TITLE V PERMIT
RENEWAL APPLICATION
MARTINSBURG FACILITY
PLANT ID NO. 003-00002

Prepared for:

Continental Brick Company
154 Charles Town Road
Martinsburg, West Virginia 25405

Prepared by:

Potesta & Associates, Inc.
7012 MacCorkle Avenue, S.E.
Charleston, West Virginia 25304
Phone: (304) 342-1400 Fax: (304) 343-9031
E-Mail: potesta@potesta.com

Project No. 0101-18-0025-002

February 2019

POTESTA

TABLE OF CONTENTS

SECTION I - VI

GENERAL FORMS

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

601 57th Street SE

Charleston, WV 25304

Phone: (304) 926-0475

www.dep.wv.gov/daq

INITIAL/RENEWAL TITLE V PERMIT APPLICATION - GENERAL FORMS

Section 1: General Information

1. **Name of Applicant (As registered with the WV Secretary of State's Office):** Continental Brick Company	**2. Facility Name or Location:** Martinsburg Facility
3. DAQ Plant ID No.: 003-00002	**4. Federal Employer ID No. (FEIN):** 54-1267012

5. **Permit Application Type:**

☐ Initial Permit — When did operations commence? 1984

☒ Permit Renewal — What is the expiration date of the existing permit? 05/18/2014

☐ Update to Initial/Renewal Permit Application

6. Type of Business Entity:

☒ Corporation ☐ Governmental Agency ☐ LLC

☐ Partnership ☐ Limited Partnership

7. Is the Applicant the:

☐ Owner ☐ Operator ☒ Both

If the Applicant is not both the owner and operator, please provide the name and address of the other party.

_____

_____

_____

8. Number of onsite employees:

50

9. Governmental Code:

☒ Privately owned and operated; 0

☐ Federally owned and operated; 1

☐ State government owned and operated; 2

☐ County government owned and operated; 3

☐ Municipality government owned and operated; 4

☐ District government owned and operated; 5

10. Business Confidentiality Claims

Does this application include confidential information (per 45CSR31)? ☐ Yes ☒ No

If yes, identify each segment of information on each page that is submitted as confidential, and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's *"PRECAUTIONARY NOTICE-CLAIMS OF CONFIDENTIALITY"* guidance.

11. Mailing Address		
Street or P.O. Box: 154 Charles Town Road		
City: Martinsburg	**State:** WV	**Zip:** 25405
Telephone Number: (304) 263-6974	**Fax Number:** (304) 267-0793	

12. Facility Location		
Street: 154 Charles Town Road	**City:** Martinsburg	**County:** Berkeley
UTM Easting: 245.4 km	**UTM Northing:** 4,368.7 km	**Zone:** ☐ 17 or ☒ 18
Directions: From Interstate 81 take Exit 12, travel east on State Route 9 approximately 1.5 miles. The facility is located on the right side of State Route 9.		
Portable Source? ☐ Yes ☒ No		
Is facility located within a nonattainment area? ☐ Yes ☒ No		**If yes, for what air pollutants?**
Is facility located within 50 miles of another state? ☒ Yes ☐ No		**If yes, name the affected state(s).** Virginia, Pennsylvania, Maryland
Is facility located within 100 km of a Class I Area[1]? ☒ Yes ☐ No **If no, do emissions impact a Class I Area[1]?** ☐ Yes ☐ No		**If yes, name the area(s).** Shenandoah National Park

[1] *Class I areas include Dolly Sods and Otter Creek Wilderness Areas in West Virginia, and Shenandoah National Park and James River Face Wilderness Area in Virginia.*

13. Contact Information		
Responsible Official: Donald B. Sult		**Title:** Vice President - Operations
Street or P.O. Box: 154 Charles Town Road		
City: Martinsburg	**State:** WV	**Zip:** 25405
Telephone Number: (304) 263-6974	**Fax Number:** (304) 267-0793	
E-mail address: dbsult@gmail.com		
Environmental Contact: Same as Responsible Official		**Title:**
Street or P.O. Box:		
City:	**State:**	**Zip:** -
Telephone Number: ( ) -	**Fax Number:** ( ) -	
E-mail address:		
Application Preparer: Patrick E. Ward		**Title:** Manager of Air Permitting
Company: Potesta & Associates, Inc.		
Street or P.O. Box: 7012 MacCorkle Avenue, S.E.		
City: Charleston	**State:** WV	**Zip:** 25304
Telephone Number: (304) 342-1400	**Fax Number:** (304) 343-9031	
E-mail address: peward@potesta.com		

14. Facility Description

List all processes, products, NAICS and SIC codes for normal operation, in order of priority. Also list any process, products, NAICS and SIC codes associated with any alternative operating scenarios if different from those listed for normal operation.

Process	Products	NAICS	SIC
Manufacturing	Face Brick	327121	3251

Provide a general description of operations.

The Martinsburg Facility is a face brick manufacturing operation which includes quarry to final brick production and storage. The weathered Martinsburg Shale is quarried by the use of pans, crushed, screened, wetted, mixed in a pug mill, vacuum extruded, trimmed and cut to form the final shape of the green face bricks. Green face bricks then pass through the warming room, drying room, and kiln to remove the moisture in a controlled manner. Fired bricks are sorted and packaged for sale. Bricks not meeting the specifications (waste bricks) are disposed on property.

15. Provide an **Area Map** showing plant location as **ATTACHMENT A**.

16. Provide a **Plot Plan(s)**, e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is located as **ATTACHMENT B**. For instructions, refer to "Plot Plan - Guidelines."

17. Provide a detailed **Process Flow Diagram(s)** showing each process or emissions unit as **ATTACHMENT C**. Process Flow Diagrams should show all emission units, control equipment, emission points, and their relationships.

Section 2: Applicable Requirements

18. Applicable Requirements Summary	
Instructions: Mark all applicable requirements.	
☐ SIP	☐ FIP
☒ Minor source NSR (45CSR13)	☐ PSD (45CSR14)
☐ NESHAP (45CSR34)	☐ Nonattainment NSR (45CSR19)
☒ Section 111 NSPS (40CFR60 Subpart OOO)	☒ Section 112(d) MACT standards (40CFR63 JJJJJ)
☐ Section 112(g) Case-by-case MACT	☐ 112(r) RMP
☐ Section 112(i) Early reduction of HAP	☐ Consumer/commercial prod. reqts., section 183(e)
☐ Section 129 Standards/Reqts.	☐ Stratospheric ozone (Title VI)
☐ Tank vessel reqt., section 183(f)	☐ Emissions cap 45CSR§30-2.6.1
☐ NAAQS, increments or visibility (temp. sources)	☐ 45CSR27 State enforceable only rule
☒ 45CSR4 State enforceable only rule	☐ Acid Rain (Title IV, 45CSR33)
☐ Emissions Trading and Banking (45CSR28)	☐ **C**ompliance **A**ssurance **M**onitoring (40CFR64)
☐ CAIR NO_x Annual Trading Program (45CSR39)	☐ CAIR NO_x Ozone Season Trading Program (45CSR40)
☐ CAIR SO_2 Trading Program (45CSR41)	

19. Non Applicability Determinations
List all requirements which the source has determined not applicable and for which a permit shield is requested. The listing shall also include the rule citation and the reason why the shield applies. 3.7.2. The following requirements specifically identified are not applicable to the source based on the determinations set forth below. The permit shield shall apply to the following requirements provided the conditions of the determinations are met. 45CSR5 --- The coal handling Operations are regulated by 45CSR7 and therefore are exempt in accordance with 45CSR§§5-2.4.b. & 2.14. 45CSR17 --- The facility is regulated by 45CSR7 and therefore exempt in accordance with 45 CSR§7-10.2 and 45CSR§17-6. 40 CFR Part 60, Subpart Y --- The coal handling facility processes less than 200 tons per day. 40 CFR Part 60, Subpart OOO --- Excluding existing Crusher No. 1, all the other shale processing equipment known as the grinding building commenced construction prior to August 31, 1983 and have not been reconstructed or modified.
☒ Permit Shield

19. Non Applicability Determinations *(Continued)* - *Attach additional pages as necessary.*

List all requirements which the source has determined not applicable and for which a permit shield is requested. The listing shall also include the rule citation and the reason why the shield applies.

40 CFR Part 60, Subpart IIII --- The emergency generator commenced construction prior to July 11, 2005.

40 CFR Part 63, Subpart ZZZZ --- The emergency generator has a design capacity less than 500 HP.

40 C.F.R. Part 64 --- There are no pollutant specific emissions units (PSEU) at this facility that satisfy all of the applicability criteria requirements of 40 CFR §64.2(a), i.e., that: 1) have precontrol regulated pollutant potential emissions (PTE) equal to or greater than the "major" threshold limits to be classified as a major source; 2) are subject to an emission limitation or standard and; 3) have a control device to achieve compliance with such emission limitation or standard. Therefore, the facility is not subject to the Compliance Assurance Monitoring (CAM) rule.

☒ Permit Shield

20. Facility-Wide Applicable Requirements

List all facility-wide applicable requirements. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*).

Ref No.	Rule/ Regulation/ R13 Permit	Existing R30 Permit Condition	Name	Requirement
1	45CSR§6-3.1.	3.1.1.	Open Burning	The open burning of refuse by any person is prohibited except as noted in 45CSR§6-3.1.
2	45CSR§6-3.2.	3.1.2.	Open Burning Exemptions	The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause, or allow any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.
3	40 C.F.R. §61.145(b) and 45CSR34	3.1.3.	Asbestos	The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 C.F.R. §61.145, 40 C.F.R. § 61.148, and 40 C.F.R. § 61.150. The permittee, owner, or operator must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 C.F.R. §61.145(b)(3)(i). The USEPA, the Division of Waste Management and the Bureau for Public Health - Environmental Health require a copy of this notice to be sent to them.
4	45CSR§4-3.1 State Enforceable only.	3.1.4.	Odor	No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.
5	45CSR§11-5.2.	3.1.5.	Standby Plan for Reducing Emissions	When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45CSR11.
6	WV Code §22-5-4(a)(14)	3.1.6.	Emission Inventory	The permittee is responsible for submitting, on an annual basis, an emission inventory in accordance with the submittal requirements of the Division of Air Quality.
7	40CFR82 Subpart F	3.1.7.	Ozone-depleting Substances	For those facilities performing maintenance, service, repair or disposal of appliances, the permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 C.F.R. Part 82, Subpart F, except as provided for Motor Vehicle Air Conditioners (MVACs) in Subpart B: a. Persons opening appliances for maintenance, service, repair, or disposal must comply with the prohibitions and required practices pursuant to 40 C.F.R. §§ 82.154 and 82.156. b. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 C.F.R. § 82.158. c. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 C.F.R. § 82.161.
8	40CFR68	3.1.8.	Risk Management Plan	Should this stationary source, as defined in 40 C.F.R. § 68.3, become subject to Part 68, then the owner or operator shall submit a risk management plan (RMP) by the date specified in 40 C.F.R. § 68.10 and shall certify compliance with the requirements of Part 68 as part of the annual compliance certification as required by 40 C.F.R. Part 70 or 71.
9	45CSR§7-5.1.	3.1.9.	Fugitive Particulate Matter	No person shall cause, suffer, allow or permit any manufacturing process or storage structure generating fugitive particulate matter to operate that is not equipped with a system, which may include, but not be limited to, process equipment design, control equipment design or operation and maintenance procedures, to minimize the emissions of fugitive particulate matter. To minimize means such system shall be installed, maintained and operated to ensure the lowest fugitive particulate matter emissions reasonably achievable.
10	45CSR§7-5.2.	3.1.10.	Particulate Matter Control of Plant	The owner or operator of a plant shall maintain particulate matter control of the plant premises, and plant owned, leased or controlled access roads, by paving, application of asphalt, chemical dust suppressants or other suitable dust control measures. Good operating practices shall be implemented and when necessary particulate matter suppressants shall be applied in relation to stockpiling and general material handling to minimize particulate matter generation and atmospheric entrainment.

☒ Permit Shield

20. Facility-Wide Applicable Requirements *(Continued)* - *Attach additional pages as necessary.*

List all facility-wide applicable requirements. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*).

Ref No.	Rule/ Regulation/ R13 Permit	Existing R30 Permit Condition	Name	Requirement
11	NA	3.2.1.	Monitoring Requirements	Reserved.
12	WV Code § 22-5-4(a)(14-15) and 45CSR13.	3.3.1.	Stack testing.	As per provisions set forth in this permit or as otherwise required by the Secretary, in accordance with the West Virginia Code, underlying regulations, permits and orders, the permittee shall conduct test(s) to determine compliance with the emission limitations set forth in this permit and/or established or set forth in underlying documents. The Secretary, or his duly authorized representative, may at his option witness or conduct such test(s). Should the Secretary exercise his option to conduct such test(s), the operator shall provide all necessary sampling connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set forth in this permit or as otherwise approved or specified by the Secretary in accordance with the following: a. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 C.F.R. Parts 60, 61, and 63, if applicable, in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable. b. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit. c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary. d. The permittee shall submit a report of the results of the stack test within 60 days of completion of the test. The test report shall provide the information necessary to document the objectives of the test and to determine whether proper procedures were used to accomplish these objectives. The report shall include the following: the certification described in paragraph 3.5.1; a statement of compliance status, also signed by a responsible official; and, a summary of conditions which form the basis for the compliance status evaluation. The summary of conditions shall include the following: 1. The permit or rule evaluated, with the citation number and language. 2. The result of the test for each permit or rule condition. 3. A statement of compliance or non-compliance with each permit or rule condition.
13	45CSR§30-5.1.c.2.A, 45CSR13, Permit No. R13-0682 (Condition 4.3.1)]	3.4.1.	Monitoring information.	The permittee shall keep records of monitoring information that include the following: a. The date, place as defined in this permit and time of sampling or measurements; b. The date(s) analyses were performed; c. The company or entity that performed the analyses; d. The analytical techniques or methods used; e. The results of the analyses; and f. The operating conditions existing at the time of sampling or measurement.

☒ Permit Shield

20. Facility-Wide Applicable Requirements *(Continued)* - *Attach additional pages as necessary.*

List all facility-wide applicable requirements. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*).

Ref No.	Rule/ Regulation/ R13 Permit	Existing R30 Permit Condition	Name	Requirement
14	45CSR§30-5.1.c.2.B.	3.4.2.	Retention of records.	The permittee shall retain records of all required monitoring data and support information for a period of at least five (5) years from the date of monitoring sample, measurement, report, application, or record creation date. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Where appropriate, records may be maintained in computerized form in lieu of the above records.
15	[45CSR§30-5.1.c.State-Enforceable only.]	3.4.3.	Odors	For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken.
16	[45CSR§30-5.1.c.]	3.4.4.	Dust Suppressant Usage Record	The permittee shall maintain records indicating the use of any dust suppressants or any other suitable dust control measures applied at the facility. The permittee shall also inspect all fugitive dust control systems monthly to ensure that they are operated and maintained in conformance with their designs. The permittee shall maintain records of all scheduled and non-scheduled maintenance and shall state any maintenance or corrective actions taken as a result of the monthly inspections, the times the fugitive dust control system(s) were inoperable and any corrective actions taken.
17	45CSR§§30-4.4. *and* 5.1.c.3.D.	3.5.1.	Responsible Official	Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.
18	45CSR§30-5.1.c.3.E.	3.5.2	Confidential Information	A permittee may request confidential treatment for the submission of reporting required under 45CSR§30-5.1.c.3. pursuant to the limitations and procedures of W.Va. Code § 22-5-10 and 45CSR31.
19	NA	3.5.3.	Addresses	Except for the electronic submittal of the annual certification to the USEPA as required in 3.5.5 below, all notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, mailed first class or by private carrier with postage prepaid to the address(es) set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate: **If to the DAQ:** Director WVDEP Division of Air Quality 601 57th Street SE Charleston, WV 25304 Phone: 304/926-0475 FAX: 304/926-0478 **If to the US EPA:** Associate Director Office of Enforcement and Permits Review (3AP20) U. S. Environmental Protection Agency Region III 1650 Arch Street Philadelphia, PA 19103-2029
20	45CSR§30-8.	3.5.4.	Certified Emissions Statement	The permittee shall submit a certified emissions statement and pay fees on an annual basis in accordance with the submittal requirements of the Division of Air Quality.

☒ Permit Shield

20. Facility-Wide Applicable Requirements *(Continued)* - *Attach additional pages as necessary.*

List all facility-wide applicable requirements. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*).

Ref No.	Rule/ Regulation/ R13 Permit	Existing R30 Permit Condition	Name	Requirement
21	45CSR§30-5.3.e	3.5.5.	Compliance Certification	The permittee shall certify compliance with the conditions of this permit on the forms provided by the DAQ. In addition to the annual compliance certification, the permittee may be required to submit certifications more frequently under an applicable requirement of this permit. The annual certification shall be submitted to the DAQ and USEPA on or before March 15 of each year, and shall certify compliance for the period ending December 31. The annual certification to the USEPA shall be submitted in electronic format only. It shall be submitted by e-mail to the following address: R3_APD_Permits@epa.gov. The permittee shall maintain a copy of the certification on site for five (5) years from submittal of the certification.
22	45CSR§30-5.1.c.3.A.	3.5.6.	Semi Annual Monitoring Reports	The permittee shall submit reports of any required monitoring on or before September 15 for the reporting period January 1 to June 30 and on or before March 15 for the reporting period July 1 to December 31. All instances off deviation from permit requirements must be clearly identified in such reports. All required reports must be certified by a responsible official consistent with 45CSR§30-4.4.
23	NA	3.5.7.	Emergencies	For reporting emergency situations, refer to Section 2.17 of this permit.
24	45CSR§30-5.1.c.3.C. 45CSR§30-5.1.c.3.B.	3.5.8.	Deviations	a. In addition to monitoring reports required by this permit, the permittee shall promptly submit supplemental reports and notices in accordance with the following: 1. Any deviation resulting from an emergency or upset condition, as defined in 45CSR§30-5.7., shall be reported by telephone or telefax within one (1) working day of the date on which the permittee becomes aware of the deviation, if the permittee desires to assert the affirmative defense in accordance with 45CSR§30-5.7. A written report of such deviation, which shall include the probable cause of such deviations, and any corrective actions or preventative measures taken, shall be submitted and certified by a responsible official within ten (10) days of the deviation. 2. Any deviation that poses an imminent and substantial danger to public health, safety, or the environment shall be reported to the Secretary immediately by telephone or telefax. A written report of such deviation, which shall include the probable cause of such deviation, and any corrective actions or preventative measures taken, shall be submitted by the responsible official within ten (10) days of the deviation. 3. Deviations for which more frequent reporting is required under this permit shall be reported on the more frequent basis. 4. All reports of deviations shall identify the probable cause of the deviation and any corrective actions or preventative measures taken. b. The permittee shall, in the reporting of deviations from permit requirements, including those attributable to upset conditions as defined in this permit, report the probable cause of such deviations and any corrective actions or preventive measures taken in accordance with any rules of the Secretary.
25	45CSR§30-4.3.h.1.B.	3.5.9.	New Applicable Requirements	If any applicable requirement is promulgated during the term of this permit, the permittee will meet such requirements on a timely basis, or in accordance with a more detailed schedule if required by the applicable requirement.
26	NA	3.6.1.	Compliance Plan	None
27	45CSR§30-5.6.	3.7.1.	Permit Shield	The permittee is hereby granted a permit shield in accordance with 45CSR§30-5.6. The permit shield applies provided the permittee operates in accordance with the information contained within this permit.

☒ Permit Shield

20. Facility-Wide Applicable Requirements (Continued) - Attach additional pages as necessary.

List all facility-wide applicable requirements. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements).

Ref No.	Rule/ Regulation/ R13 Permit	Existing R30 Permit Condition	Name	Requirement
28	45CSR§30-5.6.	3.7.2.	Permit Shield	The following requirements specifically identified are not applicable to the source based on the determinations set forth below. The permit shield shall apply to the following requirements provided the conditions of the determinations are met. a. 45CSR5 --- The coal handling Operations are regulated by 45CSR7 and therefore are exempt in accordance with 45CSR§§5-2.4.b. & 2.14. b. 45CSR17 --- The facility is regulated by 45CSR7 and therefore exempt in accordance with 45CSR§7-10.2 and 45CSR§17-6. c. 40 CFR Part 60, Subpart Y --- The coal handling facility processes less than 200 tons per day. d. 40 CFR Part 60,Subpart OOO --- Excluding existing Crusher No. 1, all the other shale processing equipment known as the grinding building commenced construction prior to August 31, 1983 and have not been reconstructed or modified. Crusher No.1 was replaced with a crusher of equal size in 2006, therefore in accordance with 40 CFR §60.670(d)(1) it is exempt from the provisions of 40 CFR§§60.672, 60.674, and 60.675. e. 40 C.F.R. Part 64 --- There are no pollutant specific emissions units (PSEU) at this facility that satisfy all of the applicability criteria requirements of 40 CFR §64.2(a), i.e., that: 1) have precontrol regulated pollutant potential emissions (PTE) equal to or greater than the "major" threshold limits to be classified as a major source; 2) are subject to an emission limitation or standard and; 3) have a control device to achieve compliance with such emission limitation or standard. Therefore, the facility is not subject to the Compliance Assurance Monitoring (CAM) rule.

☒ Permit Shield

20. Facility-Wide Applicable Requirements *(Continued)* - *Attach additional pages as necessary.*

For all facility-wide applicable requirements listed above, provide monitoring/testing/recordkeeping/ reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number and/or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Ref No.	Rule/ Regulation/ R13 Permit	Existing R30 Permit Condition	Name	Method of Compliance
1	45CSR§6-3.1.	3.1.1.	Open Burning	NA. Facility does not conduct open burning.
2	45CSR§6-3.2.	3.1.2.	Open Burning Exemptions	NA
3	40 C.F.R. §61.145(b) and 45CSR34	3.1.3.	Asbestos	Inspection will occur as required.
4	45CSR§4-3.1 State Enforceable only.	3.1.4.	Odor	Recordkeeping of complaints.
5	45CSR§11-5.2.	3.1.5.	Standby Plan for Reducing Emissions	When requested.
6	WV Code §22-5-4(a)(14)	3.1.6.	Emission Inventory	Reporting.
7	40CFR82 Subpart F	3.1.7.	Ozone-depleting Substances	Requirement to follow: a. 40CFR §§ 82.154 & 82.156; b. 40CFR § 82.158; c. 40CFR § 82.161.
8	40CFR68	3.1.8.	Risk Management Plan	Submission if required.
9	45CSR§7-5.1.	3.1.9.	Fugitive Particulate Matter	Fugitive dust will be controlled in accordance with the information contained within the permit applications and required by the permit.
10	45CSR§7-5.2.	3.1.10.	Particulate Matter Control of Plant	Dust control will be maintained. Good operating practices will be followed.
11	NA	3.2.1.	Monitoring Requirements	Reserved
12	WV Code § 22-5-4(a)(14-15) and 45CSR13	3.3.1.	Stack testing.	Stack testing will be conducted as needed.
13	45CSR§30-5.1.c.2.A, 45CSR13, Permit No. R13-0682 (Condition 4.3.1)]	3.4.1.	Monitoring information.	Records of monitoring will include the required information.
14	45CSR§30-5.1.c.2.B.	3.4.2.	Retention of records.	Monitoring records and support information will be kept for 5 years.
15	[45CSR§30-5.1.c.State- Enforceable only.]	3.4.3.	Odors	A record of odor complaints, investigations, and responses will be kept.
16	[45CSR§30-5.1.c.]	3.4.4.	Dust Suppressant Usage Record	A record of dust suppressant use, maintenance, and corrective actions will be kept.
17	45CSR§§30-4.4. *and* 5.1.c.3.D.	3.5.1.	Responsible Official	Certifications will be by a Responsible Official.
18	45CSR§30-5.1.c.3.E.	3.5.2	Confidential Information	Request will be made as needed.
19	NA	3.5.3.	Addresses	Appropriate address will be used for mailings.
20	45CSR§30-8.	3.5.4.	Certified Emissions Statement	Facility will submit a Certified Emissions Statement and pay fees.
21	45CSR§30-5.3.e	3.5.5.	Compliance Certification	Compliance certifications will be submitted.
22	45CSR§30-5.1.c.3.A.	3.5.6.	Semi Annual Monitoring Reports	Semi annual monitoring reports will be submitted.

Are you in compliance with all facility-wide applicable requirements? ☒ Yes ☐ No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

20. Facility-Wide Applicable Requirements *(Continued)* - *Attach additional pages as necessary.*

For all facility-wide applicable requirements listed above, provide monitoring/testing/recordkeeping/ reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number and/or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Ref No.	Rule/ Regulation/ R13 Permit	Existing R30 Permit Condition	Name	Method of Compliance
23	NA	3.5.7.	Emergencies	The facility will refer to Section 2.17 for reporting emergencies.
24	45CSR§30-5.1.c.3.C. 45CSR§30-5.1.c.3.B.	3.5.8.	Deviations	The facility will promptly submit supplemental reports and notices as required.
25	45CSR§30-4.3.h.1.B.	3.5.9.	New Applicable Requirements	The facility will comply with new applicable requirements.
26	NA	3.6.1.	Compliance Plan	None
27	45CSR§30-5.6.	3.7.1.	Permit Shield	NA
28	45CSR§30-5.6.	3.7.2.	Permit Shield	NA

Are you in compliance with all facility-wide applicable requirements? ☒ Yes ☐ No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

21. Active Permits/Consent Orders		
Permit or Consent Order Number	Date of Issuance MM/DD/YYYY	List any Permit Determinations that Affect the Permit *(if any)*
R13-0682B	04/04/2014	None
R30-00300002-2014	08/21/2014	None
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	

22. Inactive Permits/Obsolete Permit Conditions		
Permit Number	Date of Issuance	Permit Condition Number
R13-682A	06/14/2010	Permit replaced by R13-0682B.
R30-00300002-2009 SM01	05/18/2009	Permit replaced by R30-00300002-2014
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	

Section 3: Facility-Wide Emissions

23. Facility-Wide Emissions Summary [Tons per Year]	
Criteria Pollutants	Potential Emissions
Carbon Monoxide (CO)	88.97
Nitrogen Oxides (NO_X)	39.50
Lead (Pb)	See Metal HAPS
Particulate Matter ($PM_{2.5}$)[1]	74.23
Particulate Matter (PM_{10})[1]	121.73
Total Particulate Matter (TSP)	161.85
Sulfur Dioxide (SO_2)	122.19
Volatile Organic Compounds (VOC)	1.91
Hazardous Air Pollutants[2]	Potential Emissions
VOC HAPS	0.69
Metal HAPS	0.02
Regulated Pollutants other than Criteria and HAP	Potential Emissions
HF	166.30
HCl	12.29
CO2e	68,760

[1]$PM_{2.5}$ and PM_{10} are components of TSP.
[2]For HAPs that are also considered PM or VOCs, emissions should be included in both the HAPs section and the Criteria Pollutants section.

Section 4: Insignificant Activities

24. Insignificant Activities (Check all that apply)		
☒	1.	Air compressors and pneumatically operated equipment, including hand tools.
☒	2.	Air contaminant detectors or recorders, combustion controllers or shutoffs.
☒	3.	Any consumer product used in the same manner as in normal consumer use, provided the use results in a duration and frequency of exposure which are not greater than those experienced by consumer, and which may include, but not be limited to, personal use items; janitorial cleaning supplies, office supplies and supplies to maintain copying equipment.
☒	4.	Bathroom/toilet vent emissions.
☒	5.	Batteries and battery charging stations, except at battery manufacturing plants.
☒	6.	Bench-scale laboratory equipment used for physical or chemical analysis, but not lab fume hoods or vents. Many lab fume hoods or vents might qualify for treatment as insignificant (depending on the applicable SIP) or be grouped together for purposes of description.
☐	7.	Blacksmith forges.
☐	8.	Boiler water treatment operations, not including cooling towers.
☒	9.	Brazing, soldering or welding equipment used as an auxiliary to the principal equipment at the source.
☐	10.	CO_2 lasers, used only on metals and other materials which do not emit HAP in the process.
☒	11.	Combustion emissions from propulsion of mobile sources, except for vessel emissions from Outer Continental Shelf sources.
☒	12.	Combustion units designed and used exclusively for comfort heating that use liquid petroleum gas or natural gas as fuel.
☒	13.	Comfort air conditioning or ventilation systems not used to remove air contaminants generated by or released from specific units of equipment.
☐	14.	Demineralized water tanks and demineralizer vents.
☐	15.	Drop hammers or hydraulic presses for forging or metalworking.
☐	16.	Electric or steam-heated drying ovens and autoclaves, but not the emissions from the articles or substances being processed in the ovens or autoclaves or the boilers delivering the steam.
☐	17.	Emergency (backup) electrical generators at residential locations.
☐	18.	Emergency road flares.
☐	19.	Emission units which do not have any applicable requirements and which emit criteria pollutants (CO, NO_x, SO_2, VOC and PM) into the atmosphere at a rate of less than 1 pound per hour and less than 10,000 pounds per year aggregate total for each criteria pollutant from all emission units. Please specify all emission units for which this exemption applies along with the quantity of criteria pollutants emitted on an hourly and annual basis: _____ _____ _____ _____ _____ _____ _____ _____ _____

24. Insignificant Activities (Check all that apply)		
☐	20.	Emission units which do not have any applicable requirements and which emit hazardous air pollutants into the atmosphere at a rate of less than 0.1 pounds per hour and less than 1,000 pounds per year aggregate total for all HAPs from all emission sources. This limitation cannot be used for any source which emits dioxin/furans nor for toxic air pollutants as per 45CSR27. Please specify all emission units for which this exemption applies along with the quantity of hazardous air pollutants emitted on an hourly and annual basis: _____ _____ _____ _____ _____
☐	21.	Environmental chambers not using hazardous air pollutant (HAP) gases.
☒	22.	Equipment on the premises of industrial and manufacturing operations used solely for the purpose of preparing food for human consumption.
☐	23.	Equipment used exclusively to slaughter animals, but not including other equipment at slaughterhouses, such as rendering cookers, boilers, heating plants, incinerators, and electrical power generating equipment.
☒	24.	Equipment used for quality control/assurance or inspection purposes, including sampling equipment used to withdraw materials for analysis.
☐	25.	Equipment used for surface coating, painting, dipping or spray operations, except those that will emit VOC or HAP.
☒	26.	Fire suppression systems.
☒	27.	Firefighting equipment and the equipment used to train firefighters.
☒	28.	Flares used solely to indicate danger to the public.
☒	29.	Fugitive emission related to movement of passenger vehicle provided the emissions are not counted for applicability purposes and any required fugitive dust control plan or its equivalent is submitted.
☒	30.	Hand-held applicator equipment for hot melt adhesives with no VOC in the adhesive formulation.
☒	31.	Hand-held equipment for buffing, polishing, cutting, drilling, sawing, grinding, turning or machining wood, metal or plastic.
☐	32.	Humidity chambers.
☐	33.	Hydraulic and hydrostatic testing equipment.
☐	34.	Indoor or outdoor kerosene heaters.
☒	35.	Internal combustion engines used for landscaping purposes.
☐	36.	Laser trimmers using dust collection to prevent fugitive emissions.
☐	37.	Laundry activities, except for dry-cleaning and steam boilers.
☒	38.	Natural gas pressure regulator vents, excluding venting at oil and gas production facilities.
☐	39.	Oxygen scavenging (de-aeration) of water.
☐	40.	Ozone generators.

24. Insignificant Activities (Check all that apply)		
☒	41.	Plant maintenance and upkeep activities (e.g., grounds-keeping, general repairs, cleaning, painting, welding, plumbing, re-tarring roofs, installing insulation, and paving parking lots) provided these activities are not conducted as part of a manufacturing process, are not related to the source's primary business activity, and not otherwise triggering a permit modification. (Cleaning and painting activities qualify if they are not subject to VOC or HAP control requirements. Asphalt batch plant owners/operators must still get a permit if otherwise requested.)
☒	42.	Portable electrical generators that can be moved by hand from one location to another. "Moved by Hand" means that it can be moved without the assistance of any motorized or non-motorized vehicle, conveyance, or device.
☐	43.	Process water filtration systems and demineralizers.
☒	44.	Repair or maintenance shop activities not related to the source's primary business activity, not including emissions from surface coating or de-greasing (solvent metal cleaning) activities, and not otherwise triggering a permit modification.
☒	45.	Repairs or maintenance where no structural repairs are made and where no new air pollutant emitting facilities are installed or modified.
☒	46.	Routing calibration and maintenance of laboratory equipment or other analytical instruments.
☐	47.	Salt baths using nonvolatile salts that do not result in emissions of any regulated air pollutants. Shock chambers.
☐	48.	Shock chambers.
☐	49.	Solar simulators.
☒	50.	Space heaters operating by direct heat transfer.
☐	51.	Steam cleaning operations.
☐	52.	Steam leaks.
☐	53.	Steam sterilizers.
☐	54.	Steam vents and safety relief valves.
☐	55.	Storage tanks, reservoirs, and pumping and handling equipment of any size containing soaps, vegetable oil, grease, animal fat, and nonvolatile aqueous salt solutions, provided appropriate lids and covers are utilized.
☐	56.	Storage tanks, vessels, and containers holding or storing liquid substances that will not emit any VOC or HAP. Exemptions for storage tanks containing petroleum liquids or other volatile organic liquids should be based on size limits such as storage tank capacity and vapor pressure of liquids stored and are not appropriate for this list.
☐	57.	Such other sources or activities as the Director may determine.
☒	58.	Tobacco smoking rooms and areas.
☐	59.	Vents from continuous emissions monitors and other analyzers.

Section 5: Emission Units, Control Devices, and Emission Points

25. Equipment Table

Fill out the **Title V Equipment Table** and provide it as **ATTACHMENT D**.

26. Emission Units

For each emission unit listed in the **Title V Equipment Table**, fill out and provide an **Emission Unit Form** as **ATTACHMENT E**.

For each emission unit not in compliance with an applicable requirement, fill out a **Schedule of Compliance Form** as **ATTACHMENT F**.

27. Control Devices

For each control device listed in the **Title V Equipment Table**, fill out and provide an **Air Pollution Control Device Form** as **ATTACHMENT G**.

For any control device that is required on an emission unit in order to meet a standard or limitation for which the potential pre-control device emissions of an applicable regulated air pollutant is greater than or equal to the Title V Major Source Threshold Level, refer to the **Compliance Assurance Monitoring (CAM) Form(s)** for CAM applicability. Fill out and provide these forms, if applicable, for each Pollutant Specific Emission Unit (PSEU) as **ATTACHMENT H**.

Section 6: Certification of Information

28. Certification of Truth, Accuracy and Completeness and Certification of Compliance

Note: *This Certification must be signed by a responsible official. The **original**, signed in **blue ink**, must be submitted with the application. Applications without an **original** signed certification will be considered as incomplete.*

a. Certification of Truth, Accuracy and Completeness

I certify that I am a responsible official (as defined at 45CSR§30-2.38) and am accordingly authorized to make this submission on behalf of the owners or operators of the source described in this document and its attachments. I certify under penalty of law that I have personally examined and am familiar with the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine and/or imprisonment.

b. Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

Responsible official (type or print)

Name: Donald B. Sult	Title: Vice President - Operations

Responsible official's signature:

Signature: Donald B Sult (Must be signed and dated in blue ink) Signature Date: Feb 12, 2019

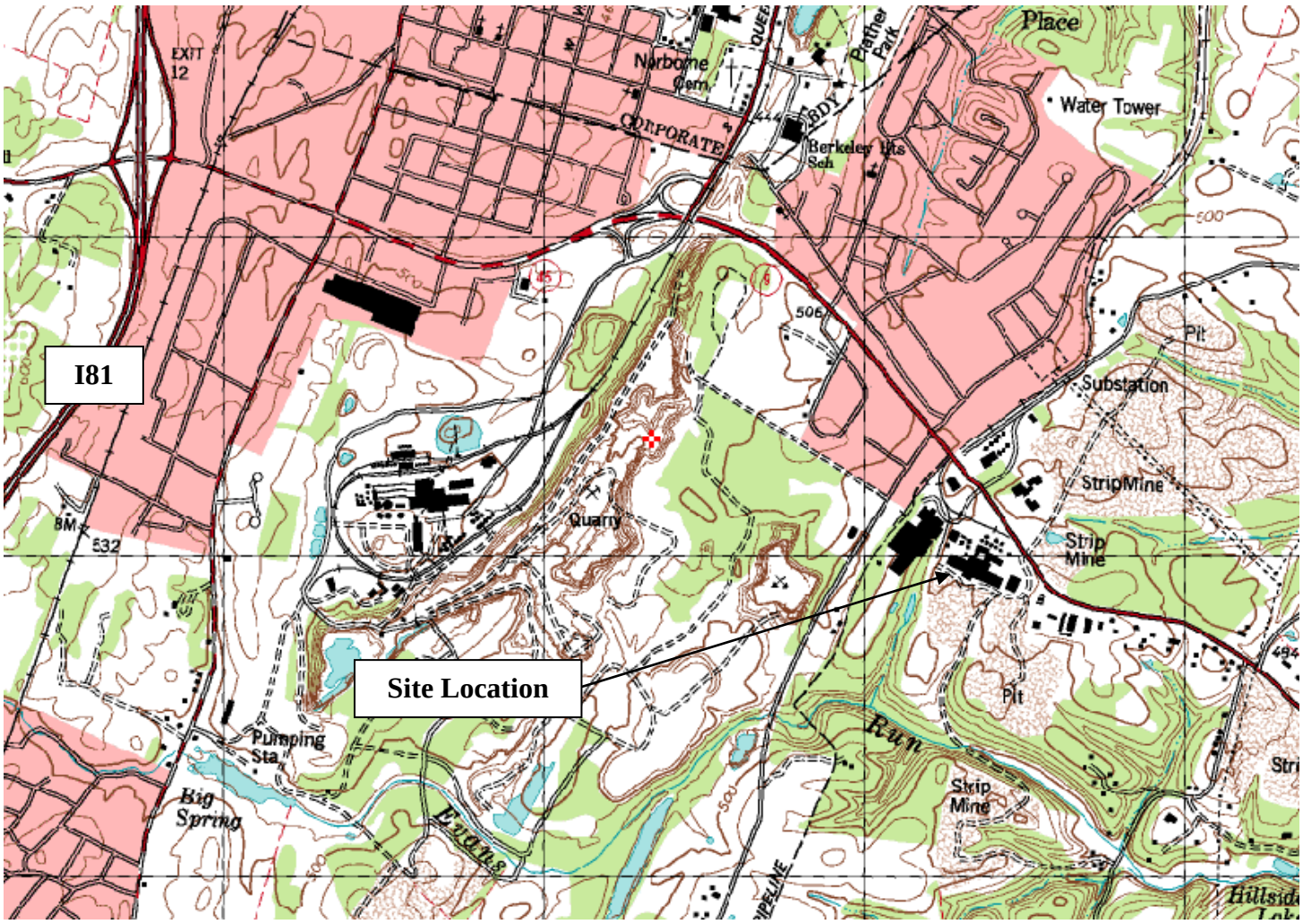
Note: Please check all applicable attachments included with this permit application:

☒	ATTACHMENT A: Area Map
☒	ATTACHMENT B: Plot Plan(s)
☒	ATTACHMENT C: Process Flow Diagram(s)
☒	ATTACHMENT D: Equipment Table
☒	ATTACHMENT E: Emission Unit Form(s)
☒	ATTACHMENT F: Schedule of Compliance Form(s)
☒	ATTACHMENT G: Air Pollution Control Device Form(s)
☒	ATTACHMENT H: Compliance Assurance Monitoring (CAM) Form(s)

All of the required forms and additional information can be found and downloaded from, the DEP website at www.dep.wv.gov/daq, requested by phone (304) 926-0475, and/or obtained through the mail.

ATTACHMENT A

AREA MAP



Potesta & Associates, Inc.
7012 MacCorkle Avenue, SE, Charleston, WV 25304
Phone: (304) 342-1400 Fax: (304) 343-9031
E-Mail: potesta@potesta.com

Martinsburg Facility
Continental Brick Company
Martinsburg, West Virginia
Project No. 0101-18-0025-002

ATTACHMENT B

PLOT PLAN

POTESTA

Potesta & Associates, Inc.
ENGINEERS AND ENVIRONMENTAL CONSULTANTS
7012 MacCorkle Ave. SE, Charleston, WV 25304
TEL: (304) 342–1400 FAX: (304) 343–9031
E–Mail Address: potesta@potesta.com

Project
FACILITY MAP
CONTINENTAL BRICK COMPANY
MARTINSBURG, WEST VIRGINIA

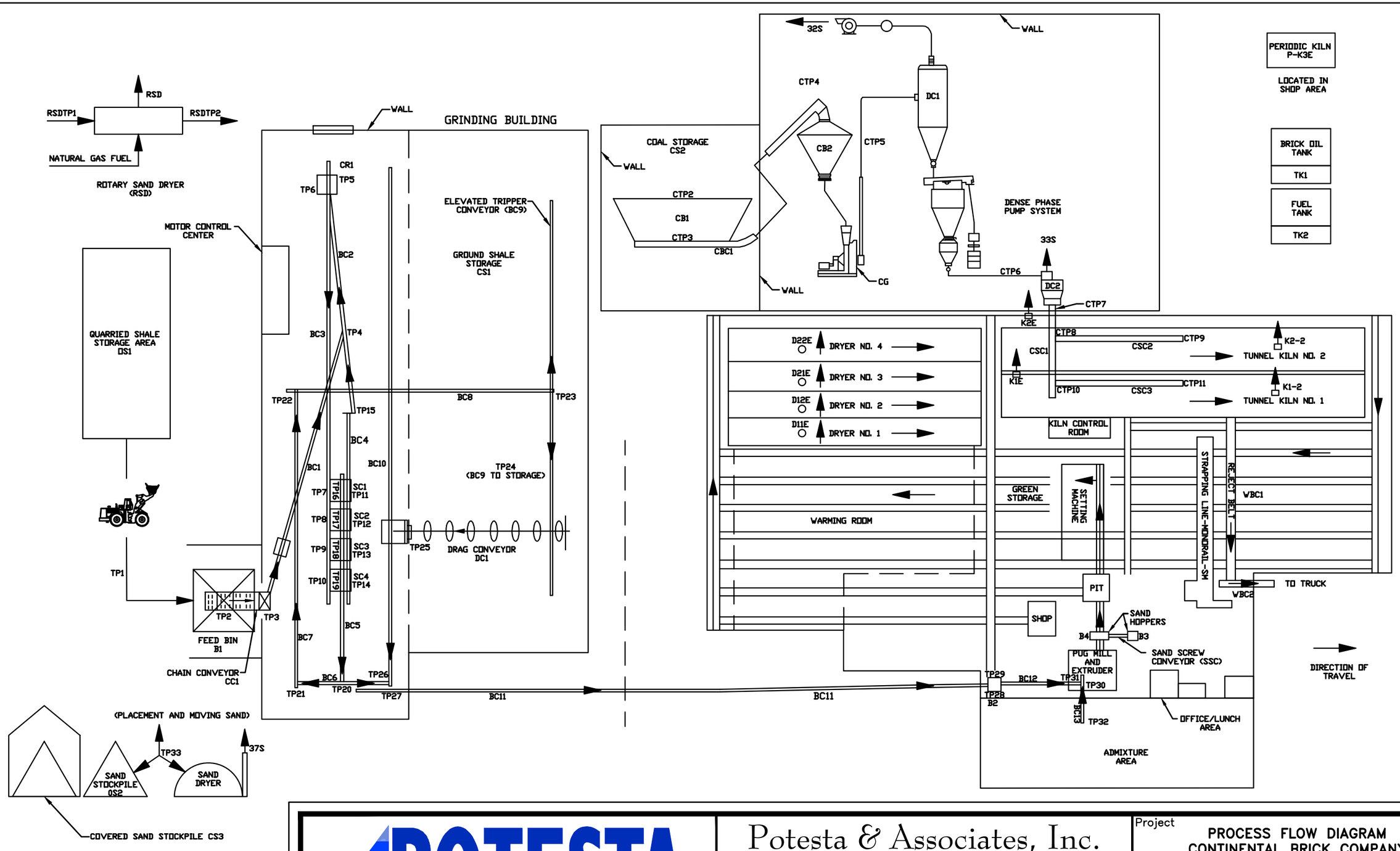
Scale 1"=125'
Date OCTOBER 2013
Dwg. No. FIGURE 2

PROJECT #:13–0410 FILENAME: 13–0410–002

XREF Files: IMAGE Files: N–V09–25.sid
File: V:\EDS-Proj-YR\2013\13–0410 CONTINENTAL\13–0410–002.dwg
Plot Date/Time: Nov 04, 2013 – 1:35pm
Plotted By: jmartin

ATTACHMENT C

PROCESS FLOW DIAGRAM



XREF Files: IMAGE Files: S1.jpg
Files: C3D-Proj-YR\2013\13-0410 CONTINENTAL\13-0410-001.dwg
Plot Date/Time: Nov 04, 2013 - 1:36pm
Plotted By: jmartin

PROJECT #: 13-0410 FILENAME: 13-0410-001

POTESTA

Potesta & Associates, Inc.
ENGINEERS AND ENVIRONMENTAL CONSULTANTS
7012 MacCorkle Ave. SE, Charleston, WV 25304
TEL: (304) 342-1400 FAX: (304) 343-9031
E-Mail Address: potesta@potesta.com

Project
PROCESS FLOW DIAGRAM
CONTINENTAL BRICK COMPANY
MARTINSBURG, WEST VIRGINIA

Scale NO SCALE
Date OCTOBER 2013
Dwg. No. FIGURE 1

ATTACHMENT D

EMISSION UNITS TABLE

ATTACHMENT D - Emission Units Table

(includes all emission units at the facility except those designated as insignificant activities in Section 4, Item 24 of the General Forms)

Emission Unit ID[1]	Emission Point ID[1]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Control Device[1]
Raw Feed, Grinding Building, and Plant Feed System					
001	1S	Open Stockpile No. 1 - OS1	1981	75 tph/153,300 tpy	W
002	2S	Truck-Endloader Fed Bin - B1	1981	75 tph/153,300 tpy	FE
003	3S	Chain Conveyor No. 1 - CC1	1981	75 tph/153,300 tpy	FE
004	4S	Belt Conveyor No. 1 - BC1	1981	75 tph/153,300 tpy	FE
005	5S	Belt Conveyor No. 2 - BC2	1981	75 tph/153,300 tpy	FE
006	6S	Crusher No. 1 - CR1	2006	75 tph/153,300 tpy	FE
007	7S	Belt Conveyor No. 3 - BC3	1981	75 tph/153,300 tpy	FE
008	8S	Screen No. 1 - SC1	1981	75 tph/153,300 tpy	FE
009	9S	Screen No. 2 - SC2	1981	75 tph/153,300 tpy	FE
010	10S	Screen No. 3 - SC3	1981	75 tph/153,300 tpy	FE
011	11S	Screen No. 4 - SC4	1981	75 tph/153,300 tpy	FE
012	12S	Belt Conveyor No. 4 - BC4	1981	75 tph/153,300 tpy	FE
013	13S	Belt Conveyor No. 5 - BC5	1981	75 tph/153,300 tpy	FE
014	14S	Belt Conveyor No. 6 - BC6	1981	75 tph/153,300 tpy	FE
015	15S	Belt Conveyor No. 7 - BC7	1981	75 tph/153,300 tpy	FE
016	16S	Belt Conveyor No. 8 - BC8	1981	75 tph/153,300 tpy	FE
017	17S	Belt Conveyor No. 9 - BC9	1981	75 tph/153,300 tpy	FE
018	18S	Covered Stockpile - CS1	1981	1,600 tons	FE
019	19S	Drag Conveyor No. 1 - DC1	1981	75 tph/153,300 tpy	FE
020	20S	Belt Conveyor No. 10 - BC10	1981	75 tph/153,300 tpy	FE
021	21S	Belt Conveyor No. 11 - BC11	1981	75 tph/153,300 tpy	FE
022	22S	Plant Bin - B2	1981	75 tph/153,300 tpy	FE
023	23S	Belt Conveyor No. 12 - BC12	1981	75 tph/153,300 tpy	FE
024	24S	Belt Conveyor No. 13 - BC13	1981	75 tph/153,300 tpy	FE

[1]For 45CSR13 permitted sources, the numbering system used for the emission points, control devices, and emission units should be consistent with the numbering system used in the 45CSR13 permit. For grandfathered sources, the numbering system should be consistent with registrations or emissions inventory previously submitted to DAQ. For emission points, control devices, and emissions units which have not been previously labeled, use the following 45CSR13 numbering system: 1S, 2S, 3S,... or other appropriate description for emission units; 1C, 2C, 3C,... or other appropriate designation for control devices; 1E, 2E, 3E, ... or other appropriate designation for emission points.

ATTACHMENT D - Emission Units Table

(includes all emission units at the facility except those designated as insignificant activities in Section 4, Item 24 of the General Forms)

Emission Unit ID[1]	Emission Point ID[1]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Control Device[1]
Brick Forming					
025	25S	Pug Mill	1970	75 tph/153,300 tpy	FE (Located inside building)
		Vacuum Extruder	1970	75 tph/153,300 tpy	
		Brick Trimming and Cutting	1970	75 tph/153,300 tpy	
		Brick Setting Machine	1999	75 tph/153,300 tpy	
		Sand Hopper – B3	1970	75 tph/153,300 tpy	
		Sand Hopper – B4	1970	75 tph/153,300 tpy	
		Sand Screw Conveyor - SSC	1970	75 tph/153,300 tpy	
Brick Warming, Drying, and Firing					
The Warming Room is heated by warm air from the operations of the Kilns and is not an emission source.					
NA	NA	Warming Room	1966	NA	NA
The Dryers are not sources on their own and are heated by cooling air from the Kilns					
026	K1E	Kiln No. 1	1966	8.25 tph fired/72,270 tpy fired	NA
	D11E	Dryer No. 1	1966	NA	NA
	D12E	Dryer No. 2	1966	NA	NA
027	K2E	Kiln No. 2	1971/1983	8.25 tph fired/72,270 tpy fired	NA
	D21E	Dryer No. 3	1971/1983	NA	NA
	D22E	Dryer No. 4	1971/1983	NA	NA
P-Kiln	P-K3E	Periodic Kiln	2010	1 tpd fired/72 tpy fired	NA
RSD	RSD	Rotary Sand Dryer	2013	1.0 tph/1,200 tpy 1.0 MMBtu/hr	NA

[1]For 45CSR13 permitted sources, the numbering system used for the emission points, control devices, and emission units should be consistent with the numbering system used in the 45CSR13 permit. For grandfathered sources, the numbering system should be consistent with registrations or emissions inventory previously submitted to DAQ. For emission points, control devices, and emissions units which have not been previously labeled, use the following 45CSR13 numbering system: 1S, 2S, 3S,... or other appropriate description for emission units; 1C, 2C, 3C,... or other appropriate designation for control devices; 1E, 2E, 3E, ... or other appropriate designation for emission points.

ATTACHMENT D - Emission Units Table

(includes all emission units at the facility except those designated as insignificant activities in Section 4, Item 24 of the General Forms)

Emission Unit ID[1]	Emission Point ID[1]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Control Device[1]
Coal Handling, Grinding and Firing System					
028	28S	Covered Stockpile No. 2 - CS2	1984	500 tons	PE
029	29S	Coal Bin No. 1 - CB1	1984	30 tons	PE
030	30S	Coal Belt Conveyor No. 1 - CBC1	1984	100 tph/13,140 tpy	PE
031	31S	Coal Bin No. 2 - CB2	1984	12 tons	FE
032	32S	Coal Grinder/Pulverizer - CG	1984	1.5 tph/13,140 tpy	BAG
033	33S	Dense Phase Pump System - DPPS	1984	1.5 tph/13,140 tpy	BAG
034	34S	Coal Screw Conveyor No. 1 - CSC1	1984	1.5 tph/13,140 tpy	FE
035	35S	Coal Screw Conveyor No. 2 – CSC2	1984	1.5 tph/13,140 tpy	FE
036	36S	Coal Screw Conveyor No. 3 – CSC3	1984	1.5 tph/13,140 tpy	FE
Finished Brick Area					
The Finished Brick Area includes the cooling, manual unloading of the brick cars, strapping, and waste brick conveyors. These are all fired brick being manually stacked and or conveyed on the waste brick conveyors. These are not considered sources due to the nature of the material.					
NA	SM	Brick Cube Strapping Machine	1991	50 tph/144,540 tpy	NA
NA	WBC1	Waste Belt Conveyor No. 1	1991	50 tph/144,540 tpy	NA
NA	WBC2	Waste Belt Conveyor No. 2	1991	50 tph/144,540 tpy	NA
NA	VAC	Duovac PL52 Portable Vacuum	1991	850 ICFM	NA
Sand Dryer					
037	37S	Sand Dryer	NA	5 MM Btu/hr	N
038	38S	Sand Stockpile – OS2	NA	150 tons	W
039	39S	Covered Sand Stockpile – CS3	NA	200 tons	PE
Sand is dried in an old round brick kiln with direct heat fired by natural gas.					

[1]For 45CSR13 permitted sources, the numbering system used for the emission points, control devices, and emission units should be consistent with the numbering system used in the 45CSR13 permit. For grandfathered sources, the numbering system should be consistent with registrations or emissions inventory previously submitted to DAQ. For emission points, control devices, and emissions units which have not been previously labeled, use the following 45CSR13 numbering system: 1S, 2S, 3S,... or other appropriate description for emission units; 1C, 2C, 3C,... or other appropriate designation for control devices; 1E, 2E, 3E, ... or other appropriate designation for emission points.

ATTACHMENT D - Emission Units Table

(includes all emission units at the facility except those designated as insignificant activities in Section 4, Item 24 of the General Forms)

Emission Unit ID[1]	Emission Point ID[1]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Control Device[1]
Vehicle Activity					
041	41S	Vehicle Activity	NA	NA	W
Tanks					
042	42S	Brick Oil Tank – TK1	NA	6,000 gallons	N
043	43S	Fuel Tank – TK2	NA	6,000 gallons	N

[1]For 45CSR13 permitted sources, the numbering system used for the emission points, control devices, and emission units should be consistent with the numbering system used in the 45CSR13 permit. For grandfathered sources, the numbering system should be consistent with registrations or emissions inventory previously submitted to DAQ. For emission points, control devices, and emissions units which have not been previously labeled, use the following 45CSR13 numbering system: 1S, 2S, 3S,... or other appropriate description for emission units; 1C, 2C, 3C,... or other appropriate designation for control devices; 1E, 2E, 3E, ... or other appropriate designation for emission points.

ATTACHMENT E

EMISSION UNIT FORM(S)

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
026	Kiln No. 1, Dryers Nos. 1 and 2	None

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Tunnel Kiln for firing brick. Kiln also provides heat for Dryers No. 1 and No. 2.

Manufacturer:	**Model number:**	**Serial number:**
Constructed on Site	NA	NA
Construction date:	**Installation date:**	**Modification date(s):**
1966	1966	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 8.25 tons per hour of fired brick (TPH-F)

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
8.25 TPH-F	72,270 TPY-F	8,760 hours per year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? X Yes ___ No	**If yes, is it?** ___ Indirect Fired X Direct Fired
Maximum design heat input and/or maximum horsepower rating: 23.0 MM BTU/HR	**Type and Btu/hr rating of burners:** North American Burners Model 4441-4-A at 525,000 Btu/hr each for Natural Gas Coal Burners 300,000 Btu/hr each 90 total burners.

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Primary fuels are natural gas and coal.

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	trace	NA	~1,000 BTU/CF
Coal	1%	4%	~14,441 BTU/LB

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	9.90	43.36
Nitrogen Oxides (NO_X)	4.21	18.43
Lead (Pb)	NA	NA
Particulate Matter ($PM_{2.5}$)	7.18	31.44
Particulate Matter (PM_{10})	9.5	50.59
Total Particulate Matter (TSP)	9.5	65.04
Sulfur Dioxide (SO_2)	13.93	61.07
Volatile Organic Compounds (VOC)	0.20	0.87
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
HF	18.98	83.11
HCL	1.40	6.14
HAPS (See Appendix)		
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2e	NA	32,799
*Note: These emissions are for one (1) kiln (see page E4 for clarification).		

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

AP-42, Section 11.3, Brick and Structural Clay Product Manufacturing.

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Ref No.	Rule/ Regulation/ R13 Permit	Existing R30 Permit Condition	Name	Requirement
1	45CSR§7-3.1.	4.1.1.	Visible Emissions Limitation	Visible Emissions from each kiln stack shall not exceed twenty (20) percent opacity except as noted in 4.1.2. below.
2	45CSR§7-3.2.	4.1.2.	Visible Emissions Limitation Exclusion	The provisions of 4.1.1. above, shall not apply to smoke and/or particulate matter emitted from any process source operation which is less than forty (40) percent opacity for any period or periods aggregating no more than five (5) minutes in any sixty (60) minute period.
3	45CSR§7-4.3.	4.1.3	Prohibition Of Dilution of Stack Gases	The provisions of 45CSR7 shall not be circumvented by adding additional gas to any exhaust or group of exhausts for the purpose of reducing the stack gas concentration.
4	45CSR§7-4.7.	4.1.4	Allowance for Expansion	The increase of the operating process weight rate of any manufacturing process source operation or duplicate source operation by the operation of new, replacement, reactivated and/or altered source operation(s) shall be considered as an expansion and the allowable emission rates from the source operation(s) which resulted in the increase shall be determined as per 45CSR§7-4.4.
5	45CSR§7-4.12.	4.1.5.	Requirement for Proper Stack Testing	Any stack serving any process source operation or air pollution control equipment on any process source operation shall contain flow straightening devices or a vertical run of sufficient length to establish flow patterns consistent with acceptable stack sampling procedures.
6	45CSR§7-4.13.	4.1.6	Potential Hazardous Material Emissions	Persons responsible for manufacturing process source operations from which hazardous particulate matter material may be emitted such as, but not limited to, lead, arsenic, beryllium and other such materials shall give the utmost care and consideration to the potential harmful effects of the emissions resulting from such activities. Evaluations of these facilities as to adequacy, efficiency and emission potential will be made on an individual basis by the Director working in conjunction with other appropriate governmental agencies.
7	45CSR§10-4.1.	4.1.7.	Sulfur Dioxide Exhaust Limit	Sulfur Dioxide emissions from each Kiln shall not exceed an in-stack concentration of 2000 ppm by volume.
8	45CSR§10-4.2.	4.1.8.	Averaging Time	Compliance with the allowable sulfur dioxide concentration limitations shall be based on a block three (3) hour averaging time.
9	45CSR34, 40 CFR §63.52, 45CSR13, Permit No. R13-0682 (Condition 4.1.8.)	4.1.9	NESHAP	This facility is subject to the re-issued Brick MACT and is required to be in compliance upon startup in 2019. Stack testing as required will then be conducted.

_X_ Permit Shield

Applicable Requirements (Continued)

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

<table>
<tr><th>Ref No.</th><th>Rule/ Regulation/ R13 Permit</th><th>Existing R30 Permit Condition</th><th>Name</th><th>Requirement</th></tr>
<tr><td>10</td><td>45CSR13, Permit No. R13-0682 (Condition 4.1.1.)</td><td>4.1.10.</td><td>Emissions Limitations</td><td>Emissions from kilns shall not exceed the following:
<table>
<tr><th></th><th colspan="2">Tunnel Kiln 1 (K1E)</th><th colspan="2">Tunnel Kiln 2 (K2E)</th><th colspan="2">Periodic Kiln (P-K3E)</th></tr>
<tr><th></th><th>lb/hr</th><th>tpy</th><th>lb/hr</th><th>tpy</th><th>lb/hr</th><th>tpy</th></tr>
<tr><td>PM</td><td>9.5</td><td>65.04</td><td>9.5</td><td>65.04</td><td>0.1</td><td>0.03</td></tr>
<tr><td>PM10</td><td>9.5</td><td>50.59</td><td>9.5</td><td>50.59</td><td>0.1</td><td>0.03</td></tr>
<tr><td>PM2.5</td><td>7.18</td><td>31.44</td><td>7.18</td><td>31.44</td><td>0.1</td><td>0.03</td></tr>
<tr><td>SO2</td><td>13.93</td><td>61.07</td><td>13.93</td><td>61.07</td><td>1.34</td><td>0.02</td></tr>
<tr><td>NOx</td><td>4.21</td><td>18.43</td><td>4.21</td><td>18.43</td><td>0.7</td><td>0.01</td></tr>
<tr><td>CO</td><td>9.9</td><td>43.36</td><td>9.9</td><td>43.36</td><td>2.4</td><td>0.04</td></tr>
<tr><td>VOC</td><td>0.2</td><td>0.87</td><td>0.2</td><td>0.87</td><td>0.05</td><td>0.01</td></tr>
<tr><td>Non HF/HCl HAPs</td><td>0.07</td><td>0.32</td><td>0.07</td><td>0.32</td><td>0.02</td><td>0.01</td></tr>
<tr><td>HF</td><td>18.98</td><td>83.11</td><td>18.98</td><td>83.11</td><td>4.6</td><td>0.08</td></tr>
<tr><td>HCl</td><td>1.4</td><td>6.14</td><td>1.4</td><td>6.14</td><td>0.34</td><td>0.01</td></tr>
</table>
Compliance with 45CSR13, Permit No. R13-0682 (Condition 4.1.1.) will also show compliance with the particulate matter limits given in 45CSR§§7-4.1. and 4.8.</td></tr>
<tr><td>11</td><td>45CSR13, Permit No. R13-0682 (Condition 4.1.2.)</td><td>4.1.11.</td><td>Total Emissions Limitations</td><td>Total emissions from the facility shall not exceed the following:
<table>
<tr><th></th><th>lb/hr</th><th>tpy</th></tr>
<tr><td>PM</td><td>61.74</td><td>189.88</td></tr>
<tr><td>PM_{10}</td><td>38.30</td><td>130.33</td></tr>
<tr><td>$PM_{2.5}$</td><td>21.68</td><td>75.18</td></tr>
<tr><td>SO_2</td><td>29.22</td><td>122.19</td></tr>
<tr><td>NO_x</td><td>10.37</td><td>39.66</td></tr>
<tr><td>CO</td><td>22.76</td><td>88.98</td></tr>
<tr><td>VOC</td><td>0.51</td><td>1.91</td></tr>
<tr><td>HF</td><td>42.56</td><td>166.30</td></tr>
<tr><td>HCl</td><td>3.14</td><td>12.29</td></tr>
<tr><td>Non HF/HCl HAPs</td><td>0.23</td><td>0.72</td></tr>
</table></td></tr>
<tr><td>12</td><td>45CSR13, Permit No. R13-0682 (Condition 4.1.3.)</td><td>4.1.12</td><td>Production Limitation</td><td>Production from Tunnel Kiln 1 (K1E) shall not exceed 8.25 tons per hour nor 72,270 tons per year.</td></tr>
<tr><td>13</td><td>45CSR13, Permit No. R13-0682 (Condition 4.1.4.)</td><td>4.1.13.</td><td>Production Limitation</td><td>Production from Tunnel Kiln 2 (K2E) shall not exceed 8.25 tons per hour nor 72,270 tons per year.</td></tr>
<tr><td>14</td><td>45CSR13, Permit No. R13-0682 (Condition 4.1.5.)</td><td>4.1.14.</td><td>Production Limitation</td><td>Production from Periodic Kiln (P-K3E) shall not exceed 2 tons per cycle (72 hours) nor 72 tons per year.</td></tr>
<tr><td>15</td><td>45CSR13, Permit No. R13-0682 (Condition 4.1.6.)</td><td>4.1.15.</td><td>Sulfur Content Limitation – Coal Fuel</td><td>Sulfur content of the coal used as fuel in the tunnel kilns shall not exceed 1%.</td></tr>
<tr><td>16</td><td>[45CSR13, Permit No. R13-0682 (Condition 4.1.7.)</td><td>4.1.16.</td><td>HF Limitation</td><td>HF emissions from the Kilns shall not exceed 1,150 micrograms of HF per gram of material fired. Compliance with this condition shall be demonstrated by testing the fluoride concentration of a brick both before and after firing. The concentration after firing shall be subtracted from the concentration before firing. This result shall then be multiplied by (18.998 +1.008)/18.998 in order to get the equivalent HF emissions. Compliance with this condition shall be determined by averaging all required tests from the previous 12 months (12 month rolling average).</td></tr>
</table>

__X__ Permit Shield

Applicable Requirements (Continued)

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Ref No.	Rule/ Regulation/ R13 Permit	Existing R30 Permit Condition	Name	Requirement
17	45CSR§30-5.1.c.	4.4.1.	Recordkeeping	Records of all monitoring data required by condition 4.3.1 documenting the date and time of each visible emission check, the emission point or equipment/source identification number, the name or means of identification of the observer, the results of the check(s), whether the visible emissions are normal for the process, and, if applicable, all corrective measures taken or planned shall be maintained. The permittee shall also record the general weather conditions (e.g., sunny, approximately 80°F, 6 - 10 mph NE wind) during the visual emission check(s). Should a visible emission observation be required to be performed per the requirements specified in 45CSR7A, the data records of each observation shall be maintained per the requirements of 45CSR7A. For an emission unit out of service during the normal monthly evaluation, the record of observation may note "out of service" (O/S) or equivalent.
18	45CSR§10-8.3.a.	4.4.2.	Maintain Records	A record of all required monitoring data as established in the 45CSR10A monitoring plan shall be maintained on-site. Such records shall be made available to the Director or his duly authorized representative upon request and shall be retained on-site for a minimum of five years.
19	45CSR§§10-8.3.c. & 8.3.d., 45CSR§30-5.1.c.	4.4.3.	Maintain Records	Records of the operating schedule and the quantity and quality of fuel consumed in each kiln shall be maintained on-site and made available to the Director or his duly authorized representative upon request. Such records may be maintained in electronic form and at a minimum for coal shall include but not limited to an ash, BTU, and sulfur analysis of each shipment.
20	45CSR13, Permit No. R13-0682 (Condition 4.3.4.)	4.4.4.	Maintain Records	In order to determine compliance with Conditions 4.1.10 through 4.1.14, the Permittee shall monitor and record the production of each of the three kilns on a monthly basis.
21	45CSR13, Permit No. R13-0682 (Condition 4.3.7.)	4.4.7.	Maintain Records	The permittee shall maintain records of all monitoring data required by condition 4.3.5 documenting the date and time of each visible emission check, the emission point or equipment / source identification number, the name or means of identification of the observer, the results of the check(s), whether the visible emissions are normal for the process, and, if applicable, all corrective measures taken or planned. The permittee shall also record the general weather conditions (i.e. sunny, approximately 80°F, 6-10 mph NE wind) during the visual emissions check(s). Should a visible emission observation be required to be performed per the requirements specified in Method 9, the data records of each observation shall be maintained per the requirements of Method 9. For an emission unit out of service during the monthly evaluation, the record of observation may note "out of service" (O/S) or equivalent.
22	45CSR§30-5.1.c.	4.5.1.	VE Emissions	Any violation(s) of the allowable visible emission requirement for any emission source discovered during observations using 45CSR7A, must be reported in writing to the Director of the Division of Air Quality as soon as practicable but within ten (10) calendar days of the occurrence. The report shall include at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.
23	45CSR§10-8.3.b.	4.5.2.	Periodic Exception Report	A periodic exception report shall be submitted to the Director, in a manner specified by the Director. Such an exception report shall provide details of all excursions outside the range of measured emissions or monitored parameters established in an approved monitoring plan and shall include, but not be limited to, the time of the excursion, the magnitude of the excursion, the duration of the excursion, the cause of the excursion and the corrective action taken.
24	45CSR13, Permit No. R13-0682 (Condition 4.4.1.)	4.5.3.	VE Emissions	Any violation(s) of the allowable visible emission requirement for any emission source discovered during observations using 40CFR Part 60, Appendix A (Method 22) or Method 9 must be reported in writing to the Director of the Division of Air Quality as soon as practicable, but within ten (10) calendar days, of the occurrence and shall include, at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.

__X__ Permit Shield

Applicable Requirements (Continued)

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Ref No.	Rule/ Regulation/ R13 Permit	Existing R30 Permit Condition	Name	Method of Compliance
1	45CSR§7-3.1.	4.1.1.	Visible Emissions Limitation	4.3.1. –See Below
4.3.1. To demonstrate compliance with the opacity limits, visible emission checks shall be conducted to determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40CFR Part 60, Appendix A, Method 22 or from the lecture portion of the 40CFR Part 60, Appendix A, Method 9 certification course. Visible emission checks shall be conducted at least once per calendar month with a maximum of forty-five (45) days between consecutive readings. These checks shall be performed at each kiln stack for a sufficient time interval, but no less than one (1) minute, to determine if any visible emissions are present. Visible emission checks shall be performed during periods of normal facility operation and appropriate weather conditions. If visible emissions are present at a source(s) for three (3) consecutive monthly checks, the permittee shall conduct an opacity reading at that source(s) using the procedures and requirements of 45CSR7A as soon a practicable, but within seventy-two (72) hours of the final visual emission check. A 45CSR7A observation at a source(s) restarts the count of the number of consecutive readings with the presence of visible emissions. **[45CSR§7A-2.1., 45CSR§30-5.1.c.] (K1E, K2E, P-K3E)**				
2	45CSR§7-3.2.	4.1.2.	Visible Emissions Limitation Exclusion	4.3.1. –See Above
3	45CSR§7-4.3.	4.1.3	Prohibition of Dilution of Stack Gases	NA
4	45CSR§7-4.7.	4.1.4	Allowance for Expansion	NA
5	45CSR§7-4.12.	4.1.5.	Requirement for Proper Stack Testing	NA
6	45CSR§7-4.13.	4.1.6	Potential Hazardous Material Emissions	NA
7	45CSR§10-4.1.	4.1.7.	Sulfur Dioxide Exhaust Limit	4.2.1. Compliance with the sulfur dioxide limitations shall be determined by not exceeding the maximum sulfur content percentages as listed in Table 2 of the DAQ approved "45CSR10 Monitoring Plan" attached in Appendix A of this permit and through fuel analysis as outlined in the aforementioned monitoring plan. **[45CSR§10-8.2.c.]**
8	45CSR§10-4.2.	4.1.8.	Averaging Time	4.2.1 - See Above
9	45CSR34, 40 CFR §63.52, 45CSR13, Permit No. R13-0682 (Condition 4.1.8.)	4.1.9	NESHAP	Compliance upon startup with stack testing as required to then be conducted.
10	45CSR13, Permit No. R13-0682 (Condition 4.1.1.)	4.1.10.	Emissions Limitations	4.3.2. – See Below
4.3.2. Tests to determine the compliance of Kiln No.1 (K1E) and, Kiln No. 2 (K2E), and Periodic Kiln (P-K3E) with the particulate matter (PM) weight emission standards (in lbs/hr) shall be conducted at least once in every five (5) year period. Such tests shall be conducted in accordance with the appropriate method set forth in 45CSR§7A-3. – "Mass Emission Test Procedures" or other equivalent EPA testing method approved by the Secretary and in accordance with section 3.3. of this permit. Unless tests have been completed within one (1) year prior to the issuance date of this permit, initial tests shall be conducted and completed within one hundred eighty (180) days of the effective date of this permit. The results of such tests shall be submitted within sixty (60) days from conducting the stack testing. **[45CSR§7-8.1., 45CSR§7A-3.1.]**				
11	45CSR13, Permit No. R13-0682 (Condition 4.1.2.)	4.1.11.	Total Emissions Limitations	NA

Are you in compliance with all applicable requirements for this emission unit? __X__ Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

Applicable Requirements (Continued)

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Ref No.	Rule/ Regulation/ R13 Permit	Existing R30 Permit Condition	Name	Method of Compliance
12	45CSR13, Permit No. R13-0682 (Condition 4.1.3.)]	4.1.12	Production Limitation	4.4.4. In order to determine compliance with Conditions 4.1.10 through 4.1.14, the Permittee shall monitor and record the production of each of the three kilns on a monthly basis. [45CSR13, Permit No. R13-0682 (Condition 4.3.4.)]
13	45CSR13, Permit No. R13-0682 (Condition 4.1.4.)	4.1.13.	Production Limitation	4.4.4. – See Above
14	45CSR13, Permit No. R13-0682 (Condition 4.1.5.)	4.1.14.	Production Limitation	4.4.4. – See Above
15	45CSR13, Permit No. R13-0682 (Condition 4.1.6.)	4.1.15.	Sulfur Content Limitation – Coal Fuel	4.3.4. In order to determine compliance with Condition 4.1.15 of this permit, the permittee shall maintain statements made by fuel suppliers guaranteeing that the sulfur content of the coal is less than or equal to 1%. [45CSR13, Permit No. R13-0682 (Condition 4.2.2.)]
16	[45CSR13, Permit No. R13-0682 (Condition 4.1.7.)	4.1.16.	HF Limitation	4.3.3. In order to determine compliance with Condition 4.1.16 of this permit, the permittee shall perform or have performed appropriate laboratory tests to determine the fluoride content of the bricks both before and after firing at least once for every 12,000 tons of production. [45CSR13, Permit No. R13-0682 (Condition 4.2.1.)]
17	45CSR§30-5.1.c.	4.4.1.	Recordkeeping	Maintain Records as Required
18	45CSR§10-8.3.a.	4.4.2.	Maintain Records	Maintain Records as Required
19	45CSR§§10-8.3.c. & 8.3.d., 45CSR§30-5.1.c.	4.4.3.	Maintain Records	Maintain Records as Required
20	45CSR13, Permit No. R13-0682 (Condition 4.3.4.)	4.4.4.	Maintain Records	Maintain Records as Required
21	45CSR13, Permit No. R13-0682 (Condition 4.3.7.)	4.4.7.	Maintain Records	Maintain Records as Required
22	45CSR§30-5.1.c.	4.5.1.	VE Emissions	Report as Required
23	45CSR§10-8.3.b.	4.5.2.	Periodic Exception Report	Report as Required
24	45CSR13, Permit No. R13-0682 (Condition 4.4.1.)	4.5.3.	VE Emissions	Report as Required

Are you in compliance with all applicable requirements for this emission unit? __X__ Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
027	Kiln No. 2, Dryer Nos. 3 and 4	None

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Tunnel Kiln for firing brick. Kiln also provides heat for Dryers No. 3 and No. 4.

Manufacturer:	**Model number:**	**Serial number:**
Constructed on Site	NA	NA
Construction date:	**Installation date:**	**Modification date(s):**
1971	1971	1983

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 8.25 tons per hour of fired brick (TPH-F)

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
8.25 TPH-F	72,270 TPY-F	8,760 hours per year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? X Yes ___ No	**If yes, is it?** ___ Indirect Fired X Direct Fired
Maximum design heat input and/or maximum horsepower rating: 23.0 MM BTU/HR	**Type and Btu/hr rating of burners:** North American Burners Model 4441-4-A at 525,000 Btu/hr each for Natural Gas Coal Burners 300,000 Btu/hr each 90 total burners.

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Primary fuels are natural gas and coal.

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	trace	NA	~1,000 BTU/CF
Coal	1%	4%	~14,441 BTU/LB

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	9.90	43.36
Nitrogen Oxides (NO_X)	4.21	18.43
Lead (Pb)	NA	NA
Particulate Matter ($PM_{2.5}$)	7.18	31.44
Particulate Matter (PM_{10})	9.5	50.59
Total Particulate Matter (TSP)	9.5	65.04
Sulfur Dioxide (SO_2)	13.93	61.07
Volatile Organic Compounds (VOC)	0.20	0.87
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
HF	18.98	83.11
HCL	1.40	6.14
HAPS (See Appendix)		
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2e	NA	32,799
*Note: These emissions are for one (1) kiln (see page E4 for clarification).		

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

AP-42, Section 11.3, Brick and Structural Clay Product Manufacturing.

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

See Page E3 through E5.

__X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

See Page E6 through E7.

Are you in compliance with all applicable requirements for this emission unit? __X__ Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
P-Kiln	Periodic Kiln	None

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Periodic Kiln for firing brick.

Manufacturer:	**Model number:**	**Serial number:**
No Manufacturer	NA	NA
Construction date:	**Installation date:**	**Modification date(s):**
NA	2010	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 8.25 tons per hour of fired brick (TPH-F)

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
1 TPD-F	72 TPY-F	8,760 hours per year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? X Yes ___ No	**If yes, is it?** ___ Indirect Fired X Direct Fired
Maximum design heat input and/or maximum horsepower rating: 500,000 Btu/hr	**Type and Btu/hr rating of burners:** 500,000 Btu/hr

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Natural Gas Only

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	trace	NA	~1,000 BTU/CF

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	2.40	0.04
Nitrogen Oxides (NO_X)	0.70	0.01
Lead (Pb)	NA	NA
Particulate Matter ($PM_{2.5}$)	1.74	0.03
Particulate Matter (PM_{10})	1.74	0.03
Total Particulate Matter (TSP)	1.92	0.03
Sulfur Dioxide (SO_2)	1.34	0.02
Volatile Organic Compounds (VOC)	0.05	0.01
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
HF	4.60	0.08
HCL	0.34	0.01
HAPS (See Appendix)		
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2e	NA	2

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

AP-42, Section 11.3, Brick and Structural Clay Product Manufacturing.

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

See Page E3 through E5.

__X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

See Page E6 through E7.

Are you in compliance with all applicable requirements for this emission unit? __X__ Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
RSD	Rotary Sand Dryer	None

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Rotary Sand Dryer for drying sand for sanded brick.

Manufacturer:	**Model number:**	**Serial number:**
Constructed on Site	NA	NA
Construction date:	**Installation date:**	**Modification date(s):**
2013	2013	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 1.0 tph/1,200 tpy and 1.0 MMBtu/hr

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
1.0 tph	1,200 tpy	8,760 hours per year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? X Yes ___ No	**If yes, is it?** ___ Indirect Fired X Direct Fired
Maximum design heat input and/or maximum horsepower rating: 1.0 MMBTU/HR	**Type and Btu/hr rating of burners:** Utilizes burner from beehive dryer.

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.
Primary fuels are natural gas.

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	trace	NA	~1,000 BTU/CF

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	0.09	0.37
Nitrogen Oxides (NO_X)	0.10	0.44
Lead (Pb)	NA	NA
Particulate Matter ($PM_{2.5}$)	2.00	1.20
Particulate Matter (PM_{10})	2.00	1.20
Total Particulate Matter (TSP)	2.01	1.21
Sulfur Dioxide (SO_2)	0.01	0.01
Volatile Organic Compounds (VOC)	0.01	0.03
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
HAPS (See Appendix)	0.02	0.02
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO2e	NA	526

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

AP-42, Section 11.19.1, Sand and Gravel Processing.

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Ref No.	Rule/ Regulation/ R13 Permit	Existing R30 Permit Condition	Name	Requirement
1	45CSR§7-4.7.	4.1.4.	Allowance for Expansion	The increase of the operating process weight rate of any manufacturing process source operation or duplicate source operation by the operation of new, replacement, reactivated and/or altered source operation(s) shall be considered as an expansion and the allowable emission rates from the source operation(s) which resulted in the increase shall be determined as per 45CSR§7-4.4.
2	45CSR§7-4.13.	4.1.6	Potential Hazardous Material Emissions	Persons responsible for manufacturing process source operations from which hazardous particulate matter material may be emitted such as, but not limited to, lead, arsenic, beryllium and other such materials shall give the utmost care and consideration to the potential harmful effects of the emissions resulting from such activities. Evaluations of these facilities as to adequacy, efficiency and emission potential will be made on an individual basis by the Director working in conjunction with other appropriate governmental agencies.
3	45CSR13, Permit No. R13-0682 (Condition 4.1.1.)	4.1.10.	Emissions Limitations	Emissions from kilns shall not exceed the following: Rotary Sand Dryer (RSD) lbs/hr / tpy PM 2.01 / 1.21 PM10 2 / 1.2 PM2.5 2 / 1.2 SO2 0.01 / 0.01 NOx 0.1 / 0.44 CO 0.09 / 0.37 VOC 0.01 / 0.03 Non HF/HCl HAPs 0.02 / 0.02 HF n/a / n/a HCl n/a / n/a Compliance with 45CSR13, Permit No. R13-0682 (Condition 4.1.1.) will also show compliance with the particulate matter limits given in 45CSR§§7-4.1. and 4.8.

X Permit Shield

Applicable Requirements (Continued)

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Ref No.	Rule/ Regulation/ R13 Permit	Existing R30 Permit Condition	Name	Requirement
4	45CSR13, Permit No. R13-0682 (Condition 4.1.2.)	4.1.11.	Total Emissions Limitations	Total emissions from the facility shall not exceed the following: PM: 61.74 lb/hr, 189.88 tpy PM_{10}: 38.30 lb/hr, 130.33 tpy $PM_{2.5}$: 21.68 lb/hr, 75.18 tpy SO_2: 29.22 lb/hr, 122.19 tpy NO_x: 10.37 lb/hr, 39.66 tpy CO: 22.76 lb/hr, 88.98 tpy VOC: 0.51 lb/hr, 1.91 tpy HF: 42.56 lb/hr, 166.30 tpy HCl: 3.14 lb/hr, 12.29 tpy Non HF/HCl HAPs: 0.23 lb/hr, 0.72 tpy
5	45CSR13, Permit No. R13-0682 (Condition 4.1.9.)	4.1.17.	Fuel Use	The permittee shall use only natural gas as a fuel for the Rotary Sand Dryer [RSD].
6	45CSR §2-3.1; 45CSR13, Permit No. R13-0682 (Condition 4.1.10.)	4.1.18.	Visual Emissions	Visible emissions from the Rotary Sand Dryer [RSD] shall not exceed ten (10) percent opacity based on a six minute block average.
7	45CSR§30-5.1.c.	4.4.1.	Recordkeeping	Records of all monitoring data required by condition 4.3.1 documenting the date and time of each visible emission check, the emission point or equipment/source identification number, the name or means of identification of the observer, the results of the check(s), whether the visible emissions are normal for the process, and, if applicable, all corrective measures taken or planned shall be maintained. The permittee shall also record the general weather conditions (e.g., sunny, approximately 80°F, 6 - 10 mph NE wind) during the visual emission check(s). Should a visible emission observation be required to be performed per the requirements specified in 45CSR7A, the data records of each observation shall be maintained per the requirements of 45CSR7A. For an emission unit out of service during the normal monthly evaluation, the record of observation may note "out of service" (O/S) or equivalent.
8	45CSR13, Permit No. R13-0682 (Condition 4.3.5.)	4.4.5	Maintain Records	In order to determine compliance with the rotary sand dryer [RSD] emissions in condition 4.1.10, the permittee shall record the amount of sand processed through the rotary sand dryer on a monthly basis.
9	45CSR13, Permit No. R13-0682 (Condition 4.3.6.)	4.4.6	Maintain Records	In order to determine compliance with the fuel type limitation in condition 4.1.17, the permittee shall maintain records of the fuel usage for the RSD. At a minimum, the record shall indicate the type of fuel used.
10	45CSR13, Permit No. R13-0682 (Condition 4.3.7.)	4.4.7.	Maintain Records	The permittee shall maintain records of all monitoring data required by condition 4.3.5 documenting the date and time of each visible emission check, the emission point or equipment / source identification number, the name or means of identification of the observer, the results of the check(s), whether the visible emissions are normal for the process, and, if applicable, all corrective measures taken or planned. The permittee shall also record the general weather conditions (i.e. sunny, approximately 80°F, 6-10 mph NE wind) during the visual emissions check(s). Should a visible emission observation be required to be performed per the requirements specified in Method 9, the data records of each observation shall be maintained per the requirements of Method 9. For an emission unit out of service during the monthly evaluation, the record of observation may note "out of service" (O/S) or equivalent.

__X__ Permit Shield

Applicable Requirements (Continued)

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Ref No.	Rule/ Regulation/ R13 Permit	Existing R30 Permit Condition	Name	Requirement
11	45CSR§30-5.1.c.	4.5.1.	VE Emissions	Any violation(s) of the allowable visible emission requirement for any emission source discovered during observations using 45CSR7A, must be reported in writing to the Director of the Division of Air Quality as soon as practicable but within ten (10) calendar days of the occurrence. The report shall include at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.
12	45CSR§10-8.3.b.	4.5.2.	Periodic Exception Report	A periodic exception report shall be submitted to the Director, in a manner specified by the Director. Such an exception report shall provide details of all excursions outside the range of measured emissions or monitored parameters established in an approved monitoring plan and shall include, but not be limited to, the time of the excursion, the magnitude of the excursion, the duration of the excursion, the cause of the excursion and the corrective action taken.
13	45CSR13, Permit No. R13-0682 (Condition 4.4.1.)	4.5.3.	VE Emissions	Any violation(s) of the allowable visible emission requirement for any emission source discovered during observations using 40CFR Part 60, Appendix A (Method 22) or Method 9 must be reported in writing to the Director of the Division of Air Quality as soon as practicable, but within ten (10) calendar days, of the occurrence and shall include, at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.

_X_ Permit Shield

Applicable Requirements (Continued)

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Ref No.	Rule/ Regulation/ R13 Permit	Existing R30 Permit Condition	Name	Method of Compliance
1	45CSR§7-4.7.	4.1.4.	Allowance for Expansion	NA
2	45CSR§7-4.13.	4.1.6	Potential Hazardous Material Emissions	NA
3	45CSR13, Permit No. R13-0682 (Condition 4.1.1.)	4.1.10.	Emissions Limitations	NA
4	45CSR13, Permit No. R13-0682 (Condition 4.1.2.)	4.1.11.	Total Emissions Limitations	NA
5	45CSR13, Permit No. R13-0682 (Condition 4.1.9.)	4.1.17.	Fuel Use	NA
6	45CSR §2-3.1; 45CSR13, Permit No. R13-0682 (Condition 4.1.10.)	4.1.18.	Visual Emissions	4.3.5. –See Below

4.3.5. For the purpose of determining compliance with the opacity limits of 45CSR2, the permittee shall conduct visual emission checks and / or opacity monitoring and recordkeeping for all emission sources subject to an opacity limit.

a. The visible emission check shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written material found in the Reference 1 and 2 from 40CFR Part 60, Appendix A, Method 22 or from the lecture portion of 40CFR Part 60, Appendix A, Method 9 certification course.

b. Visible emission checks shall be conducted at least once per calendar month with a maximum of forty-five (45) days between consecutive readings. These checks shall be performed at the rotary sand dryer [RSD] for a sufficient time interval, but no less than one (1) minute, to determine if any visible emissions are present. Visible emission checks shall be performed during periods of facility operation and appropriate weather conditions.

c. If visible emissions are present at a source(s) for three (3) consecutive monthly checks, the permittee shall conduct an opacity reading at the source(s) using procedures and requirements of Method 9 as soon as practicable, but within seventy-two (72) hours of the final visual emission check. A Method 9 observation at a source(s) restarts the count of the number of consecutive readings with the presence of visible emissions.

[45CSR§2-3.2; 45CSR13, Permit No. R13-0682 (Condition 4.2.3)] (RSD)

7	45CSR§30-5.1.c.	4.4.1.	Recordkeeping	Maintain Records as Required
8	45CSR13, Permit No. R13-0682 (Condition 4.3.5.)	4.4.5.	Maintain Records	Maintain Records as Required
9	45CSR13, Permit No. R13-0682 (Condition 4.3.6.)	4.4.6.	Maintain Records	Maintain Records as Required
10	45CSR13, Permit No. R13-0682 (Condition 4.3.7.)	4.4.7.	Maintain Records	Maintain Records as Required
11	45CSR§30-5.1.c.	4.5.1.	VE Emissions	Report as Required
12	45CSR§10-8.3.b.	4.5.2.	Periodic Exception Report	Report as Required
13	45CSR13, Permit No. R13-0682 (Condition 4.4.1.)	4.5.3.	VE Emissions	Report as Required

Are you in compliance with all applicable requirements for this emission unit? __X__ Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description **Brick Forming**

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
025	Brick Forming	None

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Brick forming includes the pug mill, vacuum extruder, brick trimming and cutting (including scrap brick belt conveyors returning wet trimmings to pug mill), Sand Hopper (B3), Sand Hopper (B4), Sand Screw Conveyor (SSC), and brick setting machine.

Manufacturer:	**Model number:**	**Serial number:**
NA	NA	NA

Construction date:	**Installation date:**	**Modification date(s):**
1970 1999 for brick setting machine	1970 1999 for brick setting machine	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 75 tph

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
75 tph	153,300 tpy	8,760 hours per year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes X No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating:	**Type and Btu/hr rating of burners:**

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)		
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)	0.18	0.77
Particulate Matter (PM_{10})	1.26	5.52
Total Particulate Matter (TSP)	2.52	11.04
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

AP-42, Section 11.3, Table 11.3.1.

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

None – Compliance with limitations on kilns proves compliance on remaining portions of the facility.

__X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

None – Compliance with limitations on kilns proves compliance on remaining portions of the facility.

Are you in compliance with all applicable requirements for this emission unit? __X__ Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description **Sand Dryer**

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
037	Sand Dryer	None

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Sand is dried in an old round brick kiln to remove excess moisture prior to being utilized in the brick making operation.

Manufacturer:	**Model number:**	**Serial number:**
NA	NA	NA
Construction date:	**Installation date:**	**Modification date(s):**
Early 1900's	Early 1900's	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): NA

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
NA	120 tons	8,760 hrs/yr

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? X Yes ___ No	**If yes, is it?** ___ Indirect Fired X Direct Fired
Maximum design heat input and/or maximum horsepower rating: 5 MM Btu/hr, 43,800 MMBtu/year	**Type and Btu/hr rating of burners:** 5 burners 1 MM Btu/hr each

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

Natural Gas

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	Trace	NA	~1,000 Btu/cf

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	0.42	1.84
Nitrogen Oxides (NO_X)	0.50	2.19
Lead (Pb)	NA	NA
Particulate Matter ($PM_{2.5}$)	0.04	0.17
Particulate Matter (PM_{10})	0.04	0.17
Total Particulate Matter (TSP)	0.04	0.17
Sulfur Dioxide (SO_2)	0.01	0.02
Volatile Organic Compounds (VOC)	0.03	0.13
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
VOC HAPS	0.01	0.05
Metal HAPS	0.01	0.01
Formaldehyde	0.01	0.01
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

AP-42, Section 1.4, Table 1.4-1 and 1.4-2.

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

None – Compliance with limitations on kilns proves compliance on remaining portions of the facility.

__X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

None – Compliance with limitations on kilns proves compliance on remaining portions of the facility.

Are you in compliance with all applicable requirements for this emission unit? __X__ Yes ___ No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description **Shale Grinding and Screening**

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
006, 008 to 011	Various (See Attachment D)	Enclosures

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Crusher and screens (4 screens) located in the grinding building which reduces the shale to approximately -6 mesh material size. Crusher is a Steadman Grand Slam Impact Crusher, Model GS 4860-AR/HC-T-H-A-X, Serial No. 89075. The screens are fine screens.

Manufacturer:	**Model number:**	**Serial number:**
Various, See Above	Various, See Above	Various, See Above

Construction date:	**Installation date:**	**Modification date(s):**
006 was replaced in 2006 008 to 011 - 1981	006 was replaced in 2006 008 to 011 - 1981	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 75 tph

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
75 tph	153,300 tpy	4,160 hours per year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes __X__No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating:	**Type and Btu/hr rating of burners:**

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)		
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)	0.60	0.61
Particulate Matter (PM_{10})	4.80	4.91
Total Particulate Matter (TSP)	9.30	9.50
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

AP-42, Section 11.3, Table 11.3.1.

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

None – Compliance with limitations on kilns proves compliance on remaining portions of the facility.

__X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

None – Compliance with limitations on kilns proves compliance on remaining portions of the facility.

Are you in compliance with all applicable requirements for this emission unit? __X__ Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description **Conveyor and Equipment Transfer Points**

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
003 to 005, 007, 012 to 017, 019 to 021, 023, and 024	Various Conveyors (See Attachment D)	Enclosures

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Conveyors on the raw feed, grinding building, and plant feed system and equipment transfer points for shale transfers.

Manufacturer:	**Model number:**	**Serial number:**
NA	NA	NA
Construction date:	**Installation date:**	**Modification date(s):**
1981	1981	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 75 tph

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
75 tph	153,300 tpy	8,760 hours per year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes X No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating:	**Type and Btu/hr rating of burners:**

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)		
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)	0.02	0.02
Particulate Matter (PM_{10})	0.16	0.16
Total Particulate Matter (TSP)	0.34	0.34
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

AP-42, Section 13.2.4.

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

None – Compliance with limitations on kilns proves compliance on remaining portions of the facility.

__X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

None – Compliance with limitations on kilns proves compliance on remaining portions of the facility.

Are you in compliance with all applicable requirements for this emission unit? __X__ Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description **Shale Storage**

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
001, 002, 018, 022	Various	None

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
001, Open Stockpile No. 1 for quarried shale storage; 002 Truck-Endloader Fed Bin; 018, Covered Stockpile in Grinding Building; and 022, Plant Bin.

Manufacturer:	**Model number:**	**Serial number:**
NA	NA	NA
Construction date:	**Installation date:**	**Modification date(s):**
1981	1981	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
001 - 9 Acres, 002 - 30 tons, 018 -100 tons, 022 – 20 tons

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
75 tph	153,300	8,760

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes __X__ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating:	**Type and Btu/hr rating of burners:**

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)		
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)	0.05	0.23
Particulate Matter (PM_{10})	0.34	1.50
Total Particulate Matter (TSP)	0.72	3.18
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

AP-42, Stockpile Equation, See attached calculations.

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

None – Compliance with limitations on kilns proves compliance on remaining portions of the facility.

__X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

None – Compliance with limitations on kilns proves compliance on remaining portions of the facility.

Are you in compliance with all applicable requirements for this emission unit? __X__ Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description **Coal Crushing**

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
032	CG	DC1

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Coal crusher

Manufacturer:	**Model number:**	**Serial number:**
Atritor	NA	NA

Construction date:	**Installation date:**	**Modification date(s):**
1984	1984	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 100 tph

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
1.5 tph	13,140 tpy	8,760 hours per year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating:	**Type and Btu/hr rating of burners:**

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)		
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)	1.95	8.54
Particulate Matter (PM_{10})	1.95	8.54
Total Particulate Matter (TSP)	2.16	9.46
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

AP-42, Section, Table 11.24-2

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

None – Compliance with limitations on kilns proves compliance on remaining portions of the facility.

__X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

None – Compliance with limitations on kilns proves compliance on remaining portions of the facility.

Are you in compliance with all applicable requirements for this emission unit? __X__ Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description **Coal Conveying and Equipment Transfer Points**

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
030, 034, 035, 036	Various	None

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Coal drag conveyor that feeds the coal bin and transfer points for the coal equipment.

Manufacturer:	**Model number:**	**Serial number:**
NA	NA	NA
Construction date:	**Installation date:**	**Modification date(s):**
1984	1984	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 100 tph

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
1.5 to 100 tph	13,140 tpy	8,760 hours per year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes _X_ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating:	**Type and Btu/hr rating of burners:**

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)		
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)	0.016	0.002
Particulate Matter (PM_{10})	0.10	0.01
Total Particulate Matter (TSP)	0.22	0.02
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

AP-42, Section 13.2.4.

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

None – Compliance with limitations on kilns proves compliance on remaining portions of the facility.

__X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

None – Compliance with limitations on kilns proves compliance on remaining portions of the facility.

Are you in compliance with all applicable requirements for this emission unit? __X__ Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description **Coal Storage**

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
028, 029, 031	Coal Storage	None

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Coal stockpile and coal bins.

Manufacturer:	**Model number:**	**Serial number:**
NA	NA	NA
Construction date:	**Installation date:**	**Modification date(s):**
1984	1984	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 1.5 to 100 tph

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
1.5 to 100 tph	13,140 tpy	8,760 hours per year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes __X__ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating:	**Type and Btu/hr rating of burners:**

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)		
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)	See Conveying and Transfer	
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

None – Compliance with limitations on kilns proves compliance on remaining portions of the facility.

__X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

None – Compliance with limitations on kilns proves compliance on remaining portions of the facility.

Are you in compliance with all applicable requirements for this emission unit? __X__ Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description **Vehicle Activity**

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
041	Vehicle Activity	Water Roadways

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Roadways at the site for quarry to stockpile (pit road), delivery of materials, shipment/sales of brick, and the endloader activity to feed the shale to the grinding building.

Manufacturer:	**Model number:**	**Serial number:**
NA	NA	NA
Construction date:	**Installation date:**	**Modification date(s):**
NA	NA	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): NA

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
See Calculations	See Calculations	8,760 hours per year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes __X__ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating:	**Type and Btu/hr rating of burners:**

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)		
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)	0.65	0.73
Particulate Matter (PM_{10})	6.45	7.11
Total Particulate Matter (TSP)	22.54	24.84
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

AP-42, 13.2.2, Unpaved Roads.

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

None – Compliance with limitations on kilns proves compliance on remaining portions of the facility.

__X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

None – Compliance with limitations on kilns proves compliance on remaining portions of the facility.

Are you in compliance with all applicable requirements for this emission unit? __X__ Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT E - Emission Unit Form

Emission Unit Description **Sand Storage**

Emission unit ID number:	**Emission unit name:**	**List any control devices associated with this emission unit:**
038 and 039	Sand Storage (OS2 and CS3)	OS2-W, CS3-PE

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Sand stockpiles

Manufacturer:	**Model number:**	**Serial number:**
NA	NA	NA
Construction date:	**Installation date:**	**Modification date(s):**
NA	NA	NA

Design Capacity (examples: furnaces - tons/hr, tanks - gallons): OS2 – 150 tons, CS3 – 200 tons

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
100	200	8,760 hours per year

Fuel Usage Data **(fill out all applicable fields)**

Does this emission unit combust fuel? ___Yes __X__ No	**If yes, is it?** ___ Indirect Fired ___Direct Fired
Maximum design heat input and/or maximum horsepower rating:	**Type and Btu/hr rating of burners:**

List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

Describe each fuel expected to be used during the term of the permit.

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

Emissions Data		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)		
Nitrogen Oxides (NO_X)		
Lead (Pb)		
Particulate Matter ($PM_{2.5}$)	Covered stockpiles and sand stockpiles are assumed to have no emissions.	
Particulate Matter (PM_{10})		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY

List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).

NA

Applicable Requirements

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or <u>construction permit</u> with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

None – Compliance with limitations on kilns proves compliance on remaining portions of the facility.

__X__ Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

None – Compliance with limitations on kilns proves compliance on remaining portions of the facility.

Are you in compliance with all applicable requirements for this emission unit? __X__ Yes ___No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

ATTACHMENT F

SCHEDULE OF COMPLIANCE FORM

ATTACHMENT F - Schedule of Compliance Form

Complete this section if you indicated noncompliance with any of the applicable requirements identified in the permit application. For each emission unit which is not in compliance, identify the applicable requirement, the reason(s) for noncompliance, a description of how the source will achieve compliance, and a detailed schedule of compliance. If there is a consent order that applies to this requirement, attach a copy to this form.

Applicable Requirement NA

Unit(s):	**Applicable Requirement:**

1. Reason for Noncompliance:

2. How will Compliance be Achieved?

3. Consent Order Number (if applicable):
None

4. Schedule of Compliance. Provide a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance, including a date for final compliance.

Remedial Measure or Action	Date to be Achieved

5. Submittal of Progress Reports.

Content of Progress Report:	**Report starting date:** MM/DD/YYYY **Submittal frequency:**

ATTACHMENT G

CONTROL DEVICE FORM(S)

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: DC1	**List all emission units associated with this control device.** Coal Crusher and Separator	
Manufacturer: (installed by) Wagester, Walker, Throton & Co, Inc.	**Model number:** NA	**Installation date:** 1986

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Particulate Matter (Coal Dust)	100%	95%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
9 Bags 39 Inches in length insulated singed polyester bags, approximately 2,500 cfm at 170 degrees Fahrenheit and 20 ounces of pressure (vacuum), 4:1 Air to Cloth Ratio.

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes _X_ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Visual monitoring to check for holes in bags.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: DC2	**List all emission units associated with this control device.** Dense Phase System	
Manufacturer: (installed by) Wagester, Walker, Throton & Co, Inc.	**Model number:** NA	**Installation date:** 1986

Type of Air Pollution Control Device:

_X_ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

List the pollutants for which this device is intended to control and the capture and control efficiencies.

Pollutant	Capture Efficiency	Control Efficiency
Particulate Matter (Coal Dust)	100%	95%

Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).
42 Bags 96 Inches

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes __X__ No

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Describe the parameters monitored and/or methods used to indicate performance of this control device.

Visual monitoring to check for holes in bags.

ATTACHMENT H

COMPLIANCE ASSURANCE MONITORING FORM

ATTACHMENT H - Compliance Assurance Monitoring (CAM) Plan Form

For definitions and information about the CAM rule, please refer to 40 CFR Part 64. Additional information (including guidance documents) may also be found at http://www.epa.gov/ttn/emc/cam.html

CAM APPLICABILITY DETERMINATION

1) Does the facility have a PSEU (Pollutant-Specific Emissions Unit considered separately with respect to **EACH** regulated air pollutant) that is subject to CAM (40 CFR Part 64), which must be addressed in this CAM plan submittal? To determine applicability, a PSEU must meet **all** of the following criteria (*If No, then the remainder of this form need not be completed*): ☐ YES ☒ NO

a. The PSEU is located at a major source that is required to obtain a Title V permit;

b. The PSEU is subject to an emission limitation or standard for the applicable regulated air pollutant that is NOT exempt;

LIST OF EXEMPT EMISSION LIMITATIONS OR STANDARDS:

- NSPS (40 CFR Part 60) or NESHAP (40 CFR Parts 61 and 63) proposed after 11/15/1990.
- Stratospheric Ozone Protection Requirements.
- Acid Rain Program Requirements.
- Emission Limitations or Standards for which a WVDEP Division of Air Quality Title V permit specifies a continuous compliance determination method, as defined in 40 CFR §64.1.
- An emission cap that meets the requirements specified in 40 CFR §70.4(b)(12).

c. The PSEU uses an add-on control device (as defined in 40 CFR §64.1) to achieve compliance with an emission limitation or standard;

d. The PSEU has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than the Title V Major Source Threshold Levels; AND

e. The PSEU is NOT an exempt backup utility power emissions unit that is municipally-owned.

BASIS OF CAM SUBMITTAL

2) Mark the appropriate box below as to why this CAM plan is being submitted as part of an application for a Title V permit:

☐ RENEWAL APPLICATION. **ALL** PSEUs for which a CAM plan has NOT yet been approved need to be addressed in this CAM plan submittal.

☐ INITIAL APPLICATION (submitted after 4/20/98). **ONLY** large PSEUs (i. e., PSEUs with potential post-control device emissions of an applicable regulated air pollutant that are equal to or greater than Major Source Threshold Levels) need to be addressed in this CAM plan submittal.

☐ SIGNIFICANT MODIFICATION TO LARGE PSEUs. **ONLY** large PSEUs being modified after 4/20/98 need to be addressed in this cam plan submittal. For large PSEUs with an approved CAM plan, Only address the appropriate monitoring requirements affected by the significant modification.

3) [a] BACKGROUND DATA AND INFORMATION					
Complete the following table for **all** PSEUs that need to be addressed in this CAM plan submittal. This section is to be used to provide background data and information for each PSEU In order to supplement the submittal requirements specified in 40 CFR §64.4. If additional space is needed, attach and label accordingly.					
PSEU DESIGNATION	DESCRIPTION	POLLUTANT	CONTROL DEVICE	[b] EMISSION LIMITATION or STANDARD	[c] MONITORING REQUIREMENT
EXAMPLE Boiler No. 1	Wood-Fired Boiler	PM	Multiclone	45CSR§2-4.1.c.; 9.0 lb/hr	Monitor pressure drop across multiclone: Weekly inspection of multiclone

[a] If a control device is common to more than one PSEU, one monitoring plan may be submitted for the control device with the affected PSEUs identified and any conditions that must be maintained or monitored in accordance with 40 CFR §64.3(a). If a single PSEU is controlled by more than one control device similar in design and operation, one monitoring plan for the applicable control devices may be submitted with the applicable control devices identified and any conditions that must be maintained or monitored in accordance with 40 CFR §64.3(a).

[b] Indicate the emission limitation or standard for any applicable requirement that constitutes an emission limitation, emission standard, or standard of performance (as defined in 40 CFR §64.1).

[c] Indicate the monitoring requirements for the PSEU that are required by an applicable regulation or permit condition.

CAM MONITORING APPROACH CRITERIA			
Complete this section for **EACH** PSEU that needs to be addressed in this CAM plan submittal. This section may be copied as needed for each PSEU. This section is to be used to provide monitoring data and information for EACH indicator selected for EACH PSEU in order to meet the monitoring design criteria specified in 40 CFR §64.3 and §64.4. if more than two indicators are being selected for a PSEU or if additional space is needed, attach and label accordingly with the appropriate PSEU designation, pollutant, and indicator numbers.			
4a) PSEU Designation:	**4b) Pollutant:**	**4c) [a] Indicator No. 1:**	**4d) [a] Indicator No. 2:**
5a) GENERAL CRITERIA Describe the MONITORING APPROACH used to measure the indicators:			
[b] Establish the appropriate INDICATOR RANGE or the procedures for establishing the indicator range which provides a reasonable assurance of compliance:			
5b) PERFORMANCE CRITERIA Provide the SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, such as detector location, installation specifications, and minimum acceptable accuracy:			
[c] For new or modified monitoring equipment, provide VERIFICATION PROCEDURES, including manufacturer's recommendations, TO CONFIRM THE OPERATIONAL STATUS of the monitoring:			
Provide QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES that are adequate to ensure the continuing validity of the data, (i.e., daily calibrations, visual inspections, routine maintenance, RATA, etc.):			
[d] Provide the MONITORING FREQUENCY:			
Provide the DATA COLLECTION PROCEDURES that will be used:			
Provide the DATA AVERAGING PERIOD for the purpose of determining whether an excursion or exceedance has occurred:			

[a] Describe all indicators to be monitored which satisfies 40 CFR §64.3(a). Indicators of emission control performance for the control device and associated capture system may include measured or predicted emissions (including visible emissions or opacity), process and control device operating parameters that affect control device (and capture system) efficiency or emission rates, or recorded findings of inspection and maintenance activities.

[b] Indicator Ranges may be based on a single maximum or minimum value or at multiple levels that are relevant to distinctly different operating conditions, expressed as a function of process variables, expressed as maintaining the applicable indicator in a particular operational status or designated condition, or established as interdependent between more than one indicator. For CEMS, COMS, or PEMS, include the most recent certification test for the monitor.

[c] The verification for operational status should include procedures for installation, calibration, and operation of the monitoring equipment, conducted in accordance with the manufacturer's recommendations, necessary to confirm the monitoring equipment is operational prior to the commencement of the required monitoring.

[d] Emission units with post-control PTE ≥ 100 percent of the amount classifying the source as a major source (i.e., Large PSEU) must collect four or more values per hour to be averaged. A reduced data collection frequency may be approved in limited circumstances. Other emission units must collect data at least once per 24 hour period.

RATIONALE AND JUSTIFICATION

Complete this section for **EACH** PSEU that needs to be addressed in this CAM plan submittal. This section may be copied as needed for each PSEU. This section is to be used to provide rationale and justification for the selection of EACH indicator and monitoring approach and EACH indicator range in order to meet the submittal requirements specified in 40 CFR §64.4.

6a) PSEU Designation:	6b) Regulated Air Pollutant:

7) **INDICATORS AND THE MONITORING APPROACH**: Provide the rationale and justification for the selection of the indicators and the monitoring approach used to measure the indicators. Also provide any data supporting the rationale and justification. Explain the reasons for any differences between the verification of operational status or the quality assurance and control practices proposed, and the manufacturer's recommendations. (If additional space is needed, attach and label accordingly with the appropriate PSEU designation and pollutant):

8) **INDICATOR RANGES**: Provide the rationale and justification for the selection of the indicator ranges. The rationale and justification shall indicate how **EACH** indicator range was selected by either a COMPLIANCE OR PERFORMANCE TEST, a TEST PLAN AND SCHEDULE, or by ENGINEERING ASSESSMENTS. Depending on which method is being used for each indicator range, include the specific information required below for that specific indicator range. (If additional space is needed, attach and label accordingly with the appropriate PSEU designation and pollutant):

- COMPLIANCE OR PERFORMANCE TEST (Indicator ranges determined from control device operating parameter data obtained during a compliance or performance test conducted under regulatory specified conditions or under conditions representative of maximum potential emissions under anticipated operating conditions. Such data may be supplemented by engineering assessments and manufacturer's recommendations). The rationale and justification shall INCLUDE a summary of the compliance or performance test results that were used to determine the indicator range, and documentation indicating that no changes have taken place that could result in a significant change in the control system performance or the selected indicator ranges since the compliance or performance test was conducted.

- TEST PLAN AND SCHEDULE (Indicator ranges will be determined from a proposed implementation plan and schedule for installing, testing, and performing any other appropriate activities prior to use of the monitoring). The rationale and justification shall INCLUDE the proposed implementation plan and schedule that will provide for use of the monitoring as expeditiously as practicable after approval of this CAM plan, except that in no case shall the schedule for completing installation and beginning operation of the monitoring exceed 180 days after approval.

- ENGINEERING ASSESSMENTS (Indicator Ranges or the procedures for establishing indicator ranges are determined from engineering assessments and other data, such as manufacturers' design criteria and historical monitoring data, because factors specific to the type of monitoring, control device, or PSEU make compliance or performance testing unnecessary). The rationale and justification shall INCLUDE documentation demonstrating that compliance testing is not required to establish the indicator range.

RATIONALE AND JUSTIFICATION:

APPENDIX

EMISSION CALCULATIONS

Continental Brick
Martinsburg Facility

POTESTA & ASSOCIATES, INC.
Project No.: 0101-18-0025-002

By: LMM
Date: 02/08/2019

PTE

Checked By: AM
Date: 02/08/2019

Summary of Emissions					
Source Description	**Regulated Air Pollutant**	**Potential (Uncontrolled) Emissions**		**Potential (Controlled) Emissions**	
		lb/hour	**tpy**	**lb/hour**	**tpy**
Shale Transfer Points	PM	0.96	0.96	0.34	0.34
	PM10	0.45	0.45	0.16	0.16
	PM2.5	0.07	0.07	0.02	0.02
Grinding and Screening	PM	46.50	47.52	9.30	9.50
	PM10	24.00	24.53	4.80	4.91
	PM2.5	3.00	3.07	0.60	0.61
Brick Forming	PM	12.60	55.19	2.52	11.04
	PM10	6.30	27.59	1.26	5.52
	PM2.5	0.88	3.83	0.18	0.77
Kilns	PM	20.92	130.11	20.92	130.11
	PM10	20.74	101.21	20.74	101.21
For Speciated VOC/VOC HAPS See Next Page	PM2.5	16.10	62.91	16.10	62.91
	SO2	29.20	122.16	29.20	122.16
	NOx	9.12	36.87	9.12	36.87
	CO	22.20	86.76	22.20	86.76
	VOC	0.45	1.75	0.45	1.75
	HF	42.56	166.30	42.56	166.30
	HCL	3.14	12.29	3.14	12.29
	HAP VOCS	0.1788	0.6344	0.1788	0.6344
Coal Fuel System	PM	43.61	189.29	2.38	9.48
	PM10	39.19	170.85	2.05	8.55
	PM2.5	39.03	170.83	1.97	8.54
Sand Transfer	PM	0.9700	0.0060	0.9700	0.0060
	PM10	0.4588	0.0028	0.4588	0.0028
	PM2.5	0.0695	0.0004	0.0695	0.0004
Sand Dryer	PM	0.04	0.17	0.04	0.17
	PM10	0.04	0.17	0.04	0.17
	PM2.5	0.04	0.17	0.04	0.17
	SO2	0.01	0.02	0.01	0.02
	NOx	0.50	2.19	0.50	2.19
	CO	0.42	1.84	0.42	1.84
	VOC	0.03	0.13	0.03	0.13
	HAP VOCS	0.01	0.05	0.01	0.05
	HAP METALS	0.01	0.01	0.01	0.01
Rotary Sand Dryer (with transfers)	PM	2.01	1.21	2.01	1.21
	PM10	2.00	1.20	2.00	1.20
	PM2.5	2.00	1.20	2.00	1.20
	SO2	0.01	0.01	0.01	0.01
	NOx	0.10	0.44	0.10	0.44
	CO	0.09	0.37	0.09	0.37
	VOC	0.01	0.03	0.01	0.03
	HAP VOCS	0.01	0.01	0.01	0.01
	HAP METALS	0.01	0.01	0.01	0.01
	CO2e	NA	526	NA	526
Point Sources	**PM**	**127.61**	**424.45**	**38.48**	**161.85**
	PM10	**93.19**	**326.01**	**31.51**	**121.73**
	PM2.5	**61.19**	**242.08**	**20.98**	**74.23**
	SO2	**29.22**	**122.19**	**29.22**	**122.19**
	NOx	**9.72**	**39.50**	**9.72**	**39.50**
	CO	**22.71**	**88.97**	**22.71**	**88.97**
	VOC	**0.49**	**1.91**	**0.49**	**1.91**
	HF	**42.56**	**166.30**	**42.56**	**166.30**
	HCL	**3.14**	**12.29**	**3.14**	**12.29**
	HAP VOCS	**0.20**	**0.69**	**0.20**	**0.69**
	HAP METALS	**0.02**	**0.02**	**0.02**	**0.02**
Stockpile	PM	0.72	3.18	0.72	3.18
	PM10	0.34	1.50	0.34	1.50
	PM2.5	0.05	0.23	0.05	0.23
Haulroads	PM	90.12	99.31	22.54	24.84
	PM10	25.73	28.42	6.45	7.11
	PM2.5	2.60	2.87	0.65	0.73
Fugitive Sources	PM	90.84	102.49	23.26	28.02
	PM10	26.07	29.92	6.79	8.61
	PM2.5	2.65	3.10	0.70	0.96
Facility Total	**Total PM =**	**218.45**	**526.94**	**61.74**	**189.87**
	Total PM10 =	**119.26**	**355.93**	**38.30**	**130.34**
	Total PM2.5 =	**63.84**	**245.18**	**21.68**	**75.19**

By: LMM
Date: 02/08/2019

PTE

Checked By: AM
Date: 02/08/2019

Speciated VOC and VOC HAPS from Kilns				
Regulated Air Pollutant	Potential (Uncontrolled) Emissions		Actual (Controlled) Emissions	
	lb/hour	tpy	lb/hour	tpy
1,1-dichloroethane	8.00E-05	3.60E-04	8.00E-05	3.60E-04
1,1,1-trichloroethane	2.90E-04	1.22E-03	2.90E-04	1.22E-03
1,4-dichlorobenzene	9.00E-04	3.46E-03	9.00E-04	3.46E-03
2-butanone	4.56E-03	1.81E-02	4.56E-03	1.81E-02
2-hexanone (1)	1.57E-03	6.14E-03	1.57E-03	6.14E-03
2-methylnaphthalene	1.05E-03	4.12E-03	1.05E-03	4.12E-03
2-methylphenol	4.00E-05	1.60E-04	4.00E-05	1.60E-04
Acetone	3.15E-02	1.23E-01	3.15E-02	1.23E-01
Acrylonitrile	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzene	5.37E-02	2.10E-01	5.37E-02	2.10E-01
Benzoic acid	4.12E-03	1.81E-02	4.12E-03	1.81E-02
Bis(2-ethylhexy)phthalate	3.70E-02	1.45E-01	3.70E-02	1.45E-01
Bromomethane	4.00E-04	1.74E-03	4.00E-04	1.74E-03
Butylbenzylphthalate	3.40E-04	1.30E-03	3.40E-04	1.30E-03
Carbon disulfide	7.90E-04	3.10E-03	7.90E-04	3.10E-03
Carbon tetrachloride	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chlorine	2.41E-02	9.40E-02	2.41E-02	9.40E-02
Chlorobenzene	3.40E-04	1.52E-03	3.40E-04	1.52E-03
Chloroethane	1.05E-02	4.12E-02	1.05E-02	4.12E-02
Chloroform	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chloromethane	1.24E-02	4.84E-02	1.24E-02	4.84E-02
Dibenzofuran	0.00E+00	2.00E-05	0.00E+00	2.00E-05
Di-n-butylphthalate	2.60E-03	1.01E-02	2.60E-03	1.01E-02
Di-n-octylphthalate	2.00E-04	8.60E-04	2.00E-04	8.60E-04
Diethylphthalate	4.44E-03	1.74E-02	4.44E-03	1.74E-02
Dimethylphthalate	2.00E-05	6.00E-05	2.00E-05	6.00E-05
Ethylbenzene	8.10E-04	3.18E-03	8.10E-04	3.18E-03
Iodomethane (2)	1.73E-03	6.72E-03	1.73E-03	6.72E-03
Isophorone	5.00E-04	2.16E-03	5.00E-04	2.16E-03
M-/p-xylene	2.27E-03	9.40E-03	2.27E-03	9.40E-03
Methylene chloride	2.00E-05	6.00E-05	2.00E-05	6.00E-05
Naphthalene	1.21E-03	4.70E-03	1.21E-03	4.70E-03
O-xylene	1.08E-03	4.20E-03	1.08E-03	4.20E-03
Phenol	1.59E-03	6.22E-03	1.59E-03	6.22E-03
Styrene	3.80E-04	1.44E-03	3.80E-04	1.44E-03
Tetrachloroethane	5.00E-05	2.00E-04	5.00E-05	2.00E-04
Trichloroethane	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	4.44E-03	1.81E-02	4.44E-03	1.81E-02
Vinyl acetate	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trichlorofluoromethane	2.40E-04	1.02E-03	2.40E-04	1.02E-03
Total VOC	**2.05E-01**	**8.06E-01**	**2.05E-01**	**8.06E-01**
Non-HAP	**4.34E-02**	**1.72E-01**	**4.34E-02**	**1.72E-01**
HAP	**1.62E-01**	**6.34E-01**	**1.62E-01**	**6.34E-01**

HAP
(1) METHYL N-BUTYL KETONE
(2) METHYL IODIDE

Continental Brick
Martinsburg Facility

POTESTA & ASSOCIATES, INC.
Project No.: 0101-18-0025-002

By: LMM
Date: 02/08/2019

Checked By: AM
Date: 02/08/2019

Kiln No. 1

	TPH	TPY
Tons Fired	8.25	72,270

Natural Gas Firing

Rounding to = 2

Pollutant	EF	Emissions				EF Reference	
		Uncontrolled		Controlled			
	lb/T	(lb/hr)	(tpy)	(lb/hr)	(tpy)		
PM	0.96	7.92	34.69	7.92	34.69	Table 11.3-2	
PM10	0.87	7.18	31.44	7.18	31.44	Table 11.3-2	
PM2.5	ND					Table 11.3-2	
SO2	0.67	5.53	24.21	5.53	24.21	Table 11.3-3	
NOx	0.35	2.89	12.65	2.89	12.65	Table 11.3-3	
CO	1.2	9.90	43.36	9.90	43.36	Table 11.3-3	
VOC	0.024	0.20	0.87	0.20	0.87	Table 11.3-5	
HF (1)	2.3	18.98	83.11	18.98	83.11		
HCL	0.17	1.40	6.14	1.40	6.14	Table 11.3-4	
Volatile Organics	Rounded to	5					CAS No.
1,1-dichloroethane	ND						
1,1,1-trichloroethane	4.70E-06	0.00004	0.00017	0.00004	0.00017	Table 11.3-6	71-55-6
1,4-dichlorobenzene	4.80E-05	0.00040	0.00173	0.00040	0.00173	Table 11.3-6	106-46-7
2-butanone	2.20E-04	0.00182	0.00795	0.00182	0.00795	Table 11.3-6	78-93-3
2-hexanone	8.50E-05	0.00070	0.00307	0.00070	0.00307	Table 11.3-6	591-78-6
2-methylnaphthalene	5.70E-05	0.00047	0.00206	0.00047	0.00206	Table 11.3-6	91-57-6
2-methylphenol	ND						
Acetone	1.70E-03	0.01403	0.06143	0.01403	0.06143	Table 11.3-6	67-64-1
Acrylonitrile	ND						
Benzene	2.90E-03	0.02393	0.10479	0.02393	0.10479	Table 11.3-6	71-43-2
Benzoic acid	ND						
Bis(2-ethylhexy)phthalate	2.00E-03	0.01650	0.07227	0.01650	0.07227	Table 11.3-6	117-81-7
Bromomethane	ND						
Butylbenzylphthalate	1.80E-05	0.00015	0.00065	0.00015	0.00065	Table 11.3-6	85-68-7
Carbon disulfide	4.30E-05	0.00035	0.00155	0.00035	0.00155	Table 11.3-6	75-15-0
Carbon tetrachloride	ND						
Chlorine	1.30E-03	0.01073	0.04698	0.01073	0.04698	Table 11.3-6	7782-50-5
Chlorobenzene	ND						
Chloroethane	5.70E-04	0.00470	0.02060	0.00470	0.02060	Table 11.3-6	75-00-3
Chloroform	ND						
Chloromethane	6.70E-04	0.00553	0.02421	0.00553	0.02421	Table 11.3-6	74-87-3
Dibenzofuran	ND						
Di-n-butylphthalate	1.40E-04	0.00116	0.00506	0.00116	0.00506	Table 11.3-6	84-74-2
Di-n-octylphthalate	ND						
Diethylphthalate	2.40E-04	0.00198	0.00867	0.00198	0.00867	Table 11.3-6	84-66-2
Dimethylphthalate	ND						
Ethylbenzene	4.40E-05	0.00036	0.00159	0.00036	0.00159	Table 11.3-6	100-41-4
Iodomethane	9.30E-05	0.00077	0.00336	0.00077	0.00336	Table 11.3-6	74-88-4
Isophorone	ND						
M-/p-xylene	6.70E-05	0.00055	0.00242	0.00055	0.00242	Table 11.3-6	1330-20-7
Methylene chloride	ND						
Naphthalene	6.50E-05	0.00054	0.00235	0.00054	0.00235	Table 11.3-6	91-20-3
O-xylene	5.80E-05	0.00048	0.00210	0.00048	0.00210	Table 11.3-6	95-47-6
Phenol	8.60E-05	0.00071	0.00311	0.00071	0.00311	Table 11.3-6	108-95-2
Styrene	2.00E-05	0.00017	0.00072	0.00017	0.00072	Table 11.3-6	100-42-5
Tetrachloroethane	2.80E-06	0.00002	0.00010	0.00002	0.00010	Table 11.3-6	127-18-4
Trichloroethane	ND						
Toluene	1.60E-04	0.00132	0.00578	0.00132	0.00578	Table 11.3-6	108-88-3
Vinyl acetate	ND						
Trichlorofluoromethane	ND						
HAP							

(1) HF emissions factor from material testing and is material specific instead of fuel specific.

By: LMM
Date: 02/08/2019

Checked By: AM
Date: 02/08/2019

Kiln No. 1

Coal Firing

Rounding to = 2

SO2 Stack Test Result (lb/hr) = 11.61

Pollutant	EF	Emissions				EF Reference	
		Uncontrolled		Controlled			
	lb/T	(lb/hr)	(tpy)	(lb/hr)	(tpy)		
PM	1.8	14.85	65.04	14.85	65.04	Table 11.3-2	
PM10	1.40	11.55	50.59	11.55	50.59	Table 11.3-2	
PM2.5	0.87	7.18	31.44	7.18	31.44	Table 11.3-2	
SO2 (2)	1.69	13.93	61.07	13.93	61.07	Table 11.3-3	
NOx	0.51	4.21	18.43	4.21	18.43	Table 11.3-3	
CO	0.8	6.60	28.91	6.60	28.91	Table 11.3-3	
VOC	0.024	0.20	0.87	0.20	0.87	Table 11.3-5	
HF (1)	2.3	18.98	83.11	18.98	83.11		
HCL	0.17	1.40	6.14	1.40	6.14	Table 11.3-4	
Volatile Organics	**Rounded to**	**5**					**CAS No.**
1,1-dichloroethane	5.00E-06	0.00004	0.00018	0.00004	0.00018	Table 11.3-6	75-34-3
1,1,1-trichloroethane	1.70E-05	0.00014	0.00061	0.00014	0.00061	Table 11.3-6	71-55-6
1,4-dichlorobenzene	3.20E-06	0.00003	0.00012	0.00003	0.00012	Table 11.3-6	106-46-7
2-butanone	2.50E-04	0.00206	0.00903	0.00206	0.00903	Table 11.3-6	78-93-3
2-hexanone	9.40E-07	0.00001	0.00003	0.00001	0.00003	Table 11.3-6	591-78-6
2-methylnaphthalene	1.70E-06	0.00001	0.00006	0.00001	0.00006	Table 11.3-6	91-57-6
2-methylphenol	2.20E-06	0.00002	0.00008	0.00002	0.00008	Table 11.3-6	95-48-7
Acetone	6.80E-04	0.00561	0.02457	0.00561	0.02457	Table 11.3-6	67-64-1
Acrylonitrile	ND						
Benzene	2.90E-04	0.00239	0.01048	0.00239	0.01048	Table 11.3-6	71-43-2
Benzoic acid	2.50E-04	0.00206	0.00903	0.00206	0.00903	Table 11.3-6	65-85-0
Bis(2-ethylhexy)phthalate	7.30E-05	0.00060	0.00264	0.00060	0.00264	Table 11.3-6	117-81-7
Bromomethane	2.40E-05	0.00020	0.00087	0.00020	0.00087	Table 11.3-6	74-83-9
Butylbenzylphthalate	1.20E-06	0.00001	0.00004	0.00001	0.00004	Table 11.3-6	85-68-7
Carbon disulfide	2.30E-06	0.00002	0.00008	0.00002	0.00008	Table 11.3-6	75-15-0
Carbon tetrachloride	1.00E-07	0.00000	0.00000	0.00000	0.00000	Table 11.3-6	56-23-5
Chlorine	ND						
Chlorobenzene	2.10E-05	0.00017	0.00076	0.00017	0.00076	Table 11.3-6	108-90-7
Chloroethane	1.10E-05	0.00009	0.00040	0.00009	0.00040	Table 11.3-6	75-00-3
Chloroform	1.00E-07	0.00000	0.00000	0.00000	0.00000	Table 11.3-6	67-66-3
Chloromethane	1.10E-04	0.00091	0.00397	0.00091	0.00397	Table 11.3-6	74-87-3
Dibenzofuran	3.60E-07	0.00000	0.00001	0.00000	0.00001	Table 11.3-6	132-64-9
Di-n-butylphthalate	ND						
Di-n-octylphthalate	1.20E-05	0.00010	0.00043	0.00010	0.00043	Table 11.3-6	NA
Diethylphthalate	1.40E-06	0.00001	0.00005	0.00001	0.00005	Table 11.3-6	84-66-2
Dimethylphthalate	7.80E-07	0.00001	0.00003	0.00001	0.00003	Table 11.3-6	131-11-3
Ethylbenzene	2.10E-05	0.00017	0.00076	0.00017	0.00076	Table 11.3-6	100-41-4
Iodomethane	ND						
Isophorone	3.00E-05	0.00025	0.00108	0.00025	0.00108	Table 11.3-6	78-59-1
M-/p-xylene	1.30E-04	0.00107	0.00470	0.00107	0.00470	Table 11.3-6	1330-20-7
Methylene chloride	8.00E-07	0.00001	0.00003	0.00001	0.00003	Table 11.3-6	75-09-2
Naphthalene	6.90E-06	0.00006	0.00025	0.00006	0.00025	Table 11.3-6	91-20-3
O-xylene	4.70E-05	0.00039	0.00170	0.00039	0.00170	Table 11.3-6	95-47-6
Phenol	3.50E-05	0.00029	0.00126	0.00029	0.00126	Table 11.3-6	108-95-2
Styrene	1.00E-07	0.00000	0.00000	0.00000	0.00000	Table 11.3-6	100-42-5
Tetrachloroethane	1.00E-07	0.00000	0.00000	0.00000	0.00000	Table 11.3-6	127-18-4
Trichloroethane	1.00E-07	0.00000	0.00000	0.00000	0.00000	Table 11.3-6	71-55-6
Toluene	2.50E-04	0.00206	0.00903	0.00206	0.00903	Table 11.3-6	108-88-3
Vinyl acetate	1.00E-07	0.00000	0.00000	0.00000	0.00000	Table 11.3-6	108-05-4
Trichlorofluoromethane	1.40E-05	0.00012	0.00051	0.00012	0.00051	Table 11.3-6	75-69-4
HAP							

(1) HF emissions factor from material testing and is material specific instead of fuel specific.

(2) SO2 stack test results indicate 11.61 pounds per hour as the highest actual emission value. Emission factor above based on stack test result plus 20%. The emission factor is back calculated from the factored emissions testing and the operating rate per hour.

By: LMM
Date: 02/08/2019

Checked By: AM
Date: 02/08/2019

Kiln No. 1
Maximum Emissions

Pollutant	Emissions			
	Uncontrolled		Controlled	
	(lb/hr)	(tpy)	(lb/hr)	(tpy)
PM*	9.50	65.04	9.50	65.04
PM10*	9.50	50.59	9.50	50.59
PM2.5	7.18	31.44	7.18	31.44
SO2	13.93	61.07	13.93	61.07
NOx	4.21	18.43	4.21	18.43
CO	9.90	43.36	9.90	43.36
VOC	0.20	0.87	0.20	0.87
HF	18.98	83.11	18.98	83.11
HCL	1.40	6.14	1.40	6.14
Volatile Organics				
1,1-dichloroethane	0.00004	0.00018	0.00004	0.00018
1,1,1-trichloroethane	0.00014	0.00061	0.00014	0.00061
1,4-dichlorobenzene	0.00040	0.00173	0.00040	0.00173
2-butanone	0.00206	0.00903	0.00206	0.00903
2-hexanone	0.00070	0.00307	0.00070	0.00307
2-methylnaphthalene	0.00047	0.00206	0.00047	0.00206
2-methylphenol	0.00002	0.00008	0.00002	0.00008
Acetone	0.01403	0.06143	0.01403	0.06143
Acrylonitrile	0.00000	0.00000	0.00000	0.00000
Benzene	0.02393	0.10479	0.02393	0.10479
Benzoic acid	0.00206	0.00903	0.00206	0.00903
Bis(2-ethylhexy)phthalate	0.01650	0.07227	0.01650	0.07227
Bromomethane	0.00020	0.00087	0.00020	0.00087
Butylbenzylphthalate	0.00015	0.00065	0.00015	0.00065
Carbon disulfide	0.00035	0.00155	0.00035	0.00155
Carbon tetrachloride	0.00000	0.00000	0.00000	0.00000
Chlorine	0.01073	0.04698	0.01073	0.04698
Chlorobenzene	0.00017	0.00076	0.00017	0.00076
Chloroethane	0.00470	0.02060	0.00470	0.02060
Chloroform	0.00000	0.00000	0.00000	0.00000
Chloromethane	0.00553	0.02421	0.00553	0.02421
Dibenzofuran	0.00000	0.00001	0.00000	0.00001
Di-n-butylphthalate	0.00116	0.00506	0.00116	0.00506
Di-n-octylphthalate	0.00010	0.00043	0.00010	0.00043
Diethylphthalate	0.00198	0.00867	0.00198	0.00867
Dimethylphthalate	0.00001	0.00003	0.00001	0.00003
Ethylbenzene	0.00036	0.00159	0.00036	0.00159
Iodomethane	0.00077	0.00336	0.00077	0.00336
Isophorone	0.00025	0.00108	0.00025	0.00108
M-/p-xylene	0.00107	0.00470	0.00107	0.00470
Methylene chloride	0.00001	0.00003	0.00001	0.00003
Naphthalene	0.00054	0.00235	0.00054	0.00235
O-xylene	0.00048	0.00210	0.00048	0.00210
Phenol	0.00071	0.00311	0.00071	0.00311
Styrene	0.00017	0.00072	0.00017	0.00072
Tetrachloroethane	0.00002	0.00010	0.00002	0.00010
Trichloroethane	0.00000	0.00000	0.00000	0.00000
Toluene	0.00206	0.00903	0.00206	0.00903
Vinyl acetate	0.00000	0.00000	0.00000	0.00000
Trichlorofluoromethane	0.00012	0.00051	0.00012	0.00051
HAP Total (not HF or HCL)	0.07	0.32	0.07	0.32

* Regulation 7 Limit

Continental Brick
Martinsburg Facility

POTESTA & ASSOCIATES, INC.
Project No.: 0101-18-0025-002

By: LMM
Date: 02/08/2019

Checked By: AM
Date: 02/08/2019

Kiln No. 2

	TPH	TPY
Tons Fired	8.25	72,270

Natural Gas Firing

Rounding to = 2

Pollutant	EF	Emissions				EF Reference	
		Uncontrolled		Controlled			
	lb/T	(lb/hr)	(tpy)	(lb/hr)	(tpy)		
PM	0.96	7.92	34.69	7.92	34.69	Table 11.3-2	
PM10	0.87	7.18	31.44	7.18	31.44	Table 11.3-2	
PM2.5	ND					Table 11.3-2	
SO2	0.67	5.53	24.21	5.53	24.21	Table 11.3-3	
NOx	0.35	2.89	12.65	2.89	12.65	Table 11.3-3	
CO	1.2	9.90	43.36	9.90	43.36	Table 11.3-3	
VOC	0.024	0.20	0.87	0.20	0.87	Table 11.3-5	
HF (1)	2.3	18.98	83.11	18.98	83.11		
HCL	0.17	1.40	6.14	1.40	6.14	Table 11.3-4	
Volatile Organics	Rounded to	5					CAS No.
1,1-dichloroethane	ND						
1,1,1-trichloroethane	4.70E-06	0.00004	0.00017	0.00004	0.00017	Table 11.3-6	71-55-6
1,4-dichlorobenzene	4.80E-05	0.00040	0.00173	0.00040	0.00173	Table 11.3-6	106-46-7
2-butanone	2.20E-04	0.00182	0.00795	0.00182	0.00795	Table 11.3-6	78-93-3
2-hexanone	8.50E-05	0.00070	0.00307	0.00070	0.00307	Table 11.3-6	591-78-6
2-methylnaphthalene	5.70E-05	0.00047	0.00206	0.00047	0.00206	Table 11.3-6	91-57-6
2-methylphenol	ND						
Acetone	1.70E-03	0.01403	0.06143	0.01403	0.06143	Table 11.3-6	67-64-1
Acrylonitrile	ND						
Benzene	2.90E-03	0.02393	0.10479	0.02393	0.10479	Table 11.3-6	71-43-2
Benzoic acid	ND						
Bis(2-ethylhexy)phthalate	2.00E-03	0.01650	0.07227	0.01650	0.07227	Table 11.3-6	117-81-7
Bromomethane	ND						
Butylbenzylphthalate	1.80E-05	0.00015	0.00065	0.00015	0.00065	Table 11.3-6	85-68-7
Carbon disulfide	4.30E-05	0.00035	0.00155	0.00035	0.00155	Table 11.3-6	75-15-0
Carbon tetrachloride	ND						
Chlorine	1.30E-03	0.01073	0.04698	0.01073	0.04698	Table 11.3-6	7782-50-5
Chlorobenzene	ND						
Chloroethane	5.70E-04	0.00470	0.02060	0.00470	0.02060	Table 11.3-6	75-00-3
Chloroform	ND						
Chloromethane	6.70E-04	0.00553	0.02421	0.00553	0.02421	Table 11.3-6	74-87-3
Dibenzofuran	ND						
Di-n-butylphthalate	1.40E-04	0.00116	0.00506	0.00116	0.00506	Table 11.3-6	84-74-2
Di-n-octylphthalate	ND						
Diethylphthalate	2.40E-04	0.00198	0.00867	0.00198	0.00867	Table 11.3-6	84-66-2
Dimethylphthalate	ND						
Ethylbenzene	4.40E-05	0.00036	0.00159	0.00036	0.00159	Table 11.3-6	100-41-4
Iodomethane	9.30E-05	0.00077	0.00336	0.00077	0.00336	Table 11.3-6	74-88-4
Isophorone	ND						
M-/p-xylene	6.70E-05	0.00055	0.00242	0.00055	0.00242	Table 11.3-6	1330-20-7
Methylene chloride	ND						
Naphthalene	6.50E-05	0.00054	0.00235	0.00054	0.00235	Table 11.3-6	91-20-3
O-xylene	5.80E-05	0.00048	0.00210	0.00048	0.00210	Table 11.3-6	95-47-6
Phenol	8.60E-05	0.00071	0.00311	0.00071	0.00311	Table 11.3-6	108-95-2
Styrene	2.00E-05	0.00017	0.00072	0.00017	0.00072	Table 11.3-6	100-42-5
Tetrachloroethane	2.80E-06	0.00002	0.00010	0.00002	0.00010	Table 11.3-6	127-18-4
Trichloroethane	ND						
Toluene	1.60E-04	0.00132	0.00578	0.00132	0.00578	Table 11.3-6	108-88-3
Vinyl acetate	ND						
Trichlorofluoromethane	ND						
HAP							

(1) HF emissions factor from material testing and is material specific instead of fuel specific.

Continental Brick
Martinsburg Facility

POTESTA & ASSOCIATES, INC.
Project No.: 0101-18-0025-002

By: LMM
Date: 02/08/2019

Checked By: AM
Date: 02/08/2019

Kiln No. 2

Coal Firing

Rounding to = 2

Pollutant	EF	Emissions				EF Reference	
		Uncontrolled		Controlled			
	lb/T	(lb/hr)	(tpy)	(lb/hr)	(tpy)		
PM	1.8	14.85	65.04	14.85	65.04	Table 11.3-2	
PM10	1.40	11.55	50.59	11.55	50.59	Table 11.3-2	
PM2.5	0.87	7.18	31.44	7.18	31.44	Table 11.3-2	
SO2 (2)	1.69	13.93	61.07	13.93	61.07	Table 11.3-3	
NOx	0.51	4.21	18.43	4.21	18.43	Table 11.3-3	
CO	0.8	6.60	28.91	6.60	28.91	Table 11.3-3	
VOC	0.024	0.20	0.87	0.20	0.87	Table 11.3-5	
HF (1)	2.3	18.98	83.11	18.98	83.11		
HCL	0.17	1.40	6.14	1.40	6.14	Table 11.3-4	
Volatile Organics	Rounded to	5					CAS No.
1,1-dichloroethane	5.00E-06	0.00004	0.00018	0.00004	0.00018	Table 11.3-6	75-34-3
1,1,1-trichloroethane	1.70E-05	0.00014	0.00061	0.00014	0.00061	Table 11.3-6	71-55-6
1,4-dichlorobenzene	3.20E-06	0.00003	0.00012	0.00003	0.00012	Table 11.3-6	106-46-7
2-butanone	2.50E-04	0.00206	0.00903	0.00206	0.00903	Table 11.3-6	78-93-3
2-hexanone	9.40E-07	0.00001	0.00003	0.00001	0.00003	Table 11.3-6	591-78-6
2-methylnaphthalene	1.70E-06	0.00001	0.00006	0.00001	0.00006	Table 11.3-6	91-57-6
2-methylphenol	2.20E-06	0.00002	0.00008	0.00002	0.00008	Table 11.3-6	95-48-7
Acetone	6.80E-04	0.00561	0.02457	0.00561	0.02457	Table 11.3-6	67-64-1
Acrylonitrile	ND						
Benzene	2.90E-04	0.00239	0.01048	0.00239	0.01048	Table 11.3-6	71-43-2
Benzoic acid	2.50E-04	0.00206	0.00903	0.00206	0.00903	Table 11.3-6	65-85-0
Bis(2-ethylhexy)phthalate	7.30E-05	0.00060	0.00264	0.00060	0.00264	Table 11.3-6	117-81-7
Bromomethane	2.40E-05	0.00020	0.00087	0.00020	0.00087	Table 11.3-6	74-83-9
Butylbenzylphthalate	1.20E-06	0.00001	0.00004	0.00001	0.00004	Table 11.3-6	85-68-7
Carbon disulfide	2.30E-06	0.00002	0.00008	0.00002	0.00008	Table 11.3-6	75-15-0
Carbon tetrachloride	1.00E-07	0.00000	0.00000	0.00000	0.00000	Table 11.3-6	56-23-5
Chlorine	ND						
Chlorobenzene	2.10E-05	0.00017	0.00076	0.00017	0.00076	Table 11.3-6	108-90-7
Chloroethane	1.10E-05	0.00009	0.00040	0.00009	0.00040	Table 11.3-6	75-00-3
Chloroform	1.00E-07	0.00000	0.00000	0.00000	0.00000	Table 11.3-6	67-66-3
Chloromethane	1.10E-04	0.00091	0.00397	0.00091	0.00397	Table 11.3-6	74-87-3
Dibenzofuran	3.60E-07	0.00000	0.00001	0.00000	0.00001	Table 11.3-6	132-64-9
Di-n-butylphthalate	ND						
Di-n-octylphthalate	1.20E-05	0.00010	0.00043	0.00010	0.00043	Table 11.3-6	NA
Diethylphthalate	1.40E-06	0.00001	0.00005	0.00001	0.00005	Table 11.3-6	84-66-2
Dimethylphthalate	7.80E-07	0.00001	0.00003	0.00001	0.00003	Table 11.3-6	131-11-3
Ethylbenzene	2.10E-05	0.00017	0.00076	0.00017	0.00076	Table 11.3-6	100-41-4
Iodomethane	ND						
Isophorone	3.00E-05	0.00025	0.00108	0.00025	0.00108	Table 11.3-6	78-59-1
M-/p-xylene	1.30E-04	0.00107	0.00470	0.00107	0.00470	Table 11.3-6	1330-20-7
Methylene chloride	8.00E-07	0.00001	0.00003	0.00001	0.00003	Table 11.3-6	75-09-2
Naphthalene	6.90E-06	0.00006	0.00025	0.00006	0.00025	Table 11.3-6	91-20-3
O-xylene	4.70E-05	0.00039	0.00170	0.00039	0.00170	Table 11.3-6	95-47-6
Phenol	3.50E-05	0.00029	0.00126	0.00029	0.00126	Table 11.3-6	108-95-2
Styrene	1.00E-07	0.00000	0.00000	0.00000	0.00000	Table 11.3-6	100-42-5
Tetrachloroethane	1.00E-07	0.00000	0.00000	0.00000	0.00000	Table 11.3-6	127-18-4
Trichloroethane	1.00E-07	0.00000	0.00000	0.00000	0.00000	Table 11.3-6	71-55-6
Toluene	2.50E-04	0.00206	0.00903	0.00206	0.00903	Table 11.3-6	108-88-3
Vinyl acetate	1.00E-07	0.00000	0.00000	0.00000	0.00000	Table 11.3-6	108-05-4
Trichlorofluoromethane	1.40E-05	0.00012	0.00051	0.00012	0.00051	Table 11.3-6	75-69-4
HAP							

(1) HF emissions factor from material testing and is material specific instead of fuel specific.

(2) SO2 stack test results indicate 11.61 pounds per hour as the highest actual emission value. Emission factor above based on stack test result plus 20%. The emission factor is back calculated from the factored emissions testing and the operating rate per hour.

By: LMM
Date: 02/08/2019

Checked By: AM
Date: 02/08/2019

Kiln No. 2
Maximum Emissions

Pollutant	Emissions			
	Uncontrolled		Controlled	
	(lb/hr)	(tpy)	(lb/hr)	(tpy)
PM*	9.50	65.04	9.50	65.04
PM10*	9.50	50.59	9.50	50.59
PM2.5	7.18	31.44	7.18	31.44
SO2	13.93	61.07	13.93	61.07
NOx	4.21	18.43	4.21	18.43
CO	9.90	43.36	9.90	43.36
VOC	0.20	0.87	0.20	0.87
HF	18.98	83.11	18.98	83.11
HCL	1.40	6.14	1.40	6.14
Volatile Organics				
1,1-dichloroethane	0.00004	0.00018	0.00004	0.00018
1,1,1-trichloroethane	0.00014	0.00061	0.00014	0.00061
1,4-dichlorobenzene	0.00040	0.00173	0.00040	0.00173
2-butanone	0.00206	0.00903	0.00206	0.00903
2-hexanone	0.00070	0.00307	0.00070	0.00307
2-methylnaphthalene	0.00047	0.00206	0.00047	0.00206
2-methylphenol	0.00002	0.00008	0.00002	0.00008
Acetone	0.01403	0.06143	0.01403	0.06143
Acrylonitrile	0.00000	0.00000	0.00000	0.00000
Benzene	0.02393	0.10479	0.02393	0.10479
Benzoic acid	0.00206	0.00903	0.00206	0.00903
Bis(2-ethylhexy)phthalate	0.01650	0.07227	0.01650	0.07227
Bromomethane	0.00020	0.00087	0.00020	0.00087
Butylbenzylphthalate	0.00015	0.00065	0.00015	0.00065
Carbon disulfide	0.00035	0.00155	0.00035	0.00155
Carbon tetrachloride	0.00000	0.00000	0.00000	0.00000
Chlorine	0.01073	0.04698	0.01073	0.04698
Chlorobenzene	0.00017	0.00076	0.00017	0.00076
Chloroethane	0.00470	0.02060	0.00470	0.02060
Chloroform	0.00000	0.00000	0.00000	0.00000
Chloromethane	0.00553	0.02421	0.00553	0.02421
Dibenzofuran	0.00000	0.00001	0.00000	0.00001
Di-n-butylphthalate	0.00116	0.00506	0.00116	0.00506
Di-n-octylphthalate	0.00010	0.00043	0.00010	0.00043
Diethylphthalate	0.00198	0.00867	0.00198	0.00867
Dimethylphthalate	0.00001	0.00003	0.00001	0.00003
Ethylbenzene	0.00036	0.00159	0.00036	0.00159
Iodomethane	0.00077	0.00336	0.00077	0.00336
Isophorone	0.00025	0.00108	0.00025	0.00108
M-/p-xylene	0.00107	0.00470	0.00107	0.00470
Methylene chloride	0.00001	0.00003	0.00001	0.00003
Naphthalene	0.00054	0.00235	0.00054	0.00235
O-xylene	0.00048	0.00210	0.00048	0.00210
Phenol	0.00071	0.00311	0.00071	0.00311
Styrene	0.00017	0.00072	0.00017	0.00072
Tetrachloroethane	0.00002	0.00010	0.00002	0.00010
Trichloroethane	0.00000	0.00000	0.00000	0.00000
Toluene	0.00206	0.00903	0.00206	0.00903
Vinyl acetate	0.00000	0.00000	0.00000	0.00000
Trichlorofluoromethane	0.00012	0.00051	0.00012	0.00051
HAP Total (not HF or HCL)	0.07	0.32	0.07	0.32

* Regulation 7 Limit

By: LMM
Date: 02/08/2019

Checked By: AM
Date: 02/08/2019

Periodic Kiln

	TPH(1)	TPY(1)
Tons Fired	2.00	72

Natural Gas Firing

Rounding to = 2

Pollutant	EF (3)	Emissions				EF Reference	
		Uncontrolled		Controlled			
	lb/T	(lb/hr)	(tpy)	(lb/hr)	(tpy)		
PM	0.96	1.92	0.03	1.92	0.03	Table 11.3-2	
PM10	0.87	1.74	0.03	1.74	0.03	Table 11.3-2	
PM2.5(=PM10)	ND	1.74	0.03	1.74	0.03	Table 11.3-2	
SO2	0.67	1.34	0.02	1.34	0.02	Table 11.3-3	
NOx	0.35	0.70	0.01	0.70	0.01	Table 11.3-3	
CO	1.2	2.40	0.04	2.40	0.04	Table 11.3-3	
VOC	0.024	0.05	0.01	0.05	0.01	Table 11.3-5	
HF (2)	2.3	4.60	0.08	4.60	0.08		
HCL	0.17	0.34	0.01	0.34	0.01	Table 11.3-4	
Volitaile Organics	Rounded to	5					CAS No.
1,1-dichloroethane	ND						
1,1,1-trichloroethane	4.70E-06	0.00001	0.00000	0.00001	0.00000	Table 11.3-6	71-55-6
1,4-dichlorobenzene	4.80E-05	0.00010	0.00000	0.00010	0.00000	Table 11.3-6	106-46-7
2-butanone	2.20E-04	0.00044	0.00001	0.00044	0.00001	Table 11.3-6	78-93-3
2-hexanone	8.50E-05	0.00017	0.00000	0.00017	0.00000	Table 11.3-6	591-78-6
2-methylnaphthalene	5.70E-05	0.00011	0.00000	0.00011	0.00000	Table 11.3-6	91-57-6
2-methylphenol	ND						
Acetone	1.70E-03	0.00340	0.00006	0.00340	0.00006	Table 11.3-6	67-64-1
Acrylonitrile	ND						
Benzene	2.90E-03	0.00580	0.00010	0.00580	0.00010	Table 11.3-6	71-43-2
Benzoic acid	ND						
Bis(2-ethylhexy)phthalate	2.00E-03	0.00400	0.00007	0.00400	0.00007	Table 11.3-6	117-81-7
Bromomethane	ND						
Butylbenzylphthalate	1.80E-05	0.00004	0.00000	0.00004	0.00000	Table 11.3-6	85-68-7
Carbon disulfide	4.30E-05	0.00009	0.00000	0.00009	0.00000	Table 11.3-6	75-15-0
Carbon tetrachloride	ND						
Chlorine	1.30E-03	0.00260	0.00005	0.00260	0.00005	Table 11.3-6	7782-50-5
Chlorobenzene	ND						
Chloroethane	5.70E-04	0.00114	0.00002	0.00114	0.00002	Table 11.3-6	75-00-3
Chloroform	ND						
Chloromethane	6.70E-04	0.00134	0.00002	0.00134	0.00002	Table 11.3-6	74-87-3
Dibenzofuran	ND						
Di-n-butylphthalate	1.40E-04	0.00028	0.00001	0.00028	0.00001	Table 11.3-6	84-74-2
Di-n-octylphthalate	ND						
Diethylphthalate	2.40E-04	0.00048	0.00001	0.00048	0.00001	Table 11.3-6	84-66-2
Dimethylphthalate	ND						
Ethylbenzene	4.40E-05	0.00009	0.00000	0.00009	0.00000	Table 11.3-6	100-41-4
Iodomethane	9.30E-05	0.00019	0.00000	0.00019	0.00000	Table 11.3-6	74-88-4
Isophorone	ND						
M-/p-xylene	6.70E-05	0.00013	0.00000	0.00013	0.00000	Table 11.3-6	1330-20-7
Methylene chloride	ND						
Naphthalene	6.50E-05	0.00013	0.00000	0.00013	0.00000	Table 11.3-6	91-20-3
O-xylene	5.80E-05	0.00012	0.00000	0.00012	0.00000	Table 11.3-6	95-47-6
Phenol	8.60E-05	0.00017	0.00000	0.00017	0.00000	Table 11.3-6	108-95-2
Styrene	2.00E-05	0.00004	0.00000	0.00004	0.00000	Table 11.3-6	100-42-5
Tetrachloroethane	2.80E-06	0.00001	0.00000	0.00001	0.00000	Table 11.3-6	127-18-4
Trichloroethane	ND						
Toluene	1.60E-04	0.00032	0.00001	0.00032	0.00001	Table 11.3-6	108-88-3
Vinyl acetate	ND						
Trichlorofluoromethane	ND						
HAP Total (not HF or HCL)		0.0170	0.0003	0.0170	0.0003		

(1) The periodic kiln operates in a batch mode with up to two (2) tons per batch. Yearly estimated production is based on 36 batches per year. It is assumed that the emissions occur in one hour of the 24 hour emissions cycle.
(2) HF emissions factor from material testing and is material specific instead of fuel specific.
(3) Unless noted the emission factors are from AP-42.

36

By: LMM
Date: 02/08/2019

Checked By: AM
Date: 02/08/2019

Periodic Kiln

Natural Gas Emissions Based on Combustion

Heat Content of Fuel =	1,000	BTU/scf	Standard
BTU of Total System =	500,000	Btu/hr	Estimated
No. of Burners =	2		Counted
Burner Rating =	250,000	MM Btu/hr	Estimated
Firing Time for Batch =	2	Days	
	48	Hours	
Number of Batches per Year =	36		
Hours of Operation =	72	hrs/year	
Fuel Usage =	0.0005	10^6 scf per hour	
	0.04	10^6 scf/year	

Note: the flames do not have any controls for emissions: therefore, uncontrolled is equal to potential maximum emissions.

Rounding to = 2

Emission	EF	Emissions		EF
Type	lb/10^6 scf	lb/hr	tons/year	Reference
PM	7.6	0.01	0.01	Table 1.4-2
PM10[(1)]	7.6	0.01	0.01	See Note 1
PM2.5[(1)]	7.6	0.01	0.01	See Note 1
SO_2	0.6	0.01	0.01	Table 1.4-2
NOx	100	0.05	0.01	Table 1.4-1
CO	84	0.05	0.01	Table 1.4-1
VOC	5.5	0.01	0.01	Table 1.4-2
Hazardous Air Pollutants				
HAPS- VOC[(2)]	1.88	0.01	0.01	Table 1.4-3
HAPS - METAL[(3)]	0.00556	0.01	0.01	Table 1.4-4

Rounding to = 2

Notes:
1 - It is assumed that PM10 and PM2.5 are equal to TSP (PM).
2 - Total VOC HAPS as listed in Table 1.4-3 (AP-42).
3 - Total METAL HAPS as listed in Table 1.4-4 (AP-42).

NOTE: Emissions from Kiln emissions factors result in higher emissions so the requested limits are based on the kiln emission values.

Rotary Sand Dryer (RSD)

Sand Dryer Emissions Factor (AP-42, Section 11.19.1)

Dryer Capacity	
tons/hour	tons/year
1	1,200

Rounding to = 2

Emission	EF	Emissions		EF
Type	lb/ton	lb/hr	tons/year	Reference
PM	2.0	2.00	1.20	Table 11.19.1-1
PM10	2.0	2.00	1.20	See Note 1
PM2.5	2.0	2.00	1.20	See Note 1
NOx	0.031	0.03	0.02	Table 11.19.1-1

Natural Gas Combustion (AP-42, Section 1.4)

Note: the flames do not have any controls for emissions: therefore, uncontrolled is equal to potential maximum emissions.

BTU of Total System =	1,000,000	Btu/hr	Estimated
Burner Rating =	1	MM Btu/hr	Estimated
Hours of Operation =	8,760	hrs/year	Estimated
Heat Content of Fuel =	1,000	BTU/scf	Standard
Fuel Usage =	0.0010	10^6 scf per hour	
	8.76	10^6 scf/year	

Emission	EF	Emissions		EF
Type	lb/10^6 scf	lb/hr	tons/year	Reference
PM	7.6	0.01	0.04	Table 1.4-2
PM10[1]	7.6	0.01	0.04	See Note 1
PM2.5[1]	7.6	0.01	0.04	See Note 1
SO_2	0.6	0.01	0.01	Table 1.4-2
NOx	100	0.10	0.44	Table 1.4-1
CO	84	0.09	0.37	Table 1.4-1
VOC	5.5	0.01	0.03	Table 1.4-2
Hazardous Air Pollutants				
HAPS- VOC[2]	1.88	0.01	0.01	Table 1.4-3
HAPS - METAL[3]	0.00556	0.01	0.01	Table 1.4-4

Notes:
1 - Emission factor from AP-42, Table 11.19.1-1 and is is in lb/ton. It is assumed that PM10 and PM2.5 are equal to PM.
2 - Total VOC HAPS as listed in Table 1.4-3 (AP-42).
3 - Total METAL HAPS as listed in Table 1.4-4 (AP-42).

Total Dryer Emissions (Maximum Emissions between Combustion and Sand Dryer Emissions Above)

Maximum Emissions from RSD		
Emission	Emissions	
Type	lb/hr	tons/year
PM	2.00	1.20
PM10	2.00	1.20
PM2.5	2.00	1.20
SO_2	0.01	0.01
NOx	0.10	0.44
CO	0.09	0.37
VOC	0.01	0.03
Hazardous Air Pollutants		
HAPS- VOC[2]	0.01	0.01
HAPS - METAL[3]	0.01	0.01

Batch or Continuous Drops: Sand transfer into and out of rotary sand dryer

Defining transfer point empirical expression variables, where:

e =	?	lb/ton
k =	0.74	dimensionless
U =	7	mph
M =	1	%

Calculating transfer point emission factor using Equation 1:

E =	0.0097	lb/ton

Transfer Capacities	
tons/hour	tons/year
1	1,200

Rounding to = 3

ID	Control Device		Emissions			
			Uncontrolled		Controlled	
	Type	Effic(%)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
RSDTP1	N	0	0.010	0.006	0.010	0.006
RSDTP2	N	0	0.010	0.006	0.010	0.006
		PM	**0.010**	**0.006**	**0.010**	**0.006**
		PM10	**0.005**	**0.003**	**0.005**	**0.003**
		PM2.5	**0.001**	**0.0004**	**0.001**	**0.0004**

Reference: AP-42 13.2.4, Aggregate Handling and Storage Piles
K factor for equation:

PM (<30 micons) =	0.74
PM10 (<10 micons) =	0.35
PM2.5 (<2.5 micons) =	0.053

Total Emissions for RSD Operation		
Emission	Emissions	
Type	lb/hr	tons/year
PM	2.01	1.21
PM10	2.00	1.20
PM2.5	2.00	1.20
SO_2	0.01	0.01
NOx	0.10	0.44
CO	0.09	0.37
VOC	0.01	0.03
Hazardous Air Pollutants		
HAPS- VOC[2]	0.01	0.01
HAPS - METAL[3]	0.01	0.01

Continental Brick
Martinsburg Facility

POTESTA & ASSOCIATES, INC.
Project No.: 0101-18-0025-002

By: LMM
Date: 02/08/2019

Checked By: AM
Date: 02/08/2019

Shale Testing

Reference No./Location	Date Sampled	Date Analyzed	Fluoride Concentration (ug/g)			HF Release (ug/g)
			Dried	Fired	Released (Dried - Fired)	
Original Shale Testing						
Pile 1, Front	NA	10/21/2009	888.8	396.6	492.2	518.3
Pile 1, Back	NA	10/21/2009	1,012.0	188.3	823.7	867.4
Pile 2	NA	10/21/2009	904.1	210.3	693.8	730.6
Pile 3, Front	NA	10/21/2009	1,037.3	258.9	778.4	819.7
Pile 3, Back	NA	10/21/2009	986.8	295.9	690.9	727.6
Cont. Brick	NA	10/27/2008	1,199.0	525.9	673.1	708.8
Cont. Brick	NA	10/27/2008	1,220.3	363.1	857.2	902.7
Production Brick Testing						
1*	8/5/2010	8/5/2010	1,200.0	263.0	937.0	986.7
2*	9/1/2010	9/1/2010	1,136.1	374.9	761.2	801.6
3*	10/14/2010	10/14/2010	961.9	177.4	784.5	826.1
4*	11/4/2010	11/4/2010	1,147.0	233.0	914.0	962.5
5*	11/30/2010	11/30/2010	1,037.4	274.9	762.5	803.0
6	6/24/2011	7/13/2011	895.9	264.1	631.8	665.3
7	8/18/2011	8/29/2011	1,058.9	177.1	881.8	928.6
8	9/6/2011	9/16/2011	1,066.6	182.7	883.9	930.8
9	10/13/2011	10/26/2011	1,055.0	309.8	745.2	784.7
10	10/17/2011	10/26/2011	1,056.7	362.6	694.1	730.9
11	10/31/2011	11/9/2011	1,114.8	348.9	765.9	806.5
12	11/7/2011	11/10/2011	1,064.3	272.5	791.8	833.8
13	6/1/2012	6/21/2012	618.1	122.2	495.9	522.2
14	8/1/2012	8/8/2012	1,256.5	164.4	1,092.1	1,150.0
15	9/5/2012	9/17/2012	1,016.3	161.5	854.8	900.2
16	10/6/2012	11/12/2012	957.0	80.2	876.8	923.3
17	5/1/2013	5/17/2013	886.7	145.4	741.3	780.6
18	7/2/2013	7/3/2013	1,157.9	200.4	957.5	1,008.3
19	8/5/2013	8/23/2013	997.2	126.1	871.1	917.3
20	8/29/2013	9/4/2013	969.6	157.9	811.7	854.8
21	10/8/2013	10/14/2013	959.2	201.2	758.0	798.2

* Sample date not provided on report so test date shown as sample date also.

Previous Limit	
902.7	ug/g
0.0009027	g/g
1.81	lbs per ton

Requested Limit	
1,150.0	ug/g
0.00115	g/g
2.30	lbs per ton

By: LMM
Date: 02/08/2019

Checked By: AM
Date: 02/08/2019

Batch or Continuous Drops: Shale Transfers

Defining transfer point empirical expression variables, where:

e =	?	lb/ton
k =	0.74	dimensionless
U =	7	mph
M =	10	%

Calculating transfer point emission factor using Equation 1:

E =	0.0004	lb/ton

Transfer Capacities	
tons/hour	tons/year
75	153,300

Rounding to = 2

ID	Control Device		Emissions			
			Uncontrolled		Controlled	
	Type	Effic(%)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
TP1	MD	0	0.03	0.03	0.03	0.03
TP2	FE	80	0.03	0.03	0.01	0.01
TP3	FE	80	0.03	0.03	0.01	0.01
TP4	FE	80	0.03	0.03	0.01	0.01
TP5	FE	80	0.03	0.03	0.01	0.01
TP6	FE	80	0.03	0.03	0.01	0.01
TP7	FE	80	0.03	0.03	0.01	0.01
TP8	FE	80	0.03	0.03	0.01	0.01
TP9	FE	80	0.03	0.03	0.01	0.01
TP10	FE	80	0.03	0.03	0.01	0.01
TP11	FE	80	0.03	0.03	0.01	0.01
TP12	FE	80	0.03	0.03	0.01	0.01
TP13	FE	80	0.03	0.03	0.01	0.01
TP14	FE	80	0.03	0.03	0.01	0.01
TP15	FE	80	0.03	0.03	0.01	0.01
TP16	FE	80	0.03	0.03	0.01	0.01
TP17	FE	80	0.03	0.03	0.01	0.01
TP18	FE	80	0.03	0.03	0.01	0.01
TP19	FE	80	0.03	0.03	0.01	0.01
TP20	FE	80	0.03	0.03	0.01	0.01
TP21	FE	80	0.03	0.03	0.01	0.01
TP22	FE	80	0.03	0.03	0.01	0.01
TP23	FE	80	0.03	0.03	0.01	0.01
TP24	FE	80	0.03	0.03	0.01	0.01
TP25	FE	80	0.03	0.03	0.01	0.01
TP26	FE	80	0.03	0.03	0.01	0.01
TP27	FE	80	0.03	0.03	0.01	0.01
TP28	FE	80	0.03	0.03	0.01	0.01
TP29	FE	80	0.03	0.03	0.01	0.01
TP30	FE	80	0.03	0.03	0.01	0.01
TP31	FE	80	0.03	0.03	0.01	0.01
TP32	FE	80	0.03	0.03	0.01	0.01
		PM	**0.96**	**0.96**	**0.34**	**0.34**
		PM10	**0.45**	**0.45**	**0.16**	**0.16**
		PM2.5	**0.07**	**0.07**	**0.02**	**0.02**

Reference: AP-42 13.2.4, Aggregate Handling and Storage Piles

K factor for equation:

PM (<30 micons) =	0.74
PM10 (<10 micons) =	0.35
PM2.5 (<2.5 micons) =	0.053

PM Grinding and Screening (CR1 and SC1-4)

Rounding to = 2

ID	Transfer Capacities		e	Control Device		Emissions Uncontrolled		Emissions Controlled	
	tons/hour	tons/year	lb/T	Type	Effic(%)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
PM	75.00	153,300	0.62	FE	80	46.50	47.52	9.30	9.50
PM10	75.00	153,300	0.32	FE	80	24.00	24.53	4.80	4.91
PM2.5	75.00	153,300	0.04	FE	80	3.00	3.07	0.60	0.61

Emission Factor Reference and Determination

The emission factor is based on AP-42, Table 11.3-1, for Grinding and Screening Operations with Fabric Filter. The reference states this is for material with a 6.5 percent moisture content. The estimated fabric filter control is deducted out of the stated emissions factor.

	PM	PM10	PM2.5
Grinding and Screening Operations with Fabric Filter	0.0062	0.0032	NA
Assumed Control Percentage for Fabric Filter	99		
Estimated Grinding and Screening Operations **without** Fabric Filter	0.62	0.32	0.04

Brick Forming

Rounding to = 2

ID	Transfer Capacities		e	Control		Emissions			
				Device		Uncontrolled		Controlled	
	tons/hour	tons/year	lb/T	Type	Effic(%)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
PM	17.50	153,300	0.72	FE	80	12.60	55.19	2.52	11.04
PM10	17.50	153,300	0.36	FE	80	6.30	27.59	1.26	5.52
PM2.5	17.50	153,300	0.05	FE	80	0.88	3.83	0.18	0.77

Emission Factor Reference and Determination

The emission factor is based on AP-42, Table 11.3-1, for Extrusion Line with Fabric Filter. The estimated fabric filter control is deducted out of the stated emissions factor.

	PM*	PM10	PM2.5
Extrusion Line with Fabric Filter	NA	0.0036	NA
Assumed Control Percentage for Fabric Filter		99	
Estimated Grinding and Screening Operations **without** Fabric Filter	0.72	0.36	0.05

*PM estimated at two times the PM10 value.

By: LMM
Date: 02/08/2019

Checked By: AM
Date: 02/08/2019

Batch or Continuous Drops: Coal Fuel System

Max Hours = 8760 hrs/yr

Defining transfer point empirical expression variables, where:

e =	?	lb/ton
k =	0.74	dimensionless
U =	7	mph
M =	5	%

Calculating transfer point emission factor using Equation 1:

E = 0.0010 lb/ton

Rounding to = 5

ID	Transfer Capacities		Control Device		Emissions Uncontrolled		Emissions Controlled	
	tons/hour	tons/year	Type	Effic(%)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
CTP1	100	13,140	MD	0	0.1000	0.0066	0.1000	0.0066
CTP2	100	13,140	PE	50	0.1000	0.0066	0.0500	0.0033
CTP3	100	13,140	PE	50	0.1000	0.0066	0.0500	0.0033
CTP4	100	13,140	FE	80	0.1000	0.0066	0.0200	0.0013
CTP5	1.5	13,140	BAG	95	0.0015	0.0066	0.00008	0.0003
CTP6	1.5	13,140	BAG	95	0.0015	0.0066	0.00008	0.0003
CTP7	1.5	13,140	FE	80	0.0015	0.0066	0.0003	0.0013
CTP8	1.5	13,140	FE	80	0.0015	0.0066	0.0003	0.0013
CTP9	1.5	13,140	FE	80	0.0015	0.0066	0.0003	0.0013
CTP10	1.5	13,140	FE	80	0.0015	0.0066	0.0003	0.0013
CTP11	1.5	13,140	FE	80	0.0015	0.0066	0.0003	0.0013
				PM	**0.41050**	**0.07227**	**0.22166**	**0.02167**
				PM10	**0.19416**	**0.03418**	**0.10484**	**0.01025**
				PM2.5	**0.02940**	**0.00518**	**0.01588**	**0.00155**

Reference: AP-42 13.2.4, Aggregate Handling and Storage Piles
K factor for equation:

PM (<30 micons) =	0.74
PM10 (<10 micons) =	0.35
PM2.5 (<2.5 micons) =	0.053

Coal Dry Grinding

Rounding to = 2

ID	Transfer Capacities		e	Control Device		Emissions Uncontrolled		Emissions Controlled	
	tons/hour	tons/year	lb/T	Type	Effic(%)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
PM	1.50	13,140	28.80	BAG	95	43.20	189.22	2.16	9.46
PM10	1.50	13,140	26.00	BAG	95	39.00	170.82	1.95	8.54
PM2.5	1.50	13,140	26.00	BAG	95	39.00	170.82	1.95	8.54

Emission Factor Reference

The emission factor is based on AP-42, Table 11.24-2, Dry Grinding with Air Conveying and/or Classification.

	PM	PM10	PM2.5*
Dry Grinding with Air Conveying and/or Classification	28.8	26	26

* PM2.5 assumed to be equal to PM10.

Coal Fuel System Total Emissions

	Emissions Uncontrolled		Emissions Controlled	
	(lb/hr)	(tpy)	(lb/hr)	(tpy)
PM	43.61	189.29	2.38	9.48
PM10	39.19	170.85	2.05	8.55
PM2.5	39.03	170.83	1.97	8.54

Sand Dryer (Natural Gas Fueled)

Fuel Use =	5,000	cf/hr	Estimated
Heat Content of Fuel =	1,000	BTU/scf	Standard
BTU of Total System =	5,000,000	Btu/hr	Estimated
No. of Burners =	5		Counted
Burner Rating =	1,000,000	MM Btu/hr	Estimated
Hours of Operation =	8,760	hrs/year	
Fuel Usage =	0.0050	10^6 scf per hour	
	43.80	10^6 scf/year	

Note: the flames do not have any controls for emissions: therefore, uncontrolled is equal to potential maximum emissions.

Rounding to = 2

Emission	EF[a]	Emissions		EF
Type	lb/10^6 scf	lb/hr	tons/year	Reference
PM	7.6	0.04	0.17	Table 1.4-2
PM10[1]	7.6	0.04	0.17	See Note 1
PM2.5[1]	7.6	0.04	0.17	See Note 1
SO_2	0.6	0.01	0.02	Table 1.4-2
NOx	100	0.50	2.19	Table 1.4-1
CO	84	0.42	1.84	Table 1.4-1
VOC	5.5	0.03	0.13	Table 1.4-2
Hazardous Air Pollutants				
HAPS- VOC[2]	1.88	0.01	0.05	Table 1.4-3
HAPS - METAL[3]	0.00556	0.01	0.01	Table 1.4-4

Notes:
1 - It is assumed that PM10 and PM2.5 are equal to TSP (PM).
2 - Total VOC HAPS as listed in Table 1.4-3 (AP-42).
3 - Total METAL HAPS as listed in Table 1.4-4 (AP-42).

Batch or Continuous Drops: Sand into Stockpiles and Moved Around Site (i.e. to dryer or into plant)

Defining transfer point empirical expression variables, where:

e =	?	lb/ton
k =	0.74	dimensionless
U =	7	mph
M =	1	%

Calculating transfer point emission factor using Equation 1:

E =	0.0097	lb/ton

Transfer Capacities	
tons/hour	**tons/year**
100	1,200

Rounding to = 3

ID	**Control Device**		**Emissions**			
			Uncontrolled		**Controlled**	
	Type	**Effic(%)**	**(lb/hr)**	**(tpy)**	**(lb/hr)**	**(tpy)**
TP33	MD	0	0.970	0.006	0.970	0.006
		PM	**0.970**	**0.006**	**0.970**	**0.006**
		PM10	**0.46**	**0.0028**	**0.46**	**0.0028**
		PM2.5	**0.069**	**0.0004**	**0.069**	**0.0004**

Reference: AP-42 13.2.4, Aggregate Handling and Storage Piles
K factor for equation:

PM (<30 micons) =	0.74
PM10 (<10 micons) =	0.35
PM2.5 (<2.5 micons) =	0.053

Stockpiles

Defining open stockpile empirical expression variables, where:

	Shale/Sand	
e =	?	lb/day/acre
s =	1	%
p =	148	days
f =	25	%

Calculating open stockpile emission factor using Equation 2:

Rounding to = 2

e = **1.74** lb/day/acre

Stockpile ID	Area (square feet)	Control Device Type	Control Device Effic(%)	Emissions Uncontrolled (lb/hr)	Emissions Uncontrolled (tpy)	Emissions Controlled (lb/hr)	Emissions Controlled (tpy)
OS1	392,040	N	0	0.65	2.86	0.65	2.86
OS2	43,560	N	0	0.07	0.32	0.07	0.32
			Totals				
			PM	**0.72**	**3.18**	**0.72**	**3.18**
			PM10	**0.34**	**1.50**	**0.34**	**1.50**
			PM2.5	**0.05**	**0.23**	**0.05**	**0.23**

OS1 estimated at 9 acres and OS2 estimated at 1 acre max. Covered coal and sand stockpiles are assumed to not have emissions.

Vehicle Activity

Rounding to = 2

Vehicle Roadway	No. of Vehicles		Miles Per Trip	Control Device			Emissions			
							Uncontrolled		Controlled	
	Per Hour	Per Year	(mi)	Type	Effic(%)		(lb/hr)	(tpy)	(lb/hr)	(tpy)
1	5	10,220	1	RWMW	75	PM	39.90	40.78	9.98	10.20
					75	PM10	11.35	11.60	2.84	2.90
					75	PM2.5	1.15	1.18	0.29	0.30
2	1	365	0.5	RWMW	75	PM	4.12	0.75	1.03	0.19
					75	PM10	1.22	0.22	0.31	0.06
					75	PM2.5	0.12	0.02	0.03	0.01
3	1	7,227	0.5	RWMW	75	PM	4.12	14.87	1.03	3.72
					75	PM10	1.22	4.39	0.31	1.10
					75	PM2.5	0.12	0.43	0.03	0.11
4	21	43,013	0.25	RWMW	75	PM	41.98	42.91	10.50	10.73
					75	PM10	11.94	12.21	2.99	3.05
					75	PM2.5	1.21	1.24	0.30	0.31

Estimated Vehicle Travel Per Year				
Roadway	1	2	3	4
	Pit Road	Delivery Road	Sales Exit	Endloader
Trips per Hour	5	1	1	21.0
Load Weight	15	20	20	4
Total Weight/Yr	153,300	7,300	144,540	153,300
Total Trips	10,220	365	7,227	43,013

Totals				
PM	90.12	99.31	22.54	24.84
PM10	25.73	28.42	6.45	7.11
PM2.5	2.60	2.87	0.65	0.73

AP-42, 13.2.2, Unpaved Roads

$E=k(s/12)^a(W/3)^b[(365-P)/365)]$ Rounding to = 2

PM					
	1	2	3	4	
Input	Pit Road	Delivery Road	Sales Exit	Endloader	Reference
k	4.9	4.9	4.9	4.9	Table 13.2.2-2
s	8.3	10	10	8.3	Table 13.2.2-1
a	0.7	0.7	0.7	0.7	Table 13.2.2-2
W	50	40	40	50	Estimate
b	0.45	0.45	0.45	0.45	Table 13.2.2-2
P	148	148	148	148	DAQ (GP Ref)
E =	7.98	8.23	8.23	7.98	Calc.

PM10					
	1	2	3	4	
Input	Pit Road	Delivery Road	Sales Exit	Endloader	
k	1.5	1.5	1.5	1.5	Table 13.2.2-2
s	8.3	10	10	8.3	Table 13.2.2-1
a	0.9	0.9	0.9	0.9	Table 13.2.2-2
W	50	40	40	50	Estimate
b	0.45	0.45	0.45	0.45	Table 13.2.2-2
P	148	148	148	148	DAQ (GP Ref)
E =	2.27	2.43	2.43	2.27	Calc.

PM2.5					
	1	2	3	4	
Input	Pit Road	Delivery Road	Sales Exit	Endloader	
k	0.15	0.15	0.15	0.15	Table 13.2.2-2
s	8.3	10	10	8.3	Table 13.2.2-1
a	0.9	0.9	0.9	0.9	Table 13.2.2-2
W	50	40	40	50	Estimate
b	0.45	0.45	0.45	0.45	Table 13.2.2-2
P	148	148	148	148	DAQ (GP Ref)
E =	0.23	0.24	0.24	0.23	Calc.

By: LMM
Date: 02/08/2019

Checked By: AM
Date: 02/08/2019

Summary of CO2e Emissions

Facility Emissions

Emission Unit	CO2e (metric tons)	CO2 (short tons)	Exceed 100,000 metric tons CO2e?
Tunnel Kiln 1	29,755	32,799	
Tunnel Kiln 2	29,755	32,799	
Periodic Kiln	2	2	
Sand Dryer	2,390	2,634	
Rotary Sand Dryer	477	526	
Total	**62,379**	**68,760**	**NO**

Metric to Short Ton Conversion Divide By = 0.9072

By: LMM
Date: 02/08/2019

Checked By: AM
Date: 02/08/2019

Tunnel Kiln - CO2e Emissions from Natural Gas/Coal Combustion

Per Each Kiln				
Potential Emissions (Metric Tons)				
Fuel Type	CO2	CH4	N2O	
PNG/Coal	29,621.79	2.07	0.29	
100 yr GWP*	1	21	310	**Total CO2e**
CO2e	29,621.79	43.51	89.61	**29,755**
		One Kiln	**Short Tons**	**32,799**

Kiln Burners	
30,000,000	btu/hr
1,000	btu/scf N.G.
8,760	hrs/yr
262,800,000	scf of natural gas burned per year per kiln
6,570	tons coal burned per year per kiln

Maximum yearly tons of fuel coal for both tunnel kilns = 13,140

*Global Warming Potentials (GWP) Referenced from 40CFR§98 Subpart A Table A-1

$CO2 = 1 \times 10^{-3}$*mass of fuel*HHV*EF (Eq. C-2a)
$CH4$ or $N2O = 1 \times 10^{-3}$*mass of fuel*HHV*EF (Eq. C-9a)

Natural Gas Combustion

1.00E-03	conversion factor from kilograms to metric tons	
262,800,000	cubic feet of natural gas burned annually	
1.028E-03	HHV MMBtu/scf	natural gas high heating value (HHV) from Table C-1
53.02	kg CO2/MMBtu	natural gas emission factor from Table C-1
1.00E-03	kg CH4/MMBtu	natural gas emission factor from Table C-2
1.00E-04	kg N2O/MMBtu	natural gas emission factor from Table C-2

Coal Combustion

1.00E-03	conversion factor from kilograms to metric tons	
6,570	tons of coal burned annually	
24.93	HHV MMBtu/short ton	bitunimous coal high heating value (HHV) from Table C-1
93.4	kg CO2/MMBtu	bituminous coal emission factor from Table C-1
1.10E-02	kg CH4/MMBtu	bituminous coal emission factor from Table C-2
1.60E-03	kg N2O/MMBtu	bituminous coal emission factor from Table C-2

Equations, HHV, and emission factors from 40CFR§98 Subpart C unless otherwise noted.

By: LMM
Date: 02/08/2019

Checked By: AM
Date: 02/08/2019

Periodic Kiln - CO2e Emissions from Natural Gas

Potential Emissions (Metric Tons)				
Fuel Type	CO2	CH4	N2O	
Natural Gas	1.96	3.70E-05	3.70E-06	
100 yr GWP*	1	21	310	**Total CO2e**
CO2e	1.96	0.001	0.001	**2**
			Short Tons	**2**

*Global Warming Potentials (GWP) Referenced from 40CFR§98 Subpart A Table A-1

AP1 Burner	
36,000	scf of natural gas burned per year
500,000	btu/hr burner
72	hrs/yr
1,000	btu/scf N.G.

$CO2 = 1 \times 10^{-3}$*mass of fuel*HHV*EF (Eq. C-2a)
$CH4$ or $N2O = 1 \times 10^{-3}$*mass of fuel*HHV*EF (Eq. C-9a)

Natural Gas Combustion

1.00E-03	conversion factor from kilograms to metric tons	
36,000	cubic feet of natural gas burned annually	
1.028E-03	HHV MMBtu/scf	natural gas high heating value (HHV) from Table C-1
53.02	kg CO2/MMBtu	natural gas emission factor from Table C-1
1.00E-03	kg CH4/MMBtu	natural gas emission factor from Table C-2
1.00E-04	kg N2O/MMBtu	natural gas emission factor from Table C-2

Equations, HHV, and emission factors from 40CFR§98 Subpart C unless otherwise noted.

Sand Dryer - CO2e Emissions from Natural Gas

Potential Emissions (Metric Tons)				
Fuel Type	CO2	CH4	N2O	
Natural Gas	2,387.30	0.05	0.005	
100 yr GWP*	1	21	310	**Total CO2e**
CO2e	2,387.30	0.95	1.40	**2,390**
			Short Tons	**2,634**

*Global Warming Potentials (GWP) Referenced from 40CFR§98 Subpart A Table A-1

AP1 Burner	
43,800,000	scf of natural gas burned per year
5,000,000	btu/hr
	burner
8,760	hrs/yr
1,000	btu/scf
	N.G.

$CO2 = 1 \times 10^{-3} *$mass of fuel*HHV*EF (Eq. C-2a)
$CH4$ or $N2O = 1 \times 10^{-3} *$mass of fuel*HHV*EF (Eq. C-9a)

Natural Gas Combustion

1.00E-03	conversion factor from kilograms to metric tons	
43,800,000	cubic feet of natural gas burned annually	
1.028E-03	HHV MMBtu/scf	natural gas high heating value (HHV) from Table C-1
53.02	kg CO2/MMBtu	natural gas emission factor from Table C-1
1.00E-03	kg CH4/MMBtu	natural gas emission factor from Table C-2
1.00E-04	kg N2O/MMBtu	natural gas emission factor from Table C-2

Equations, HHV, and emission factors from 40CFR§98 Subpart C unless otherwise noted.

By: LMM
Date: 02/08/2019

Checked By: AM
Date: 02/08/2019

Rotary Sand Dryer - CO2e Emissions from Natural Gas

Potential Emissions (Metric Tons)				
Fuel Type	CO2	CH4	N2O	
Natural Gas	476.89	0.01	0.001	
100 yr GWP*	1	25	298	**Total CO2e**
CO2e	476.89	0.22	0.27	**477**
			Short Tons	**526**

Burner Information	
8,760,000	scf of natural gas burned per year
1,000,000	btu/hr burner
8,760	hrs/yr
1,000	btu/scf N.G.

*Global Warming Potentials (GWP) Referenced from 40CFR§98 Subpart A Table A-1
Note: to convert from metric tons to short tons divide by = 0.9072

$CO2 = 1 \times 10^{-3} *$mass of fuel*HHV*EF (Eq. C-2a)
$CH4$ or $N2O = 1 \times 10^{-3} *$mass of fuel*HHV*EF (Eq. C-9a)

Natural Gas Combustion

1.00E-03	conversion factor from kilograms to metric tons	
8,760,000	cubic feet of natural gas burned annually	
1.026E-03	HHV MMBtu/scf	natural gas high heating value (HHV) from Table C-1
53.06	kg CO2/MMBtu	natural gas emission factor from Table C-1
1.00E-03	kg CH4/MMBtu	natural gas emission factor from Table C-2
1.00E-04	kg N2O/MMBtu	natural gas emission factor from Table C-2

Equations, HHV, and emission factors from 40CFR§98 Subpart C unless otherwise noted.