

Air Construction Permit Application

Evaluation of Bottom Ash as a Raw
Material Supplement

Suwannee American Cement Company
Branford, Suwannee County, Florida

Facility ID: 1210465

Submitted: December 5, 2012

624-12-09

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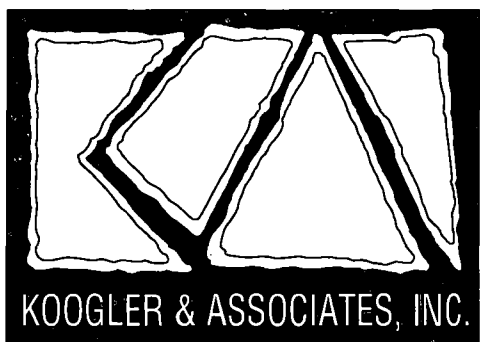
DEC 07 2012

**DIVISION OF AIR
RESOURCE MANAGEMENT**

Module AB13A

Project:

1210465-026-A C



KOGLER & ASSOCIATES, INC.

ENVIRONMENTAL SERVICES

4014 NW 13th STREET
GAINESVILLE, FL 32609-1923
352/377-5822 ■ FAX/377-7158

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Raw Material Supplement

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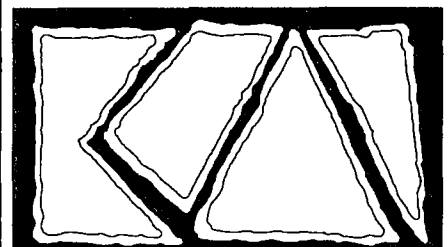
Submitted: December 4, 2012

624-12-09



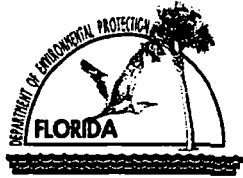
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KOGLER & ASSOCIATES, INC.
ENVIRONMENTAL SERVICES

DEC 07 2012



Department of
Environmental Protection

DIVISION OF AIR
RESOURCE MANAGEMENT

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

Air Construction Permit – Use this form to apply for an air construction permit:

- For any required purpose at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air operation permit;
- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment new source review, or maximum achievable control technology (MACT);
- To assume a restriction on the potential emissions of one or more pollutants to escape a requirement such as PSD review, nonattainment new source review, MACT, or Title V; or
- To establish, revise, or renew a plantwide applicability limit (PAL).

Air Operation Permit – Use this form to apply for:

- An initial federally enforceable state air operation permit (FESOP); or
- An initial, revised, or renewal Title V air operation permit.

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: Suwannee American Cement, LLC	
2. Site Name: Branford Cement Plant	
3. Facility Identification Number: 1210465	
4. Facility Location... Street Address or Other Locator: 5117 US Highway 27 City: Branford County: Suwannee Zip Code: 32008-2463	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Title V Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Application Contact

1. Application Contact Name: Max Lee, Ph.D, P.E.	
2. Application Contact Mailing Address... Organization/Firm: Koogler and Associates, Inc Street Address: 4014 NW 13th Street City: Gainesville State: Florida Zip Code: 32609	
3. Application Contact Telephone Numbers... Telephone: (352) 377 - 5822 ext. 13 Fax: (352) 377 - 7158	
4. Application Contact E-mail Address: mlee@kooglerassociates.com	

Application Processing Information (DEP Use)

1. Date of Receipt of Application: 12-7-12	3. PSD Number (if applicable):
2. Project Number(s): 1210465-026-AC	4. Siting Number (if applicable):

Purpose of Application

This application for air permit is being submitted to obtain: (Check one)

Air Construction Permit

- Air construction permit.
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL).
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

Air Operation Permit

- Initial Title V air operation permit.
- Title V air operation permit revision.
- Title V air operation permit renewal.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

**Air Construction Permit and Revised/Renewal Title V Air Operation Permit
(Concurrent Processing)**

- Air construction permit and Title V permit revision, incorporating the proposed project.
- Air construction permit and Title V permit renewal, incorporating the proposed project.

Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:

- I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

Application Comment

Application is for the -

- 1) Evaluate the use of bottom ash in cement manufacture and its effects on Hg (expected reduction) and VOC emissions**

The regulatory analysis and the project description are detailed in Appendix 1.

FACILITY INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Proc. Fee
004	In-line kiln/raw mill	NA	NA

Application Processing Fee

Check one: Attached - Amount: \$ _____ Not Applicable

FACILITY INFORMATION

Owner/Authorized Representative Statement

Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name : Mr. Tom Messer, Plant Manager
2. Owner/Authorized Representative Mailing Address... Organization/Firm: Suwannee American Cement, LLC Street Address: 5117 US Hwy 27 City: Branford State: Florida Zip Code: 32008
3. Owner/Authorized Representative Telephone Numbers... Telephone: (386) 935 -5000 Fax: (386) 935 -5080
4. Owner/Authorized Representative E-mail Address: tomm@suwanneecement.com
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.</i>  Signature 12.4.12 Date

FACILITY INFORMATION

Application Responsible Official Certification

Complete if applying for an initial, revised, or renewal Title V air operation permit or concurrent processing of an air construction permit and revised or renewal Title V air operation permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary responsible official."

1. Application Responsible Official Name:
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable): <input type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C. <input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively. <input type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official. <input type="checkbox"/> The designated representative at an Acid Rain source, CAIR source, or Hg Budget source.
3. Application Responsible Official Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
4. Application Responsible Official Telephone Numbers... Telephone: ext. Fax:
5. Application Responsible Official E-mail Address:
6. Application Responsible Official Certification: <i>I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.</i> _____ Signature _____ Date

FACILITY INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: Max Lee, Ph.D. P.E. Registration Number: 58091
2. Professional Engineer Mailing Address... Organization/Firm: Koogler and Associates, Inc. Street Address: 4014 NW 13th Street City: Gainesville State: Florida Zip Code: 32609
3. Professional Engineer Telephone Numbers... Telephone: (352) 377-5822 ext.13 Fax: (352) 377-7158
4. Professional Engineer E-mail Address: <u>mlee@kooglerassociates.com</u>
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i> <i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/> if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/>, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i> <i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/> if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i> Signature: _____ Date: <u>12/4/12</u> (seal)

FACILITY INFORMATION

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone 17 321.4 East (km) 3315.9 North (km)		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) 29°57'45" Longitude (DD/MM/SS) 82°51'03"	
3. Governmental Facility Code: 0	4. Facility Status Code: A	5. Facility Major Group SIC Code: 32	6. Facility SIC(s): 3241
7. Facility Comment : None			

Facility Contact

1. Facility Contact Name: Krishna C. Cole - Environmental Engineer
2. Facility Contact Mailing Address... Organization/Firm: Suwannee American Cement, LLC Street Address: 5117 US HWY 27 City: Branford State: Florida Zip Code: 32008
3. Facility Contact Telephone Numbers: Telephone: 386-935-5023 Fax: 386-935-5080
4. Facility Contact E-mail Address: <u>krishnac@suwanneecement.com</u>

Facility Primary Responsible Official

Complete if an "application responsible official" is identified in Section I that is not the facility "primary responsible official."

1. Facility Primary Responsible Official Name:
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
3. Facility Primary Responsible Official Telephone Numbers... Telephone: () - ext. Fax: () -
4. Facility Primary Responsible Official E-mail Address:

FACILITY INFORMATION

Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a “major source” and a “synthetic minor source.”

1. <input type="checkbox"/> Small Business Stationary Source	<input checked="" type="checkbox"/> Unknown
2. <input type="checkbox"/> Synthetic Non-Title V Source	
3. <input checked="" type="checkbox"/> Title V Source	
4. <input checked="" type="checkbox"/> Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. <input type="checkbox"/> Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. <input checked="" type="checkbox"/> Major Source of Hazardous Air Pollutants (HAPs)	
7. <input type="checkbox"/> Synthetic Minor Source of HAPs	
8. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9. <input type="checkbox"/> One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. <input type="checkbox"/> Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
<p>12. Facility Regulatory Classifications Comment: See Appendix 1 for project regulations</p> <p>Facility is subject to applicable portions of: 40 CFR 51, 52, 70, 71 – GHG Tailoring Rule 40 CFR 63 Subpart LLL 40 CFR 60 Subpart F (superseded by NESHAP Subpart LLL) 40 CFR 60 Subpart Y 40 CFR 60 Subpart OOO 40 CFR 241 40 CFR 63 Subpart ZZZZ and 40 CFR 60 Subpart IIII as applicable. Rules 62-4 through 62-297, F.A.C. ; specifically 62-297.407, F.A.C. for cement plants</p>	

FACILITY INFORMATION

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
PM	A	N
PM ₁₀	A	N
SO ₂	A	N
NO _x	A	N
CO	A	N
HAPS	A	N
VOC	B	N
DIOX	B	N
H114	B	N

FACILITY INFORMATION

B. EMISSIONS CAPS

Facility-Wide or Multi-Unit Emissions Caps

1. Pollutant Subject to Emissions Cap	2. Facility-Wide Cap [Y or N]? (all units)	3. Emissions Unit ID's Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap
N/A					
7. Facility-Wide or Multi-Unit Emissions Cap Comment:					

FACILITY INFORMATION

C. FACILITY ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <u>TV renewal</u>
2. Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <u>TV renewal</u>
3. Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <u>TV renewal</u>

Additional Requirements for Air Construction Permit Applications

1. Area Map Showing Facility Location: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (existing permitted facility)
2. Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL): <input checked="" type="checkbox"/> Attached, Document ID: <u>Appendix 1</u> <input type="checkbox"/> Not Applicable (existing permitted facility)
3. Rule Applicability Analysis: <input checked="" type="checkbox"/> Attached, Document ID: <u>Appendix 1</u> <input type="checkbox"/> Not Applicable (existing permitted facility)
4. List of Exempt Emissions Units: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
5. Fugitive Emissions Identification: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
6. Air Quality Analysis (Rule 62-212.400(7), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
7. Source Impact Analysis (Rule 62-212.400(5), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
8. Air Quality Impact since 1977 (Rule 62-212.400(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
9. Additional Impact Analyses (Rules 62-212.400(8) and 62-212.500(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
10. Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

FACILITY INFORMATION

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for FESOP Applications

1. List of Exempt Emissions Units: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
--

Additional Requirements for Title V Air Operation Permit Applications

1. List of Insignificant Activities: (Required for initial/renewal applications only) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

2. Identification of Applicable Requirements: (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (revision application with no change in applicable requirements)
--

3. Compliance Report and Plan: (Required for all initial/revision/renewal applications) <input type="checkbox"/> Attached, Document ID: _____ Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.
--

4. List of Equipment/Activities Regulated under Title VI: (If applicable, required for initial/renewal applications only) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Equipment/Activities Onsite but Not Required to be Individually Listed <input checked="" type="checkbox"/> Not Applicable

5. Verification of Risk Management Plan Submission to EPA: (If applicable, required for initial/renewal applications only) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
--

6. Requested Changes to Current Title V Air Operation Permit: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

FACILITY INFORMATION

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Facilities Subject to Acid Rain, CAIR, or Hg Budget Program

<p>1. Acid Rain Program Forms:</p> <p>Acid Rain Part Application (DEP Form No. 62-210.900(1)(a)):</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____</p> <p><input checked="" type="checkbox"/> Not Applicable (not an Acid Rain source)</p> <p>Phase II NO_x Averaging Plan (DEP Form No. 62-210.900(1)(a)1.):</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____</p> <p><input checked="" type="checkbox"/> Not Applicable</p> <p>New Unit Exemption (DEP Form No. 62-210.900(1)(a)2.):</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____</p> <p><input checked="" type="checkbox"/> Not Applicable</p>
<p>2. CAIR Part (DEP Form No. 62-210.900(1)(b)):</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____</p> <p><input checked="" type="checkbox"/> Not Applicable (not a CAIR source)</p>
<p>3. Hg Budget Part (DEP Form No. 62-210.900(1)(c)):</p> <p><input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____</p> <p><input checked="" type="checkbox"/> Not Applicable (not a Hg Budget unit)</p>

Additional Requirements Comment

EMISSIONS UNIT INFORMATION

Section [1] of [1]

In-Line Kiln/Raw Mill

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for an initial, revised or renewal Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for an air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application - Where this application is used to apply for both an air construction permit and a revised or renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes, and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

EMISSIONS UNIT INFORMATION

Section [1] of [1]

In-Line Kiln/Raw Mill

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section: **In-Line Kiln/Raw Mill**

3. Emissions Unit Identification Number: **004**

4. Emissions Unit Status Code: A	5. Commence Construction Date: 6/1/00	6. Initial Startup Date: 2/17/03	7. Emissions Unit Major Group SIC Code: 32
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8. Federal Program Applicability: (Check all that apply)

Acid Rain Unit

CAIR Unit

Hg Budget Unit

9. Package Unit:
Manufacturer: _____ Model Number: _____

10. Generator Nameplate Rating: **MW**

11. Emissions Unit Comment

EMISSIONS UNIT INFORMATION

Section [1] of [1]

In-Line Kiln/Raw Mill

Emissions Unit Control Equipment/Method: Control 1 of 4

1. Control Equipment/Method Description:
Baghouse – High Temperature

2. Control Device or Method Code: **016**

Emissions Unit Control Equipment/Method: Control 2 of 4

1. Control Equipment/Method Description:
SNCR

2. Control Device or Method Code: **107**

Emissions Unit Control Equipment/Method: Control 3 of 4

1. Control Equipment/Method Description:
Hydrated Lime Injection (injected at kiln feed with Poldos)

2. Control Device or Method Code: **041**

Emissions Unit Control Equipment/Method: Control 4 of 4

1. Control Equipment/Method Description:
Multistaged Combustion

2. Control Device or Method Code: **025**

EMISSIONS UNIT INFORMATION

Section [1] of [1]

In-Line Kiln/Raw Mill

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: 210 TPH; 1,684,578 TPY dry preheater feed and fly ash (consecutive 12-month period, fed directly to the calciner)		
97 lb/consecutive 12 month period of Mercury (by mass, as Hg) introduced into pyroprocessing system		
2. Maximum Production Rate: 120 TPH; 965,425 TPY clinker (consecutive 12-month period)		
3. Maximum Heat Input Rate: 458 million Btu/hr (kiln and calciner) 32 million Btu/hr (air heater)		
4. Maximum Incineration Rate: pounds/hr tons/day		
5. Requested Maximum Operating Schedule:		
24 hours/day		7 days/week
52 weeks/year		8,760 hours/year
6. Operating Capacity/Schedule Comment: Based on Permit No. 1210465-019-AV, Specific Conditions C.1 – C.2, C.4 – C.6.		

EMISSIONS UNIT INFORMATION

Section [1] of [1]

In-Line Kiln/Raw Mill

C. EMISSION POINT (STACK/VENT) INFORMATION

(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: Kiln/Raw Mill		2. Emission Point Type Code: 1			
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:					
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:					
5. Discharge Type Code: V		6. Stack Height: 250 feet		7. Exit Diameter: 9.42 feet	
8. Exit Temperature: 205°F		9. Actual Volumetric Flow Rate: 194,000 acfm		10. Water Vapor: 6.5%	
11. Maximum Dry Standard Flow Rate: 144,000 dscfm			12. Nonstack Emission Point Height: feet		
13. Emission Point UTM Coordinates... Zone: East (km): North (km):			14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)		
15. Emission Point Comment:					

EMISSIONS UNIT INFORMATION

Section [1] of [1]

In-Line Kiln/Raw Mill

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 5

1. Segment Description (Process/Fuel Type): Industrial Processes; In-Process Fuel Use; Natural Gas; Cement Kiln/Dryer		
2. Source Classification Code (SCC): 3-90-006-02		3. SCC Units: Million Cubic Feet Burned
4. Maximum Hourly Rate: 0.44	5. Maximum Annual Rate: 3,854	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: 1,050
10. Segment Comment: Based on 458 MMBtu/hr (Permit No. 1210465-019-AV, Specific Condition C.2): 458 MMBtu/hr x MMcf/1,050 MMBtu = 0.44 MMcf/hr 0.44 MMcf x 8,760 hr/yr = 3,854 MMcf/yr		

Segment Description and Rate: Segment 2 of 5

1. Segment Description (Process/Fuel Type): Industrial Processes; In-Process Fuel Use; Bituminous Coal; Cement Kiln/Dryer (Bituminous Coal)		
2. Source Classification Code (SCC): 3-90-002-01		3. SCC Units: Tons Burned
4. Maximum Hourly Rate: 18.3	5. Maximum Annual Rate: 160,300	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 1.5	8. Maximum % Ash: 10	9. Million Btu per SCC Unit: 25
10. Segment Comment: Based on 458 MMBtu/hr (Permit No. 1210465-019-AV, Specific Condition C.2): 458 MMBtu/hr x tons/25 MMBtu = 18.32 tons/hr 18.3 tons/hr x 8,760 hr/yr = approximately 160,300 tons/yr		

EMISSIONS UNIT INFORMATION

Section [1] of [1]

In-Line Kiln/Raw Mill

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment 3 of 5

1. Segment Description (Process/Fuel Type): Industrial Processes; In-Process Fuel Use; Coke; General: Coke		
2. Source Classification Code (SCC): 3-90-008-99		3. SCC Units: Tons Burned
4. Maximum Hourly Rate: 16.4	5. Maximum Annual Rate: 143,664	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 5	8. Maximum % Ash:	9. Million Btu per SCC Unit: 28
10. Segment Comment: Based on 458 MMBtu/hr (Permit No. 1210465-019-AV, Specific Condition C.2): 458 MMBtu/hr x tons/28 MMBtu = 16.4 tons/hr 16.4 tons/hr x 8,760 hr/yr = 143,664 tons/yr		

Segment Description and Rate: Segment 4 of 5

1. Segment Description (Process/Fuel Type): Industrial Processes; Mineral Products; Cement Manufacturing (Dry Process); Preheater/Precalciner Kiln		
2. Source Classification Code (SCC): 3-05-006-23		3. SCC Units: Tons Clinker Produced
4. Maximum Hourly Rate: 120	5. Maximum Annual Rate: 965,425	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: Based on Permit No. 1210465-019-AV, Specific Condition C.4. The Kiln is limited to 210 TPH and 1,684,578 tons/consecutive 12-mos. of dry flyash or dry preheater feed. Clinker production is calculated by: Clinker production = [(Feed)(Kiln feed LOI factor) + (Fly Ash Injection) + (Fly Ash LOI Factor)] Where, -Kiln feed is determined by the Poldos control system -Flyash is determined from the rotary feed system or equivalent -LOI for the kiln feed and flyash is based on a 30 operating-day block average of daily measurements. (For purposes of this requirement, an operating day is any day that the kiln produces clinker or fires fuel.)		

EMISSIONS UNIT INFORMATION

Section [1] of [1]

In-Line Kiln/Raw Mill

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment 5 of 5

1. Segment Description (Process/Fuel Type): Industrial Processes; In-Process Fuel Use; Natural Gas; General (Air Heater)		
2. Source Classification Code (SCC): 3-90-006-89		3. SCC Units: Million Cubic Feet Burned
4. Maximum Hourly Rate: 0.03	5. Maximum Annual Rate: 262.8	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: 1,050
10. Segment Comment: Segment represents natural gas usage for the raw mill air heater. Based on 32 MMBtu/hr (Permit No. 1210465-019-AV, Specific Condition C.5): 32 MMBtu/hr x MMcf/1,050 MMBtu = 0.03 MMcf/hr 0.03 MMcf x 8,760 hr/yr = 262.8 MMcf/yr		

Segment Description and Rate: Segment 6 of 6

NEW SEGMENT

1. Segment Description (Process/Fuel Type): Industrial Processes; In-Process Fuel Use; Alternative Fuels – Kiln and Preheater		
2. Source Classification Code (SCC): 3-90-012-89		3. SCC Units: Tons Burned
4. Maximum Hourly Rate: NA	5. Maximum Annual Rate: NA	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: NA	8. Maximum % Ash:	9. Million Btu per SCC Unit: NA
10. Segment Comment: Segment represent non-hazardous fuels as permitted by 1210465-023-AC.		

EMISSIONS UNIT INFORMATION

Section [1] of [1]

In-Line Kiln/Raw Mill

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	016		EL
PM ₁₀	016		EL
SO ₂	041		EL
NO _x	107		EL
CO			EL
VOC			EL
D/F			EL
THC			EL
H114 (Hg)			EL

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –
 POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS**
 (Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: PM		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 23.1 lb/hour 92.7 tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: 0.11 lb/ton dry preheater feed (3-hr. avg.) Reference: Permit No. 1210465-019-AV, Specific Condition C.7		7. Emissions Method Code: 0	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From: To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: Annual: 0.11 lb/ton x 1,684,578 TPY dry preheater feed / 2,000 lb/ton = 92.7 TPY			
11. Potential, Fugitive, and Actual Emissions Comment:			

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -
ALLOWABLE EMISSIONS**

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: OTHER	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 0.11 lb/ton dry preheater feed (3-hr. avg.)	4. Equivalent Allowable Emissions: 23.1 lb/hour 92.7 tons/year
5. Method of Compliance: Annual compliance testing using EPA Method 5.	
6. Allowable Emissions Comment (Description of Operating Method): Based on Permit No. 1210465-019-AV, Specific Conditions C.7 and C.9.	

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –
 POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS**
 (Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: PM₁₀		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 19.6 lb/hour 78.3 tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: 0.093 lb/ton dry preheater feed (3-hr. avg.) Reference: Permit No. 1210465-019-AV, Specific Condition C.7		7. Emissions Method Code: 0	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From: To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: Annual: 0.093 lb/ton x 1,684,578 tons/year dry preheater feed / 2,000 lb/ton = 78.3 TPY			
11. Potential, Fugitive, and Actual Emissions Comment:			

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -
ALLOWABLE EMISSIONS**

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: OTHER	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 0.093 lb/ton dry preheater feed (3-hr avg.)	4. Equivalent Allowable Emissions: 19.6 lb/hour 78.3 tons/year
5. Method of Compliance: Annual compliance testing using EPA Method 5 (assuming all PM measured is PM₁₀).	
6. Allowable Emissions Comment (Description of Operating Method): Based on Permit No. 1210465-019-AV, Specific Conditions C.7 and C.9.	

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –
 POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS**
 (Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: SO₂		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 24.0 lb/hour 96.5 tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: 0.20 lb/ton clinker (3-hour rolling average) Reference: Permit No. 1210465-019-AV, Specific Condition C.7		7. Emissions Method Code: 0	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From: To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: Annual: 0.20 lb/ton clinker x 965,425 TPY clinker / 2,000 lb/ton = 96.5 TPY			
11. Potential, Fugitive, and Actual Emissions Comment:			

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -
ALLOWABLE EMISSIONS**

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: OTHER	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 0.20 lb/ton clinker (3 hour rolling average)	4. Equivalent Allowable Emissions: 24.0 lb/hour 96.5 tons/year
5. Method of Compliance: Continuous emissions monitor and annual RATA.	
6. Allowable Emissions Comment (Description of Operating Method): Based on Permit No. 1210465-019-AV, Specific Conditions C.7 and C.12.	

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –
 POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS**
 (Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: NO_x		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 348 lb/hour 1,159 tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: 2.9 lb/ton clinker (24 hour average) 2.4 lb/ton clinker (30-day average) Reference: Permit No. 1210465-019-AV, Specific Condition C.7		7. Emissions Method Code: 0	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From: To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: Hourly: 2.9 lb/ton clinker x 120 TPH clinker = 348 lb/hr Annual: 2.4 lb/ton clinker x 965,425 TPY clinker x 1 ton/2,000 lb = 1,158.51 TPY			
11. Potential, Fugitive, and Actual Emissions Comment:			

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -
 ALLOWABLE EMISSIONS**

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 3

1. Basis for Allowable Emissions Code: OTHER	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 2.9 lb/ton clinker (24-hour average)	4. Equivalent Allowable Emissions: 304.5 lb/hour tons/year
5. Method of Compliance: Continuous emissions monitor and annual RATA.	
6. Allowable Emissions Comment (Description of Operating Method): Based on Permit No. 1210465-019-AV, Specific Condition C.7 and C.12. Emissions are based on 24-hour average.	

Allowable Emissions Allowable Emissions 2 of 3

1. Basis for Allowable Emissions Code: OTHER	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 2.4 lb/ton clinker (30-day average)	4. Equivalent Allowable Emissions: 288 lb/hour 1,159 tons/year
5. Method of Compliance: Continuous emissions monitor and annual RATA.	
6. Allowable Emissions Comment (Description of Operating Method): Based on Permit No. 1210465-019-AV, Specific Conditions C.7 and C.12. Emissions are based on 30-operating day block average.	

Allowable Emissions Allowable Emissions 3 of 3

1. Basis for Allowable Emissions Code: OTHER	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 600 lb/hr	4. Equivalent Allowable Emissions: 600 lb/hour tons/year
5. Method of Compliance: No compliance demonstration required.	
6. Allowable Emissions Comment (Description of Operating Method): Based on Permit No. 1210465-019-AV, Specific Condition C.7. Emission limit applies to start-up only (no material in the kiln) and for up to one hour duration per startup.	

EMISSIONS UNIT INFORMATION
 Section [1] of [1]
 In-Line Kiln/Raw Mill

POLLUTANT DETAIL INFORMATION
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 Carbon Monoxide

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –
 POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS**
 (Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: CO		2. Total Percent Efficiency of Control:	
3. Potential Emissions: 400.3 lb/hour 1,612 tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: 3.34 lb/ton clinker (3-hour average) Reference: Permit No. 1210465-019-AV, Specific Condition C.7		7. Emissions Method Code: 0	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From: To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: Annual: 3.34 lb/ton clinker x 965,425 TPY clinker x 1 ton/2,000 lb = 1,612.3 TPY			
11. Potential, Fugitive, and Actual Emissions Comment:			

EMISSIONS UNIT INFORMATION
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In-Line Kiln/Raw Mill

POLLUTANT DETAIL INFORMATION
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Carbon Monoxide

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -
ALLOWABLE EMISSIONS**

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: OTHER	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 3.34 lb/ton clinker (3-hour average)	4. Equivalent Allowable Emissions: 400.3 lb/hour 1,612 tons/year
5. Method of Compliance: Annual compliance test using EPA Method 10.	
6. Allowable Emissions Comment (Description of Operating Method): Based on Permit No. 1210465-019-AV, Specific Conditions C.7 and C.9.	

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –
POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS
(Optional for unregulated emissions units.)**

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: VOC		2. Total Percent Efficiency of Control:	
3. Potential Emissions: lb/hour tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: 0.12 lb/ton clinker (30-operating day block average) Reference: Process Knowledge		7. Emissions Method Code: 0	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From: To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: Potential emissions may exceed the current state-implemented limit of 0.12 lb/ton clinker based on the increased organic content of high-carbon flyash. SAC is requesting this state-implemented VOC limit be held in abeyance for the evaluation period. While the CEMs monitoring system will determine the actual VOC emissions, based on process knowledge an estimate is stated above that SAC will be able to maintain VOC emissions to the current potential emissions.			
11. Potential, Fugitive, and Actual Emissions Comment:			

EMISSIONS UNIT INFORMATION
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In-Line Kiln/Raw Mill

POLLUTANT DETAIL INFORMATION
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Volatile Organic Compounds

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -
ALLOWABLE EMISSIONS**

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: OTHER	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 0.12 lb/ton clinker (30-operating day block average)	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance: Continuous emissions monitor and annual RATA.	
6. Allowable Emissions Comment (Description of Operating Method): Potential emissions may exceed the current state-implemented limit of 0.12 lb/ton clinker based on the increased organic content of high-carbon flyash. SAC is requesting this state-implemented VOC limit be held in abeyance for the evaluation period. While the CEMs monitoring system will determine the actual VOC emissions, based on process knowledge an estimate is stated above that SAC will be able to maintain VOC emissions to the current potential emissions.	

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –
 POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS**
 (Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: D/F		2. Total Percent Efficiency of Control:	
3. Potential Emissions: lb/hour tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: 0.20 ng/dscm @ 7% O₂ 0.40 ng/dscm @ 7% O₂ when PM control device inlet temperature is ≤ 204°C Reference: Permit No. 1210465-019-AV, Specific Condition C.7		7. Emissions Method Code: 0	
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From: To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:			
11. Potential, Fugitive, and Actual Emissions Comment:			

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -
 ALLOWABLE EMISSIONS**

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 2

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 0.20 ng/dscm @ 7% O₂	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance: Compliance test using EPA Method 23 every 30 months.	
6. Allowable Emissions Comment (Description of Operating Method): Based on Permit No. 1210465-019-AV, Specific Condition C.7 and 40 CFR 63 Subpart LLL. Limit applies when the inlet temperature of the PM control device is > 204°C.	

Allowable Emissions Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 0.40 ng/dscm @7% O₂	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance: Compliance test using EPA Method 23 every 30 months.	
6. Allowable Emissions Comment (Description of Operating Method): Based on Permit No. 1210465-019-AV, Specific Condition C.7 and 40 CFR 63 Subpart LLL. Limit applies when the inlet temperature of the PM control device is ≤ 204°C.	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –
 POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS
 (Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: THC		2. Total Percent Efficiency of Control:	
3. Potential Emissions: lb/hour		tons/year	4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: 50 ppmvd as propane @ 7% O₂ Reference: Permit No. 1210465-019-AV, Specific Condition C.7			7. Emissions Method Code: 0
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From: To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:			
11. Potential, Fugitive, and Actual Emissions Comment:			

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -
 ALLOWABLE EMISSIONS**

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 50 ppmvd as propane @ 7% O₂	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance: Continuous THC emissions monitor. For compliance purposes, monitor results (THC as propane) are considered to be VOC (VOC as propane).	
6. Allowable Emissions Comment (Description of Operating Method): Based on Permit No. 1210465-019-AV, Specific Conditions C.7 and C.12 and 40 CFR 63.1343(c)(4).	
6. Allowable Emissions Comment (Description of Operating Method):	

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –
 POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS**
 (Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: H114 (Mercury)		2. Total Percent Efficiency of Control:	
3. Potential Emissions: lb/hour tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year			
6. Emission Factor: 97 lb/consecutive 12-months in raw feed and fuels Reference: Permit No. 1210465-019-AV, Specific Condition C.6			7. Emissions Method Code: 0
8.a. Baseline Actual Emissions (if required): tons/year		8.b. Baseline 24-month Period: From: To:	
9.a. Projected Actual Emissions (if required): tons/year		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions:			
11. Potential, Fugitive, and Actual Emissions Comment:			

EMISSIONS UNIT INFORMATION

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In-Line Kiln/Raw Mill

POLLUTANT DETAIL INFORMATION

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Mercury (H114)

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -

ALLOWABLE EMISSIONS

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: OTHER	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: 97 lb/consecutive 12-months in raw feed and fuels	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance: Material balance by sampling and analysis of raw materials and fuels.	
6. Allowable Emissions Comment (Description of Operating Method): Based on Permit No. 1210465-019-AV, Specific Conditions C.6 and C.17.	

EMISSIONS UNIT INFORMATION

Section [1] of [1]

In-Line Kiln/Raw Mill

G. VISIBLE EMISSIONS INFORMATION

Complete Subsection G if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: VE10	2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: 10% Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: Continuous Opacity Monitor; 6-minutes	
5. Visible Emissions Comment: Based on Permit No. 1210465-019-AV, Specific Condition C.7 and 40 CFR 63.1350.	

EMISSIONS UNIT INFORMATION

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In-Line Kiln/Raw Mill

H. CONTINUOUS MONITOR INFORMATION

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor 1 of 7

1. Parameter Code: EM	2. Pollutant(s): NO_x
3. CMS Requirement:	<input type="checkbox"/> Rule <input checked="" type="checkbox"/> Other
4. Monitor Information... Manufacturer: Sick Maihak Model Number: GM31 Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: Based on Permit No. 1210465-019-AV.	

Continuous Monitoring System: Continuous Monitor 2 of 7

1. Parameter Code: EM	2. Pollutant(s): SO₂
3. CMS Requirement:	<input type="checkbox"/> Rule <input checked="" type="checkbox"/> Other
4. Monitor Information... Manufacturer: Sick Maihak Model Number: GM31 Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: Based on Permit No. 1210465-019-AV.	

EMISSIONS UNIT INFORMATION

Section [1] of [1]

In-Line Kiln/Raw Mill

H. CONTINUOUS MONITOR INFORMATION (CONTINUED)

Continuous Monitoring System: Continuous Monitor 3 of 7

1. Parameter Code: EM	2. Pollutant(s): THC
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: EUROFID Model Number: _____ Serial Number: _____	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: Based on Permit No. 1210465-019-AV, 40 CFR 63.1349, and 40 CFR 63.1350. Results (THC as propane) are considered to be VOC (VOC as propane). If methane is measured concurrently with THC, then "THC as propane, minus methane" can be considered VOC (VOC as propane) for compliance purposes.	

Continuous Monitoring System: Continuous Monitor 4 of 7

1. Parameter Code: TEMP	2. Pollutant(s):
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: _____ Model Number: _____ Serial Number: _____	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: Continuous temperature monitor at the inlet to the in-line kiln/raw mill baghouse. Based on Permit No. 1210465-019-AV and 40 CFR 63.1349 and 40 CFR 63.1350.	

EMISSIONS UNIT INFORMATION

Section [1] of [1]

In-Line Kiln/Raw Mill

H. CONTINUOUS MONITOR INFORMATION (CONTINUED)

Continuous Monitoring System: Continuous Monitor 5 of 7

1. Parameter Code: Opacity	2. Pollutant(s):
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Sick Maihak Model Number: OMD41 Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: Continuous opacity monitor. Based on Permit No. 1210465-019-AV and Rule 40 CFR 63.1350.	

Continuous Monitoring System: Continuous Monitor 6 of 7

1. Parameter Code: CO	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input checked="" type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: Process monitor. Based on Permit No. 1210465-019-AV.	

EMISSIONS UNIT INFORMATION

Section [1] of [1]

In-Line Kiln/Raw Mill

H. CONTINUOUS MONITOR INFORMATION (CONTINUED)**Continuous Monitoring System:** Continuous Monitor 7 of 7

1. Parameter Code: Ammonia	2. Pollutant(s):
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: Continuously monitors ammonia injection rate to the SNCR system. Based on Permit No. 1210465-019-AV.	

EMISSIONS UNIT INFORMATION

Section [1] of [1]

In-Line Kiln/Raw Mill

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: Appendix 1 <input type="checkbox"/> Previously Submitted, Date _____
2. Fuel Analysis or Specification: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: Appendix 1 <input type="checkbox"/> Previously Submitted, Date _____
3. Detailed Description of Control Equipment: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date On file with DEP
4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date On file with DEP <input type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records: <input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____ <input checked="" type="checkbox"/> Not Applicable Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

EMISSIONS UNIT INFORMATION

Section [1] of [1]

In-Line Kiln/Raw Mill

I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rules 62-212.400(4)(d) and 62-212.500(4)(f), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
3. Description of Stack Sampling Facilities: (Required for proposed new stack sampling facilities only) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements: <input type="checkbox"/> Attached, Document ID: _____
2. Compliance Assurance Monitoring: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
3. Alternative Methods of Operation: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
4. Alternative Modes of Operation (Emissions Trading): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

Additional Requirements Comment

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ATTACHMENT 1.

Suwannee American Cement, LLC
Facility ID: 1210465

Air Construction Permit Application for Evaluation of Bottom Ash as a Raw Material Supplement

DESCRIPTION OF PROPOSED PROJECT

Contents

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4. Fly Ash vs. Bottom Ash	5
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1. Introduction

Suwannee American Cement, LLC (SAC) owns and operates a cement plant located in Branford, Florida, designated as the Branford Cement Plant. The cement plant consists of one dry-process kiln with preheater, precalciner, and clinker cooler permitted to produce 965,425 tons per year (TPY) of clinker. The cement produced by SAC is typically distributed to ready-mix facilities within 100 miles of the facility and is used in many different construction projects throughout North Florida. SAC's cement is locally produced and locally consumed.

The Florida Department of Environmental Protection (DEP) issued the initial air construction permit for the SAC dry-process cement kiln in 2000 and the facility began operation in 2003. At the time that SAC was issued its initial construction permit several groups were concerned about the potential environmental impact that the cement plant would have on this region of Florida (the Three River Basin). One of the most contentious issues, at the time, was the concern over mercury emissions from the pyro-processing system potentially impacting the Suwannee, Ichetucknee, and Santa Fe Rivers. The concerned parties petitioned for an Administrative Hearing on this matter (OGC CASE NO. 99-1116, DOAH CASE NO. 99-3096). The result of this hearing was that FDEP enforced an emissions limit of 97 pounds mercury per a 12 month rolling period based on input material and fuel mass balance approach that assumes 100% of all mercury input into the system would be emitted. The limit is less than half the significance threshold under the FDEP Prevention of Significant Deterioration (PSD) program (62-210.200(282)(a)2., F.A.C.) of 200 pounds per year. This limit was established despite expert analysis that indicated such an emission rate would result in no measurable impact to background concentrations of mercury surrounding the plant even after 100 years of operation. To comply with this limit, SAC performs routine sampling and analysis of all raw material and fuel inputs and has provided those results to the DEP annually or when requested. SAC has also maintained a 5 year record on its website, www.suwanneecement.com, of all mass emissions including mercury.

On September 9, 2010, the EPA finalized amendments to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for the Portland Cement Manufacturing Industry (40 CFR 63, Subpart LLL). Compliance with these amendments was to have been achieved by September 9, 2013, but a recent re-proposal following court rulings of the amendments will change the compliance deadline when the rule is finalized to sometime between 2014 and 2015. Regardless, the amendments establish a new limiting standard for mercury (Hg) emissions, among other pollutants, for new and existing Portland Cement Manufacturing facilities. This new mercury limit for existing kilns is 55 pounds per million tons of clinker

produced [lbs/Mton] averaged on a 30 day rolling basis. Prior to these amendments, there was no EPA mercury limit for Portland Cement Manufacturing facilities, and most US plants have been (unlike SAC) operating without a mercury limit. SAC's current mercury limit (97 lbs/year) based on maximum permitted clinker production (965,425 tons per year (TPY) of clinker), is effectively 100.5 lbs/Mton. The new NESHAP limit reduces SAC's mercury emission limit by 45 percent.

According to a report published by EPA on August 6, 2010 titled, "Summary of Environmental and Cost Impacts of Final Amendments to Portland Cement NESHAP (40 CFR Part 63, subpart LLL) Docket Number EPA-HQ-OAR-2002-0051," the following control options are available to cement kilns for control of mercury emissions:

1. Raw material substitution
2. Dust removal (or dust shuttling)
3. Activated Carbon Injection (with polishing baghouse), ACI
4. Wet Scrubber

In preparation for NESHAP compliance, SAC plans to apply options 1 and 2. SAC submits this air construction permit application to apply options 1 and 2. For option 1, SAC requests to install and operate the necessary equipment for the raw material substitution using bottom ash. Further, as discussed below, SAC is requesting for a 180 kiln operating days after the equipment begins operation and initial injection of bottom ash, in which FDEP-PSD limits of VOC/THC (volatile organic compounds/total hydrocarbons) are held in abeyance. This 180-day period, similar to allowed startup construction periods under New Source Performance Standards (NSPS), will allow SAC time to evaluate the impact of bottom ash. SAC also requests (per option 2 (dust removal)) to allow SAC the required operations for dust shuttling. SAC requests to install and operate the equipment necessary to transport the dust captured through the in-line kiln/raw mill APCD through a fully enclosed system to the finish mill. This dust will be incorporated into the final cement product. The "shuttling" of dust from the APCD has been demonstrated to be an effective means of reducing the amount of mercury emitted from the facility. The pneumatic transport equipment will be totally enclosed and extract material from the kiln baghouse and expel dust into a location at the exhaust of the finish mill..

2. Raw Material Substitution

Homogenized raw mixes used in the production of Portland cement clinker consist of basically two natural raw materials: calcium carbonate (limestone) and aluminosilicates (or argillaceous substances). However, when these two natural materials (typically locally sourced) do not contain all of the chemical ingredients for the stoichiometric needs of clinker phase formation, corrective materials must be used such as: bauxite, flyash, iron ore, sand, sandstone, etc. These corrective materials compensate for any chemical shortfalls in the raw mix composition. Corrective materials are sourced primarily on their ability to meet the stoichiometric needs of clinker phase formation and ultimately cement specifications, but other factors such as availability, location, transportation, handling, and cost are all considered. Since beginning operation in 2003 at the Branford Facility SAC's raw mix design has been nominally comprised of the following raw ingredients:

- Limestone (mined onsite) \approx 85%
- Fly ash (e.g., coal-fired power plant byproduct) \approx 10%
- Sand/Clay (locally mined) \approx 3%
- Mill Scale (e.g., metal recycling byproduct) \approx 2%

This raw mix design has provided SAC with the necessary ingredients to consistently produce high quality clinker and Portland Cement that meets all of its customer's specifications for building and construction projects throughout North Florida. However, in recent years SAC has identified that fly ash is disproportionately contributing to its mercury inputs and subsequently its calculated mercury emissions. SAC believes that it can reduce mercury emissions by approximately 40 percent by substituting bottom ash for fly ash, while still meeting the market demands for high quality Portland cement. However, there are several concerns that SAC has about switching to bottom ash. This air construction permit would allow SAC to evaluate raw bottom ash substitution and install new equipment; and determine any potential impacts to the process, existing equipment, product quality, and emissions.

3. Historical Mercury Input by Raw Material

SAC has monitored mercury input by material balance since beginning operations at the plant. Since mercury is assumed 100% emitted as it is calculated from raw material and fuel inputs, emissions of mercury are highly dependent upon production rates. Since 2008, the decline in building and construction in Florida has resulted in significantly reduced demand for cement; hence reduced clinker and cement production has resulted in reduced mercury emissions as displayed in **Figure 1**, below.

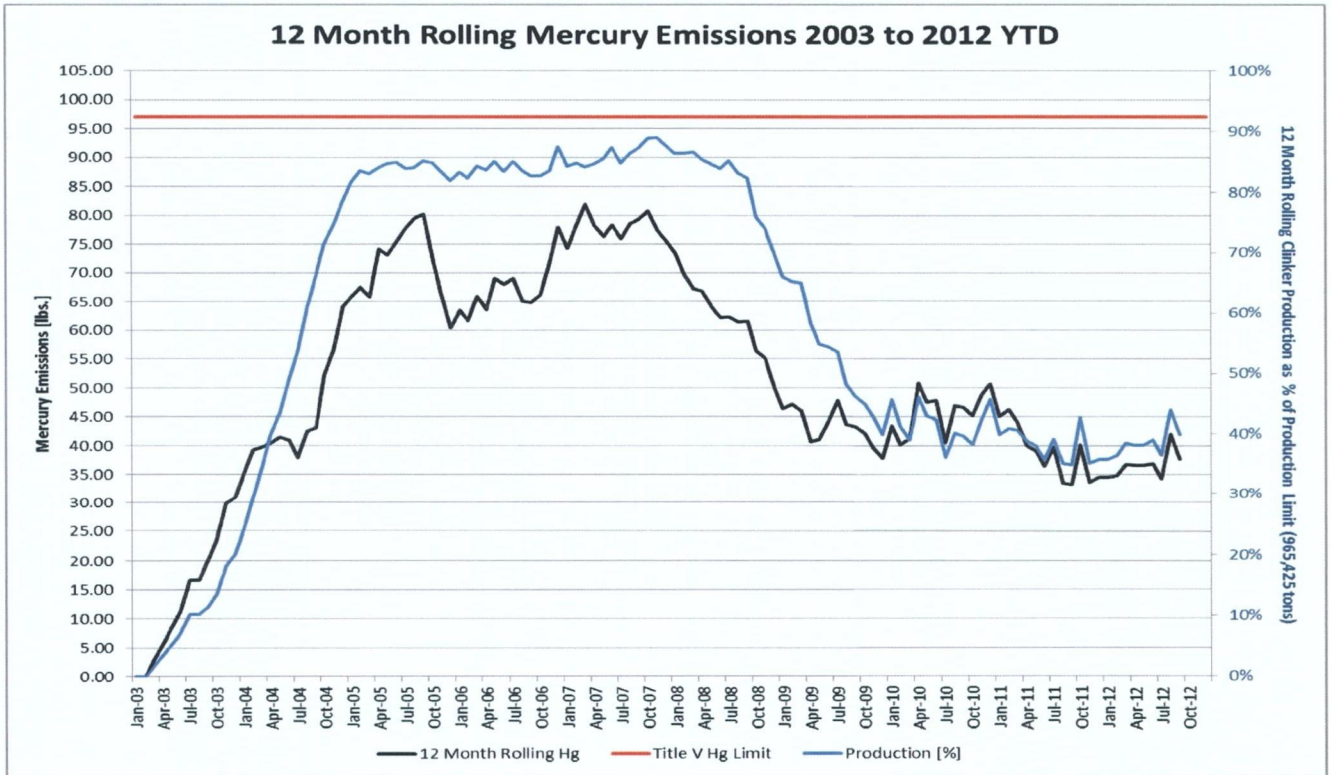


Figure 1. Calculated 12 month rolling mercury emissions based on mass balance since operations began February 2003 compared with percent production.

In July of 2007, SAC began testing not only aggregate input streams, but individual materials for their overall contribution to the total mercury input. This became possible as analytic technology advances reduced the method detection limits (MDL) for mercury in soils. **Table 1**, below, contains mercury inputs by material as a percent of total mercury inputs by year (2008 to present).

	2012 YTD	2011	2010	2009	2008
Limestone	33.1%	28.2%	27.5%	21.7%	31.0%
Sand	2.2%	1.9%	1.7%	2.3%	3.4%
Iron Ore	0.6%	0.5%	1.0%	1.6%	1.3%
Fly Ash	50.3%	42.8%	45.5%	55.1%	26.1%
High Carbon Fly Ash	0.0%	0.0%	5.9%	6.5%	16.3%
Coal	12.2%	23.6%	14.1%	12.7%	21.9%
Alt Fuel	1.5%	3.0%	4.3%		

Table 1. Percent of total mercury input by material and year

As shown, the contribution of fly ash mercury to the total mercury input is significant ranging from 42 to 62 percent of input

4. Fly Ash vs. Bottom Ash

Fly ash is captured in air pollution control devices (APCDs) of other facilities, typically coal burning power plants, and consists primarily of incombustible materials that float out of the combustion zone. This ash typically has very low burnability. It can be used for as much as 20-30% raw material replacement in the cement manufacturing process, but its high mercury content can be an issue as it is readily volatilized in the high temperature environment of a cement plant and escapes into the atmosphere.

Bottom ash, on the other hand, is the ash that falls below the combustion zone rather than being captured in the APCD. This material can retain ignitable carbon and has some heating value. The advantage of bottom ash against fly ash is that the mercury content of this material has been significantly volatilized, and is present at a much lower concentration, as shown in **Table 2**, below.

Table 2. Mercury Content in Solid Samples from Coal-fired Power Plants ($\mu\text{g}/\text{kg}$)

	<i>Plant 1¹</i>	<i>Plant 2¹</i>	<i>Plant 3¹</i>	<i>Plant 4¹</i>	<i>Plant 5¹</i>	<i>Plant 6¹</i>	<i>Plant 7²</i>
<i>Bottom Ash</i>	3	16	7	3	3	1	12
<i>Fly Ash</i>	295	245	160	10	134	24	435

5. Expected Mercury Reduction with Bottom Ash

Given the significantly lower concentrations of mercury in bottom ash compared to fly ash, SAC expects that it could reduce mercury inputs by approximately 40 percent on average by replacing fly ash with bottom ash. Below is a chart displaying the potential impact of bottom ash on total mercury inputs in NESHAP units from January 2009 to present:

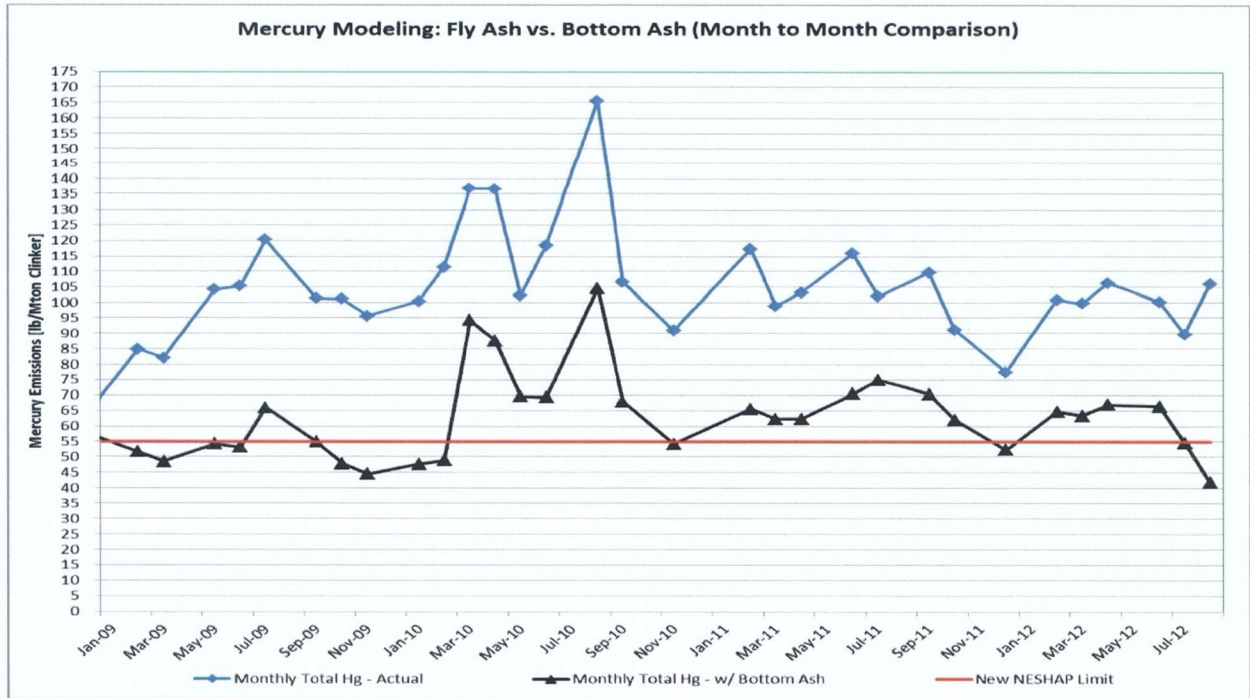


Figure 2. Modeling of actual total mercury inputs by month (January 2009 to YTD) versus total mercury with substitution by bottom ash in NESHAP units [lbs/Mton Clinker]

This model is based on a bottom ash mercury concentration of 0.0277 (tested average) and indicates that SAC can expect between 26.4 and 60.4 percent reduction with an average reduction of 40.7 percent. However, it is also clear from this modeling exercise that it is unlikely that any one solution alone will be sufficient to meet the future re-proposed NESHAP compliance limit of 55 pounds per million ton clinker 100 percent of the time. SAC believes that it will be necessary to employ both raw material substitution and dust shuttling to consistently remain below the upcoming re-proposed NESHAP limit.

6. Potential Hydrocarbon Emissions Increase with Bottom Ash

A decreased loss of ignitability (LOI) of bottom ash compared to fly ash means that it has higher ignitable carbon content. As a result, the use of bottom ash as a raw material supplement may lead to elevated levels of hydrocarbon emissions in the cement-making process. Hydrocarbon emissions are typically generated as raw material feed is heated on its way through the system towards ultimate calcination. At these (relatively) lower temperatures, hydrocarbons are volatilized rather than destroyed and make their way into the atmosphere in the gas stream exiting through the smoke stack. Since typical feed material has low organic content, the volatilization of elevated levels from bottom ash may cause an increase in hydrocarbon emissions.

The current air operating permit limits hydrocarbon emissions in several ways:

1. VOC: 0.12 lb/ton of clinker (FDEP PSD-based limit)
2. VOC: 14.4 lb/hour (FDEP PSD-based limit)
3. THC: 50 ppmvd (as propane at 7% oxygen) (EPA NESHAP-based limit)

The SAC Continuous Emissions Monitoring system monitors THC emissions which is a surrogate for VOC. Assuming that THC is equal to VOC is conservative because THC includes other compounds than VOCs, such as methane and ethane. As indicated by the 30-day summary reports for the past few years shown in **Figure 3**, the hydrocarbon emissions measured by this system has historically been near the state-implemented limits of 0.12 lb/ton of clinker and 14.4 lb/hour. However, these state-implemented limits, at typical plant operation, range from 9 to 12 ppmvd, which is about 5 times lower than the current EPA NESHAP-based limit of 50 ppmvd.

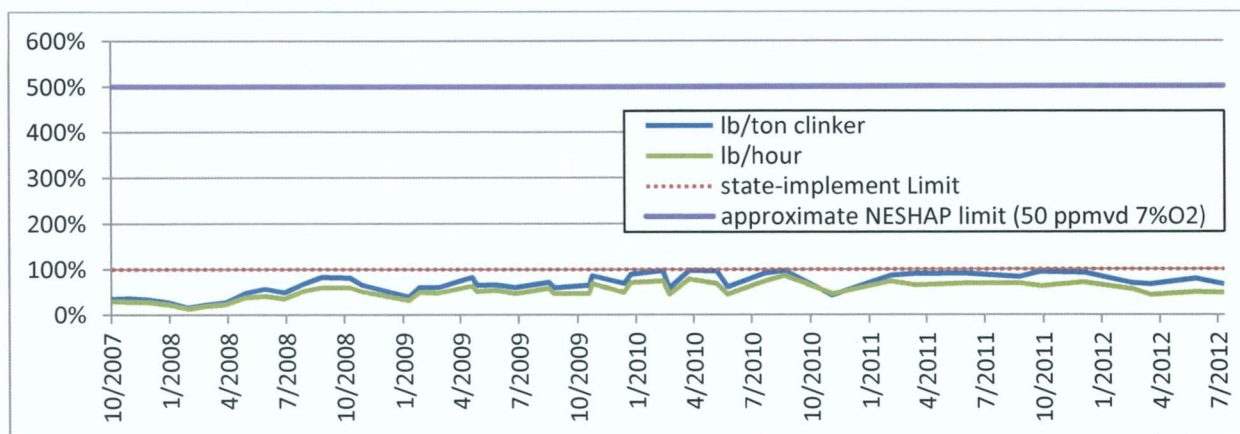


Figure 3. Hydrocarbon Emissions vs. State Implemented Permit Limit (normalized)

Due to the proximity of recorded THC monitored emissions to the state-implemented limits, SAC has concerns that these FDEP limits may be exceeded during the proposed 180-day period to evaluate the use of bottom ash. However, given time to develop appropriate operational techniques, the increase in hydrocarbon emissions should be able to be controlled below these FDEP limits.

In order to develop these techniques, SAC is requesting a waiver of the FDEP-PSD based limits for VOC emissions for 180 kiln operating days after completion of construction of injection equipment and initial injection of bottom ash. The facility will remain compliant with EPA NESHAP based limits of 50 ppmvd (as propane at 7 % oxygen) as stated in the current Title V permit.

7. Trial Equipment

For the purpose of this trial, bottom ash will be processed by the supplier prior to being received at the facility. The material will be delivered to the facility and stored in the Fly Ash Building. The existing fly ash transfer equipment will be utilized to deliver stored bottom ash to the pyroprocessing system. In the event that the bottom ash is not processed by the supplier, SAC may screen the material prior to its use. Fine material that makes it through the screening system will be utilized as raw material, while coarse material will be stored and either landfilled or sent back to the supplier.

The emissions from any equipment used in this trial will be less than 5 tons per year as outlined in **Table 3**.

Table 3. Potential Emissions from Possible Equipment

	Throughput	Emission Factor ¹	No. of Units	Potential Emissions	Total
Screen (Screening)	100,000 tons	0.025 lb/ton	2	2.50 tons	2.80 tons
30' Conveyor (Conveyor Transfer Point)	100,000 tons	0.003 lb/ton	2	0.30 tons	

1. Based on AP-42, Table 11.19.2-2, uncontrolled

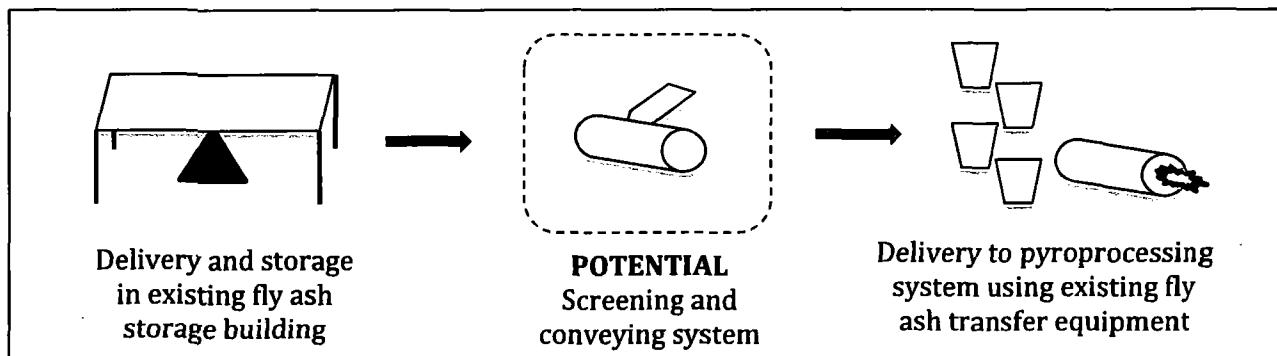


Figure 4. Bottom Ash Process Flow Diagram