4.2.1. Upon request, tests to determine compliance with the emission limitations set forth in this

permit shall be conducted in accordance with the methods as set forth below. The Secretary may require a different test method or approve an alternative method in light of any technology advancements that may occur. Compliance testing shall be conducted at, or near, 100% of the peak load. The permittee may request an alternative test procedure with a written submittal (protocol) to the Secretary. Tests to determine compliance with Opacity of emissions shall be conducted in accordance with Method 9 as set forth in 40 CFR 60, Appendix A.
4.2.2. With regard to the emissions testing required by the WV Division of Environmental Protection, Division of Air Quality (DAQ), the permittee shall submit to the Secretary of the DAQ a test protocol detailing the proposed test methods, date, and time testing is to take place, testing locations, and any other relevant information. The test protocol must be received by the Secretary no Jess than thirty (30) days prior to the date the testing is to take place. The secretary shall be notified at least fifteen (15) days in advance of the actual dates and times during which the tests will be conducted. The results of emissions testing shall be submitted to the DAQ within thirty (30) days of completion of testing.

Response: Combined the two Tables under Section 4.0 Source-Specific Requirements.

Condition 4.1.3 is now 4.1.9 and remains as all emissions represented in the permit are based on 1,880 hours/yr of operation.

Condition 4.1.16 is now 4.1.15 (Boiler is subject to section 3.1 of 45CSR2) and Condition 4.2.1.a thru c has been removed.

Condition 4.3.14 In order to determine compliance with section 4.1.14 of this permit the permittee shall record the amount of water or solution applied to haul roads on a daily basis. Has been removed from the permit.

Condition 4.3.15 has been changed to condition 4.3.14 Compliance with the visible emission requirements of section 4.1.15 shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 9. as per §45-2-3.2 .

Lastly for condition 4.1.14, the operator has paved haul roads and already operates a street sweeper as necessary to prevent fugitive emissions from the haul road traffic at this site. We suggest the following language to replace the condition:

When fugitive particulate emissions from paved haul roads, work areas and stockpiles are generated as a result of activity or wind, the operator will operate a street sweeper to minimize fugitive dust as necessary.

Response: Condition 4.1.14 has been changed to reflect the request and is now condition 4.1.13.

Comments received from the Applicant (Dated 2/15/2017):

After reviewing, Rhodes Brick and Block would like to request the following adjustments be made within the current draft version of R13-0426B.

1.1

The equipment table lists a steam generator. Please instead list the equipment as a boiler.

Response: All references to Steam Generator have been changed to reflect Boiler.

The boiler's maximum design capacity needs corrected. Please change the design from 2.5 MMBTU/hr to 5.25MMBTU/hr.

Response: Boiler size of 5.25 MMBtu is now reflected in the Table in Section 1.0 Emission Units.

Emissions from the Boiler have been changed to reflect (5.25 MMBtu/hr operating for 1,880 hours/year) in the Table of Section 4.0 Source-Specific Requirements.

3.3.1

Please consider changing the current language from "As per provisions set forth in this permit or as otherwise required by the Secretary,..." to read "When requested by the Secretary,..."

Response: We make no changes to anything in section 2 or 3. That is boilerplate, standard language that is consistent for all permits. Per Bev McKeone.

4.1.14 "steam generator" should read "boiler."

Response: All references to Steam Generator have been changed to reflect Boiler.

4.3.10

Please consider removing the fuel loading monitoring requirement per our earlier verbal communications. In the official comments delivered back to the WVDEP for Draft R13-0426B, on January, 25, 2017, we identified the following:

Request 3

Please consider the following changes to the associated permit term and conditions.

Could limits in Tables found in 4.1.1., and conditions 4.1.2., 4.1.10., 4.3.11 for HAPs and VOCs for the Diesel Tanks be removed based on the following:

The diesel tanks at this site are "De minimis source" according to 45CSR13 2.6 as it is an emissions unit listed in Table 45-13B. (Table 7.1-2 in Chapter 7 of the U.S. EPA publication "AP 42 has these values for the vapor pressure (in psia) of diesel oil:
40 deg F = 0.0031 80 deg F = 0.01250 deg F = 0.0045 90 deg F = 0.01660 deg F = 0.0074 100 deg F = 0.02270 deg F = 0.0090
58. Storage vessels having less than 10,567 gallons capacity containing petroleum or organic liquids with a vapor pressure of 1.5 psia or less at storage temperature, provided that the emissions from all such organic liquid storage tanks.

Response: Condition 4.1.10 is now 4.1.8 and Condition 4.3.11 is now 4.3.10. As to the de minimis list – that only means that such sources on their own usually are small enough not to trigger the permitting thresholds. When a source is required to get a permit then such source can and often should be placed in the permit – so we will not remove the language for the diesel tanks. Per Bev McKeone.

4.3.11

Rhodes would prefer to see "...on at least a daily basis" changed to "on a daily basis on days when in operation".

Response: Condition 4.3.11 is now 4.3.12 and reflects the language requested.