Adams, Patty

From: Harvey, Mary
Sent: Friday, July 20, 2007 10:39 AM
To: Adams, Patty; Friday, Barbara
Subject: FW: CEMEX Cement, Inc. - Air Permit #0530010-029-AC

From: Segundo J. Fernandez [mailto:sfernandez@ohfc.com]
Sent: Friday, July 20, 2007 10:24 AM
To: Harvey, Mary
Subject: Read: CEMEX Cement, Inc. - Air Permit #0530010-029-AC

Your message

To: sfernandez@ohfc.com
Subject:

was read on 7/20/2007 10:24 AM.

Harvey, Mary

From: Amarjit S Gill [amarjits.gill@cemex.com]
Sent: Thursday, July 26, 2007 2:15 PM
To: Harvey, Mary
Subject: CEMEX Cement, Inc. - Air Permit #0530010-029-AC

Return Receipt

Your document:	CEMEX Cement, Inc. - Air Permit #0530010-029-AC
was received by:	amarjits.gill@cemex.com
at:	07/26/2007 13:15:59

Adams, Patty

From: Harvey, Mary
Sent: Wednesday, July 18, 2007 8:54 AM
To: Adams, Patty
Subject: FW: CEMEX Cement, Inc. - Air Permit #0530010-029-AC

-----Original Message-----
From: Dee_Morse@nps.gov [mailto:Dee_Morse@nps.gov]
Sent: Tuesday, July 17, 2007 5:56 PM
To: Harvey, Mary
Subject: CEMEX Cement, Inc. - Air Permit #0530010-029-AC

Return Receipt

Your document:	CEMEX Cement, Inc. - Air Permit #0530010-029-AC
was received by:	Dee Morse/DENVER/NPS
at:	07/17/2007 03:55:37 PM

Adams, Patty

From: Harvey, Mary
Sent: Wednesday, July 18, 2007 8:55 AM
To: Adams, Patty
Subject: FW: CEMEX Cement, Inc. - Air Permit #0530010-029-AC

-----Original Message-----
From: Michael A Gonzales [mailto:michaelanthony.gonzales@cemex.com]
Sent: Tuesday, July 17, 2007 4:57 PM
To: Harvey, Mary
Subject: CEMEX Cement, Inc. - Air Permit #0530010-029-AC

Return Receipt

Your document:	CEMEX Cement, Inc. - Air Permit #0530010-029-AC
was received by:	michaelanthony.gonzales@cemex.com
at:	07/17/2007 16:57:06 EDT

Adams, Patty

From: Harvey, Mary
Sent: Wednesday, July 18, 2007 8:56 AM
To: Adams, Patty
Subject: FW: CEMEX Cement, Inc. - Air Permit #0530010-029-AC
Attachments: CEMEX Cement, Inc. - 0530010-029-AC.zip

From: michaelanthony.gonzales@cemex.com [mailto:michaelanthony.gonzales@cemex.com]
Sent: Tuesday, July 17, 2007 4:55 PM
To: Harvey, Mary
Subject: Re: CEMEX Cement, Inc. - Air Permit #0530010-029-AC

CEMEX

Michael A. Gonzales
Plant Manager - Brooksville Plant - United States of America
Office : +1(352)799-2057 , Fax: +1(352)754-9836
Address: 16301 Ponce de Leon Blvd. Brooksville, FL 34614
E-Mail: michaelanthony.gonzales@cemexusa.com
www.cemexusa.com

"Harvey, Mary" <Mary.Harvey@dep.state.fl.us>

07/17/2007 04:51 PM

To <michaelanthony.gonzales@cemexusa.com>, <charles.walz@cemexusa.com>, <amarjits.gill@cemexusa.com>, "Nasca, Mara" <Mara.Nasca@dep.state.fl.us>, <scullen@kooglerassociates.com>, <sfernandez@ohfc.com>, <little.james@epamail.epa.gov>, <worley.gregg@epa.gov>, <Forney.kathleen@epa.gov>, <dee_morse@nps.gov>
cc "Linero, Alvaro" <Alvaro.Linero@dep.state.fl.us>, "Adams, Patty" <Patty.Adams@dep.state.fl.us>, "Gibson, Victoria" <Victoria.Gibson@dep.state.fl.us>
Subject CEMEX Cement, Inc. - Air Permit #0530010-029-AC

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the

document(s) as soon as possible.

The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site: http://www.adobe.com/products/acrobat/readstep.html.

The Bureau of Air Regulation is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record.

Thank you,
DEP, Bureau of Air Regulation

Adams, Patty

From: Harvey, Mary
Sent: Tuesday, July 17, 2007 4:54 PM
To: 'Forney.kathleen@epa.gov'; 'little.james@epamail.epa.gov'
Cc: Linero, Alvaro; Adams, Patty
Subject: FW: CEMEX Cement, Inc. - Air Permit #0530010-029-AC
Attachments: Appendix 384A - 0530010-029-AC-DRAFT.pdf; Cover 384A - 0530010-029-AC-DRAFT.pdf; Intent 384A - 0530010-029-AC-DRAFT.pdf; Notice 384A - 0530010-029-AC-DRAFT.pdf; PERMIT384A - 0530010-029-AC-DRAFT.pdf; TEPD 384A - 0530010-029-AC-DRAFT.pdf

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From: Harvey, Mary
Sent: Tuesday, July 17, 2007 4:52 PM
To: 'michaelanthony.gonzales@cemexusa.com'; 'charles.walz@cemexusa.com'; 'amarjits.gill@cemexusa.com'; Nasca, Mara; 'scullen@kooglerassociates.com'; 'sfernandez@ohfc.com'; 'little.james@epamail.epa.gov'; 'worley.gregg@epa.gov'; 'Forney.kathleen@epa.gov'; 'dee_morse@nps.gov'
Cc: Linero, Alvaro; Adams, Patty; Gibson, Victoria
Subject: CEMEX Cement, Inc. - Air Permit #0530010-029-AC

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

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Thank you,

DEP, Bureau of Air Regulation

Adams, Patty

From: Harvey, Mary
Sent: Wednesday, July 18, 2007 8:52 AM
To: Adams, Patty
Subject: FW: CEMEX Cement, Inc. - Air Permit #0530010-029-AC

From: Nasca, Mara
Sent: Tuesday, July 17, 2007 7:46 PM
To: Harvey, Mary
Subject: Read: CEMEX Cement, Inc. - Air Permit #0530010-029-AC

Your message

To:	'michaelanthony.gonzales@cemexusa.com'; 'charles.walz@cemexusa.com'; 'amarjits.gill@cemexusa.com'; Nasca, Mara; 'scullen@kooglerassociates.com'; 'sfernandez@ohfc.com'; 'little.james@epamail.epa.gov'; 'worley.gregg@epa.gov'; 'Forney.kathleen@epa.gov'; 'dee_morse@nps.gov'
Cc:	Linero, Alvaro; Adams, Patty; Gibson, Victoria
Subject:	CEMEX Cement, Inc. - Air Permit #0530010-029-AC
Sent:	7/17/2007 4:52 PM

was read on 7/17/2007 7:46 PM.

Adams, Patty

From: Harvey, Mary
Sent: Wednesday, July 18, 2007 8:53 AM
To: Adams, Patty
Subject: FW: CEMEX Cement, Inc. - Air Permit #0530010-029-AC

-----Original Message-----
From: Charles E Walz [mailto:charles.walz@cemex.com]
Sent: Tuesday, July 17, 2007 5:59 PM
To: Harvey, Mary
Subject: CEMEX Cement, Inc. - Air Permit #0530010-029-AC

Return Receipt

Your document:	CEMEX Cement, Inc. - Air Permit #0530010-029-AC
was received by:	charles.walz@cemex.com
at:	07/17/2007 17:58:35 EDT

Adams, Patty

From: Harvey, Mary
Sent: Tuesday, July 17, 2007 4:52 PM
To: 'michaelanthony.gonzales@cemexusa.com'; 'charles.walz@cemexusa.com'; 'amarjits.gill@cemexusa.com'; Nasca, Mara; 'scullen@kooglerassociates.com'; 'sfernandez@ohfc.com'; 'little.james@epamail.epa.gov'; 'worley.gregg@epa.gov'; 'Forney.kathleen@epa.gov'; 'dee_morse@nps.gov'
Cc: Linero, Alvaro; Adams, Patty; Gibson, Victoria
Subject: CEMEX Cement, Inc. - Air Permit #0530010-029-AC
Attachments: CEMEX Cement, Inc. - 0530010-029-AC.zip

Dear Sir/Madam:

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The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

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Thank you,

DEP, Bureau of Air Regulation

Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

July 17, 2007

Electronically sent – Received Receipt requested.

michaelanthony.gonzales@cemexusa.com
Mr. Michael A. Gonzales, Plant Manager
Brooksville Cement Plant
CEMEX Cement, Inc.
16301 Ponce De Leon Boulevard
Brooksville, Florida 34614-0849

Re: DEP File No. 0530010-029-AC (PSD-FL-384)
Brooksville Plant – New Line 3

Dear Mr. Gonzales:

Enclosed is the draft air construction permit (Draft Permit) to construct a new portland cement line at the Brooksville Cement Plant in Hernando County. The Department's Intent to Issue Air Construction Permit, the Technical Evaluation and Preliminary Determination, and the Public Notice of Intent to Issue Air Construction Permit are included.

The original Draft Permit and associated documents that were transmitted by the cover letter dated April 3, 2007 are hereby withdrawn and replaced by those enclosed herewith.

The Public Notice must be published one time only as soon as possible in a newspaper of general circulation in the area affected, pursuant to the requirements of Chapter 50, Florida Statutes. Proof of publication, such as a newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in denial of the permit.

Please submit any written comments you wish to have considered concerning the Department's proposed action to A.A. Linero, Program Administrator, at the letterhead address. If you have any questions regarding this matter, please contact Teresa Heron at (850)921-9529, Debbie Nelson at (850)921-9537, or Mr. Linero at (850)921-9523.

Sincerely,

Trina Vielhauer, Chief
Bureau of Air Regulation

TLV/aal

Enclosures

In the Matter of an
Application for Permit by:

Mr. Michael Gonzales, Plant Manager
Brooksville Cement Plant
CEMEX Cement, Inc.
16301 Ponce De Leon Boulevard
Brooksville, Florida 34614-0849

DEP File No. 0530010-029-AC
Draft Permit No. PSD-FL-384
Brooksville Cement Plant
Port Cement Line No. 3
Hernando County

INTENT TO ISSUE AIR CONSTRUCTION PERMIT

The Department of Environmental Protection (the Department) gives notice of its intent to issue an air construction permit (copy of draft permit enclosed) to CEMEX Cement, Inc. for the proposed project as detailed in the application specified above and the attached Technical Evaluation and Preliminary Determination for the reasons stated below.

CEMEX applied on October 27, 2006 to the Department for an air construction permit to construct a new portland cement line at the Brooksville Cement Plant in Hernando County. The Department gave notice of its intent to issue a permit to CEMEX on April 5, 2007. CEMEX subsequently modified the application. The original notice and accompanying documents are hereby withdrawn and replaced with the present notice and accompanying documents.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. The Department has determined that an air construction permit pursuant to the rules for the Prevention of Significant Deterioration of Air Quality (PSD) is required.

The Department intends to issue this air construction permit based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed Public Notice of Intent to Issue Air Construction Permit. The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. For the purpose of these rules, publication in a "newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/921-9533). You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5)& (9), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

The Department will issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for public meetings concerning the proposed permit issuance action for a period of 30 days from the date of publication of the enclosed Public Notice. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If comments received result in a change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57, F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3), F.S., must be filed within 14 days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of when and how the petitioner received notice of the agency decision; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and (g) A statement of the

relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above. Mediation is not available in this proceeding.

Executed in Tallahassee, Florida.

Trina L. Vielhauer, Chief
Bureau of Air Regulation

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Intent to Issue Air Construction Permit (including the Public Notice, Technical Evaluation, and the Draft permit) and all copies were sent electronically (with Received Receipt) before the close of business on 7/17/07 to the persons listed:

Michael A. Gonzales, CEMEX: michaelanthony.gonzales@cemexusa.com
Charles Walz, CEMEX: charles.walz@cemexusa.com
Amarjits Gill, CEMEX: amarjits.gill@cemexusa.com
Mara Nasca, DEP SWD: mara.nasca@dep.state.fl.us
Steve Cullen, P.E., K&A: scullen@kooglerassociates.com
Segundo J. Fernandez, Esq., OHF&C: sfernandez@ohfc.com
Jim Little, EPA Region 4: little.james@epamail.epa.gov
Gregg Worley, U.S. EPA Region 4: worley.gregg@epa.gov
Katy Forney, U.S. EPA Region 4: Forney.kathleen@epa.gov
Dee Morse, National Park Service: dee_morse@nps.gov

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

(Clerk) 7/17/07 (Date)

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 0530010-029-AC (PSD-FL-384)

CEMEX Cement, Inc.
Brooksville Cement Plant Line 3
Hernando County

The Department of Environmental Protection (the Department) gives notice of its intent to issue an Air Construction Permit to CEMEX Cement, Inc. to construct a new portland cement line at the existing Brooksville Cement Plant on Highway 98, northwest of Brooksville in Hernando County. A review under the rules for the Prevention of Significant Deterioration of Air Quality (PSD) was required as well as Best Available Control Technology (BACT) determinations for nitrogen oxides (NO_X), sulfur dioxide (SO_2), volatile organic compounds (VOC), carbon monoxide (CO), and particulate matter (PM/PM_{10}). The applicant's name and business address are CEMEX Cement, Inc., 16301 Ponce De Leon Boulevard, Brooksville, Florida 34614-0849.

The new cement line will consist of: a new kiln, designated as Kiln 3 with a nominal capacity of 3,850 tons per day (TPD) of clinker; a preheater with a calciner; an in-line raw mill; a coal/petroleum coke mill; a blending silo; a clinker cooler; a finish mill; additional clinker and cement silos; and an expanded cement packhouse and shipping facilities. There will be one large baghouse and stack associated with the kiln system and another large baghouse and stack associated with the clinker cooler.

The main fossil fuels will be coal and petroleum coke with natural gas, fuel oil and on-specification used oil as backup. Additional authorized fuels include: rice hulls, corn husks, cotton gin wastes, sugarcane bagasse, sawdust and wood chips from clean untreated and unpainted wood, paper and cardboard, non-chlorinated plastic, citrus peel waste, and carpet derived fuel. The main raw materials will be sources of calcium, silicon, iron and aluminum such as limestone, sand, iron ore and bauxite. Non-hazardous raw materials such as mill scale and power plant ash will also be used. A full description of the project and the Department's review are available at: www.dep.state.fl.us/Air/permitting/construction/cemex.htm .

NO_X emissions will be minimized by indirect firing in a Low NO_X main kiln burner, staged combustion in the calciner, and an ammonia injection system. SO_2 emissions will be controlled by use of low sulfur raw materials and inherent scrubbing by finely divided lime in the calciner and limestone in the raw mill. CO and VOC emissions will be controlled by promoting complete combustion in the kiln and calciner and minimizing carbon and oily content of raw materials. PM/PM_{10} from the pyroprocessing system and the clinker cooler will be controlled by large fabric filter baghouses.

The Department's Draft BACT determinations for the pyroprocessing system are: 1.50 pounds of NO_X per ton of clinker (lb/ton); 0.20 lb SO_2/ton; 2.0 lb CO/ton; 0.115 lb VOC/ton; 0.10 lb PM/PM_{10}/ton; and 10 percent opacity. The Draft BACT determinations for the clinker cooler are 0.05 lb/ton and 10% opacity.

Emissions points from handling, conveyance, and transfer will be controlled by baghouses. Emissions from raw materials piles, loading operations, transportation, etc. will be controlled by reasonable precautions including paving, road sweeping, watering, planting grass, etc.

The CEMEX project will be subject to the maximum achievable control technology (MACT) requirements in 40 CFR 63, Subpart LLL - National Emission Standards for Hazardous Air Pollutants for Portland Cement Manufacturing Industry as finalized on December 20, 2006. The PM/PM_{10} and VOC BACT determinations given above will insure compliance with the PM and total hydrocarbons limitations given in Subpart LLL.

(Public Notice to be Published in the Newspaper)

Subpart LLL limits mercury (Hg) emissions to 41 micrograms per dry standard cubic meter at 7 percent oxygen. Annual Hg emissions will also be limited to 190 pounds per year by a permit condition. The Department requires installation of a mercury continuous emission monitoring system (Hg-CEMS) and its use beginning the second year of operation to measure actual emissions. Subpart LLL also limits dioxin/furan emissions to less that 0.20 or 0.40 nanograms/dscm @7% O_2 depending on the temperature of the particulate matter control device.

The Department reviewed CEMEX's ambient air quality analysis for CO, NO_X, SO_2, VOC and PM/PM_{10}, pollutants subject to PSD for this project. All projected pollutant concentrations were less than their respective Significant Impact Levels for the Class II area except for PM/PM_{10} on a 24-hour and annual basis. Therefore, a refined increment modeling analysis, including nearby sources, was required for PM_{10}. The results of this analysis are given in the table below. This refined analysis demonstrated compliance with regulatory requirements including the ambient air quality standards.

Averaging Time	Maximum Predicted Impact $\mu g/m^3$	Allowable Increment $\mu g/m^3$	Compliance with Increment	Percent of Increment
24-hour	29.8	30	Yes	99%
Annual	5	17	Yes	30%

For reference the impacts given above occur in isolated areas and are related to the ingress and egress of traffic near the plant rather than as regional effects.

All pollutants were less than their respective Significant Impact Levels for the nearest Class I area (the Chassahowitzka Wilderness Area located 15 km from project) except for NO_X and PM_{10} on a 24-hour basis. Therefore, a refined multi-source increment modeling analysis was required for 24-hour PM_{10} and NO_X. The results of this analysis are given in the table below. This refined analysis demonstrated compliance with the Class I PSD Increment.

Averaging Time	Maximum Predicted Impact $\mu g/m^3$	Allowable Increment $\mu g/m^3$	Compliance with Increment	Percent of Increment
24-hour PM_{10}	5	8	Yes	63%
Annual NO_X	1.3	2.5	Yes	53%

Based on the required analyses, the Department has reasonable assurance that the proposed project will not cause or significantly contribute to a violation of any ambient air quality standard or PSD increment. The Department requires installation of an ambient monitor in the vicinity of the plant to measure fine particles smaller than 2.5 microns ($PM_{2.5}$) that represent the fraction of PM_{10} having the greatest potential effect on the environment.

The Department will accept written comments concerning the proposed permit issuance action and requests for a public meeting for a period of 30 days from the date of publication of Public Notice of Intent to Issue Air Construction Permit. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station # 35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3), F.S. must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen (14) days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of when and how the petitioner received notice of the agency decision; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environmental Protection
Bureau of Air Regulation
111 South Magnolia Drive, Suite 4
Tallahassee, Florida, 32301
Telephone: (850) 488-0114
Fax: (850) 921-9533

Department of Environmental Protection
Southwest District Office
13051 North Telecom Parkway
Temple Terrace, Florida 33637-0926
Telephone: (813) 632-7600
Fax: (813) 632-7668

The complete project file includes the application, technical evaluations, Draft Permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Program Administrator, South Permitting Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301 or call 850/921-9523 for additional information.

(Public Notice to be Published in the Newspaper)

TECHNICAL EVALUATION

PRELIMINARY DETERMINATION

DRAFT BACT DETERMINATIONS

CEMEX CEMENT COMPANY
BROOKSVILLE, HERNANDO COUNTY

New Portland Cement Line

DEP File No. 0530010-029-AC (PSD-FL-384)

Department of Environmental Protection
Division of Air Resources Management
Bureau of Air Regulation

July 17, 2007

I. APPLICANT NAME AND ADDRESS

CEMEX Cement, Inc.
Brooksville Cement Plant
16301 Ponce de Leon Blvd.
Brooksville, Florida 34601

Authorized Representative
Michael A. Gonzales, Plant Manager
Post Office Box 6
Brooksville, Florida 34605-0006

II. FACILITY INFORMATION

A. FACILITY LOCATION

The CEMEX Brooksville Cement Plant is located on Highway 98, northwest of Brooksville in Hernando County. The UTM coordinates referenced to the stack for a proposed new kiln are Zone 17, 356.1 km East and 3169.3 km North. The following figure shows the location of the facility, the nearby Chassahowitzka National Wildlife Refuge (NWR) and an aerial photograph of the facility.

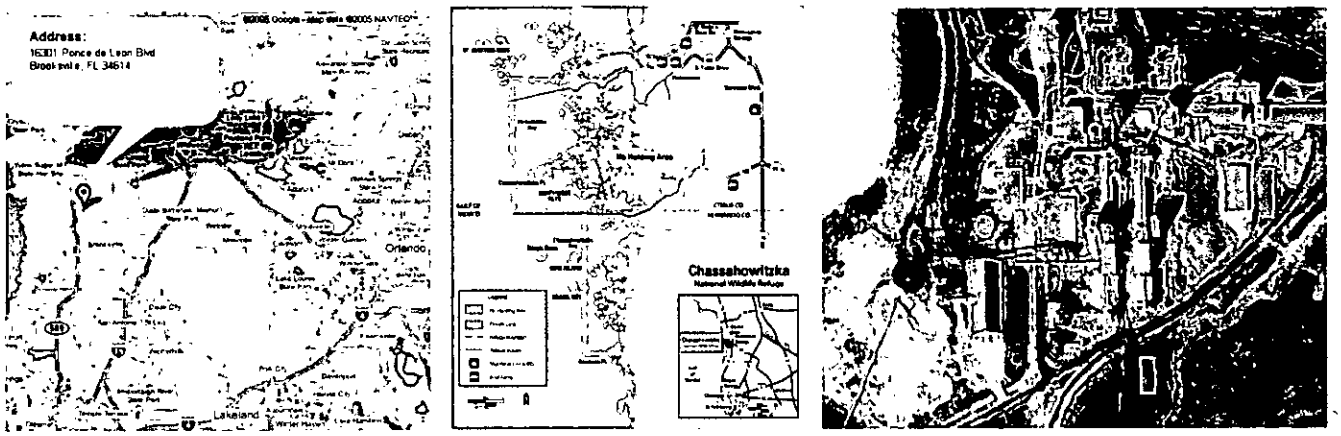


Figure 1. Location of CEMEX Brooksville Cement Plant, Chassahowitzka NWR, Aerial Photo

The proposed kiln stack reference point is less than 15 kilometers east from the Chassahowitzka NWR that is the nearest Class I Area with the respect to the Rules for the Prevention of Significant Deterioration of Air Quality (PSD).

B. FACILITY CLASSIFICATION CODE (SIC)

Major Group No. 32, Clay, Glass, and Concrete Products
Industry Group No. 324 Cement, Hydraulic
Industry No. 3241 Cement, Hydraulic

C. FACILITY CATEGORY

The following regulatory classifications apply to the subject facility:

Title I, Section 111, Clean Air Act (CAA): This facility is subject to certain Standards of Performance for New Stationary Sources. They are adopted and incorporated by reference in Rule 62-204.800, F.A.C. These include:

- 40 CFR 60, Subpart A - General Provisions.
- 40 CFR 60, Subpart F - Standards of Performance for Portland Cement Plants. Certain requirements from Subpart F are replaced by requirements from 40 CFR 63, Subpart LLL listed below.
- 40 CFR 60, Subpart Y - Standards of Performance for Coal Preparation Plants.
- 40 CFR 60, Subpart OOO - New Source Performance Standards For Nonmetallic Mineral Processing Plants.

Title I, Section 112 CAA: The facility has the potential to emit 10 tons per year or more of any one hazardous air pollutant (HAP) or 25 tons per year or more of any combination of HAPs. This facility is subject to the Major Source provisions of:

- 40 CFR 63 Subparts A - National Emission Standards for Hazardous Air Pollutants – General Provisions.
- 40 CFR 63, Subpart LLL - National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry.

Title I, Part C: The facility is located in an area designated as "attainment", "maintenance", or "unclassifiable" for each pollutant subject to a National Ambient Air Quality Standard. The facility is considered a "portland cement plant", which is one of the 28 Prevention of Significant Deterioration (PSD) source categories with the lower PSD applicability threshold of 100 tons per year. Potential emissions of at least one regulated pollutant exceed 100 tons per year. Therefore, the facility is classified as a PSD-major source of air pollution with respect to Rule 62-212.400, F.A.C., Prevention of Significant Deterioration.

Title IV, CAA: The facility does not operate any units subject to the Acid Rain provisions of the Clean Air Act.

Title V, CAA: The facility is a Title V or "Major Source" of air pollution because the potential emissions of at least one regulated pollutant exceed 100 tons per year or because it is a major source of HAPs. Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NO_X), particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), and volatile organic compounds (VOC).

State Rules: The cement plant is subject to state Rule 62-296.407, F.A.C. (Portland Cement Plants).

Given that the facility is a Major Stationary Source with respect to the PSD regulations, then project emissions greater than 40 TPY of NO_X, VOC or SO_2, 7 TPY of sulfuric acid mist (SAM), 25/15 TPY of PM/PM_{10}, 3 TPY of fluorides, 0.1 TPY of mercury (Hg) or 1200 pounds per year (lb/yr) of lead (Pb) also require review pursuant to the PSD rules. Pollutants triggering these values require a determination of Best Available Control Technology (BACT) per Rule 62-212.400, F.A.C.

III. EXISTING FACILITY DESCRIPTION

The existing Brooksville portland cement plant consists of two lines (Lines 1 and 2). Lines 1 and 2 include Polysius GEPOL preheater kilns (Kilns 1 and 2) and clinker cooler (Coolers 1 and 2). A picture of one of the kilns with preheater tower and raw meal homogenizing silo can be seen in Figure 2. Lines 1 and 2 are separately permitted with respect to preheater material feed rates and fuel heat input rates. Ancillary equipment at the plant includes a quarry, crushers, raw material handling and conveying equipment, raw mills, finish mills, cement and clinker handling equipment, coal handling equipment and silos, and particulate control/dust collection and recycling equipment.

Large, fabric filter systems (baghouses) are used to capture particulate matter (PM) from each kiln and from each clinker cooler (four total). Smaller baghouses are used to limit particulate emissions from other process emissions points. Raw material properties, chemical reactions in the kilns, absorption into the clinker, and combustion controls minimize emissions of NO_X, SO_2, CO, and VOC. Further NO_X control is provided by Pillard Low NO_X main kiln burners and selective non-catalytic reduction (SNCR) systems.

Figure 2: Preheater Kiln 1 and Homogenizing Silo. Top of Preheater for Kiln 2 in Background.

Both CEMEX Brooksville kilns are limited to 150 tons dry preheater feed per hour (30 day average) with a maximum of 165 tons preheater feed in any given hour. Both kilns are permitted to burn a variety of fuels, including coal, No. 2 fuel oil, No. 4 fuel oil, No. 5 fuel oil, No. 6 fuel oil, natural gas, and on-site generated, non-hazardous waste used oil, grease, and rags. Kiln No. 1 is also permitted to fire whole tire derived fuel (TDF) at a rate up to 20 percent of the total heat input.

IV. PROPOSED PROJECT

CEMEX proposes to construct a dry process portland cement line (Line 3, also called Kiln 3) at the existing Brooksville Cement Plant. Major equipment will include:

- A larger nominal 600 tons per day (TPD) primary crusher and a nominal 600 TPD secondary crusher will replace the existing crushers and serve the entire need all lines;
- Additional raw material receiving, handling, storage, proportioning and conveyance equipment;
- A pyroprocessing system with a nominal capacity of 3,850 tons per day (TPD) of clinker and consisting of a kiln with a preheater and calciner, an in-line raw mill, a homogenizing silo, and a very large (main) baghouse and stack;
- A coal and petroleum coke mill;
- A clinker cooler with a baghouse and stack;
- Product additive storage and proportioning equipment;

- A finish mill equipped with a high efficiency separator and associated equipment;
- Additional clinker and cement silos;
- An expanded cement packhouse and shipping facility;
- An ammonia injection system to reduce NO_X from the pyroprocessing system;
- Continuous emissions monitoring systems to measure NO_X, SO_2, CO, VOC and Hg; and
- Continuous opacity monitoring systems (COMS) on the main stack and clinker cooler stack.

V. CEMENT MANUFACTURING PROCESS DESCRIPTION

Some of the following description is from the Portland Cement Association and the Cement Association of Canada. The rest was developed by the Department or provided by the applicant.

A. CONCRETE AND CEMENT

Concrete is the familiar material used in construction. It is a mixture of portland cement, water and aggregates such as crushed stone, sand, and gravel. The cement and water comprise a paste that coats the surfaces of the aggregates and then hardens by chemical reaction know as hydration to form the familiar rock-like material known as concrete. The following figure depicts the proportions of the various components of concrete. Portland cement, the key ingredient, constitutes only 11 percent (%) or so of the concrete mix.

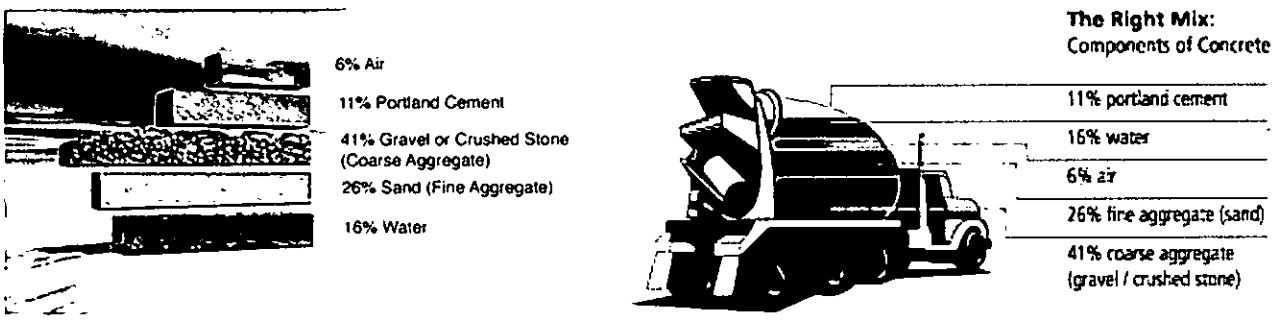


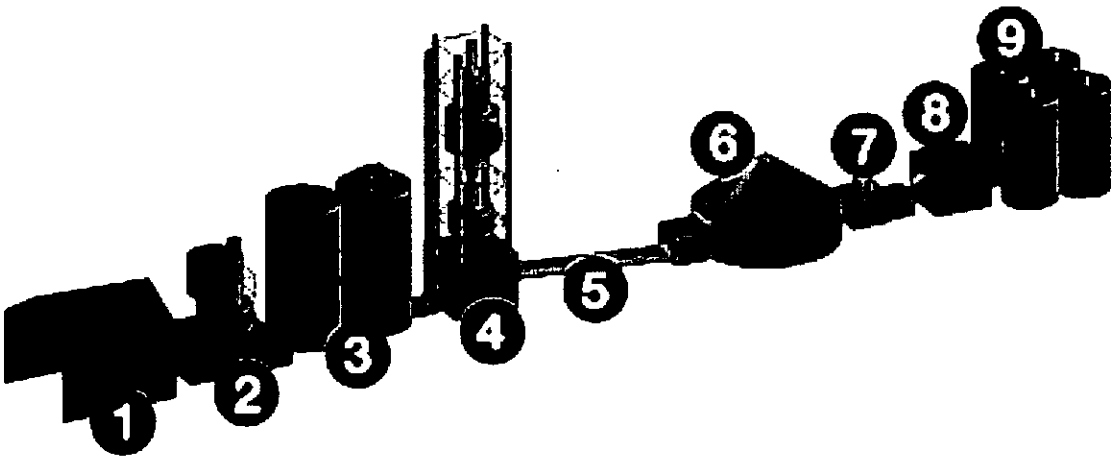
Figure 3. Components of Concrete Mix (Portland Cement Association, Cement Association of Canada)

Cement is a chemical combination of calcium, silicon, aluminum, iron and small amounts of other ingredients to which gypsum and other ingredients are added in the final grinding process. Lime and silica make up about 85% of the mass. The main raw materials for Line 3 are of quarried limestone, clay, sand, bauxite, mill scale and fly ash. Materials interground with or added to the clinker will include limestone dust, gypsum and slag.

B. HOW CEMENT IS MADE

Simply stated, the raw materials used to manufacture cement are ground, mixed, dried, heated and then sintered in a rotary kiln where temperatures reach 1500 °C (2,732 °F). The intense heat causes chemical reactions that convert the partially molten raw materials into pellets called clinker. After adding some gypsum and other key materials, the mixture is ground to the extremely fine grey powder called portland cement.

The following diagram represents the key components of a typical cement plant and steps involved in making Portland cement (excluding quarrying and solid fuel grinding). A virtual tour of a cement plant is available at the Portland Cement Association website: www.cement.org/basics/images/flashtour.html



1. Raw Material Storage
2. Grinding (Raw Mill)
3. Blending, Feed
4. Preheater/Calciner
5. Rotary Kiln
6. Clinker Cooler and Storage
7. Additions (e.g. Gypsum)
8. Cement Grinding (Finish Mills)
9. Bulk Storage & Loading

Figure 4. Components, Key Operations of a Cement Plant

C. Raw Material Quarrying, Crushing, and Raw Material Storage

Limestone rock is mined at a quarry as shown below. The overburden is removed and the limestone is usually mined under the water table. The rock is crushed in two stages to the size of gravel and transported by conveyor to the existing cement plant Limestone Storage Building (LSB) located west of Lines 1 and 2 where it is stored to await further processing.

The existing primary and secondary crushers will be replaced by larger versions. The LSB will be expanded to accommodate additional materials needed by Line 3. The overburden provides some of the sand and clay needed in the process.

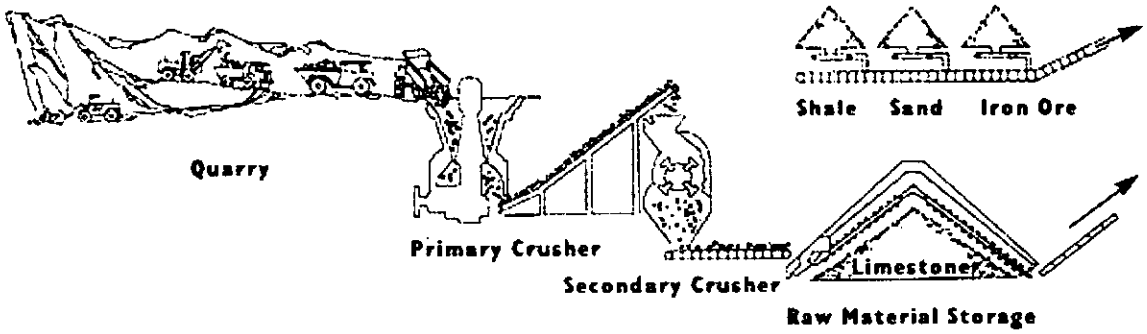


Figure 5. Diagram of Rock Quarrying, Crushing, and Storage

Crushed limestone for Line 3 will be stored in the expanded LSB. There will be two new large piles each containing approximately 30,000 tons of limestone. Clay will be processed in an existing crusher and dryer conveyed to storage silos. Additional raw material will be delivered by truck and rail. Sand, mill scale, bauxite, bottom ash and fly ash will be received and stored in expanded storage buildings located east of the existing lines and the new Line 3. Limestone dust, slag and gypsum interground with or added to the clinker will also be stored in a building to the east. Coal and petroleum coke delivered by rail or truck will be stored south of the existing plant.

D. PROPORTIONING, GRINDING, BLENDING

Stockpiled limestone at the CEMEX facility will be reclaimed inside the LSB by an existing scraper reclaimer and then transferred to the limestone silo. Clay from the dryer will also be stored in a silo. Clay and limestone will be mix onto a conveyor belt. Based on automated chemical analyses additional raw materials from bauxite, sand, mill scale and fly ash bins will proportioned and added onto the final conveyor to produce the *raw mix* that is transferred the grinding operation which occurs in the in-line raw mill.

The raw mix is ground to size in the raw mill and the moisture content is reduced. Heat for drying within the raw mill is supplied from the preheater/calciner/kiln exhaust gas and from hot air supplied from the clinker cooler. From the raw mill, the material is blown to a series of mechanical cyclones that recover most of the material. The exhaust from the cyclones passes through the main particulate matter control device (main baghouse in the case of the present project) prior to the main (kiln) stack.

The properly ground and sized raw material is conveyed to the homogenizing silo. Dust from the main baghouse is added to the homogenizing silo. The material from the homogenizing silo, known as *raw meal*, is then conveyed to and introduced near the top of the preheater tower.

The following figure is a simplified process flow diagram of a preheater/calciner kiln that is useful for discussing the details of the proposed CEMEX Brooksville Kiln No. 3 project. The figure was borrowed from an excellent study (Greer 2005 for PCA) assessing how pollution control strategies for a given pollutant's influence (increase or decrease) emissions of other pollutants. The mentioned study is available at: www.cement.org/pdf_files/SN2728.pdf

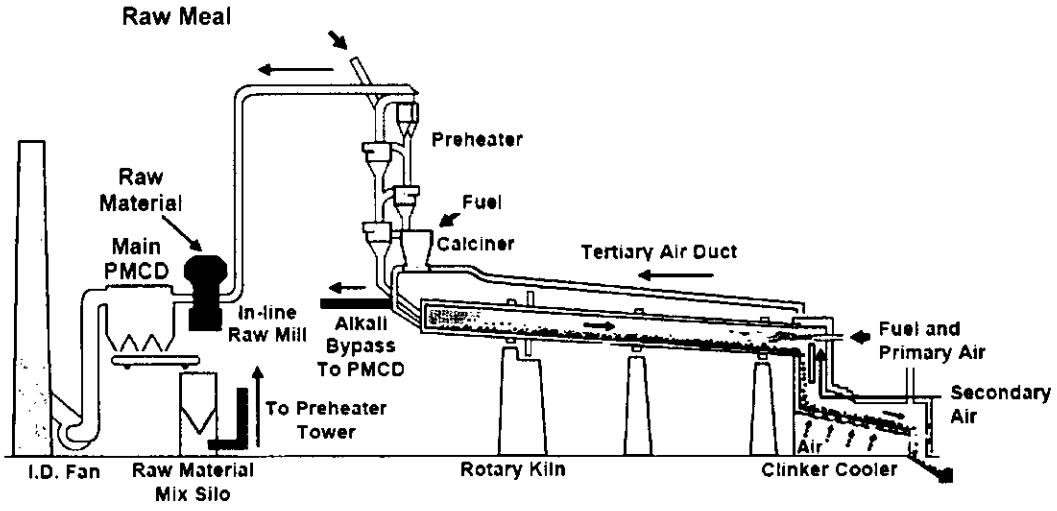


Figure 6. Process Diagram of Dry Process Preheater/Calciner Pyroprocessing System

E. PYROPROCESSING SYSTEM

The pyroprocessing system includes the preheater, calciner, rotary kiln and clinker cooler, all of which are shown in the following diagram. A bypass is shown that can be for the purpose of relieving alkali sulfur, or chloride cycles thus reducing the tendency to form coatings and pluggages in the lower preheater. Usually such bypasses are not needed at cement plants in Florida.

Coal/petcoke is fed to both the medium temperature calciner burner and the high temperature kiln burner to provide heat for the process. Hot air from the kiln hood and hottest part of the clinker cooler

provides secondary combustion air to the main kiln burner and tertiary air to the calciner to support calcination and to complete burnout.

The raw meal passes through the preheater/calciner/kiln system. Initially, fixed moisture is released from the raw meal by heat exchange with calciner/kiln exhaust gases. Then the raw meal is calcined (conversion of limestone fraction to lime) at approximately 870 °C (1,600 °F).

The calcined raw meal is fed at the gaseous exhaust side of the rotary kiln. The kiln is mounted on two or three piers with its axis inclined slightly downward towards the hot material discharge side. The material is heated to a temperature of approximately 1,500 °C (2,732 degrees F) in the large cylindrical steel rotary kilns. The kiln is lined with special firebrick. The gas temperature at the main kiln burner is necessarily even hotter (up to 1,870 °C or 3,400 °F) in order to impart the heat necessary to achieve the very high material temperature.

As the material moves through the kiln, certain elements are driven off in the form of gases. The remaining elements unite to form a new substance with new physical and chemical characteristics. The new substance, called clinker, is formed in pieces about the size of marbles.

Clinker is discharged red-hot from the lower end of the kiln and generally is brought down to handling temperature in a reciprocating clinker cooler. Most of the heated air from the cooler is returned to the kiln and raw mill. The rest is exhausted through the cooler particulate matter control device (cooler baghouse). The gases from the pyroprocessing system are drawn through the induced draft fan and discharged to the kiln stack after passing through the main baghouse.

F. Clinker Handling, Storage, Additives Addition

The cooled clinker is transferred to one of two clinker storage silos. Each clinker silo is equipped with its own baghouse for the control of PM emissions. Additional baghouses are used for the clinker conveyance and transfer operations to and from the silos. Clinker from the silos along with some gypsum and limestone are conveyed to the finish mill.

G. Finish Mill

Clinker, with gypsum and/or limestone, enters the finish mill area where the material is interground in a large ball mill. The ground product (cement) from the ball mills is transferred to cement separators for sizing of the product, using a high efficiency air separator and cyclones, then conveyed to storage.

Baghouses are used to control PM emissions from the finish mill and air separator.

H. Cement Storage, Loadout and Packing

The cement is directed via a pneumatic conveyor to one of several cement storage silos. From the storage silos, the cement is transferred to the truck loadout or to the bagging machine. PM emissions from the cement storage silos, bagging equipment, and truck loadout areas are all controlled by baghouses.

I. Coal/Petcoke Grinding

Two solid fossil fuels, coal and petroleum coke (petcoke) will be utilized in the new cement plant. These fuels will be delivered by truck and stored under cover in separate piles. The fuels will be reclaimed by front-end loader and sent via conveyer and bucket elevator to the coal and petcoke bins. The fuels will be conveyed and combined prior to introduction into the vertical coal/petcoke mill. The fuels are then interground and dried using hot exhaust gas from the preheater taken at the downcomer duct.

The ground coal/petcoke blend is then blown to a baghouse which acts as a product separator and exhaust. The fuel is then stored in the pulverized coal/petcoke bin from where it is fed to the main burner and the calciner burner.

J. Additional Fuels

The applicant identified a number of non-hazardous waste fuels that will be combusted and seeks pre-approval to use those fuels. The key additional fuel consists of whole and chipped tires, collectively called tire-derived fuel (TDF). Up to 35 percent (%) of the TDF will be injected through the main kiln burner and the discharge end of the kiln. The whole tire feed mechanisms shall be designed with an airlock/gate system.

Other non-hazardous fuels will include rice hulls; corn husks; cotton gin wastes; sugarcane bagasse; sawdust and wood chips from clean untreated and unpainted wood; paper and cardboard; non-chlorinated plastic; citrus peel waste; and carpet derived fuel. Such fuels will be stored in enclosed bins or silos, pneumatically fed through a metering system and introduced into the kiln via the main kiln burner or the calciner burner.

Following is the system described by CEMEX for a trial test of saw dust at the existing kiln systems. The saw dust is produced at a separate facility such as a wood processor that make animal bedding. Saw dust will be shipped to CEMEX by truck. The storage, handling, conveyance, feed and burning systems are shown in the photographs below. These would be further improved for permanent use.

Figure 7. Logs to Supplier. Saw Dust Product. Delivery by Truck to Plant. Inventory and Storage.

Figure 8. Feed to Conveyance. Conveyance and Metering. Feed to Kiln Burner. Main Kiln Burner.

Conditions will be included in the permit to minimize fugitive emissions from the additional fuels and to insure that origin of sawdust and wood chips is actually clean untreated and unpainted wood.

VI. EMISSIONS FROM CEMENT MANUFACTURING

The main pollutants emitted from cement manufacturing include nitrogen oxides (NO_X), sulfur dioxide (SO_2), carbon monoxide (CO), volatile organic compounds (VOC), and particulate matter (PM/PM_{10}). In summary (and greatly simplified), the major mechanisms for pollutant formation are summarized in Table 1.[1] Other specifically regulated pollutants that are emitted at low levels include hydrogen chloride (HCl), mercury (Hg), and dioxin/furan (D/F).

Table 1. Primary Mechanisms and Sources of Pollutant Formation.

Pollutant	Mechanism	Source
NO_X	Thermal Formation	Kiln Burner
	Fuel Nitrogen Oxidation	Kiln, Calciner
SO_2	Oxidation of Raw Material Pyrites	Upper Preheater Stages
	Fuel Sulfur Oxidation	Kiln, Calciner, Coal/Petcoke
CO & VOC	Incomplete Combustion	Calciner
	Thermal Evolution	Raw Materials
PM/PM_{10}	Crushing, Grinding, Conveyance	Crusher, Raw Mill, Coal Mill, Belts, Silos
	Pyroprocessing	Kiln, Cooler

A. Control of Pollutants

At first glance, it appears that the most direct way to control most of the pollutants is by process and combustion controls coupled with a judicious selection of fuel and raw materials. Together with this approach there are measures that minimize fuel consumption, and incorporate "smart process control systems" to optimize production, quality, and pollution control. In summary (and again greatly simplified) the primary control measures for the main pollutants are listed in Table 2.

Table 2. Primary Pollutant Control Techniques.

Pollutant	Mechanism	Control
NO_X	Thermal	Kiln Burner Design, Indirect Firing
	Thermal and Fuel	Optimum Process and Raw Mix Control
		Fuel Choice, Staged Combustion in Calciner
SO_2	Oxidation of Pyrites	Raw Materials, Moist Limestone in Raw Mill
	Fuel	Finely Divided Lime in Calciner, Alkalis in Kiln
CO, VOC	Incomplete Combustion	Hot Excess Air, Mixing, Residence Time
	Thermal Evolution	Raw Material Selection
PM/PM_{10}	Crushing/Grinding, Convey	Wet Quarrying, Process Cyclones
	Pyroprocessing	Process Cyclones

Note that the primary control strategies given above are greatly constrained by the characteristics and availability of raw materials and fuels. Such situations give rise to various add-on control equipment technologies. Again, in greatly simplified form, these are as follows:

Table 3. Add-on Pollutant Control Techniques.

Pollutant	Control
NO_X	Selective Non-Catalytic Reduction (SNCR), Selective Catalytic Reduction (SCR)
SO_2	Hydrated Lime, Lime Slurry, Wet or Dry Scrubbers
CO and VOC	Regenerative Thermal Oxidation (both), Carbon Absorption or SCR (for VOC)
PM/PM_{10}	Electrostatic Precipitators (ESP), Baghouse Designs

These technologies are available and each is in use at one or more cement plants in the United States or Europe. Some of the technologies are necessary to meet very low emission limitations irrespective of the mentioned constraints.

There are further constraints such as clinker specifications. This frequently results in the need to include a sulfur or alkali bypass system. The purpose is to avoid accumulation of undesired chemical species in the clinker or formation of scales and rings on internal process equipment surfaces. The species thus removed via the bypass system must often be discarded. The result is that additional fuel and raw material can be required to make up the bypass losses.

B. Nitrogen Oxides (NO_X) Control

Control at Main Kiln Burner.

The starting point to control NO_X is to avoid its' formation in the high temperature environment near the main kiln burner. The key strategy is called indirect firing. The basic principle is to minimize primary air (that carries the coal to and through the burner) and to utilize more secondary air (from the kiln hood clinker cooler) as combustion air. This practice minimizes fuel consumption and thus NO_X. All manufacturers rely largely on these principles and this is now the "baseline control".

Several burners have been described that claim further NO_X reduction from the main kiln burner by promoting high momentum of the primary air to form an envelope "which generates localized reducing conditions and helps reduce NO_X".[2] Given the extreme temperature requirements and oxidizing condition needed to make clinker, there will always be significant NO_X formation even with indirect firing and special burners. A reasonable estimate would be 3 pounds NO_X per ton of clinker (lb/ton) formed in the kiln and another 1 lb NO_X/ton of clinker formed in the calciner for a "baseline" of 4 lb NO_X/ton prior to further control.

Staged Combustion in Calciner (SCC).

Basic Principles of Staged Combustion in the Calciner. Burning a portion of the fuel in the calciner burner instead of the main kiln burner spreads the thermal load in the pyroprocessing system. It allows much of the combustion to occur at temperatures characteristic of the calciner that are much less than the temperatures occurring near the main kiln burner. This reduces the potential for thermal NO_X formation. Significant fuel NO_X formation in the calciner is still possible.

Exhaust gas leaving the kiln and entering the calciner is characterized by relatively low excess air and high temperature that is less than required to sinter cement but greater than required to calcine raw meal. Fuel, air and raw meal introduction to the calciner can be "staged" to destroy thermal NO_X from the kiln and limit fuel NO_X formation in the calciner.

The following discussion explains the mechanism for reduction of NO_X by Staged Combustion in the Calciner (SCC).[3]

Equation 1. Calcination of limestone occurs at approximately 900 degrees Celsius (°C) and liberates carbon dioxide to produce lime according to the following endothermic reaction:

$$CaCO_3 \rightarrow CaO + CO_2$$

This reaction tends to rapidly cool the kiln exhaust gas. The additional heat supplied by the calciner burner and hot tertiary air from the kiln hood and clinker cooler sustains the reaction. Calcination tends to limit the temperature of exhaust gases in and leaving the calciner to temperatures less than 900 °C. Combustion in the calciner proceeds as follows.

Equation 2. Fuel, such as a volatile coal, is heated and pyrolyzed releasing hydrocarbon radicals. These, in turn, catalytically react with NO to form hydrogen cyanide according to:[4]

$$CHi^* + NO \rightarrow HCN + ...$$

Where:

$i = 1, 2, 3$

Equation 3. Ammonia-like radicals are also released during pyrolysis. Under reducing conditions and in the presence of raw meal they catalytically destroy NO according to:[5]

$$NHi^* + NO \rightarrow N_2 + ...$$

This mechanism suppresses formation of NO by the pyrolyzed fuel nitrogen and employs that nitrogen to further reduce NO_X in reactions that at first glance look much like SNCR or SCR.

Other reactions involving carbon monoxide (CO) or hydrogen (H_2) are also catalytically driven and destroy NO_X in this reducing atmosphere. In the subsequent burning of soot and char, the NO_X reducing reactions proceed much more slowly and some of the remaining fuel nitrogen can still form significant amounts of additional NO_X.

There are numerous approaches available that employ the principles discussed above. Following are discussions of two of them including the approach planned for the present project.

F.L. Smidth (FLS) Low NO_X Calciner. In the FLS design *all* calciner fuel is injected at a single level in the riser between the kiln and calciner to create the desired reducing atmosphere. Their theory is that the greatest NO_X reduction will occur when the most aggressive reducing conditions and highest temperature persist just long enough to drive the NO_X destruction reactions.[6] Then *all* air is added via the tertiary air duct from the kiln hood and clinker cooler to a single level near the bottom of the calciner.

The tertiary air supply duct is readily visible in the following photograph and the point where it enters the calciner is shown in the diagram. Another feature not fully appreciated is that raw meal is split to several sections of the calciner. Three meal splits are visible in the diagram. Effective SCC designs typically incorporate *meal staging* for numerous reasons. One key reason is to take advantage of the *catalytically* enhanced dissociation in the preheater of nitrogen oxide (NO) formed in the kiln.[7] Another important reason is as a temperature control stratagem.

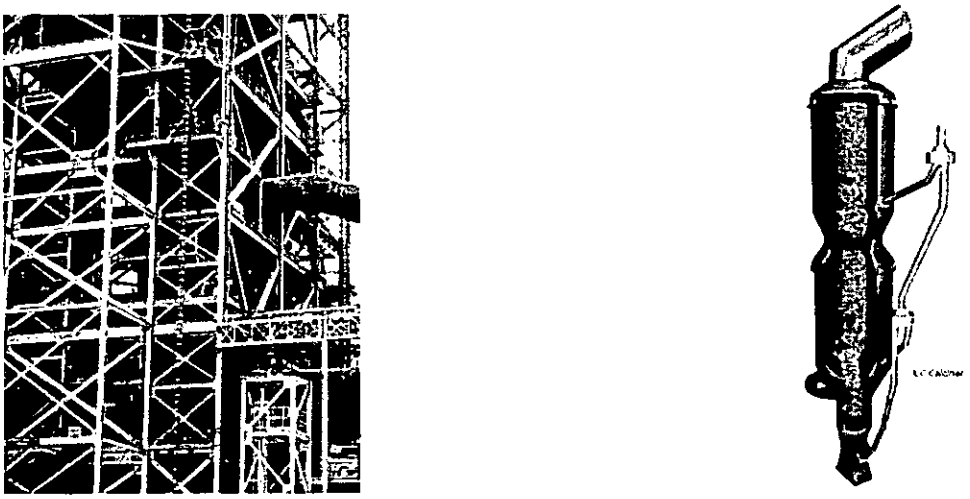


Figure 9. Titan Florida Pennsuco Cement Plant Calciner, Diagram of SCC Strategy

The degree of CO "burnout" depends upon the length and turbulence in the upper duct leaving the calciner. The described version of SCC was demonstrated in the U.S. at the CEMEX Santa Cruz, California plant by 1997. A value of approximately 2 pounds NO_X per ton of clinker (lb/ton) is routinely achieved at the Titan Florida Pennsuco Cement Plant. The same calciner is also characterized by low CO emissions (routinely between 0.75 and 1.25 lb CO/ton on a 30-day basis) based on the most recent data from continuous emission monitoring system (CEMS) located in the stack.[8] The emission limits are 2.17 lb NO_X/ton (12-month rolled monthly) and 2.0 lb CO/ton (30-day rolling average).[9]

KHD Humboldt-Wedag Pyroclon Low NO_X Calciner. The Pyroclon Low NO_X design shown below relies on the principle of *fuel and air staging*. The version on the left incorporates a relatively small "Low NO_X" burner, the purpose of which is the effect the necessary reducing conditions. The second "Calciner" burner operates in an oxidizing atmosphere and provides most of the fuel for calcination. The diagram on the right hand side shows an updated Pyroclon design that includes a top air duct for additional air staging as planned for the CEMEX Brooksville project.

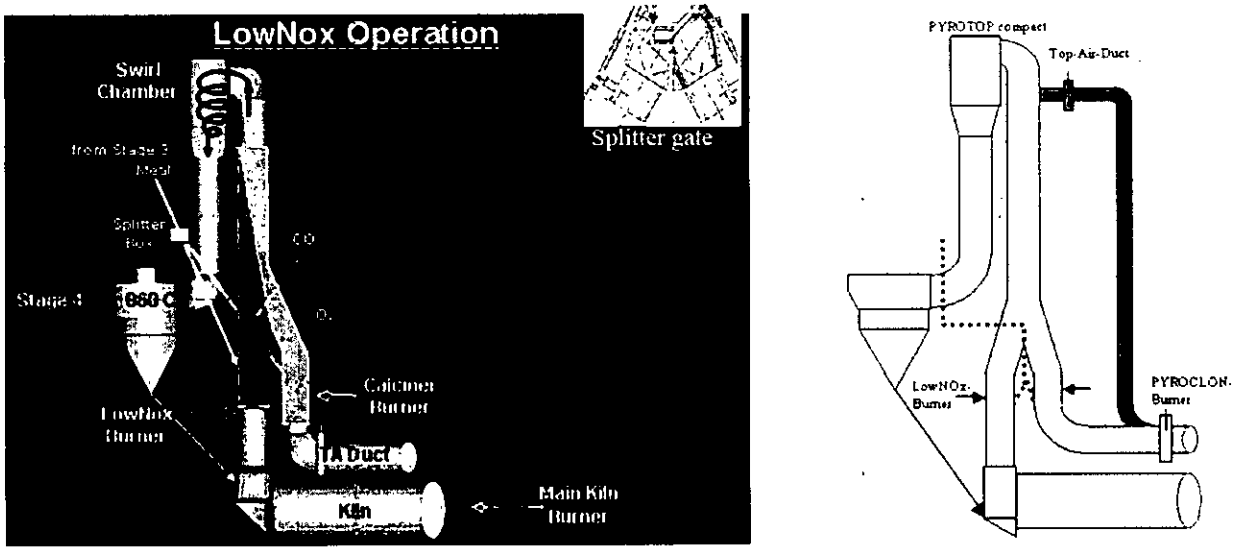


Figure 10. Pyroclon Calciner with Pyrotop Swirl Chamber, Updated Version with Top Air Duct

The recent CEMEX Kosmosdale project in Kentucky included the Pyrotop swirl chamber but did not include the Top Air Duct. The system was guaranteed to achieve 3.3 and 1.5 lb/ton of NO_X and CO respectively. The performance tests indicated emissions of 2.3 lb NO_X/ton and 0.8 lb CO/ton.[10] According to the cited reference, "the Low NO_X burner reduces the NO_X produced in the kiln to near zero, limited only by the maximum allowable CO emissions" (underline added).

The LaFarge Roberta, Alabama project included the Pyrotop and the Top Air Duct. It was guaranteed to achieve 2.4 and 0.8 lb/ton of NO_X and CO respectively. The performance tests indicated emissions of 1.8 lb NO_X/ton and 0.3 lb CO/ton.[11]

The more recent CEMEX Victorville, California Kiln 3 project included the Pyrotop and Top Air Duct. Based on continuous emission monitoring system (CEMS) data, the 30-day rolling averages ranged from 2.2 to 3.0 lb NO_X/ton and 0.07 to 0.23 lb CO/ton during 2004.

Conclusion Regarding SCC. Based on the performance of the FLS and KHD Low NO_X calciners, the Department concludes that NO_X levels less than 3 lb NO_X/ton and 2 lb CO/ton will be comfortably achieved by SCC alone before consideration of add-on control equipment.

Selective Non-Catalytic Reduction.

In addition to or in lieu of SCC, Selective Non-Catalytic Reduction (SNCR) and Selective Catalytic Reduction (SCR) are available for consideration.

Principle of SNCR. SNCR technology involves injection of ammonia (NH_3) at a point in the process characterized by a temperature window between 850 and 1050 °C. Residence time, turbulence, oxygen content, and a number of other factors specific to the given gas stream are also important. SNCR destroys NO_X by a two-step process as follows:

Equation 4. Ammonia reacts with available hydroxyl radicals to form amine radicals and water per the following theoretical equation:

$$NH_3 + OH^* \rightarrow NH_2^* + H_2O$$

Equation 5. Amine radicals combine with nitrogen oxides to form nitrogen and water.

$$NH_2^* + NO \rightarrow N_2 + H_2O$$

Equation 6. The two steps are typically expressed as a single "global reaction".

$$4NO + 4NH_3 + O_2 \rightarrow 4N_2 + 6H_2O$$

The simplified equation does not convey the kinetics. But it suggests that, theoretically, SNCR will function best in an oxidizing atmosphere.

Equation 7. In a reducing atmosphere, CO competes with ammonia for available OH radicals

$$CO + OH^* \rightarrow CO_2 + H^*$$

Per the following figure, the necessary temperature window exists at least between the kiln inlet and the bottom cyclone of the preheater that receives the exhaust from a calciner that employs air staging. The physical extent of the window for oxidizing conditions depends on the damper positions for the tertiary air branches for the shown calciner design. In selecting a level (or levels) for ammonia injection there must be some optimization of temperature and oxygen.

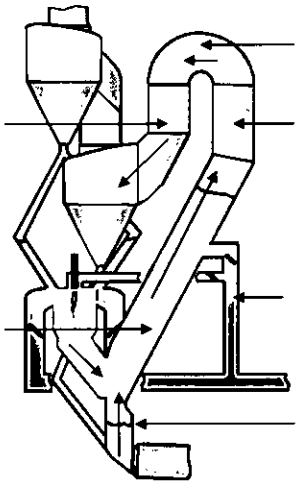


Figure 11. Temperature and Oxidizing Windows for SNCR in an Air Staged Calciner

Based on the foregoing, ammonia should be injected after introduction of tertiary air and preferably after completion of CO burnout. Some of the equipment used during an SNCR demonstration at Suwannee American Cement (SAC) in Branford, Florida is shown in the following figure.

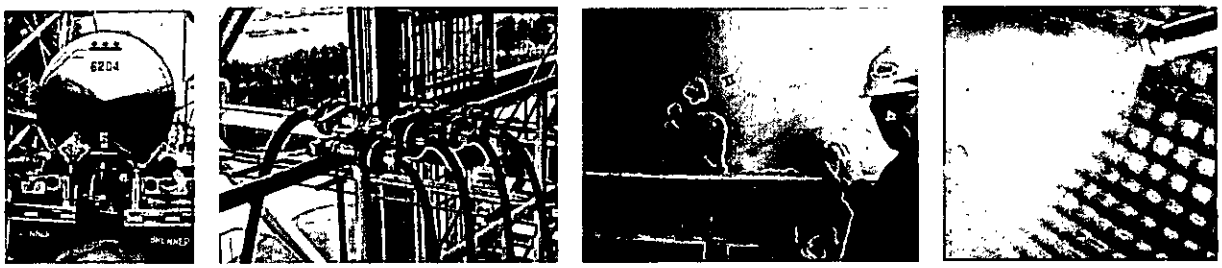


Figure 12. Aqueous Ammonia Supply Truck, Compressed Air, One of Four Ports, Injector

Not shown is the metering system or the additional continuous emission monitoring equipment. Four ports were installed after the bend in the duct work following the top air injection branch for tertiary air. It is noteworthy that it sufficed for treatment of all of the exhaust gas from the calciner and not just a slip stream. In fact at times a single injector sufficed for adequate NO_X control.

The trials conducted showed that it was possible to achieve emissions as low as 1 lb/ton whether or not SNCR was combined with SCC.[12] Similar tests were conducted at the Florida Rock Industries (FRI) Cement Plant in Newberry, Florida. These tests were conducted by Polysius during the period December 6-11, 2004. The summary report prepared by Koogler and Associates is available at: www.dep.state.fl.us/Air/permitting/construction/flrock.htm

The Department reviewed the report and summarized the performance of the SNCR system in the graphs shown in the following figure. The graph on the left hand side represents the performance of the SNCR system while burning tires and maintaining mildly reducing or mildly oxidizing conditions in the calciner. A basic molar ratio (NH_3 in/NO_X baseline) a little greater than 0.5 was sufficient to reduce emissions to around 1.5 lb/ton.

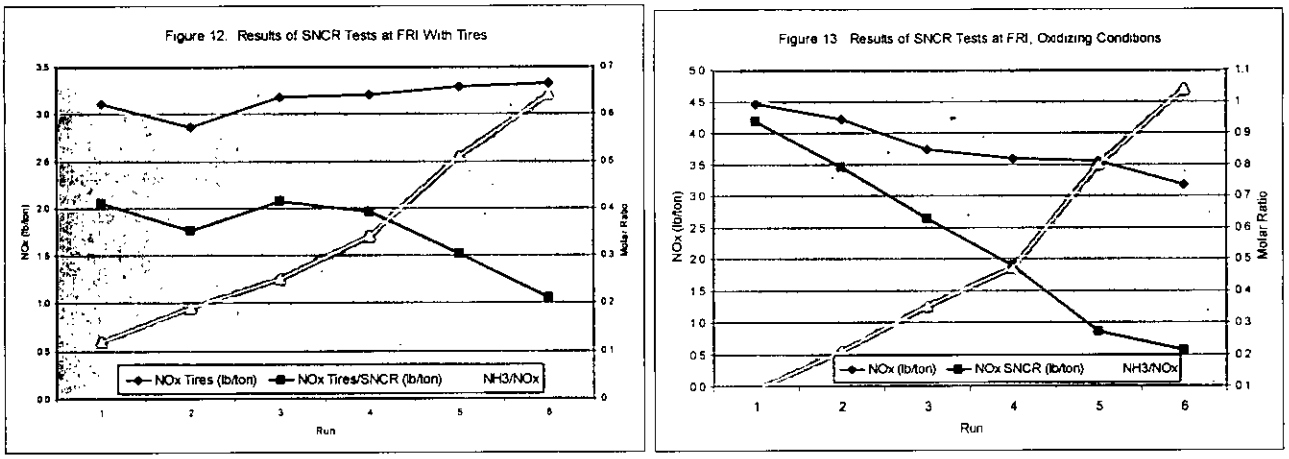


Figure 13. NO_X Emissions (middle lines) vs. Molar Ratio (lower lines) during Testing at FRI.

Following experiments carried out at SAC and Florida Rock Industries (FRI), a permanent SNCR unit was installed at the existing SAC plant. The limit is 2.4 lb/ton on a 30-day basis. The data are continuously available at: www.suwanneecement.com/liveemissions.html . A SNCR system is under construction at the existing FRI kiln.

In 2005 CEMEX installed an SNCR system at their Brooksville Cement Plant Kilns 1 and 2 and will comply with a recently issued permit limit equivalent to 2.0 lb/ton of clinker.

Limitations to SNCR. One of the arguments against SNCR is the possibility of increased opacity due to the formation of ammoniated sulfate and sulfite species in detached plumes.[13] Unreacted ammonia from the SNCR process or from raw materials reacts with SO_2 and SO_3 at temperatures prevalent in the upper preheater, pollution control equipment, and outside the stack.

Equation 8. Ammonium bisulfate is formed in accordance with the following reaction.

$$NH_3 + SO_3 + H_2O \rightarrow NH_4HSO_4$$

Equation 9. Ammonium sulfate is formed per the following reaction.

$$2NH_3 + SO_3 + H_2O \rightarrow (NH_4)_2SO_4$$

Equation 10. Finally, ammonium bisulfite is formed as follows.

$$NH_3 + SO_2 + H_2O \rightarrow NH_4HSO_3$$

When a PH/C kiln is operated with the raw mill on line, these compounds condense. They go back into the feed system and to the preheater, where they vaporize again. They subsequently condense again in the raw mill. When the raw mill is taken off line, the volatile salts are no longer captured in the raw mill, and go to the dust collector. Since the dust collector cannot efficiently capture these species, the plume could become visible. When the raw mill is put back into operation, the plume would cease again. This cycle continues indefinitely, unless something is done to break it.[14]

This detached or visible plume phenomenon did not present itself during the Florida tests because the raw materials are (with few exceptions) very low in sulfur as explained in following sections. If a plant has a persistent detached plume that is attributable to $(NH_4)_2SO_4$ it is necessary to get rid of one of the two reactants that ultimately form $(NH_4)_2SO_4$ - either the NH_3 or the SO_2.[15] One method of avoiding the plumes when using SNCR is by minimizing ammonia slip when SO_2 emissions are likely.

European SNCR Experience. As of 2000, there were at least 18 kilns in Europe that had installed SNCR.[16] By 2004, there were approximately 32 SNCR installations in Germany alone.[17] Most of these SNCR installations were designed and operated for NO_X reduction rates of 10 – 50 percent with NH_3 /NO_2 molar ratios of 0.5-0.9 and emissions of 500-800 mg NO_X/m^3 (~2.3 to 3.6 lb/ton). The Scancem Skövde and Slite Plants in Sweden are limited to 200 mg NO_X/m^3 and achieve the limit with SNCR.[18] This equates to approximately 0.9 lb NO_X/ton and is believed to be the lowest limit in Europe.

The emissions and ammonia consumption profiles for the Skövde and Slite Plants are shown in the following figure. Clearly, both plants exhibited high emissions on the order of 1,100 mg NO_X/m^3 (~ 5 lb/ton) prior to installation of SNCR systems and much lower emissions thereafter.

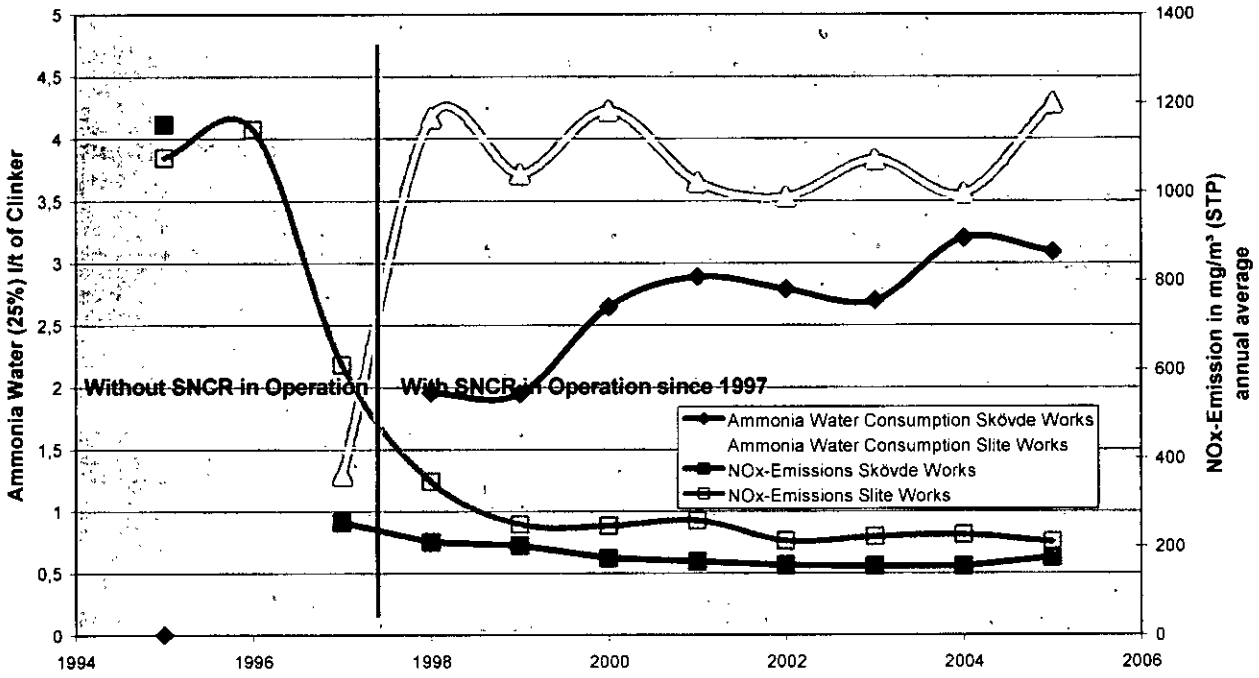


Figure 14. NH_3 Use and NH_3, NO_X Emissions - Skövde (no Scrubber) and Slite (Scrubber)

The Department reviewed the more detailed data provided by the Swedish Environmental Agency and found that in 1995, before installation of the SNCR, the 2,100 tons per day Skövde Preheater Kiln achieved approximately 5 lb NO_X/ton clinker.[19] Between 1997 and 2004, after installation of SNCR, the kiln achieved monthly averaged values between 0.44 and 1.1 lb NO_X/ton. In 2001 the basic molar ratio (NH_3/NO_X present) was 1.0-1.2. The corrected molar ratio (NH_3/NO_X actually removed) is 1.2 to 1.4. Therefore the overall NO_X reduction is greater than 80% while the reagent utilization efficiency is on the order of 70 to 80%.

The 6,400 TPD Slite Preheater/Calciner Kiln No. 8 exhibited similar NO_X reduction efficiency. At Slite the basic and corrected molar ratio were in the ranges of 1.2 to 1.4 and 1.5 to 1.8 respectively. The reagent utilization efficiency ranges between 56 and 67%. Ammonia consumption and emission values are shown in the following figure.

It presently takes approximately 3 to 4.5 liters of 25% ammonia solution per ton of clinker to achieve the necessary 80% NO_X reduction at the two plants. Both plants have raw mills that absorb ammonia when operating. In Skövde the raw mill operates approximately 98% of the time.

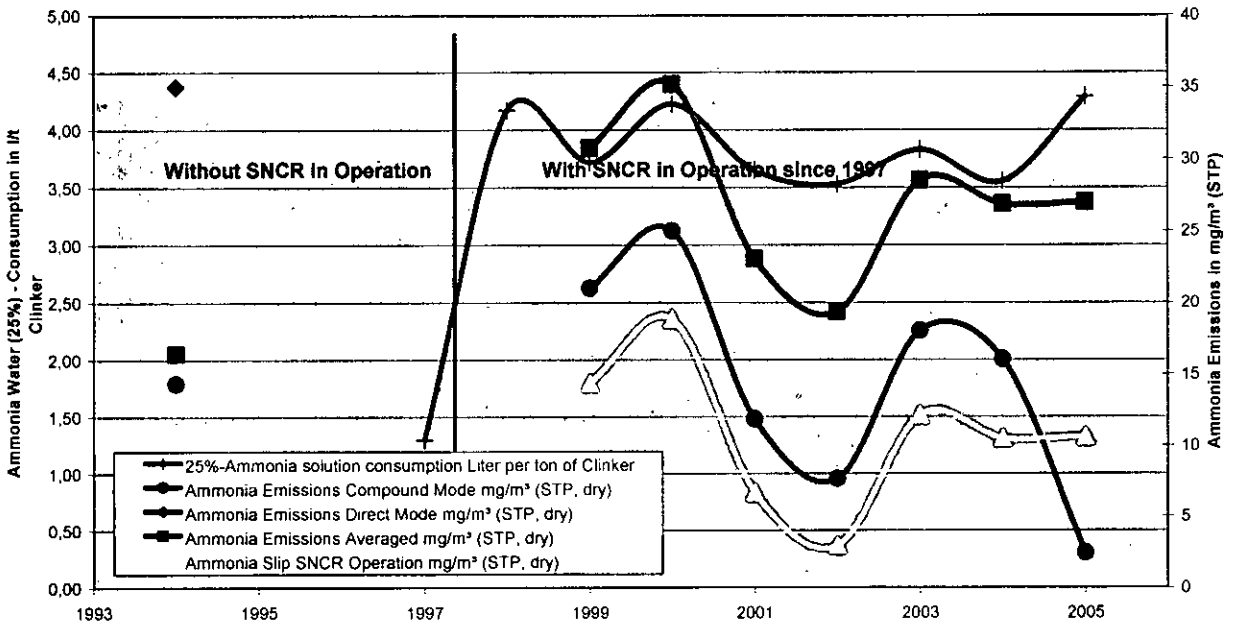


Figure 15. Ammonia Emissions and Consumption for Slite Kilns 7 and 8 after Scrubber

The Slite Plant has an SO_2 scrubber that tends to equalize and average out NH_3 emissions over time. Skövde has no scrubber. Measurements in 2003 indicated less than 5 mg/m³ ammonia emission without SNCR and 20 mg/m³ with the SNCR system in operation.

The SNCR system at a cement plant in Germany upgraded to a *high-efficiency* SNCR installation with multi-level reagent injection. The Department examined continuous emission monitoring system (CEMS) data taken over several months and provided by the Bavarian Environmental Agency. The data indicate NO_X emissions of 200 mg/m^3 or roughly 0.9 lb/ton.[20] The data also indicate substantial NH_3 emissions when the raw mill is down. However, the high efficiency SNCR installation is new and is undergoing optimization of the multi-level injection system. No detached plume is expected during periods of high NH_3 emissions because SO_2 emissions at the plant are low.

Conclusion regarding SNCR. Based on the foregoing discussion, it is possible to achieve NO_X emissions of 1 lb/ton by SNCR even with relatively high baseline emissions. The consequences can be substantial NH_3 emissions when trying to achieve very low NO_X emissions or a detached plume when SO_2 emissions are also high. Therefore it is important to balance NO_X, NH_3 and SO_2 emissions or consider selective catalytic reduction (SCR) when very low NO_X emissions are required.

Selective Catalytic Reduction (SCR)

Principle of Selective Catalytic Reduction (SCR). The key to SCR is the catalyst, over which the exhaust gas and reducing reagent are contacted at temperatures between 170 and 400°C in contrast with the SNCR temperature window (850 to 1050 °C). High conversion can be realized by the catalyst with short retention times.

The principle of the SCR process is shown in the following figure.

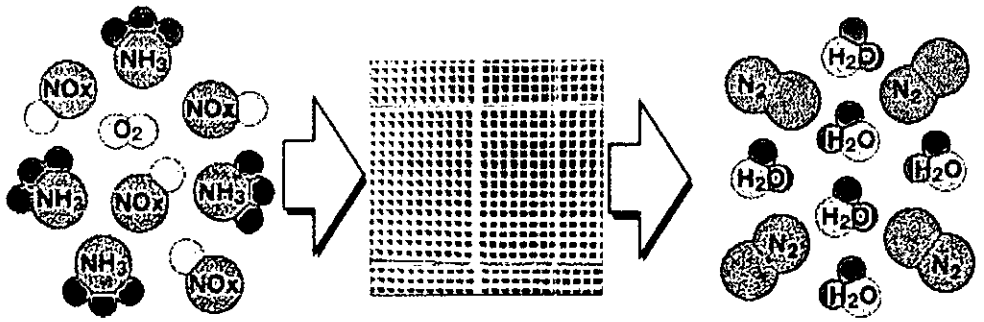


Figure 16. Raw Gas with NO_X and NH_3. Reaction over Catalyst. Yields Nitrogen and Water

The catalyst elements store ammonia in their micro-pores to a certain extent and ammonia is not necessarily consumed immediately upon injection. Conversely the reaction can proceed for some time after discontinuing injection. This partly explains why NO_X-removal efficiencies by SCR can be greater than 90% with practically no ammonia slip. The catalyst is not a reactant and is not consumed in the process.

The catalyst consists of active metals and substrates. The combination of V_2O_5 as active component and TiO_2 as a ceramic base and formed as a honeycomb structure has shown the best results so far for cement kiln applications. Other known active components consist of tungsten, iron, chromium, nickel or copper; precious metals (e.g.: platinum, palladium, rhodium, ruthenium); zeolites; and activated carbon (Haug et al., 2002).[21] Other known catalyst structures are plate, molded wire, pellets or dust.

The basic requirements of an SCR catalyst for cement kiln application are:

- Suitable to handle gas with dust on the order of 100 g/m^3;
- High activity and selectivity;
- Low oxidation rate of SO_2 to SO_3;
- Chemical and mechanical stability; and
- Small pressure loss.

Referring to the following figure, the appropriate SCR temperature window exists from the upper stages of the preheater through the gas conditioning tower (CT) and raw mill (RMM). These possible locations are characterized by high dust loadings. Therefore the key concerns for a high-dust SCR system at a PH or PH/C cement kiln are additional equipment to prevent catalyst pluggage and to keep the gas passages clean and catalyst design to resist abrasion and loss of activity.

Figure 17. SCR Reactor Location in Preheater Kiln. Simplified Diagram of SCR Components

Until recently the only known full scale installation of SCR at a cement plant was at the Solnhofer Portland Zementwerke in Bavaria, Germany. It was built with financial assistance from the German Federal Environmental Office. The first known self-funded commercial installation of SCR at a cement plant is located at the Radici Cementeria di Monselice (CM) in Italy.

There is much debate in the industry regarding the relative merits of SNCR versus SCR. Very low NO_X emissions are possible with either technology. The most interesting details regarding the installation at CM relate to the NH_3 consumption and slip. Use of SCR directly minimizes detached plume formation potential and fine particulate precursor emissions.

According to the following figure, the data for the SCR system at CM indicate that less than one mole of ammonia is required to destroy one mole of NO_X. All the data from CM lie to the left of the ideal "unity" line (moles NH_3 injected/mole of NO_X prior to treatment = 1). The reason for the "better than theoretical" performance is that raw materials used at the plant contain some ammonia. The catalyst utilizes that ammonia to destroy approximately 25-30% of the NO_X before any reagent is required. Performance ranges for different classes of SNCR systems reviewed by the SCR system manufacturer are also shown in the graph for comparison.[22] It is clear that more NH_3 is required when using SNCR than when using SCR for a given NO_X removal objective. In that respect (minimizing NH_3 consumption and emissions) the CM system is clearly superior to the performance of the various classes of SNCR data that comprise even the "excellent SNCR Systems".

Figure 18. SCR Efficiency at Cementeria di Monselice compared with SNCR Systems

During June 2007, ammonia emissions based on continuous emission monitoring data averaged 2 mg NH_3/m^3 at CM compared to emissions as high as 150 mg/m^3 before installation of the SCR system. An SNCR system on the CM kiln would increase rather than reduce the pre-control NH_3 emissions.

SNCR tests conducted at one Florida preheater/calciner kiln yielded the data points that fall just to the right of the unity line, at least for molar ratios up to 0.55. Beyond that level, the characteristic line will tend to curve to the right and towards the long axis of the ellipse describing the "excellent SNCR systems".

Because the raw materials in Florida do not contain much NH_3, the performance of an SCR system on a Florida kiln would also be just to the right of the unity line (rather than on the left as in CM). The points would, in contrast to the SNCR system, continue to "hug" the line even at high molar ratios. Overall for modest NO_X reductions (~50%) at Florida cement kilns, SNCR is likely to be almost as efficient as SCR.

For greater NO_X removal efficiency requirements, the kilns in Florida (excellent SNCR conditions) using SNCR would require more NH_3 reagent and would exhibit greater slip than they would if they were outfitted with SCR. In many other parts of the country, the trends towards greater reagent consumption, greater slip and possible plume formation at even moderate NO_X removal targets can be more pronounced (difficult SNCR conditions).

SCR can be beneficial as well in areas where VOC reductions are also necessary or as a dioxin/furan control strategy.

Equations 11 and 12. Hydrocarbons can be oxidized on the catalyst. As a specific example, the equations for the proven oxidation of dioxin and furan on the catalyst are given below:

$$C_{12}H_nCl_{8-n}O_2 + (9+0.5n)O_2 \rightarrow (n-4)H_2O + 12CO_2 + (8-n)HCl$$

$$C_{12}H_xCl_{8-n}O + (9.5+0.5n)O_2 \rightarrow (n-4)H_2O + 12CO_2 + (8-n)HCl$$

Conclusion regarding SCR. Based on the foregoing, SCR has been demonstrated and is available for the cement industry. SCR can achieve low NO_X reductions with lower NH_3 emissions than SNCR. It can also achieve reductions in VOC and D/F.

C. Sulfur Dioxide Control

Inherent Scrubbing of Fuel Sulfur Dioxide. Sulfur dioxide (SO_2) formed by burning fuel in the main kiln burner can be efficiently scrubbed out by reactions with alkali species (Na and K) in the kiln to form stable sulfate compounds that are incorporated into the clinker.

Equation 13. Kiln SO_2 reaching the calciner and all SO_2 from burning fuel in the calciner are completely scrubbed out at the temperatures prevailing in the calciner as follows: [23]

$$CaO + SO_2 \leftrightarrow CaSO_3 \text{ or } CaO + SO_2 + 0.5O_2 \leftrightarrow CaSO_4$$

At 1,045°C, the formation and decomposition reactions for $CaSO_4$ are at equilibrium at normal excess oxygen levels. As materials move through the high temperature regime in the kiln, the $CaSO_4$ can break down per the above reaction releasing the SO_2 or it can fuse/react with the alkali sulfates and other species to form stable compounds that depart with the clinker.

In summary, the control of fuel SO_2 is generally not an issue in modern kilns. Limiting fuel sulfur makes little difference in emissions. Generally severe operational problems such as coating formation and blockages will occur due to use of high sulfur fuels before significant SO_2 emissions occur. [24]

Control of Raw Material SO_2. Sulfide or elemental sulfur contained in raw materials may be "roasted" or oxidized to SO_2 in areas of the pyroprocessing system where sufficient oxygen is present and the material temperature is in the range of 300-600°C.[25,26] Uncontrolled SO_2 emissions can be very significant when pyritic sulfur is present in the raw materials and much greater than the very minimal emissions caused by fuel sulfur. However, SO_2 emissions are very low at Florida PH/C kilns because there are only minute amounts of sulfur in most of the available limestone, with the exception of random pockets in northernmost Florida.

Operating the raw mill promotes raw material lime SO_2 removal by limestone scrubbing under humid conditions, due in part to freshly generated limestone surface produced by grinding. Some of the SO_2 generated in the top preheater stages is also scrubbed out by small amounts of free CaO that are carried back from hotter zones by combustion flue gases.

Another SO_2 removal technique is to extend the inherent self-scrubbing (by CaO) that occurs in the calciner to the upper sections of the preheater where pyrite-derived SO_2 is evolved. This involves conveyance of lime from the calciner (by differential pressure) to the upper stages of the preheater. The system consists of a cyclone and some ductwork and involves no moving parts.[27]

A very fine suspension of slaked lime can be introduced into the gas-conditioning tower to remove SO_2, particularly when the raw mill does not operate. The droplets react, dry, and are captured by the particulate control equipment where excess lime (from the dried droplets) continues to remove remaining SO_2.[28]

If the control measures mentioned above are insufficient to achieve permitted SO_2 requirements, then conventional wet or dry scrubbers can be considered. The TXI Midlothian scrubber system was estimated to cost $13,000,000. Emissions of SO_2 from the new kiln were still permitted at over 1,300 tons per year and 1.33 lb/ton of clinker but are likely much lower.[29]

An alternative to a conventional wet or dry scrubber is an activated coal (coke) filter such as included in the Polvitec system installed at the Holcim Siggenthal Cement Plant.[30, 31] Two versions of the technology are shown in the figure below. Holcim installed the version on the left.

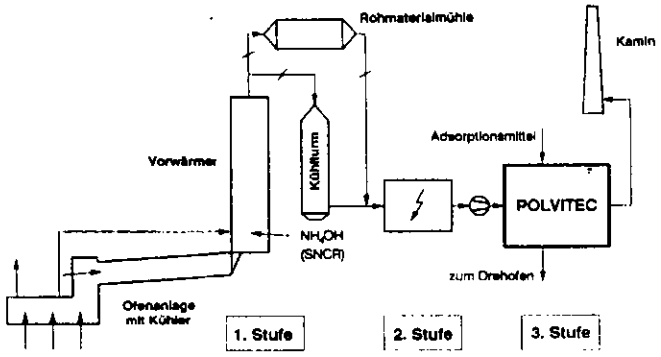


Figure 19. POLVITEC with SNCR (Siggenthal Set Up) and with NO_X Catalyst (as Pilot Tested)

The third stage of the plant's add-on control system is a coke filter that adsorbs: SO_2 originating from raw materials; NH_3 slip from the SNCR stage (and raw materials); Complex hydrocarbon compounds/VOC; volatile heavy metals including mercury (Hg); and dioxin and furan (if present).

The procedure for renewing the filter consists of removing coke after it reaches its saturation point and then introducing it as fuel into the high temperature range of the cement kiln. The SO_2 reacts there with the calcium oxide (CaO), which is plentiful in the atmosphere of the furnace, and is converted to

gypsum, which is needed as additive in the cement production. NH_3 from the denitrification (and raw material) slip is thermally decomposed. Hydrocarbons as well as dioxin and furan (if present) are likewise decomposed. The fate of mercury is discussed in a subsequent section. The performance of the Siggenthal installation is shown in the figure below[32].

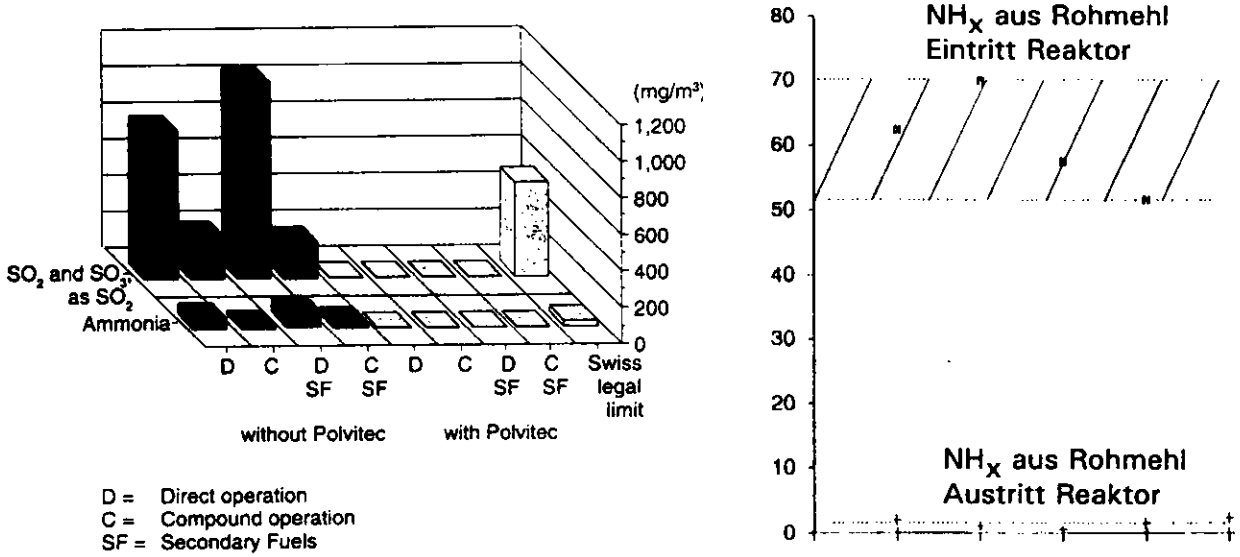


Figure 20. SO_2 and NH_3 Emissions with/without Coke Filter. Removal of NH_3 by Coke Filter.

It is noted that Polvitec was originally designed and successfully pilot tested including a catalyst segment within the filter reactor. The unit was installed in conjunction with a program to burn pelletized dried sewage sludge (DSS). Following are pictures of the area where the filter is located and of the main kiln burner where spent coke and other fuels (including the DSS) are also burned.

Figure 21. Holcim Siggenthal Plant. Stack and Polvitec Area. View of Kiln from Kiln Burner.

The capital costs for the installation at Siggenthal was approximately 34 million Swiss Francs (CHF) for the SNCR and the Polvitec Filter. Added to this are the annual running costs of the filter, the SNCR system reagent, activated coal and power, as well as maintenance and servicing work. These costs amount to CFH 2 million on average.

The costs are offset by the use of DSS and other waste fuels to replace coal and natural raw materials. The avoidance of the costs to local municipalities involved in waste disposal also contributes to the overall economics. Due to the great pressure for the disposal of sewage sludge generated in Switzerland, a long-term disposal contract was signed with the city of Zurich, which included a CHF 9.5 million investment in the project, easily offset by its reduced disposal costs. A payback period of 10 years is envisaged for the overall project.

Installation of a coke filter might be cost-effective as a pollution control technology (i.e. $/ton of pollutant removed) at some installations with high sulfur even without the prospects of an economic payback. The simultaneous removal of volatile compounds or NH_3 from the the raw materials (or from SNCR systems) can further improve the cost-effectiveness of overall control.

The native limestone in Florida does not contain high levels of carbonaceous material or oily substances such as kerogen. Therefore controls such as RTO and Polvitec are not necessary to achieve low VOC and CO levels. Judicious selection of the raw materials, proper combustion in the calciner and sufficient burnout residence time are sufficient controls to achieve low CO and VOC values.

The coke filter deserves further consideration by EPA which is reviewing control systems under various initiatives to: reconsider the industry maximum achievable control technology (MACT) requirements under 40 CFR 63, Subpart LLL; evaluate whether revisions are needed to the Standards of Performance for New Cement Plants under 40 CFR 60, Subpart F; and provide guidance on NO_X controls to EPA regions and state and local air pollution control programs. Accordingly, the Department recently provided further information to EPA's Office of Air Quality Standards for further consideration.[33]

The inherently low SO_2 emissions from cement kilns in Florida do not warrant serious consideration of add-on control equipment or any of the described procedures. The exception is in parts of the state where some limestone deposits contain pyrites or chert. In such cases, SO_2 emissions are minimized by selective mining or intermittent hydrated lime injection.

D. CARBON MONOXIDE (CO) AND VOLATILE ORGANIC COMPOUNDS (VOC) CONTROL

CO and VOC are pollutants formed by the incomplete combustion of the fuels fired during pyroprocessing or by evolution of carbonaceous or hydrocarbon fractions in raw materials (such as fly ash and mill scale) in the preheater. Emissions of CO and VOC are controlled by:

1. Relatively low carbonaceous matter and hydrocarbons in the raw materials;
2. Good combustion at the main kiln burner and calciner;
3. Addition of tertiary air from the kiln hood and clinker cooler; and
4. Varying degrees of calciner sizes and duct lengths to complete burnout.

Referring back to Figure 6, it is easy to appreciate that CO and VOC evolved by carbonaceous and oily material entering the top of the preheater will not be exposed to sufficiently high temperatures to completely oxidize these pollutants. It is also easy to appreciate that fuel in the kiln and calciner can be completely combusted given the prevailing temperature regime, turbulence, and excess air.

Both of the SCC designs in Figures 9 and 10 provide for very hot excess air from the kiln hood and clinker cooler and it is only a matter of holding the relatively high temperature during adequate residence time to minimize CO and VOC from fuel combustion as described in Table 2. Most of the recently approved kilns have incorporated designs with relatively low residence time. These include Polysius kilns at Suwannee American Cement, Florida Rock and Rinker/Florida Crushed Stone.

The design proposed by CEMEX and the one installed at Titan Pennsuco are characterized by high residence times on the order of 7 seconds. Therefore very low CO emissions are expected and have actually been measured using CO CEMS as shown in the following figure. The graph on the left side of the figure shows the emission characteristics of the CEMEX Victorville Kiln 3 that has a KHD Humboldt Wedag design similar to the one proposed for CEMEX Brooksville.

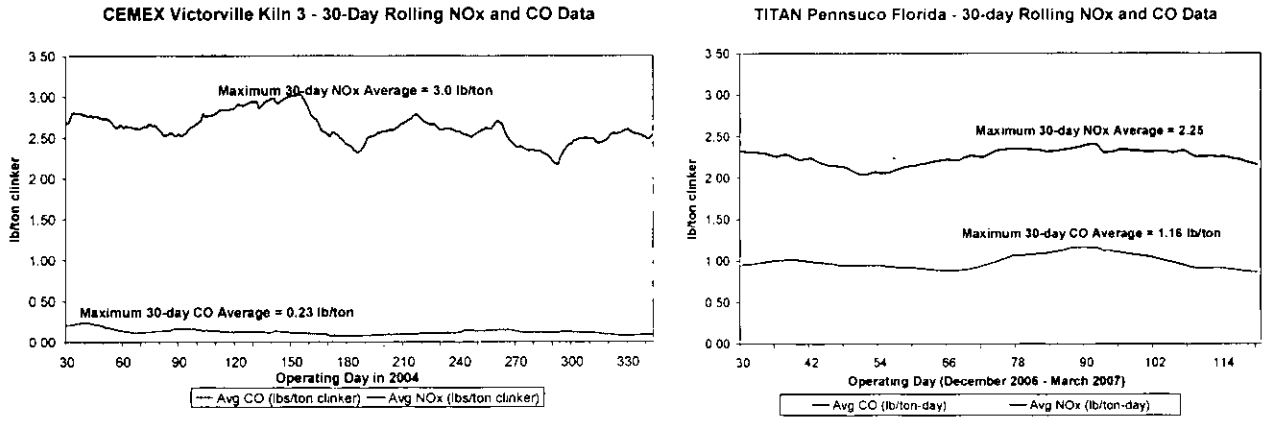


Figure 22. CO and NO_X Emissions from CEMEX Victorville and Titan Pennsuco Kilns

The graph on the right shows the characteristics of the Titan Pennsuco Kiln that uses the F.L. Smidth design. Both have long residence times. With respect to CO, the CEMEX Victorville KHD calciner appears to perform better than the Titan Pennsuco F.L. Smidth calciner. With regard to NO_X, the Titan Pennsuco F.L. Smidth version appears to perform better.

VOC and CO from raw materials can be controlled by judicious selection of the raw materials. This is not a simple task if the origin is native limestone, clay, and sand. If the source is additives such as mill scale or coal ash (such as with high LOI), there are some options. These include accessing different mill scale sources[34] (or coal ash) or grinding and metering directly into the kiln.[35] Presumably the Titan Pennsuco kiln uses some raw materials that have a greater contribution to total CO emissions than the CEMEX Victorville Kiln 3.

Extremely high levels of CO and VOC emanating from native raw materials (such as present in other states) can be controlled by a regenerative thermal oxidation system (RTO). Such a system was installed at the Holcim Dundee Michigan Plant to combat odor problems. A $17,500,000 RTO system was installed at the TXI Midlothian Plant to deal with inherently and unusually high carbonaceous matter in the limestone and to avoid PSD for both CO and VOC. The system consists of 11 RTO modules and covers an area equal to a "football field". Natural gas is used to heat the system.

The previous section of SO_2 control includes a discussion on the coke filter used at the Holcim Siggenthal Plant. It is also highly efficient at removing VOC and dioxin/furan.

E. Particulate Matter (PM, PM_{10} and $PM_{2.5}$)

Particulate matter, or PM, is the term for particles found in the air, including dust, dirt, soot, smoke, and liquid droplets. PM_{10} represents particles with an aerodynamic diameter of less than 10 microns (μm) which represent the cut-off size for particles that can enter into the pulmonary system. $PM_{2.5}$ represents particles less than 2.5 μm in aerodynamic diameter and considered to be "fine" particles. Because of their small size, fine particles can lodge deeply into the lungs. PM consists of all generated particulate matter and includes PM_{10} as well as $PM_{2.5}$.

PM can be directly emitted by fuel combustion and processes that lead to material abrasion. PM, especially the $PM_{2.5}$ fraction, can also be by atmospheric reaction of precursors such as SO_2, NO_X, VOC and ammonia emitted from traffic, industry, fuel combustion and even agriculture.
For reference, all of the precursors can be emitted from cement plants. This is the reason that a complete program of PM control includes minimization of PM and its precursors.

PM is emitted from all of the operations at cement plants including quarrying, crushing, material transfer and storage, grinding and blending, pyroprocessing, finish grinding, and packaging and loading. Quarrying and crushing are not potentially large generators of dust at the proposed project site because the basic limestone is mined under the water table without the need for blasting, etc. Even after some dewatering and drying the material generally contains a large fraction of fixed moisture.

Operations between the quarry and raw material transport are less of a concern because the PM tends to be large and falls out locally. Also it is typically much like naturally occurring dust. In contrast, emissions from pyroprocessing include the $PM_{2.5}$ precursors. Intermediate and final products such as clinker, cement and baghouse dust are alkaline and can be corrosive to human tissue.

At this facility, all dust generated in the pyroprocessing operation constitutes raw material and is returned to the process. Dust from the new line will be similarly handled. At the most modern plants, material and emissions from the kiln, raw mill and clinker cooler are controlled by a single very large fabric filter baghouse. The proposed project will have separate baghouses for the kiln system (including the raw mill) and for the cooler.

Electrostatic precipitators (ESPs) are an alternative to large baghouse and have been used in some of the earlier projects. Both control strategies achieve PM control on the order of 99% or better and each has its benefits. One main benefit of a baghouse is that it is less affected by power trips. ESPs are depowered whenever CO concentrations rise above a certain level and present an explosive threat.

The other key strategy towards control of PM emissions (especially $PM_{2.5}$) from pyroprocessing is the minimization of SO_2, NO_X, VOC, and ammonia (NH_3) such as from the SNCR system.

The single baghouse arrangement (for the kiln, raw mill and cooler) at the recently modernized Titan Florida Pennsuco Cement Plant is shown in the following figure. The raw mill, cyclones and duct work to the kiln baghouse are on the far right of the figure. The arrangement at CEMEX Line 3 will include separate baghouses for the kiln and the clinker cooler. Existing Lines 1 and 2 also have separate kiln and clinker cooler baghouses.

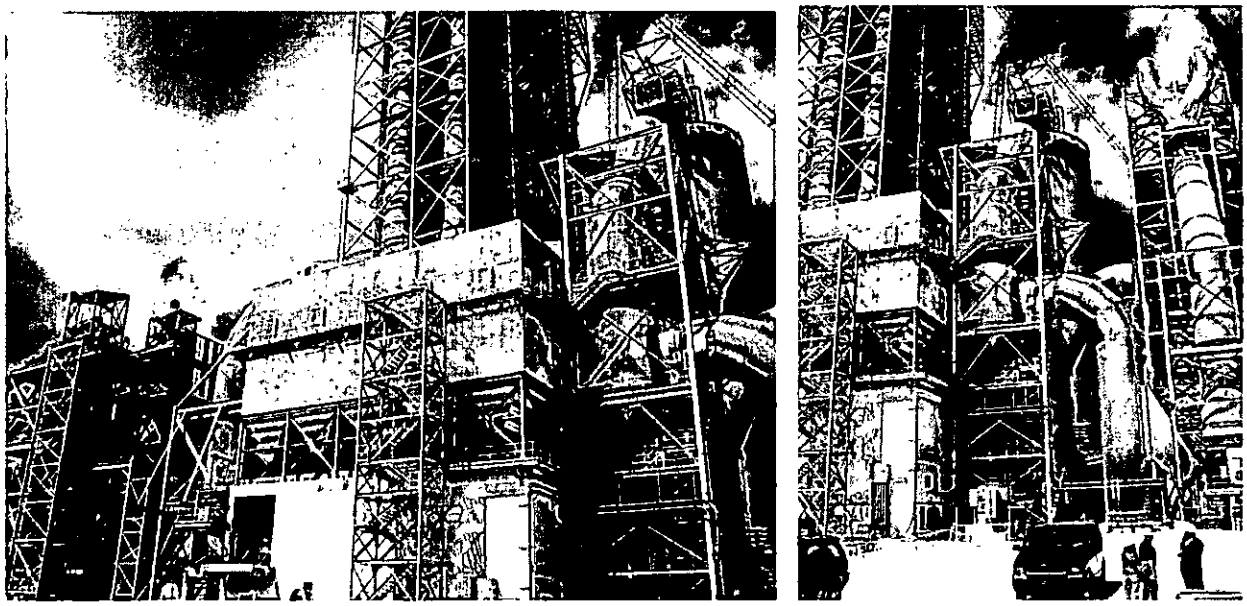


Figure 23. Titan's Main Baghouse, Lower Preheater Raw Mill Cyclones to Main Baghouse.

Emission control from operations after pyroprocessing is also very important because of the caustic nature of the product. However, there is every incentive to prevent these emissions as they would otherwise represent loss of valuable product. Material transfer, grinding, storage, packing, and shipping operations are controlled by baghouses in conjunction with inertial separators, internal storage in silos, operation under negative pressure, etc.

Common controls to limit particulate emissions from fugitive sources (such as roadways, stockpiles, and material processing and conveying equipment) include application of water for dust suppression, removal of dust, application of other dust suppressants, paving of roads and covering of stockpiles to reduce wind erosion.

A well controlled plant usually has a "clean look" that comes from application of BACT controls from key emission units and reasonable precautions to minimize fugitive emissions. The following figure contains photographs that were taken at the Suwannee American Cement Plant in Branford, Florida.

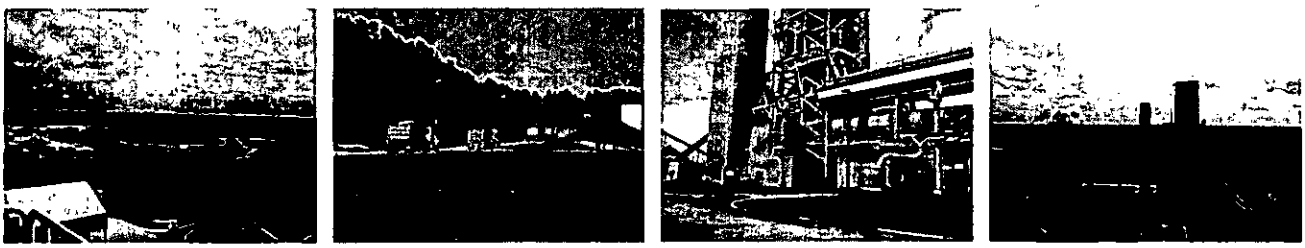


Figure 24. Mining, Materials Delivery, Pyroprocessing Area, Product Storage and Shipping

VII. RULE APPLICABILITY

A. State Regulations

This project shall comply with all applicable provisions of the Florida Administrative Code (including applicable portions of the Code of Federal Regulations incorporated therein) and, specifically, the following Chapters and Rules:

Table 5. State Regulations Applicable to Portland Cement Plants.

Chapter 62-4	Permits.
Rule 62-204.220	Ambient Air Quality Protection
Rule 62-204.240	Ambient Air Quality Standards
Rule 62-204.260	Prevention of Significant Deterioration Increments
Rule 62-204.360	Designation of Prevention of Significant Deterioration Areas
Rule 62-204.800	Federal Regulations Adopted by Reference
Rule 62-210.300	Permits Required
Rule 62-210.350	Public Notice and Comments
Rule 62-210.370	Reports
Rule 62-210.550	Stack Height Policy
Rule 62-210.650	Circumvention
Rule 62-210.700	Excess Emissions
Rule 62-210.900	Forms and Instructions

Rule 62-212.300	General Preconstruction Review Requirements
Rule 62-212.400	Prevention of Significant Deterioration
Chapter 62-213	Operation Permits for Major Sources of Air Pollution
Rule 62-296.320	General Pollutant Emission Limiting Standards
Rule 62-297.310	General Test Requirements
Rule 62-297.401	Compliance Test Methods
Rule 62-297.520	EPA Continuous Monitor Performance Specifications
Rule 62-297.570	Test Reports
Rule 62-297.701	Portland Cement Plants

B. Federal Regulations

This project shall comply with all applicable provisions of the following regulations:

Table 6. Federal Regulations Applicable to Portland Cement Plants.

40 CFR 50	National Primary and Secondary Ambient Air Quality Standards
40 CFR 60, Subpart A	General Provisions
40 CFR 60, Subpart Y	Standards of Performance for Coal Preparation Plants
40 CFR 60, Subpart OOO	Standards of Performance for Nonmetallic Mineral Processing Plants
40 CFR 63, Subpart A	General Provisions
40 CFR 63 Subpart LLL	National Emissions Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry – Major Sources

C. PSD Applicability and Preconstruction Review

The Department regulates "major" air pollution facilities in accordance with Florida's Prevention of Significant Deterioration (PSD) program, in accordance with Rule 62-212.400, F.A.C. PSD preconstruction review is required in areas that are in attainment with the state and federal Ambient Air Quality Standards (AAQS) for each regulated pollutant, or areas designated as "unclassifiable" for these pollutants. A facility is considered "major" with respect to PSD if it emits or has the potential to emit 250 or more tons per year of any regulated pollutant, or emits 100 or more tons per year of any regulated pollutant and belongs to one of 28 "PSD major facility categories", or emits 5 or more tons per year of lead.

Once a new facility is considered "major", each regulated pollutant is reviewed for PSD applicability based on the Significant Emission Rates (SERs) defined in Rule 62-210.200 (Definitions), F.A.C. Any pollutant emissions expected to be above the listed SERs are considered to be "significant" and are subject to PSD preconstruction review which includes a Best Available Control Technology (BACT) determination and ambient air quality impact analysis. A facility can be "major" for only one regulated pollutant, and still be subject to preconstruction review for several PSD-significant pollutants.

This project is located in Hernando County, which is an area presently in attainment for all criteria pollutants in accordance with Rule 62-204.360, F.A.C, therefore a PSD preconstruction review is required. Because CEMEX Brooksville is a portland cement plant belonging to one of the 28 "PSD major facility categories" and has the potential to emit 100 tons per year of at least one of the regulated

pollutants, the facility is considered "major" with respect to PSD. The following table summarizes the applicant's PSD applicability analysis based on a comparison of potential emissions of the project to the SERs.

Table 7. Summary of PSD Applicability based on Applicant's Proposed Emission Limits.

Pollutant	PSD SER's (TPY)	Project Emissions (TPY)	Subject to PSD?
Carbon Monoxide (CO)	100	3,088	Yes
Nitrogen Oxides (NO_X)	40	1,675	Yes
Particulate Matter (PM/PM_{10})	25/15	438/323	Yes
Sulfur Dioxide (SO_2)	40	232	Yes
Sulfuric Acid Mist (SAM)	7		No
Volatile Organic Compounds (VOC)	40	98.7	Yes
Fluorides (F)	3	0.8	No
Lead (Pb)	0.6	0.06	No
Mercury (Hg)	0.1 (200 lb)	0.092 (184 lb)	No

As shown in the table, the project is subject to PSD preconstruction review for emissions of carbon monoxide (CO), nitrogen oxides (NO_X), particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), and volatile organic compounds (VOC). Therefore, the applicant must provide a supporting air quality analysis and the Department must determine the (BACT) for each PSD-significant pollutant. Final rulemaking is imminent by EPA regarding fine particles of aerodynamic diameter less than 2.5 microns ($PM_{2.5}$). Within the present review, PM_{10} will serve as a surrogate for $PM_{2.5}$ and the control of precursors (SO_2 and NO_X) controls will further address $PM_{2.5}$ emissions and ambient formation.

D. NESHAP Requirements

This facility is subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) at 40 CFR 63, Subpart LLL applicable to portland cement plants. Subpart LLL contains Maximum Achievable Control Technology (MACT) requirements for Hazardous Air Pollutants (HAPs). These include limits on PM/PM_{10}, dioxin/furan, Hg, and total hydrocarbon (THC).[36]

E. BACT Determination procedure

Best Available Control Technology or "BACT" is defined in Rule 62-210.200 (Definitions), F.A.C. as:

a. *An emission limitation, including a visible emissions standard, based on the maximum degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account:*

   1. *Energy, environmental and economic impacts, and other costs;*
   2. *All scientific, engineering, and technical material and other information available to the Department; and*
   3. *The emission limiting standards or BACT determinations of Florida and any other state; determines is achievable through application of production processes and*

available methods, systems and techniques (including fuel cleaning or treatment or innovative fuel combustion techniques) for control of each such pollutant.

b. *If the Department determines that technological or economic limitations on the application of measurement methodology to a particular part of an emissions unit or facility would make the imposition of an emission standard infeasible, a design, equipment, work practice, operational standard or combination thereof, may be prescribed instead to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set forth the emissions reductions achievable by implementation of such design, equipment, work practice or operation.*

c. *Each BACT determination shall include applicable test methods or shall provide for determining compliance with the standard(s) by means which achieve equivalent results.*

d. *In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR Parts 60, 61, and 63.*

For reference, the U.S. EPA requires that BACT determinations conducted by its own offices and by states delegated to conduct BACT determinations under its PSD rules at 40 CFR 52.21 must be determined using the "top-down" approach. The Department is not required to use this methodology because it has an EPA-approved State Implementation Plan (SIP) at 40 CFR 52, Subpart K that includes the BACT definition and procedure described above. However the Department's BACT definition and determination process generally achieve the same outcome and do not preclude top/down methodology.

Under the top/down approach, available control technologies are ranked in order of control effectiveness for the emissions unit under review. The most stringent alternative is evaluated first. That alternative is selected as BACT unless the alternative is found to not be achievable based on technical considerations or energy, environmental or economic impacts. If this alternative is eliminated for these reasons, the next most stringent alternative is considered. This Top/Down approach is continued until BACT is determined. In general EPA has identified five key steps in the top/down BACT process:

1. Identify alternative control technologies;
2. Eliminate technically infeasible options;
3. Rank remaining control technologies by control effectiveness;
4. Evaluate most effective controls; and
5. Select BACT.

F. Department's BACT review

It is important to note that no NSPS or NESHAP limits were set by EPA for NO_X, SO_2, CO, or VOC. These two rules set limits on PM. The NESHAP also sets limits on total hydrocarbons (THC – similar to VOC), Hg, and dioxin/furan.

Nitrogen Oxides. CEMEX proposes an emission limit of 1.95 pounds per ton of clinker (lb NO_X/ton) by a combination of staged combustion (SCC) in the calciner and SNCR. The principle of SCC was discussed in Section B above including the example of the FLS calciner wherein levels near 2 lb NO_X/ton are achieved, for example at CEMEX Santa Cruz, TXI Midlothian and Titan Pennsuco.

The "top" technology based on permitted limits is 200 milligrams per dry standard cubic meter, dry, and at 10 percent oxygen (mg/m^3) at the Heidelberger Cement Skövde and Slite Plants in Sweden. This value equates to approximately 0.9 lb NO_X/ton and is accomplished by high efficiency SNCR. Other cement plants in Germany meets the same value based on the amount of waste used.

The lowest value for any permitted kiln in the United States is 95 lb NO_X/hour ton on a 24-hour basis for the proposed Drake Cement Plant in Arizona. This value is equivalent to 1.14 lb/ton. The low limit is necessary due to proximity to a number of Class I areas such as the Grand Canyon. The BACT limit within the same permit is 1.95 lb/ton on a 30-day basis.[37]

In 2005 and early 2006, the Department issued permits with BACT determinations for additional kilns at three cement plants and two greenfield plants. These include Suwannee American Cement, Florida Rock, Rinker/Florida Crushed Stone, Sumter Cement, and American Cement. BACT was determined to be 1.95 lb NO_X/ton by a combination of Low NO_X Kiln Burner, Indirect Firing, SCC and SNCR. These determinations were made before the Department obtained more detailed data for the European SNCR and SCR installations than previously available.

On May 23, 2007 the Texas Commission on Environmental Quality adopted and forwarded to EPA the Dallas-Fort Worth 8-hour Ozone Attainment Demonstration State Implementation Plan[38]. Existing preheater/precalciner (PH/PC) kilns (at TXI Midlothian and Holcim Midlothian) will need to comply with a limit of 1.7 lb/ton of clinker.

According to report in support of the SIP Revision: *"The NO_X emissions factor for dry pre-heater-precalciner (PH/PC) or precalciner (PC) kilns, 1.7 lb/ton, is based on TXI's dry PH/PC kiln actual overall average pound per ton of clinker emissions rate since 2001".*

Also according to the report: *"One dry kiln in Ellis County (TXI Kiln 5) that uses new process designs rather than end-of-pipe controls is achieving lower emissions than this already (1.36 lb/ton)".*

Finally the report states: *"The commission has completed a new analysis for RACT as part of the Dallas-Fort Worth eight-hour ozone attainment demonstration SIP that documents that the emissions specifications and associated control technologies proposed in this rulemaking* ***represent RACT or above****, in conjunction with information presented elsewhere in this preamble." (Emphasis added by Department).*

It is noteworthy that the references for TXI Kiln 5 in Midlothian relate to operation using the principle of staged combustion in the calciner (SCC) without relying on SNCR or SCR. The Holcim Midlothian PH/PC kilns cannot achieve the same low values without add-on controls.

According to the initial application for the CEMEX Brooksville Line 3, the costs to achieve 1.95 lb NO_X/ton (starting from 3.5 lb/ton) by SNCR were estimated to be approximately $500 per ton NO_X removed, while the costs to achieve the same value by SCR estimated at approximately $2,000 per ton NO_X removed. The costs were subsequently revised upward and were calculated for several target emission rates. The applicant's estimated costs to achieve 1.5 lb NO_X/ton values are $1,027 and 2,362 by SNCR and SCR respectively.

A cost comparison between SNCR and SCR technologies was given in a recently published paper by the Research Institute of the German Cement Works Association (VDZ) and an operator in Germany.[39] The costs developed are for reduction of NO_X from 850 mg/m^3 to 250 mg/m^3 (3.9 to 1.15 lb/ton clinker) or 70%. The first three rows of the following table are from that paper.

Table 8. Cost Calculation by the VDZ "NO_X Abatement" Working Group for a Kiln with 3,500 metric tonnes per day Clinker Capacity. (NO_X Abatement Rate: 850 → 250 mg/m^3).

Cost Type	Unit	SNCR Process	SCR Process
Capital Costs	€	~ 880,000	~ 6,400,000
Specific Operating Costs	€/tonne clinker	0.40	0.70
Specific Total Costs	€/tonne clinker	0.54	1.43
Capital Costs	$	~ 1,153,000	~ 8,320,000
Specific Operating Costs	$/ton clinker	0.47	0.83
Specific Total Costs	$/ton clinker	0.64	1.69
Cost Effectiveness	$/ton NO_X removed	465	1,230

The last four rows were added by the Department assuming a conversion rate of $1.30/€ and a reduction of 2.75 lb/ton of clinker (i.e. from 3.9 – to 1.15 lb/ton clinker). Note that "tonne" means a metric tonne and "ton" means a short ton.

The cost-effectiveness estimates by VDZ for a European application are roughly one-half of the values estimated by CEMEX for the Brooksville installation. Coincidentally, the proposed CEMEX Brooksville Kiln 3 will have a capacity of 3,850 tons per day of clinker. This equates to approximately 3,500 metric tones per day as given in the VDZ analysis.

According to the previously cited Swedish government source, the cost effectiveness of NO_X abatement at the Slite facility by SNCR is 250 €/tonne of NO_X removed or approximately $300/ton of NO_X removed (to achieve 0.9 lb/ton). According to the German Federal Environmental Office, the abatement costs to achieve 200 mg/m^3 are approximately 450 and 470 €/tonne NO_X removed by SNCR and SCR respectively. These values equate to approximately $540 and $565/ton NO_X removed by SNCR and SCR respectively to achieve 0.9 lb/ton.[40]

The abatement costs by SCR at the Cementeria di Monselice (CM) are estimated at 1 to 1.30 €/tonne clinker at the 90 percent removal level. This would equate to less than $500/ton of NO_X removed. In the case of CM the total reduction in terms of lb NO_X/ton is significantly greater because of the high baseline (pre-control) emissions so the cost-effectiveness is very favorable. By comparison with the European estimates the CEMEX cost-effectiveness for both the SNCR and SCR cases appear high. However even at the values estimated by CEMEX, both technologies are cost-effective.

The Department believes that the proposed CEMEX Kiln No. 3 can easily achieve less than 3.5 lb NO_X/ton by its SCC strategy alone given the performance of the KHD Humboldt Wedag PYROCLON calciners installed at LaFarge Roberta (AL) Alabama, CEMEX Kosmosdale (KY) and CEMEX Victorville (CA). Even lower values by SCC alone could be achieved using the FLS calciner such as used at CEMEX Santa Cruz (CA), Titan Pennsuco (FL), and Phoenix Cement (AZ).

Reduction to 1.50 lb/ton from either CEMEX' estimated pre-control value of 3.5 lb/ton or a typical FLS value of 2.0 would be cost-effective and relatively easy to accomplish with reasonable molar ratios and minimal slip using SNCR.

The limit at the older preheater kilns located at CEMEX Brooksville is approximately 2 lb/ton and is achieved through SNCR by injecting much more ammonia per ton of NO_X removed than it would take to treat emissions from the new kiln to 1.50 lb NO_X/ton.

The Department concludes that BACT for the present project is 1.50 lb/ton on a 30-day averaging time and achievable by a combination of SCC, SNCR or SCR, indirect firing and a Low NO_X main kiln burner. The value is the lowest BACT issued to-date in the United States and the second lowest NO_X limit to-date. It is also a reasonable value considering the proximity of the source to the Class I Chassahowitzka NWR. The value of 1.50 lb NO_X/ton will insure BACT for NO_X can be accomplished without causing excessive reagent usage or NH_3 emissions and without necessarily installing a large SCR system.

The applicant has the option to install an SNCR system or an SCR system or a combination of the two. According to news stories, CEMEX is considering an SCR system for its Lyons Plant in Colorado.[41]

The Department will initially set a greater limit of 3 lb NO_X/ton of clinker that will provide for the guaranteed values (usually > 2 lb/ton of clinker) that are obtained from the equipment providers using SCC alone. Thereafter CEMEX will need to comply with progressively lower values as it implements the SNCR or SCR add-on control equipment and optimizes operation of the kiln with the available raw materials and fuels.

Sulfur Dioxide. SCC proposes an emission limit of 0.20 lb SO_2/ton. This is a much lower emissions rate than achieved at most cement plants throughout the country where raw material sulfur is a large contributor to emissions even when the latter kilns include wet scrubbers. The Department considers the "top technology" to be the self scrubbing of fuel sulfur in the kiln and calciner coupled with use of raw materials that are very low in sulfur.

In 2005-2006, the Department issued five BACT SO_2 determinations for new kilns. These ranged from 0.20 to 0.28 lb SO_2/ton. At very low emission rates, further add-on control is not cost-effective. The Department has determined that 0.20 lb SO_2/ton on a 24-day basis is BACT for the CEMEX Brooksville project and has reasonable assurance that this value can be met by: use of low sulfur raw materials; self scrubbing of fuel SO_2 by finely divided lime in the calciner; removal by moisture and finely divided limestone in the raw mill; and ultimate incorporation into the clinker within the kiln.

Although the limit will be 0.20 lb/ton, the Department expects day-in/day-out emissions on the order of 0.01 to 0.05 lb/ton. The reader is referred to the SAC website for typical CEMS based readings at: www.suwanneecement.com/liveemissions.html .

Carbon Monoxide and Volatile Organic Compounds. CEMEX proposes emission limits of 2.9 lb CO/ton and 0.115 lb VOC/ton. The VOC proposal is very low and equates to about 1/3 of the applicable MACT standard for greenfield cement kilns.

The Department considers a regenerative thermal oxidizer to be the "top technology". As previously mentioned, an RTO was installed at TXI that cost $17,500,000. It was installed to avoid PSD during a plant expansion and was not a BACT determination. TXI recently applied to the Texas Environmental Quality Board to turn off the RTO system outside of the ozone season. A settlement was reached with petitioners opposed to the TXI request and requires that the RTO system be used year-round. The revised CO and THC/VOC limits at TXI are given in the table on the following page.

According to the agreement, the effective CO limits at the TXI project will be equivalent to 1.56 lb CO/ton clinker at an annual tonnage factor (2,190 TPY) rather than a technological limit. The VOC limit (as total hydrocarbons – THC) is equivalent to 0.06 lb VOC/ton.

Table 9. Agreement Regarding RTO and CO, VOC/THC Limits at TXI Midlothian Plant

ELEMENTS OF AGREEMENT			
	Existing permit	**TXI's Request**	**Agreed-upon permit**
Total Hydrocarbons	44 TPY	603 TPY	< 84 TPY
Carbon Monoxide	370 TPY	7,743 TPY	2,190 TPY
SOURCE: Mediated agreement with TXI, Blue Skies Alliance, Downwinders At Risk and 22 Midlothian residents			

In contrast to the native raw materials available in parts of Michigan, Texas and Colorado, the raw materials in Florida do not cause high CO or VOC formation. For example, without the RTO emissions from the TXI plant would be over 15,000 TPY of CO and more than 1000 TPY of VOC. By contrast CEMEX's estimates of controlled emissions of 2,037 and 84 TPY of CO and VOC respectively from the planned Brooksville Line 3 project are much lower and are approximately equal to the permitted emissions from the TXI (with RTO).

An RTO system at the CEMEX Brooksville project would be too costly on the basis of total capital costs and cost per ton of CO removed. It is less expensive to implement controls on fuels, selection of raw material additives such as mill scale and power plant ash as well as combustion controls.

Recently, the Department issued permits for new kilns to be constructed at SAC, FRI, and Rinker/Florida Crushed Stone, American Cement, Sumter Cement and for production increases at the existing kilns at SAC, FRI, and Titan Florida. The determinations have ranged from 2 to 3.6 lb CO/ton and 0.11 to 0.12 lb VOC/ton. The recently noticed Ash Grove project in Nevada includes a CO BACT limit of 1.05 lb/ton. The existing preheater kilns at CEMEX Brooksville are limited to 1.2 lb/ton of feed (< 2 lb/ton of clinker)

According to CEMS data analyzed and shown in Figure 18 above, the relatively new CEMEX Victorville Kiln 3 never exceeded 0.23 lb CO/ton on a 30-day basis in 2004, while the Titan Pennsuco Kiln has not exceeded 1.16 lb/ton on a 30-day basis since a new in-stack CEMS was installed in 2006.

Based on the long residence time planned for the new CEMEX Brooksville Kiln 3, it should easily be possible to achieve emissions of 2.0 lb CO/ton on a 30-day basis. It is especially prudent to set a limit that will discourage use of certain raw materials, in particular certain fly ash, with properties that can cause dioxin/furan formation or that contain mercury (Hg) removed from power plants under various state and federal programs. This potential phenomenon is discussed in the section on mercury below.

The Department's BACT determinations for CO and VOC are 2.0 and 0.115 lb/ton, respectively based on kiln/calciner design, characteristics of primary raw materials, and judicious selection and procurement of additives.

Particulate Matter ($PM/PM_{10}/PM_{2.5}$). PM represents all particles emitted from a source. PM_{10} consists of coarse "inhalable particles" as well as "fine particles" ($PM_{2.5}$). Coarse inhalable particles comprise the category of PM_{10} that includes those particles with aerodynamic diameters between 2.5 and 10 microns (μm). This class of particles includes dust resuspended by traffic dust, tire and brake wear, crushing, grinding, silica, fly ash, construction/demolition, disturbed soils, industrial fugitive emissions, and biological sources.

$PM_{2.5}$ is also inhalable and is emitted directly, such as in smoke from a fire. It can also form from chemical reactions of gases such as sulfur dioxide, nitrogen dioxide and some organic gases. Sources of $PM_{2.5}$ and its precursors include power plants, gasoline and diesel engines, wood combustion, high-temperature industrial processes such as smelters and steel mills, and forest fires.[42]

CEMEX proposes PM/PM_{10} emission limits of 0.153 lb/ton of clinker for the pyroprocessing system (kiln/preheater/calciner/in-line raw mill) and 0.08 lb/ton from the clinker cooler. The total from the two systems equals 0.23 lb PM/PM_{10}/ton of clinker. CEMEX proposes a visible emissions limitation of 10% opacity from the pyroprocessing system and from the clinker cooler.

For reference the applicable NSPS and NESHAP MACT emissions limits is 0.3 lb PM/ton of feed from the kiln and 0.1 lb/ton of feed from the clinker cooler for a total of 0.4 lb PM/ton of feed. After conversion to lb/ton of clinker, the BACT values are equivalent to approximately $1/4^{th}$ of the NSPS/NESHAP limits. Similarly, there are separate NSPS/NESHAP opacity limits for the kiln and clinker cooler of 10 and 20% respectively. By complying with the more stringent 10% limit, CEMEX's proposal is more stringent than the NSPS/NESHAP opacity limits.

The Department reviewed recent emission limit determinations for PM/PM_{10}. The sum of emissions limits from the pyroprocessing and cooler are shown in the PM_{10} column in the table below. The limits ranged from 0.095 to 0.28 lb/ton of clinker. The range of values is given in Table 10 that also includes the Department's proposed BACT determinations for all pollutants including PM/PM_{10}.

The Department's BACT determinations for PM/PM_{10} are 0.10 and 0.05 lb PM_{10}/ton of clinker from the pyroprocessing system and the clinker cooler respectively. The total value for comparison with the other projects is 0.15 lb/ton. The main kiln and cooler baghouses will be designed with particulate removal efficiency on the order of 99.9%. This is sufficient to limit hourly emissions to 24 lb/hour of PM/PM_{10}. The Department accepts CEMEX's proposal for visible emissions of 10 percent opacity for the pyroprocessing and cooler systems as BACT.

Table 10. Emission Limits for in Recent Cement Plant Permits in lb/ton of Clinker.

Project	NO_X (lb/ton)	SO_2 (lb/ton)	CO (lb/ton)	VOC (lb/ton)	PM_{10} (lb/ton)	Total[a] (lb/ton)
CEMEX Brooksville (Application)	1.95	0.20	2.9	0.12	0.23	2.50
CEMEX Brooksville (Draft BACT)	1.50	0.20	2.0	0.115	0.15	1.97
Drake Cement LLC, AZ	1.14/1.95	0.06	3.6	0.12	0.21	1.53
Ash Grove/Moapa, NV (Draft BACT)	1.95	0.42	1.05	0.0625	0.095	2.53
Sumter Cement, Center Hill	1.95	0.20	2.9	0.115	0.15	2.42
American Cement, Sumterville	1.95	0.20	2.9	0.12	0.15	2.42
Suwannee American, Branford Kiln 2	1.95	0.20	2.9	0.12	0.17	2.44
Florida Rock, Newberry Kiln 2	1.95	0.28	3.6	0.12	0.28	2.63
Rinker/FCS, Brooksville Kiln 2	1.95	0.23	3.6	0.12	0.20	2.50
Holcim Lee, Missouri (2004)[d]	2.4/1.6	1.26	6.0	0.33	0.35	4.34
CEMEX Brooksville Kiln 2 (rev. 2007)[b]	2.0	0.20	2.0	0.115	0.15	2.47
Titan Florida Medley (1999, rev. 2006)[c]	2.17	0.50	2.0	0.14	0.10	2.91

a. Total for $PM_{2.5}$ surrogates and potential precursors. Total does not include CO.
b. Only the NO_X Limit at existing CEMEX Brooksville Kilns is Recent.
c. Only the CO Limit at Titan is BACT. The rest were set to avoid PSD. SNCR is not practiced at Titan.
d. The lower value of 1.6 lb NO_X/ton represents the effective ozone season limit.

One strategy towards control of $PM_{2.5}$ is to minimize emissions of its surrogates and precursors including PM_{10}, SO_2, NO_X, VOC, and NH_3. The aggregate of $PM_{2.5}$ surrogates and precursors (NO_X+SO_2+VOC+PM_{10}) based on the Department's BACT determination CEMEX project is the second lowest among the listed projects. While this parameter is not a recognized $PM_{2.5}$ measurement system, it is a very useful indicator of $PM_{2.5}$ formation potential. Similarly, the Department's BACT determination in each category of $PM_{2.5}$ surrogate or precursor is the second lowest among those shown in the table.

There are no NH_3 emission limits for the above projects although some include maximum molar ratios of NH_3/NO_X. Relatively low NH_3 emissions are expected from CEMEX Line 3 because the NO_X reduction objective by SNCR or SCR (~57% with the KHD calciner) is not very high. Where precontrolled NO_X (or natural NH_3) emissions are high or when very low NO_X emissions are required, SCR can be an effective $PM_{2.5}$ control strategy by reducing NH_3, NO_X, VOC and SO_2.

The characteristics of other baghouses in the proposed Line 3 project are shown in the following table.

Table 11. Baghouse Characteristics and PM_{10} Emissions for Enclosed Emissions Sources.

Point	Point Description	acfm	°F	Opacity	dscfm	gr/dscf	TPY
Emissions Unit 033 - Raw Materials Handling and Storage							
PS61	Sand/mill scale reception hopper	4,875	120	5%	4,352	0.007	1.13
PS62	Bottom Ash reception hopper	4,875	120	5%	4,352	0.007	1.13
PS63	Ash/mill scale/sand bins	5,000	122	5%	4,448	0.007	1.18
PS65	Limestone silo and Clay Silo	5,000	120	5%	4,463	0.007	1.18
Emissions Unit 034 - Raw Mill System							
PS64	Additive Bins- Feeders	5,000	120	5%	4,463	0.007	1.18
PS64A	Additive Transfer Point	2,000	120	5%	1,785	0.007	0.44
PS64AA3	Additive Transfer Point	2,000	122	5%	1,785	0.007	0.44
PS61	Hoppers to mill transfer (1 of 2)	2,000	120	5%	1,785	0.007	0.44
PS62A	Hoppers to mill transfer (2 of 2)	7,915	120	5%	7,095	0.007	1.86
PS66	Cyclones to feeding silo	5,000	120	5%	4,463	0.007	1.18
PS69	Bottom of bucket elevator to blending silo	5,000	156	5%	4,202	0.007	1.10
PS70	Blending silo	10,000	156	5%	8,405	0.007	2.20
PS71	Weigh Hopper after blending silo	1,500	122	5%	1,334	0.007	0.35
PS72	Air slide after weigh hopper to bucket elevator (1 of 2)	1,500	122	5%	1,334	0.007	0.35
PS72A	Air slide after weigh hopper to bucket elevator (2 of 2)	1,500	122	5%	1,334	0.007	0.35
PS73	Air slide after bucket elevator to preheater	2,500	122	5%	2,224	0.007	0.56
PS68	Filter dust hopper	15,000	122	5%	1,334	0.007	0.35

Point	Point Description	acfm	°F	Opacity	dscfm	gr/dscf	TPY
Emissions Unit 037 - Clinker Handling and Silo							
PS75	Clinker Transfer deep pan conveyor	5,000	156	5%	4,202	0.007	1.10
PS76	Clinker Silo	5,000	120	5%	4,462	0.007	1.10
PS77	Truck unload clinker buffer	5,000	156	5%	4,202	0.007	1.10
Emissions Unit 038 and 039 – Finish Mills Feed and Finish Mill System							
PS78	Finish Mill Feed	7,916	120	5%	7,066	0.007	1.83
PS78G	Gypsum silo	2,500	120	5%	2,232	0.007	0.56
PS78S	Slag Silo	2,500	120	5%	2,232	0.007	0.56
PS78L	Limestone dust silo	2,500	120	5%	2,232	0.007	0.56
PS78GO	Gypsum transfer from silo	1,500	120	5%	1,339	0.007	0.35
PS78SO	Slag transfer from silo	1,500	120	5%	1,339	0.007	0.35
PS78LO	Limestone dust transfer from silo	1,500	120	5%	1,339	0.007	0.35
PS79	Finish Mill	400,233	203	10%	312,518	0.007	82.1
Emissions Unit 040 Cement Silos and Loadout							
PS80	Cement Transfer	2,500	156	5%	2101	0.007	0.55
PS81	Cement form Bucket Elevator to belt Conveyor	3,000	120	5%	2,677	0.007	0.7
PS82A	Quadrate Silo #8	2,500	120	5%	2,231	0.007	0.58
PS83A	Quadrate Silo #9	2,500	120	5%	2,231	0.007	0.58
PS82	Loadout Spout #8	2,800	120	5%	2,499	0.007	0.65
PS83	Loadout Spout #9	2,800	120	5%	2,499	0.007	0.65
Emissions Unit 041 Coal/Coke Mill							
PS84	Coke/coal transfer to mill	1,650	120	5%	1,473	0.007	0.39
PS84A	Coke/coal transfer to mill	1,650	120	5%	1,473	0.007	0.39
PS87	Coke/coal mill	69,356	183	5%	55,841	0.007	14.6
PS88	Pulverized fuel bin (1 of 2)	1,500	122	5%	1,334	0.007	0.35
PS89	Pulverized fuel bin (2 of 2)	1,500	122	5%	1,334	0.007	0.35
PS85	Coke/coal bin	1,500	122	5%	1,334	0.007	0.35
PS86	Coke/coal bin	1,500	122	5%	1,334	0.007	0.35

BACT for the enclosed emission sources shown in the table served by baghouses will be an opacity limitation of 5%. This will be achieved by baghouses designed to meet respective PM and PM_{10} emissions characteristics of 0.01 and 0.007 grains per dry standard cubic foot (gr/dscf). Visible emissions from any transfer point on belt conveyors or from any other affected facility shall not exceed 10% opacity. Because of its large size and significant potential to emit (84 TPY), the main finish Mill baghouse will also be limited to a corresponding emission rate of 18.8 pounds PM/PM_{10} per hour (lb/hr).

BACT for unenclosed sources is generally control of particulate matter emissions by inherent or applied moisture. Material and fuel storage piles will be stored under roof or in enclosed vessels. Storage piles shall be shaped, compacted and oriented to minimize wind erosion. Storage piles shall be wetted with devices located near such piles when visual inspection determines wetting is needed. Water spray bars shall be located at each unenclosed conveyor and used for wetting of materials and fuel if inherent or previously-applied moisture is insufficient to prevent unconfined PM emissions. Paving of the new area and access roadways is required.

The key emissions unit for basic raw materials is the Raw Material Quarrying, Crushing and Storage System. The existing primary crusher that is presently used for Lines 1 and 2 will be replaced whether or not Line 3 is constructed with a new jaw crusher under Permit No. 0530010-027-AC issued on January 18, 2007. The same jaw crusher will be used for Line 3. The secondary crusher presently used for Lines 1 and 2 will also meet the requirements of Line 3. Improvements including installation of a Gamma metric cross belt analyzer and a Neutron source limestone correction system were included under the mentioned permit.

Quarrying in Florida is usually conducted beneath the water table rather than by blasting and mining of open pits. Therefore dust emissions are inherently less than encountered in other parts of the country. The Raw Material Quarrying, Crushing and Storage System was not shown in earlier permits as a unit subject to 40 CFR 60, Subpart A – General Provision and 40 CFR 60 Subpart OOO - Nonmetallic Mineral Processing Plants. The Department included the Subpart A and Subpart OOO requirements in Permit No. 0530010-027-AC.

The existing Limestone Storage Building will be expanded under the Line 3 project to accommodate two additional limestone piles to meet the requirements for Line 3. The crushers will not be further modified but their usage will increase due to the Line 3 project. The measures in Subpart OOO together with the wet processing of raw materials and the Department's Reasonable Precautions in Rule 62-296.320(4)(c), F.A.C. will insure that emissions from the Raw Material Quarrying, Crushing and Storage System are minimized. These measures are also sufficient as BACT for the additional quarrying, use of the crushers, expansion of the Limestone Storage Building and operation of the additional storage piles related to the Line 3 project.

Mercury (Hg). A BACT determination was not required for Hg because emissions will be less than 200 lb/year. The applicant has proposed a limit on Hg emissions of 190 lb/yr. However due to the concerns about Hg emissions from industrial sources, it is still necessary to evaluate the possible contribution of Line 3 to overall Hg loadings to the environment.

The diagram on left hand side of the figure on the following page was developed from a diagram in a CEMBUREAU report. It was modified by the Department to show what happens to Hg within a cement pyroprocessing system. The following paraphrased abstract is from a paper by the Forschungsinstitut der Verein Deutscher Zementindustrie (VDZ) regarding operational factors that affected Hg emissions from two German cement kilns.[43]

Because of its vapor pressure characteristics, the Hg is not retained in the kiln or preheater. Depending on exhaust gas temperature it passes with the raw gas into the downstream systems. The Hg which has been introduced builds up in the external recirculation system between the preheater, particulate matter control device (PMCD) and raw mill. The feed silo serves as a temporary buffer which feeds the Hg back into the preheater after a time delay. To limit the external Hg recirculating system and to minimize the Hg emissions it is expedient to remove some of the meal (actually dust) from the PMCD especially during periods of direct (raw mill down) operation.

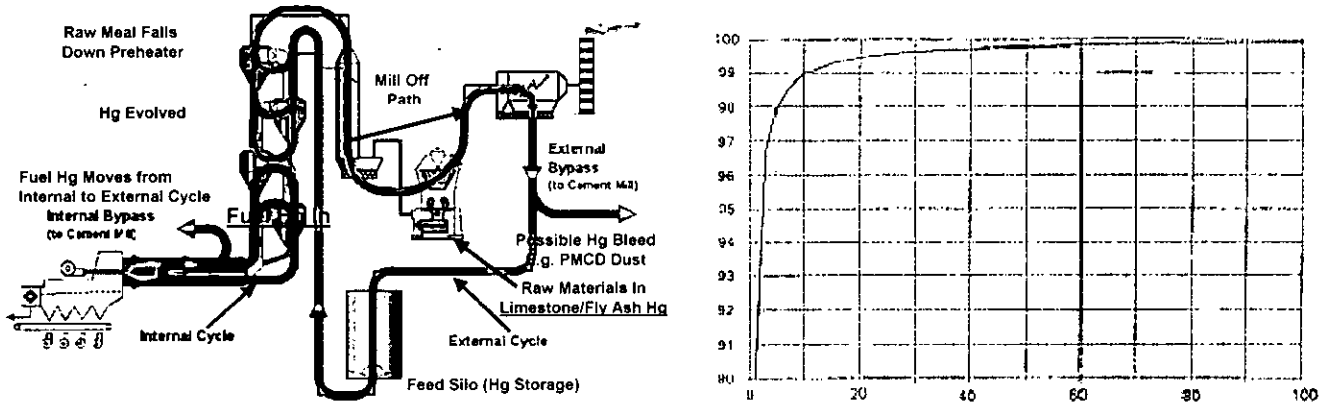


Figure 25. The Behavior of Hg in a Cement Kiln. % Hg Removal Cycle vs. % Dust Removal.

Not only the temperature regime in the exhaust gas but also the extent and nature of removal of raw material from the exhaust gas cleaning system are of considerable importance for possible buildup of Hg in external recirculating systems in cement plants. The comparison between continuous and discontinuous measurement of the Hg emission concentration showed substantial discrepancies in some cases, especially in direct operation. There was better agreement between the measured results in interconnected (raw mill up) operation.

The graph on the right hand side of the figure was developed during the previously discussed testing conducted in conjunction with implementation of the coke filter at a Swiss installation. It suggests that relatively low level dust withdrawal is very effective in reducing Hg emissions for that particular installation. According to the previously referenced report about the Siggenthal Plant:[31]

The purposeful partial removal of the finest particle fractions from the ESP bin relieves the Hg cycle This collected dust (as direct addition to clinker or cement) becomes approximately 2 ton/hr of the cement supplied for concrete production.

The abstract above also states that the Hg input via the fuels is significantly less than the input via raw materials. Following is a graphic representation of the manner by which samples of the Hg inputs are collected by most operators of cement kilns in Florida that are subject to annual mass emission limits.[44]

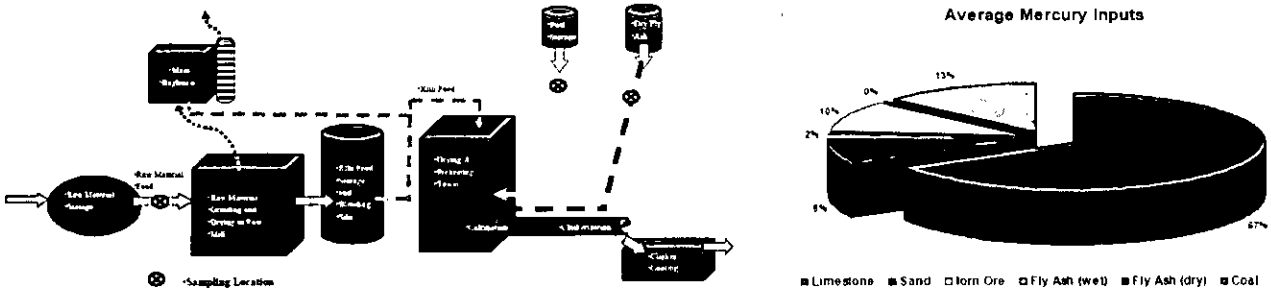


Figure 26. Hg Monitoring Sampling Locations. Sources of Hg into Cement Process

Several samples are collected on a daily basis from all of the material inputs to the process and then made into a daily composite. The daily composites are made into monthly composites. These monthly composites are then analyzed for the mercury concentrations.

If a monthly sample is below the detection limit, the operator assumes the detection limit which overestimates the amount of Hg input. By assuming that all inputted mercury exits via the stack and no mercury exits via the clinker, conservative estimates of emissions are made that insure annual

emissions will be less than the permitted annual Hg limit. According to operators who rely on this method of compliance, the limestone is the primary source of Hg inputs to the system and comprises about 2/3 of the total.

The contribution from power plant fly ash shown in the above diagram is on the order of 23 percent (%) of total Hg input. Because of the control to be implemented at power plants pursuant to the Clean Air Interstate Rule (CAIR) and the Clean Air Mercury Rule (CAMR) there is reason to believe that fly ash available as raw material or even as fuel to the cement industry can become further enriched in Hg.

EPA recently set Hg limits through the MACT process under Section 112 of the Clean Air Act. In its most recent rulemaking (40 CFR 63, Subpart LLL) that was noticed in the Federal Register on December 20, 2006, EPA set a limit of 41 micrograms per dry standard cubic meter at 7 percent oxygen ($\mu g/m^3$).

Within the rule, EPA recognized the possibility of Hg enriched fly ash and the Final Rule includes a ban only on fly ash derived from power plants that use activated carbon to reduce Hg emissions (unless shown to not impact cement plant emissions). The need was described by the Clean Air Task Force (CATF) in its comments dated April 18, 2006 (EPA-HQ-OAR-2002-0051-0156) that state:

If EPA allows fly ash to be used as a feed material, captured particulate matter from the kilns (cement kiln dust) will contain increased mercury and must be managed accordingly. For example, the practice of recycling the captured dust back through the kiln must not be allowed as this practice would allow for the re-release of mercury from the activated carbon. Etc.

The Department indicated similar but more generalized concerns to EPA regarding fly ash containing Hg whether or not the originating power plant uses activated carbon to control Hg. Fly ash can become enriched with Hg simply due to measures taken in the furnace to reduce nitrogen oxides (NO_X). The measures include installation of Low NO_X burners (LNBs) with Separate Overfire Air (SOFA) and also reburn. These are basically staged combustion processes.

In either case there will be less complete carbon burnout at the power plant. Carbon monoxide (CO) emissions increase as well as carbon in the fly ash contributing to high "loss on ignition" (LOI) fly ash that (unless remediated) is not useful for direct use in concrete and becomes more attractive for cement pyroprocessing. The additional carbon in the power plant furnace exhaust is not as effective as activated carbon in capturing Hg, but there is much more of it. Therefore the overall effect on fly ash can be as significant as described by CATF for the activated carbon scenario. The following figure shows how this phenomenon can occur and cause additional Hg to be captured in the power plant PMCD.

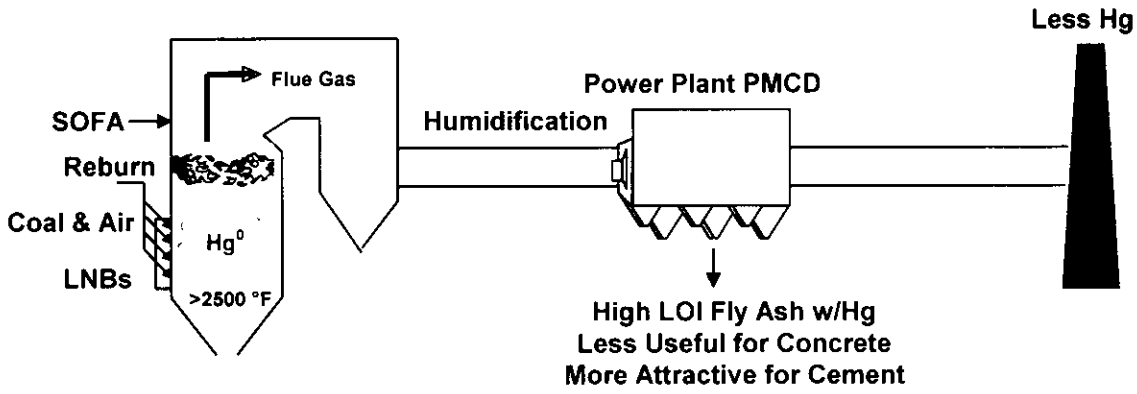


Figure 27. Combustion Controls for NO_X Including LNBs, Reburn, SOFA

The Department acquired data from two out of state power plants that practice NO_X control consisting of one or more of the methods described above. The concentration of Hg in the fly ash was on the order of 0.5 parts per million by weight (ppmw). Fortunately the fly ash was remediated such that it was rendered useful for concrete. According to tests conducted by the Department on the product, the Hg stayed in the concrete quality fly ash and was not available for re-emission. According to 40 CFR 63, Subpart LLL:

No owner or operator of a reconstructed or new kiln or reconstructed or new inline kiln/raw mill located at a facility which is a major source subject to the provisions of this subpart shall cause to be discharged into the atmosphere from these affected sources any gases which: (5) Contain mercury from the main exhaust of the kiln, or main exhaust of the in-line kiln/raw mill, or the alkali bypass in excess of 41μg/dscm if the source is a new or reconstructed source that commenced construction after December 2, 2005. As an alternative to meeting the 41 μg/dscm standard you may route the emissions through a packed bed or spray tower wet scrubber with a liquid-to-gas (l/g) ratio of 30 gallons per 1000 actual cubic feet per minute (acfm) or more and meet a site specific emissions limit based on the measured performance of the wet scrubber.

New and reconstructed kilns and in-line kilns/raw mills must not exceed the average hourly CKD recycle rate measured during mercury performance testing. Any exceedance of this average hourly rate is considered a violation of the standard.

While the limit of 41 μg/dscm would allow annual Hg emissions of 265 lb/yr, the requirement to meet the standard during the raw mill up and raw mill off condition suggests that actual emissions will be much less than this value and likely much less than 190 lb/yr as proposed by CEMEX.

The requirement thereafter to limit dust recycling to pyroprocessing at the values practiced during the testing will further insure low annual emissions. The weakness in the standard is that a single annual stack test is required for each condition (raw mill on/off). There can be very substantial discrepancies in measured emissions during each of the described conditions depending upon the timing of the tests with respect to the timing of the raw mill operation. Further analysis is beyond the scope of this assessment and the reader is referred to the referenced paper.

The Department will require compliance demonstration with the annual limits by fuel and raw material sampling and testing as previously described. The sum of any 12 month period of the total inputted mercury in the described manner will be less then the requested Hg limit of 190 lb/yr. Data from existing cement plants that follow the same or similar procedures suggest that emissions will be significantly less than the limit requested.

The Department will also rely on a combination of the emission limit of 41 μg Hg/dscm and the measures given in 40 CFR 63, Subpart LLL to further insure substantially lower Hg emissions than the annual limit of 190 lb/yr. Because of concerns about Hg emissions to the environment, the Department believes it is important to measure emissions accurately and continuously rather than just conservatively and in a discontinuous manner.

CAMR requires installation of recently developed or improved (3rd Generation) continuous emission monitoring system for Hg (Hg-CEMS) at power plants for the purpose of accurately measuring and trading Hg allowances in such a manner that total statewide Hg emissions will be reduced.

The Department concluded that the 3rd generation CEMS will be available and reasonably accurate by the time the recently approved Sumter Cement and American Cement projects start operation. The Department will require CEMEX to install a Hg-CEMS as part of this project. Such systems are routinely used in Germany. The following figure shows pictures of the Hg-CEMS, principle of operation, monitoring screen and plant setting at the Solnhofer Cement Plant in Bavaria.

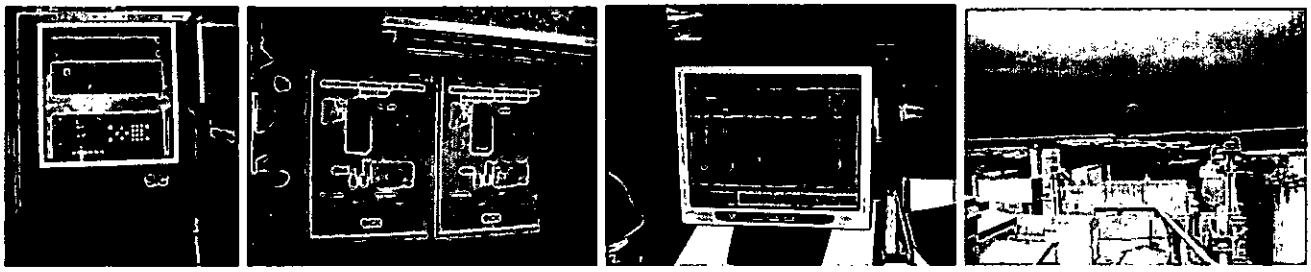


Figure 28. Hg-CEMS, Hg-CEMS Principle, Monitoring Screen, Solnhofer Plant Setting (Linero)

While promulgating 40 CFR 63, LLL as a Final Rule, the EPA noticed its possible Reconsideration on the same date. If EPA subsequently makes changes in Subpart LLL that impinge on the foregoing analysis, the Department reserves the right to review how changes may affect the emissions of Hg from CEMEX Line 3 and after public notice take measures to preserve the stringency of the assumed Hg control measures and practices.

The final issue relates to the fate of dust withdrawn in accordance with the practices described in 40 CFR 63, Subpart LLL. The Department believes that CEMEX can store the dust and introduce it to the product cement without unduly affecting the product suitability for Type I/II cement. The Department initiated discussions with the Florida State Department of Transportation experts and with CEMEX and will continue to expand those discussions on an ongoing basis to avoid possible waste generation.

VIII. AIR QUALITY ANALYSIS REVIEW

A. Introduction

The proposed project will increase emissions of five pollutants at levels in excess of PSD significant amounts: PM/PM_{10}, CO, NO_X, SO_2 and VOC. PM_{10}, SO_2 and NO_X are criteria pollutants and have national and state ambient air quality standards (NAAQS or AAQS), PSD increments, significant impact levels and de minimis monitoring levels defined for them. Final rulemaking is imminent by EPA regarding fine particles of aerodynamic diameter less than 2.5 microns ($PM_{2.5}$). Within the present review, PM_{10} will serve as a surrogate for $PM_{2.5}$. CO is a criteria pollutant and has only AAQS, significant impact levels and de minimis monitoring levels defined for it. There are no applicable PSD increments, AAQS, significant impact or de minimis monitoring levels for VOC. However, VOC is a precursor to the criteria pollutant, ozone; and any net increase of 100 tons per year of VOC requires an ambient impact analysis including the gathering of preconstruction ambient air quality data.

The air quality impact analyses required by the PSD regulations for this project include:

- An analysis of existing air quality for PM_{10}, SO_2, NO_X, CO and VOC;
- A significant impact analysis for PM_{10}, SO_2, NO_X and CO;
- A PSD Class II increment analysis for PM_{10} and a Class I increment analysis for PM_{10} and NO_X;
- An Ambient Air Quality Standards (AAQS) analysis for PM_{10}; and
- An analysis of impacts on soils, vegetation, visibility and growth-related air quality impacts.

The analysis of existing air quality generally relies on preconstruction monitoring data collected with EPA-approved methods. The significant impact, PSD increment, and AAQS analyses depend on air quality dispersion modeling carried out in accordance with EPA guidelines. Based on the required analyses, the Department has reasonable assurance that the proposed project, as described in this report and subject to the conditions of approval proposed herein, will not cause or significantly contribute to a violation of any AAQS or PSD increment. A discussion of the required analyses follows.

B. Analysis of Existing Air Quality in the Vicinity of the Project

Sources of Air Pollution in Hernando and Contiguous Counties

The following table includes reported emissions from the existing cement kilns in Hernando County and the applicant's estimated emissions for the Line 3 project.

Table 12. Annual Emissions (TPY) from some Key Sources in Hernando, Contiguous Counties.

Plant	NO_X	SO_2	CO	VOC	PM
CEMEX Cement, Hernando (Line 3)*	**1,370**	**141**	**2,037**	**84**	**358**
CEMEX Cement, Hernando (Line 1 and 2)	1,371	14	499	82	265
Rinker/Central Power & Lime, Hernando	5,277	3,420	?	?	398
Center Hill Cement Plant, Sumter (Proposed)	1,675	232	3,088	99	438
Progress Crystal River Power Plant, Citrus	35,000	94,000	?	?	13,000
Progress Anclote Power Plant, Pasco	10,700	33,000	?	?	4,300

* Kiln 3 - Potential to Emit based on draft BACT determination. Other sources represent actual emissions.

One existing or planned source from each of the contiguous counties is included in the table to provide a sense of proportion to additional load from the proposed CEMEX Line 3 project. Power plant emissions are the most substantial contributors to the regional stationary source pollution loading. General traffic contributions are not shown, but provide the greatest contributions to VOC and CO as well as considerable emissions of NO_X.

Air Quality and Monitoring in Hernando and Adjacent Counties

The State of Florida operates a large ambient air quality monitoring network. Monitors are located to characterize background ambient air quality, air quality in populated areas, and air quality at areas of greatest impact from industrial activities.

The map on the following page shows the location of the monitors nearest to the proposed project site. The ozone monitor in Pasco County is representative of the entire rural region because ozone formation is a wide scale phenomenon. The closest "fine PM" and closest of three Hernando PM_{10} monitors shown on the map are located by cement facilities and are operated by private industry. The nearest State-operated PM fine and PM_{10} monitors are located in Citrus and Pinellas counties respectively. The NO_2, CO and SO_2 monitors are located at points of maximum expected impacts from air pollutant sources and traffic in the urban Tampa Bay area.

Measured ambient air quality information from nearest monitors to the CEMEX site is summarized in the following table. All except the PM_{10} and $PM_{2.5}$ monitors are operated by the Department and adhere to its quality assurance (QA) requirements. The latter stations are operated by a consultant for Rinker Materials (who operate the nearby Florida Crushed Stone Cement Plant in Brooksville. While

the QA requirements are not necessarily identical to those of the Department, the proximity of those monitors to the proposed site makes the data invaluable in this assessment.

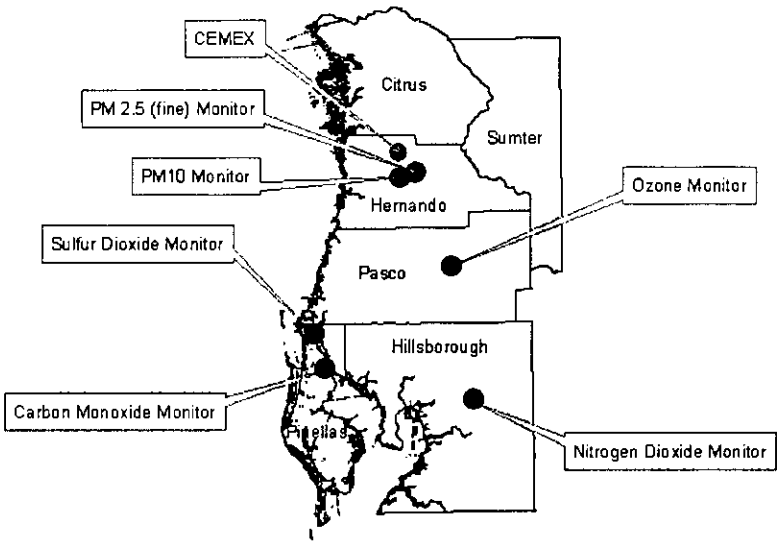


Figure 29. Monitor Locations Nearest to the CEMEX Cement Plant.

Table 13. Ambient Air Quality Measurements Nearest to Project Site (2005)

Pollutant	Location	Averaging Period	Ambient Concentration				
			High	2nd High	Mean	Standard	Units
Ozone	Dade City	1-hour	0.099	0.093		0.12 [a]	ppm
		8-hour	0.082	0.081		0.08 [a]	ppm
PM_{10}	Tarpon Springs	24-hour	30	25		150 [b]	$\mu g/m^3$
		Annual			16	50 [c]	$\mu g/m^3$
PM_{10}	Hernando Co.	24-hour	30	24		150 [b]	$\mu g/m^3$
		Annual			15	50 [c]	$\mu g/m^3$
$PM_{2.5}$	Hernando Co. Parrot Middle School	24-hour	37	22		35 [d]	$\mu g/m^3$
		Annual			10	15[d]	$\mu g/m^3$
SO_2	Tarpon Springs	3-hour	58	54		500 [b]	ppb
		24-hour	13	11		100 [b]	ppb
		Annual			2	20 [c]	ppb
NO_2	Plant City	Annual			7	53 [c]	ppb
CO	Clearwater	1-hour	3	3		35 [b]	ppm
		8-hour	1	1		9 [b]	ppm

a. Not to be exceeded (i.e. > 125 or > 85 ppb) on more than an average of 1 day per year over a 3-year period.
b. Not to be exceeded more than once per year.
c. Arithmetic mean.
d. 3-year average of the 98th percentile of 24-hour concentrations.
e. 3-year average of the weighted annual mean

The monitoring locations are all in attainment with the respect to the AAQS. Although the 8-hour ozone AAQS is 0.08 parts per million (ppm), the highest reported values of 0.081 and 0.082 ppm in Pasco County do not constitute exceedances. An exceedance would be a value of 0.085 ppm or greater.

Ozone is formed from precursors that are clearly available (NO_X and VOC) from nearby industry and traffic. Ozone at times approaches one of the NAAQS in nearby Pasco County. However, the 1 and 8-hour ozone concentration never exceeded 0.12 or 0.08 ppm (125 or 85 ppb) respectively.

The tendency to form ozone is accentuated by hot ambient temperature, high pressure, and relatively low wind speed. These factors are accentuated during drought years. The exact profile is not certain in Hernando County. The figure that follows the table contains plots of the "running" 1-hour and 8-hour average ozone concentrations in parts per billion (ppb) measured in nearby Pasco County during the two months in 2005 when the highest concentrations were recorded.

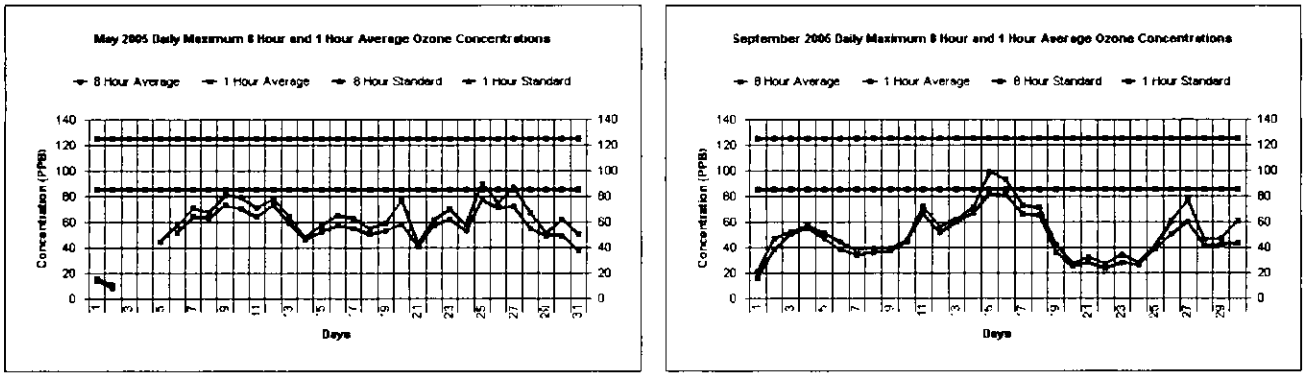
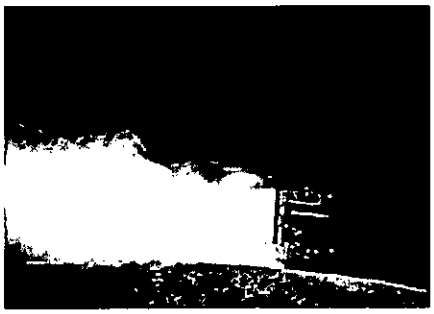


Figure 30. 1 and 8-hour ozone concentrations in Pasco County during May and September 2005

While Pasco County is influenced by the sources in the highly populated Tampa Bay area, Hernando County is closer to the large Crystal River Power Plant that is the largest NO_X source (ozone precursor) in the state.

The nearest PM_{10} monitors are in Hernando and Pinellas Counties respectively. These sites report PM_{10} concentrations significantly less than the NAAQS. Notably the results in terms of highest and average values from the state-operated PM_{10} monitor in Pinellas County are approximately equal to those from the total of three Rinker-operated PM_{10} monitors in Hernando County. This suggests that the State Tarpon Springs monitor is a good reference for adjacent counties and that the Rinker monitor is also adequate despite uncertain QA procedures.

Examples are shown in the following figure together with a map indicating areas that are not in attainment with the new $PM_{2.5}$ standard. None are in Florida.



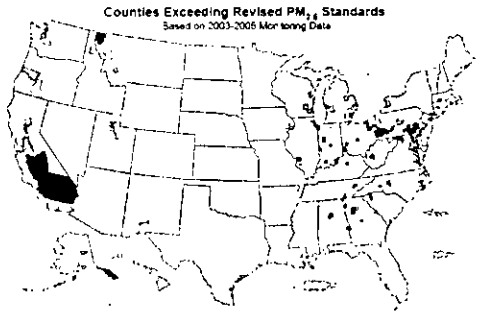


Figure 28. Sources of Inhalable Coarse and Fine Particles. Counties Exceeding $PM_{2.5}$ AAQS.

According to Rinker ambient levels of particulate matter are much less than the ambient standards (including the pre-2006 $PM_{2.5}$ limit of 65 µm).[45] The Rinker $PM_{2.5}$ monitoring data given above from 2005 support an overall conclusion that Hernando County is also in attainment with the recently promulgated AAQS. Although the highest daily measurement was greater than 35 $\mu g/m^3$, the value that exceeded 98 percent of daily measurements was 21.3 $\mu g/m^3$, which is approximately two-thirds (2/3) of the present limit.

The final observation regarding particulate matter is that *most* of the PM_{10} consists of fine particles rather than inhalable coarse particles. Based on the average values, $PM_{2.5}$ comprises approximately 2/3 of PM_{10}. Currently, $PM_{2.5}$ is a regulated pollutant however PM_{10} is used as a surrogate with regards to this analysis and all other projects, until PSD thresholds have been promulgated.

Values of CO, SO_2 and NO_2 are much less than the respective AAQS. However SO_2 and NO_X are precursors of $PM_{2.5}$ or ozone; pollutants that are present at levels relatively much closer to their respective limits.

Preconstruction Ambient Monitoring and Modeling Requirements

A preconstruction monitoring analysis is done for those pollutants with listed de minimis impact levels. This monitoring requirement may be satisfied by using previously existing representative monitoring data, if available. An exemption to the monitoring requirement shall be granted by rule if either of the following conditions is met:

- The maximum predicted air quality impact resulting from the projected emissions increase, as determined by air quality modeling using emissions at worst load conditions as inputs to the models, is less than a pollutant-specific de minimis ambient concentration; or
- The existing ambient concentrations are less than a pollutant-specific de minimis ambient concentration.

If preconstruction ambient monitoring is exempted, determination of background concentrations for PSD significant pollutants with established AAQS may still be necessary for use in any required AAQS analysis. These concentrations may be established from the required preconstruction ambient air quality monitoring analysis or from the existing representative monitoring data. The background ambient air quality concentrations are added to pollutant impacts predicted by modeling and represent the air quality impacts of sources not included in the modeling.

The table below shows project air quality impacts for comparison to de minimis ambient concentrations.

Table 14. Maximum Air Quality Impacts Compared with De Minimis Impact Levels.

Pollutant	Averaging Time	Max Predicted Impact (ug/m^3)	De Minimis Level (ug/m^3)	Baseline (ug/m^3)	Impact Greater Than De Minimis?
PM_{10}	24-hour	23	10	~30	YES
NO_2	Annual	0.7	14	~13	NO
SO_2	24-hour	1	13	~34	NO
CO	8-hour	35	575	~1150	NO

SO_2, NO_2 and CO impacts from the project are predicted to be less than the de minimis levels and preconstruction monitoring is not indicated for these pollutants. Similarly, CO, SO_2 and NO_2 emissions are not predicted to have significant impacts and no further modeling or monitoring is required.

PM_{10} impacts from the project are predicted to be greater than the corresponding de minimis level. Therefore, the applicant is not exempt from preconstruction monitoring for PM_{10} and therefore, $PM_{2.5}$. The Department requires operation by CEMEX of a $PM_{2.5}$ monitor for the purposes of pre and post construction monitoring at a location near the proposed project and the nearby Chassahowitzka Class I area as a permit condition. This may be accomplished by the optimization/upgrade and redeployment (in consultation with the Department) of the existing Rinker $PM_{10}/PM_{2.5}$ network if CEMEX completes the ongoing purchase of Rinker's cement operations in the area.

The Hernando PM_{10} data are approximately equal to data from Tarpon Springs. However the latter data cover a longer period of time and fulfill the Department's QA requirements. Therefore the Tarpon Springs data were used to specify the background upon which to overlay the project impacts.

Table 15. PM_{10} Monitor Data for Background Concentrations.

Years	**Monitor Location**	**Concentration (µg/m^3) High, 1st high 24-hour average**	**Arithmetic Mean Concentration (ug/m^3) Annual Average**
2001 – 2005	Pinellas County	54	20

VOC emissions are predicted to be less than the de minimis emission rate of 100 tons per year (TPY) that could otherwise require *ozone* modeling or further measurement. While the NO_X emissions based on the Department's draft BACT determination are 1,370 TPY, the ozone ambient impact evaluation requirement for sources greater than 100 TPY of NO_X has not yet been incorporated into Department rules and does not yet apply. However, the topic is of concern given the near ozone exceedances detailed in previous discussion and the issue is discussed in the section below on "Impact on Ozone, Visibility and Regional Haze".

C. Significant Impact, PSD Increment and AAQS Analyses

Models and Meteorological Data

The air quality models used are those listed in the "Guideline on Air Quality Models" in Appendix W of 40 CFR Part 51 at the time when the initial application for the proposed project was received by the Department.

PSD Class II Area

The EPA-approved Industrial Source Complex Short-Term (ISCST3) dispersion model was used to evaluate the pollutant emissions from the proposed project in the surrounding Class II Area. This model determines ground-level concentrations of inert gases or small particles emitted into the atmosphere by point, area, and volume sources. It incorporates elements for plume rise, transport by the mean wind, Gaussian dispersion, and pollutant removal mechanisms such as deposition.

The ISCST3 model allows for the separation of sources, building wake downwash, and various other input/output parameters. A series of specific model features, recommended by the EPA, are referred to as the regulatory options. The applicant used the EPA recommended regulatory options. Direction-specific downwash parameters were used for all sources for which downwash was considered. The stacks associated with this project all satisfied the good engineering practice (GEP) stack height criteria.

Meteorological data used in the ISCST3 model consisted of a concurrent 5-year period of hourly surface weather observations and twice-daily upper air soundings from Tampa and Ruskin Airports, respectively. The 5-year period of meteorological data was from 1991 through 1995. These National Weather Service stations were selected for use in this study because they are the closest primary weather stations to the study area and are most representative of the project site. The surface observations included wind direction, wind speed, temperature, cloud cover, and cloud ceiling.

The modeling source inputs consisted of point and volume sources. The 137 volume sources were used to model the truck traffic on paved roads by which the facility raw materials and cement are received and delivered respectively. These volume sources are the road segments for the whole facility whose emission rates are based on the truck/raw materials characteristics, i.e. weight. Including the volume sources ensure that the predicted air impacts for particulate matter are determined by not only the kiln itself but by all of the process-related fugitive or dust emissions that may occur within a cement facility. Typically, as the case with CEMEX, truck impacts are the greatest on the property line of the facility and decrease with distance.

The building configuration at the plant consists of multiple building complexes and many out-buildings used for storage, maintenance, etc. The dimensions of these buildings and structures were used in the modeling to determine downwash impacts. The applicant provided the Department with plot plans and electronic files representing the property and all sources, buildings, and fence line used in the modeling.

The Department has determined that the application complies with the applicable provisions of the stack height regulations as revised by EPA on July 8, 1985 (50 FR 27892). Portions of the regulations have been remanded by a panel of the U.S. Court of Appeals for the D.C. Circuit in NRDC v. Thomas, 838 F. 2d 1224 (D.C. Cir. 1988). Consequently, this permit may be subject to modification should EPA revise the regulation in response to the court decision. This may result in revised emission limitations or may affect other actions taken by the source owners or operators.

PSD Class I Area

The nearest distance of this site from the Class I Chassahowitzka National Wilderness Area (CNWA) is 15 kilometers. Since the PSD Class I area evaluated for impacts is less than 50 km from the proposed facility, the long-range transport model, CALPUFF, will not be appropriate for this Class I impact assessment. The ISCST3 model, as explained above for the Class II analysis, will also be used for the Class I analysis. ISCST3 will also measure nitrogen deposition impacts, an Air Quality Related Value

(AQRV) for the Class I area CNWA. The other AQRV, visibility, was analyzed by using the models VISCREEN and PLUVUE II. VISCREEN and PLUVUE II are steady state, Gaussian-based plume dispersion models that analyzes plumes viewed against a background.

Significant Impact Analyses

Significant Impact Levels (SILs) are defined for PM/PM_{10}, CO, NO_X and SO_2. A significant impact analysis is performed on each of these pollutants to determine if a project can even cause an increase in ground level concentration greater than the SIL for each pollutant. In order to conduct a significant impact analysis, the applicant uses the proposed project's emissions at worst load conditions as inputs to the models. The highest predicted short-term concentrations and the highest predicted annual averages predicted by this modeling are compared to the appropriate SILs for the PSD Class I (CNWA) and PSD Class II Area (everywhere except the Class I areas).

If this modeling at worst-load conditions shows ground-level increases less than the SILs, the applicant is exempted from conducting any further modeling. If the modeled concentrations from the project exceed the SILs, then additional modeling including emissions from all facilities or projects in the area (multi-source modeling) is required to determine the proposed project's impacts compared to the AAQS and PSD increment.

Modeling to determine significance in the PSD Class II area in the vicinity of the project was conducted using a fence-line and polar receptor grid. The polar grid consisted of 20 radial rings using 10 degree spacing extending out to 10 km, a total of 720 receptors. The fence-line grid consisted of 224 receptors spaced at 100-meters apart.

The applicant's initial PM/PM_{10}, CO, NO_X, and SO_2 air quality impact analyses for this project indicated that maximum predicted impacts from all pollutants are less than the applicable SILs for the Class II area except for PM_{10}.

These values are tabulated in the following table and compared with existing ambient air quality measurements from the regional monitoring network.

Table 16. Maximum Projected Air Quality Impacts from CEMEX Kiln No. 3 Cement Project for Comparison to the PSD Class II Significant Impact Levels.

Pollutant	Averaging Time	Max Predicted Impact (ug/m^3)	Significant Impact Level (ug/m^3)	Baseline Concentrations (ug/m^3)	Ambient Air Standards (ug/m^3)	Significant Impact?
SO_2	Annual	0.06	1	~5	60	NO
	24-Hour	1	5	~34	260	NO
	3-Hour	4	25	~151	1300	NO
PM_{10}	Annual	3	1	~20	50	YES
	24-Hour	23	5	~54	150	YES
CO	8-Hour	35	500	~1150	10,000	NO
	1-Hour	114	2000	~3450	40,000	NO
NO_2	Annual	0.7	1	~13	100	NO

Clearly the maximum predicted impacts from the project are much less than the respective AAQS. PM_{10} was determined to have greater than significant impacts in the Class II area, therefore multi-source modeling is required.

In the Class II area, the significant impact distance is the critical distance and determines the Significant Impact Area (SIA) over which additional multi-source modeling is required. The SIA is defined as a circular area centered on the proposed source with a radius equal to the critical distance. The SIA was established for the annual and 24-hour averaging period for PM_{10} for every year of meteorological data. The SIA over which AAQS and increment compliance modeling is performed, is the largest of these areas. The SIA based on maximum predicted ambient air concentrations of PM_{10} for all short-term and long-term periods was 4.6 km.

The nearest PSD Class I area is the CWNA located about 15 km from the project site. Maximum air quality impacts from the proposed project are summarized in the table on the following page.

The results of the initial PM/PM_{10}, NO_X and SO_2 air quality impact analyses for this project indicated that maximum predicted impacts from SO_2 and annual PM_{10} are less than the applicable SILs for the Class I areas. The results also indicate that the 24-hour PM_{10} and NO_2 are greater than the applicable SILs for the Class I areas, therefore further detailed modeling efforts is required.

Table 17. Maximum Air Quality Impacts from the CEMEX Kiln No. 3 Project for Comparison to the PSD Class I SILs at CWNA.

Pollutant	Averaging Time	Max. Predicted Impact at Class I Area (ug/m^3)	Class I Significant Impact Level (ug/m^3)	Significant Impact?
PM_{10}	Annual	0.1	0.2	NO
	24-hour	1.6	0.3	YES
NO_2	Annual	0.2	0.1	YES
SO_2	Annual	0.02	0.1	NO
	24-hour	0.19	0.2	NO
	3-hour	0.8	1	NO

PSD Increment Analysis

The PSD increment represents the amount that new sources in an area may increase ambient ground level concentrations of a pollutant over a baseline level set in 1977. Refined Class I and II Increment compliance modeling is performed only if the Significant Impact Analysis indicates that the project would have a significant impact on air quality. The purpose of this increment compliance modeling is to demonstrate that the new sources will not significantly cause or contribute to a violation of a PSD increment.

This modeling involved the sources under review as well as sources from within and near the SIA in the inventory prepared by the Department and the applicant using approved screening techniques for determining the sources to be included in the modeling analysis. These runs were to identify regulatory high receptors, high-first-high for each year for the NO_2 and PM_{10} annual average, and high-second-high over the five years for the PM_{10} 24-hour average.

The applicant submitted a PSD Class II increment analysis based on 50 meter receptor spacing along the fence line and a Cartesian receptor grid. The Cartesian grid consisted of a grid with 100 meter spacing from the origin out to 2 km, 500 meter spacing from 2 km to 5 km and 1000 meter spacing from 5 km out to 10 km. All maximum concentrations were then refined by using a 50 meter grid. Cartesian receptors within the plant boundary were excluded. Further, the Department added 25 meter spacing along the fence-line where the largest short-term impacts were predicted by the applicant to ensure compliance with the increment. The results of the PM_{10} Class II increment analysis are given in the following table and show that the maximum predicted impacts are less than the respective allowable increments.

The predicted long-term maximum annual impact is well below the allowable increment. The predicted short-term maximum 24-hour impact is just below the allowable increment, and is located on the property line nearby a road leading in/out of the facility. The maximum predicted PM_{10} increment consumption values decrease with distance from the property line.

Table 18. PSD Class II Increment Analysis.

Pollutant	Averaging Time	Maximum Predicted Impact ($\mu g/m^3$)	Impact > Allowable Increment? (Yes/No)	Allowable Increment ($\mu g/m^3$)
PM_{10}	Annual	5	No	17
PM_{10}	24-hr	29.8	No	30

The applicant submitted a PSD Class I increment analysis based on 113 receptors in the CNWA. The results of the NO_X and PM_{10} Class I increment analysis are given below and show that the maximum predicted impacts are less than the respective allowable increments.

Table 19. PSD Class I Increment Analysis.

Pollutant	Averaging Time	Maximum Predicted Impact ($\mu g/m^3$)	Impact > Allowable Increment? (Yes/No)	Allowable Increment ($\mu g/m^3$)
NO_X	Annual	1.3	No	2.5
PM_{10}	24-hr	5	No	8

Ambient Air Quality Standards (AAQS) Analysis

AAQS compliance modeling was performed for PM_{10} because the Significant Impact Analysis indicated that the new sources would have a significant impact on air quality in the Class II area. The purpose of AAQS compliance modeling is to demonstrate that the new sources will not cause or contribute to a violation of an AAQS. AAQS compliance modeling addressed all areas within the SIA. The applicant used the same methods, sources and grids that were in the increment analysis. The table below gives the results and shows that maximum predicted impacts are less than the AAQS.

Table 20. Ambient Air Quality Impacts

Pollutant	Averaging Time	Major Sources Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	Total Impact Greater than AAQS	Florida AAQS ($\mu g/m^3$)
PM_{10}	Annual	5	20	25	No	50
PM_{10}	24-hr	29.8	54	84	No	150

Good Engineering Practice Stack Height Determination

A Good Engineering Practice (GEP) review was conducted for each proposed new source to determine if building downwash effects needed to be included in the modeling and to determine the appropriate stack heights to be used with the models. The new stacks will be lower than GEP height; therefore building downwash effects were included in the modeling analyses.

D. Additional Impact Analysis

Impact on Ozone, Visibility and Regional Haze

The applicant submitted a regional haze analysis for the Class I Area CNWA. The analysis included modeling from the VISCREEN and PLUVUE II models. The models used predicted impacts in compliance with visibility impairment based on criteria from the NPS for the proposed project. The Fish and Wildlife Service has been given the opportunity to review and comment regarding this analysis. No comments have been received at this time.

Ozone, visibility and regional haze are area-wide considerations and their reduction involves broad-based local and regional reductions in their precursors such as NO_X, SO_2, VOC and direct $PM_{10}/PM_{2.5}$ emissions.

Many existing power plants in Florida that contribute to visibility impairment will participate in a cap and trade program under the Clean Air Interstate Rule (CAIR). According to EPA's projections for Florida given in the following table, CAIR will encourage SO_2 reductions of approximately 308,000 TPY by 2015 (65%) and NO_X reductions of approximately 192,000 TPY (76%).

Table 21. EPA's Projections of Power Plant SO_2 and NO_X Reductions in Florida.

Pollutant	**2003**	**2010**	**2015**
SO_2 Emissions	475,000	218,000	167,000
NO_X Emissions	253,000	69,000	61,000

Because CAIR will be implemented via a cap-and-trade system, there are not plant-by-plant specific emission reduction requirements with the exception of the TECO Big Bend Station. However the Department has issued or is reviewing permits for the following projects in the nearby counties:

- Natural gas repowering of the residual fuel oil-fired Progress Bartow Plant in Pinellas County;
- Installation of SCR equipment at Lakeland Electric McIntosh Unit 3 in Polk County;
- An SO_2 scrubber and SCR at Progress Energy Crystal River Units 4 and 5 in Citrus County; and
- NO_X reductions by SCR at TECO Big Bend Station Units 1, 2, 3 and 4 in Hillsborough County.

The reductions in ozone precursors and $PM_{2.5}$ emissions and precursors will exceed the additional emissions from the CEMEX Line 3 project. The increases in regional ozone from CEMEX's additional VOC and NO_X emissions will also be moderated by reductions effected by the nearby power plant projects.

A sophisticated model to calculate the impacts on ozone from the CEMEX project would project impacts that will be less than the uncertainty of the actual regional ozone reductions that the power plant projects will actually effect.

Notwithstanding the above analysis, the Department is presently reviewing an application from CEMEX for a determination of Best Available Retrofit Technology (BART). This analysis is required because Line 1 was constructed during the applicable time frame for BART applicability and it has been shown that it has an effect on visibility in the nearby CNWA.

It is important to insure that Line 3 impacts are minimal. The Department has proposed the lowest NO_X BACT determination in the United States for the present project and the second lowest NO_X standard. The aggregates of $PM_{2.5}$ surrogates and precursors (NO_X+SO_2+VOC+PM_{10} + NH_3) and ozone precursors (NO_X+VOC) are low. Therefore the impacts on ozone, visibility and regional haze will be minimized.

The emission increases expected due to new cement projects in Hernando and Sumter Counties will not reverse the present and expected favorable trend towards less $PM_{2.5}$ and ozone precursor stationary source emissions in the region from Hillsborough to Citrus County.

Impacts on Soils, Vegetation, and Wildlife

The likely impacts to ambient air resulting from emissions of NO_X and PM_{10} are well below the applicable National Ambient Air Quality Standards. Compliance with PSD Class II and Class I increments establishes an effective ambient air quality standard that is much more stringent than the ambient air quality standards. As part of the Additional Impact Analysis, Air Quality Related Values (AQRV) are evaluated with respect to the Class I areas within 300 km. This includes the analysis of deposition.

The ISCST model is used in this analysis to produce quantitative impacts since the CNWA is within 50 km of the facility. The results of this analysis show that nitrogen deposition rates are 16% higher than the significant impact levels in the CWNA as determined by the National Park Service. The Fish and Wildlife Service received the application for the CEMEX Kiln No. 3 project. The Department has not received any comments or concerns regarding this project from the Fish and Wildlife Service.

The applicant provided additional information regarding vegetation. According to the application the most sensitive vegetation will experience adverse impacts from SO_2 if pollutant concentrations exceed 917 micrograms per cubic meter in an hour period. SO_2 emissions from the existing plant are reportedly only 14 TPY and are overwhelmed by other sources. Very low modeled concentrations of SO_2 (~6 $\mu g/m^3$) are predicted. Similar results are seen with NO_X and CO.

The projected CAIR reductions will also ameliorate some of the past regional impacts on soils, vegetation and wildlife. In conclusion, increases of PM_{10}, SO_2, CO and NO_X due to this project will not have a meaningful impact on soils, vegetation and wildlife.

Growth-Related Impacts Due to the Proposed Project

According to the applicant, the proposed project will result in approximately 20 new jobs at the existing cement plant. Therefore, no air quality impacts are expected as a result of commercial, residential or industrial growth as a result of this project.

The population of Hernando County grew from 44,469 in 1990 to 130,802 in 2000. Rather than causing significant growth additional growth in the area, the project is a response to substantial growth in Hernando and the contiguous or adjacent counties. Construction of the plants will reduce the present and expected high level of cement importation to Florida particularly from abroad.

IX. CONCLUSION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the Draft Permit. This determination is based on a technical review of the complete PSD application, reasonable assurances provided by the applicant, the draft determinations of Best Available Control Technology (BACT), review of the air quality impact analysis, and the conditions specified in the Draft permit.

References

[1] Linero, A.A. "What's Up With Cement Plant Permitting?", in Proceedings of the 94th Annual Air and Waste Management Association Conference and Exhibition. June 2001. Orlando, Florida.

[2] Duoflex™ Kiln Burner, F.L. Smidth-Fuller: Bethlehem, PA, 1999.

[3] Linero, A.A. "SNCR NO_X at U.S. Cement Plants. Is SCR Close Behind?" in Proceedings of the 98th Annual Air and Waste Management Association Conference and Exhibition. June 2005. Minneapolis, Minnesota.

[4] Thomsen, K.; Jensen, L.S.; Schomberg, F. "FLS-Fuller ILC-Low NO_X Calciner Commissioning and Operation at Lone Star in St. Cruz in California," Zement Kalk Gips International, 1998, No. 10, 542-550.

[5] Terry, Mark S. "BACT: What is available with Today's Technology," Krupp Polysius Technical Seminar. 1999.

[6] Thomsen, K.; Jensen, L.S.; Schomberg, F. "FLS-Fuller ILC-Low NO_X Calciner Commissioning and Operation at Lone Star in St. Cruz in California," Zement Kalk Gips International, 1998, 10, 542-550.

[7] Sprung, Siegbert. Technological Problems in Pyroprocessing Cement Clinker: Cause and Solution. Beton Verlag. 1982.

[8] Electronic mail transmission and attachments from Lancaster, T., Environmental Manager, Titan America to A. A. Linero. NO_X and CO CEMS Data from Titan Pennsuco Cement Plant. November 2006 through February 2007.

[9] Florida Department of Environmental Protection. Annual Production Increase From Modernized Dry Process Cement Plant. Technical Evaluation and Draft CO BACT Determination for Titan America. October 12, 2005.

[10] Rowley, A. (CEMEX); Babel, D. (KHD). "The Kosmosdale Expansion Project" in Proceedings of the 2002 IEEE-IAS/PCA Cement Industry Technical Conference.

[11] Seymour, D.; Shureck, J. "Revamping Roberta" International Cement Review. June 2003.

[12] Florida Department of Environmental Protection. Production Increase, Fly ash Injection, and SNCR at Suwannee American Cement Plant. Final Permit Modification. March 15, 2005.

[13] Letter from Barry Lower of Holnam to Roger Randolph of the Missouri Air Pollution Control Program, November 6, 2000.

[14] Miller, F. M. "Management of Detached Plumes in Cement Plants" in Proceedings of the 2001 IEEE-IAS/PCA Cement Industry Technical Conference.

[15] Reference 14.

[16] Institute for Prospective Technological Studies, Reference Document on Best Available Techniques in the Cement and Lime Manufacturing Industries; European Integrated Pollution Prevention and Control Bureau: Seville, Spain, March 2000.

[17] Verein Deutcher Zementwerke. Umweltdaten der Deutschen Zementindustrie 2004. Forschungsinstitut der Zementindustrie. September 2005. Dusseldorf, Germany.

[18] Junker, P., Director of Environmental Protection for Gotland County, Swedish EPA. "Reduction with SNCR Technology at Slite Cement Plant", In Proceedings of the *Paris NO_X/N_2O-conference,* March 21-22, 2001.

[19] Electronic mail transmission and attachments from Junkers, P., Director of Environmental Protection for Gotland County, Swedish EPA to A. A. Linero. Swedish Contribution to European Union Best Available Techniques Reference for the Cement Industry. August 14, 2006.

[20] Electronic mail transmission and attachments from Ebertsch, G., Bavarian Environmental Agency to A. A. Linero, Florida DEP. Results of High Efficiency SNCR Installation at a Bavarian Cement Plant. July 26, 2006.

[21] Haug, N., Dr. Ing.; Sauter, G., Dipl. Ing.; Samant, G., Dr. Ing., "Einsatz der High-Dust-SCR Technologie in der Zementindustrie", in VDI Vortrag 2002.

[22] Leibacher, U.; Bellin, C.; Linero, A.A., "High Dust SCR Solution," International Cement Review. December 2006.

[23] Miller, F. M.; Hawkins, G. J. "Formation and Emission of Sulfur Dioxide from the Portland Cement Industry" in *Proceedings of the 93rd Air and Waste Management Association Conference.* 2000. San Diego, CA.

[24] Presentation. Waste Management Technologies in Japanese Cement Industry. Taiyeho Cement, Taiyeho Engineering, CTI/Industry Joint Seminar, February 2004.

[25] Miller, F. M.; Young, G. L.; von Seebach, M., *Formation and Techniques for Control of Sulfur Dioxide and Other Sulfur Compounds in Portland Cement Kiln Systems*; Portland Cement Association: Skokie, Illinois, 2001.

[26] Greer, W. L., *Interactions Among Gaseous Pollutants from Cement Manufacture and Their Control Technologies*; Portland Cement Association: Skokie, Illinois, 2003.

[27] Letter and attachments from Walter Greer, Ash Grove Cement, to John Ramsey, Kansas Department of Health and Environment, re: Sulfur Absorbing Enhancements at the Chanute Plant, dated May 14, 1999.

[28] SO_2 Removal and Secondary Plume Abatement – MicroMist Micro-fine Lime™ Semi-dry Injection Systems. Product Information Brochure. EnviroCare International: Novato, CA, 1998.

[29] Texas Natural Resources Conservation Commission. Technical Review – New Kiln and Modification of Existing Plant at Texas Industries, L.P. Midlothian Cement Plant. Permit No. 1360a. August 1998

[30] Kupper, D. "Trends on Desulfurization and Denitrification Techniques in the Cement Industry," in Proceedings of the 34th IEEE Cement Industry Technical Conference. 1992. Dallas, TX.

[31] de Quervain, B., Ph.D., "Umweltfreundliche Klarschlammverbrunnung am Beispiel des PCW Portand-Cement-Werks," GWA des Schweizerichen Vereins des Gas und Wasserfaches, 1992, Sonderdruck No. 1258.

[32] CADDET. "Substitution of Coal in Cement Industry Reduces Pollution." Center for Analysis and Dissemination of Demonstrated Energy Technologies. International Energy Agency. Netherlands. March 1996.

[33] Letter and enclosures from Linero, A., Florida Department of Environemtnal Protection to Neuffer, W. and Barnett, K., U.S. EPA Office of Air Quality Planning and Standards. Comments on: Draft Alternative Control Techniques Document Update - NO_X Emissions from New Cement Kilns; Mulitpollutant Project; Cement NSPS Revision; and MACT Reconsideration and comments. July 2007.

[34] Letter from Fred Cohrs of Florida Rock to Kirby Green of Florida DEP, September 2000.

[35] Terry, Mark S. "BACT: What is available with Today's Technology," Krupp Polysius Technical Seminar. 1999.

[36] Final Rule. National Emission Standards for Hazardous Air Pollutants From the Portland Cement Manufacturing Industry Federal Notice Vol. 71, No. 244 / Wednesday, December 20, 2006 / Rules and Regulations.

[37] Arizona Department of Environmental Quality. Drake Cement Technical Support Document and Statement of Basis. Air Quality Permit No. 1001770.

[38] Report. Revisions to the State Implementation Plan for the Control of Ozone Air Pollution - Dallas Fort Worth Eight-Hour Ozone Nonattainment Area Attainment Demonstration. Texas Commission on Environmental Quality. TCEQ Project No. 2006-013-SIP-NR. Adopted May 23, 2007.

[39] Scur, P., Dipl. Ing.; Hoppe, H., Ph.D., "The Present State of NO_X Abatement with the SNCR Process," Cement International, No. 2/2006.

[40] Electronic mail transmission and attachments from Plickert, S., German Federal Environmental Office to A. A. Linero. Annex VI to German Contribution to the Review of the Reference Document on Best Available Techniques in the Cement and Lime Manufacturing Industries to European Union Best Available Techniques Reference for the Cement Industry. June 13, 2006.

[41] Newspaper Article. Ben Ready. "Non-Profit Threatens to Sue CEMEX." The Daily Times-Call. February 28, 2007.

[42] Presentation. September 2006 Revisions to the National Ambient Air Quality Standards for Particle Pollution. United States Environmental Protection Agency. September 2006.

[43] Schaefer, S.; Hoenig, V. "Betriebstechninische Einflüsse auf die Quecksilber-Emissionen aus Drehrohröfen der Zementindustrie". Zement Kalk Gips International, 2001, No. 11, 591-601.

[44] Presentation. Mercury Study. Presented at Public Meeting in Center Hill. Sumter Cement Company. 2005.

[45] Special Use Petition. Florida Crushed Stone Company. Unit No. 2 Project – Special exemption. Received by Hernando County Planning Department. January 19, 2005.

DRAFT AIR CONSTRUCTION PERMIT NO. 0530010-029-AC (PSD-FL-384)

PERMITTEE:

CEMEX Cement, Inc.
16301 Ponce De Leon Boulevard
Brooksville, Florida 34614-0849

Authorized Representative:
Michael Gonzales, Plant Manager

Air Permit No 0530010-029-AC
PSD Permit No. PSD-FL-384
Brooksville Cement Plant
Facility ID No. 0530010
SIC No. 3241 Cement, Hydraulic,
Cement Processing Line No. 3
Permit Expires: June 30, 2011

PROJECT AND LOCATION

This permit authorizes the construction of a 1,734,500 tons per year portland cement line designated as Line 3. The new equipment will be installed at the existing CEMEX Cement Brooksville Plant which is located in Hernando County at 16301 Ponce De Leon Boulevard northwest of Brooksville, Florida.

STATEMENT OF BASIS

The permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.) and Title 40, Parts 60 and 63 of the Code of Federal Regulations (CFR). The permittee is authorized to install the proposed equipment in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department.

CONTENTS

Joseph Kahn, P.E., Director (Date)
Division of Air Resource Management

FACILITY AND PROJECT DESCRIPTION

CEMEX Cement Company (CEMEX) operates the Brooksville Cement Plant which is a portland cement facility (SIC 3241 Cement, Hydraulic). The plant currently consists of:

Two portland cement lines designated as Lines 1 and 2, including two Polysius GEPOL preheater kilns (Kilns 1 and 2), two clinker coolers, associated raw mills, finish mills, cement and clinker handling equipment, coal handling equipment, silos, air pollution control devices, raw material extraction and receiving facilities and product shipping facilities.

This project authorizes the addition of a third portland cement line (Line 3). The key components are Clinker Cooler No. 3 and the pyroprocessing system that includes Kiln No. 3 with a preheater, calciner and in-line raw mill. The production capacity of Line 3 is 1,405,100 tons per year (TPY) of clinker and, after addition of slag, limestone dust and gypsum, 1,734,500 TPY of cement. Associated emission units are listed in the following table:

EU ID	Emissions Unit Description
031	Raw Material Quarrying, Crushing and Storage System
033	Raw Materials Receiving, Handling and Storage System
034	Raw Mix and Raw Meal Handling and Storage System
035	Pyroprocessing System. Kiln No. 3 with preheater, calciner, in-line raw mill and air heater
036	Clinker Cooler No. 3
037	Clinker Handling and Storage Clinker Silo
038	Finish Mill Feed Transportation
039	Finish Mill Processing and Recovery
040	Cement Silos & Loadout
041	Coal and Petroleum Coke Mill
042	Fugitive Emissions from Vehicle Travel and Miscellaneous Sources
043	Non-hazardous Waste Fuel Handling

Line 3 will have two main stacks with baghouses to control particulate emissions from the pyroprocessing system and the clinker cooler. Other key environmental equipment includes:

- An ammonia injection system to reduce NO_X from the pyroprocessing system;
- Continuous emissions monitoring systems (CEMS) to measure NO_X, SO_2, CO, VOC and Hg; and
- Continuous opacity monitoring systems (COMS) on the main stack and clinker cooler stack.

REGULATORY CLASSIFICATION

Title I, Section 111, Clean Air Act (CAA): This facility is subject to certain Standards of Performance for New Stationary Sources. They are adopted and incorporated by reference in Rule 62-204.800, F.A.C. These include:

- 40 CFR 60, Subpart A - General Provisions;
- 40 CFR 60, Subpart F - Standards of Performance for Portland Cement Plants. Certain requirements from Subpart F are replaced by requirements from 40 CFR 63, Subpart LLL listed below;
- 40 CFR 60, Subpart Y - Standards of Performance for Coal Preparation Plants; and
- 40 CFR 60, Subpart OOO – Standards of Performance for Non-Metallic Mineral Processing Plants.

Title I, Section 112 CAA: The facility has the potential to emit 10 tons per year or more of any one hazardous air pollutant (HAP) or 25 tons per year or more of any combination of HAPs. This facility is subject to the Major Source provisions of:

- 40 CFR 63 Subparts A - National Emission Standards for Hazardous Air Pollutants – General Provisions.
- 40 CFR, Subpart LLL - National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry.

Title I, Part C (PSD): The facility is located in an area designated as "attainment", "maintenance", or "unclassifiable" for each pollutant subject to a National Ambient Air Quality Standard. The facility is considered a "portland cement plant", which is one of the 28 Prevention of Significant Deterioration (PSD) source categories with the lower PSD applicability threshold of 100 tons per year. Potential emissions of at least one regulated pollutant exceed 100 tons per year. Therefore, the facility is classified as a PSD-major source of air pollution with respect to Rule 62-212.400, F.A.C., Prevention of Significant Deterioration.

Title IV, CAA: The facility does not operate any units subject to the Acid Rain provisions of the Clean Air Act.

Title V, CAA: The facility is a Title V or "Major Source" of air pollution because the potential emissions of at least one regulated pollutant exceed 100 tons per year or because it is a major source of HAPS. Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NOx), particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), and volatile organic compounds (VOC).

State Rules: The cement plant is subject to state Rule 62-296.407, F.A.C. (Portland Cement Plants).

RELEVANT DOCUMENTS

The following relevant documents are not a part of this permit, but helped form the basis for this permitting action: the permit application received on October 27, 2006 and additional information received to make it complete; the draft permit package including the Department's Technical Evaluation and Preliminary Determination dated July 17, 2007; publication and comments; and the Department's Final Determination issued _____

1. Permitting Authority: The Permitting Authority for this project is the Bureau of Air Regulation in the Division of Air Resource Management of the Florida Department of Environmental Protection. The mailing address for the Bureau of Air Regulation is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400.

2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Air Resources Section of the Department's Southwest District Office. The mailing address and phone number of the Southwest District Office are: 13051 N. Telecom Parkway, Temple Terrace, Florida 33637-0926 and (813) 632-7600.

3. Appendices: The following Appendices are attached as part of this permit: Appendix BD (Best Available Control Technology Determination); Appendix C (Common Conditions); Appendix GC (General Conditions); Appendix LLL (40 CFR 63, Subpart LLL-Cement Plants); Appendix OOO (40 CFR 60 Subpart OOO-Non Metallic Mineral Processing); and Appendix Y (40 CFR 60, Subpart Y-Coal Preparation Plants.

4. Applicable Regulations, Forms and Application Procedures: Unless otherwise specified in this permit, the construction and operation of the subject emissions units shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403, F.S.; and Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations.

5. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]

6. Modifications: No emissions unit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]

7. Title V Permit: This permit authorizes specific modifications and/or new construction on the affected emissions units as well as initial operation to determine compliance with conditions of this permit. A Title V Operation Permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V Operation Permit at least 90 days prior to expiration of this permit, but no later than 180 days after completing the required work and commencing operation. To apply for a Title V Operation Permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the Air Resources Section of the Department's Southwest District Office at the address given in Condition 2 above. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

8. Permit Expiration: The permit expiration date includes sufficient time to complete construction, perform required testing, submit test reports, and submit an application for a Title V operation permit to the Department. For good cause, the permittee may request that this PSD air construction permit be extended. Such a request shall be submitted to the Department's Bureau of Air Regulation at least sixty (60) days prior to the expiration of this permit. [Rules 62-4.070(4) and 62-4.080(3), F.A.C.]

9. Source Obligation:

   a. Authorization to construct shall expire if construction is not commenced within 18 months after receipt of the permit, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. This provision does not apply to the time period between construction of the approved phases of a phased construction project except that each phase must commence construction within 18 months of the commencement date established by the Department in the permit.

   b. At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.

   c. At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by exceeding its projected actual emissions, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.

   [Rule 62-212.400(12)(a), F.A.C., Source Obligation]

A. Raw Material Quarrying, Crushing and Storage System

The specific conditions of this subsection apply to the following emissions unit after construction is complete.

EU ID	Emissions Unit Description
031	Raw Material Quarrying, Crushing and Storage System.

The Raw Material Crushing System includes raw limestone quarrying, crushing and storage in the Limestone Storage Building. The existing primary crusher and secondary crushers that are presently used for Lines 1 and 2 will be replaced with a new set of crushers under the present project and will suffice for all three lines.

APPLICABLE STANDARDS AND REGULATIONS

1. NSPS Requirements: This unit is subject to 40 CFR 60, Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants. The requirements of this Subpart are attached as Appendix OOO in Section 4 of this permit. [40 CFR 60, Subparts A and OOO]
2. BACT Determinations: A determination of the Best Available Control Technology (BACT) was made for PM/PM_{10} Line No. 3. It consists of the work practice and visible emissions requirements of Subpart OOO, [Rule 62-212.400, F.A.C]
3. Equipment Description: The permittee is authorized to replace the existing crushers and to expand the existing Limestone Storage Building to store approximately 61,000 tons of limestone. Equipment will include conveyors, feeder bins, belts, loaders, hoppers, and meters. [Applicant]

PERFORMANCE REQUIREMENTS

4. Hours of Operation: The hours of operation of this emissions unit are not limited (8760 hours per year). [Rule 62-210.200(PTE), F.A.C.]
5. Process Rate Limitation: The primary crusher and secondary crushers shall not process more than 1,500 tons per hour of limestone on a 24-hour basis. The permittee shall maintain written records of the monthly processing rate.
6. Test Reports. For each test conducted, the permittee shall file a test report including the information specified in Rule 62-297.310(8), F.A.C. with the Department as soon as practical, but no later than 45 days after the last sampling run of each test is completed. [Rules 62-297.310(8), F.A.C.]

B. Raw Materials Handling And Storage System

The specific conditions of this subsection apply to the following emissions unit after construction is complete.

EU ID	Emissions Unit Description
033	Raw Materials Receiving, Handling and Storage System

The Raw Materials Receiving, Handling and Storage System includes hoppers and transfer points of raw materials and additives. Emissions Unit 033 contains the following emission points that are controlled by baghouses:

Point ID	Emissions Point Description
PS61	Sand/Mill Scale Reception Hopper
PS62	Ash Reception Hopper
PS65	Limestone Silo and Clay Silo
PS63	Ash/Mill Scale/Sand Bins

APPLICABLE STANDARDS AND REGULATIONS

1. BACT Determinations: A determination of the Best Available Control Technology (BACT) was made for particulate matter (PM/PM_{10}). To satisfy the BACT requirements for this unit the visible emissions limits are surrogate standards for PM.

2. NESHAP Requirements: This unit is subject to 40 CFR 63, Subpart A (Identification of General Provisions) and 40 CFR 63, Subpart LLL (National Emissions Standard for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry). The Department determines that the BACT emissions performance requirements are as stringent as or more stringent than the limits imposed by this Subpart. Some separate reporting and monitoring may be required by this Subpart.

EQUIPMENT AND CONTROL TECHNOLOGY

3. Equipment Description: The permittee is authorized to construct, operate, and maintain equipment needed for the conveyance and handling of the raw materials. Equipment will include conveyors, feeder bins, belts, loaders, hoppers, and meters. [Applicant]

4. Baghouse Controls: Each emissions point identified for raw material receiving, handling and storage shall be controlled by a baghouse system. Each required baghouse shall be designed, operated, and maintained to achieve a PM design specification of 0.01 gr/dscf and a PM_{10} design specification of 0.007 gr/dscf. [Rule 62-212.400(BACT), F.A.C.]

PERFORMANCE REQUIREMENTS

5. Hours of Operation: This emissions unit is allowed to operate 8,760 hours per year. [Applicant Request, Rule62-210.200(PTE), F.A.C

EMISSIONS AND TESTING REQUIREMENTS

6. Emissions Limits:

   a. Visible emissions are limited to 5% opacity from each of the above listed emissions points controlled by a baghouse. Exceedance of the 5% opacity limit shall be deemed an exceedance of this permit condition and not necessarily an exceedance of the opacity limitations given in 40 CFR 63, Subpart LLL.

   b. Fugitive emissions from any emissions point not controlled by a baghouse shall not exceed 10% opacity.

   [Rules 62-4.070(3), 62-212.400 (BACT), F.A.C. and 40 CFR 63.1348]

7. Compliance Demonstrations: Each emission point shall be tested to demonstrate initial compliance with the emission standards for visible emissions in accordance with EPA Method 9. The tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after the initial startup. Thereafter, compliance with the visible emission limits for each emission point shall be demonstrated during each federal fiscal year (October 1st to September 30th). [Rules 62-4.070(3), 62-297.310(7)(a), F.A.C. and 40 CFR 63.1349(b)(2)]

8. Periodic Monitoring Requirements: Each affected source subject to an opacity standard shall be periodically monitored using the procedures described in 40 CFR 63.1350(a) (4) (i) through (vii) to ensure compliance with the emissions limits of condition No. 6. [Rule 62-4.070(3), and 40 CFR, 63.1350, Subpart LLL]

9. Test Methods: Any required tests shall be performed in accordance with the following reference methods and the applicable requirements of Appendix C of this permit, and the applicable NESHAP provisions.

Method	Description of Method and Comments
9	Visual Determination of the Opacity of Emissions from Stationary Sources
22	Visual Determination of Fugitive Emissions From Material Sources

REPORTING AND RECORD KEEPING

10. Baghouse O&M Plan: For each baghouse the permittee shall prepare an operation and maintenance (O&M) plan to address proper operation, parametric monitoring, and a schedule for conducting periodic inspections and preventive maintenance. Baghouse inspections and maintenance activities shall be recorded in a log. The O&M plan shall be submitted to the Compliance Authority prior to the initial compliance tests for this unit. [Rule 62-4.070(3), and 40 CFR 63.1350, Subpart LLL]

11. Test Reports: For each test conducted, the permittee shall file a test report including the information specified in Rule 62-297.310(8), F.A.C. with the compliance authority no later than 45 days after the last run of each test is completed. [Rules 62-297.310(8), F.A.C.]

C. Raw Mill System

The specific conditions of this subsection apply to the following emissions unit after construction is complete.

EU ID	Emissions Unit Description
034	Raw Mix and Raw Meal Handling and Storage System

The Raw Mix and Raw Meal Handling and Storage System includes hoppers and transfer points to the Raw Mill and from the Raw Mill to the preheater. Emissions Unit 034 contains the following emission points controlled by baghouses:

Point ID	Emissions Point Description
PS64	Additive Bins – Feeders
PS64A	Additive Transfer Point
PS64AA	Additive Transfer Point
PS61A	Hoppers to Mill Transfer (1 of 2)
PS62A	Hoppers to Mill Transfer (2 of 2)
PS66	Cyclones to Feeding Silo
PS69	Bottom of Bucket Elevator to Blending Silo
PS70	Blending Silo
PS71	Weigh Hopper After Blending Silo
PS72	Air Slide After Weigh Hopper to Bucket Elevator (1 of 2)
PS72A	Air Slide After Weigh Hopper to Bucket Elevator (2 of 2)
PS73	Air Slide After Bucket Elevator to Preheater
PS68	Filter Dust Hopper

APPLICABLE STANDARDS AND REGULATIONS

1. BACT Determinations: A determination of the Best Available Control Technology (BACT) was made for particulate matter (PM/PM_{10}). To satisfy the BACT requirements for this unit the visible emissions limits are surrogate standards for PM.

2. NESHAP Requirements: This unit is subject to 40 CFR 63, Subpart A (Identification of General Provisions) and 40 CFR 63, Subpart LLL (National Emissions Standard for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry). The Department determines that the BACT emissions performance requirements are as stringent as or more stringent than the limits imposed by this Subpart. Some separate reporting and monitoring may be required by this Subpart.

EQUIPMENT AND CONTROL TECHNOLOGY

3. Equipment Description: The permittee is authorized to construct, operate, and maintain equipment needed for the conveyance and handling of the raw materials. Equipment will include reclaimers, conveyors, belts, loaders, hoppers, and a cross belt analyzer. [Applicant]

C. Raw Mill System

4. Baghouse Controls: Each emissions point identified for raw material handling and storage shall be controlled by a baghouse system. Each required baghouse shall be designed, operated, and maintained to achieve a PM design specification of 0.01 gr/dscf and a PM_{10} design specification of 0.007 gr/dscf. [Rule 62-212.400(BACT), F.A.C.]

PERFORMANCE REQUIREMENTS

5. Hours of Operation: This emissions unit system is allowed to operate 8,760 hours per year. [Applicant Request, Rule62-210.200(PTE), F.A.C.]

EMISSIONS AND TESTING REQUIREMENTS

6. Emissions Limits:

   a. Visible emissions are limited to 5% opacity from each of the above listed emissions points controlled by a baghouse. Exceedance of the 5% opacity limit shall be deemed an exceedance of this permit condition and not necessarily an exceedance of the opacity limitations given in 40 CFR 63, Subpart LLL.

   b. Fugitive emissions from any emissions point not controlled by a baghouse shall not exceed 10% opacity.

   [Rules 62-4.070(3), 62-212.400 (BACT), F.A.C. and 40 CFR 63.1348]

7. Compliance Demonstrations: Each emission point shall be tested to demonstrate initial compliance with the emission standards for visible emissions in accordance with EPA Method 9. The tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after the initial startup. Thereafter, compliance with the visible emission limits for each emission point shall be demonstrated during each federal fiscal year (October 1st to September 30th). [Rules 62-4.070(3), 62-297.310(7)(a), F.A.C. and 40 CFR 63.1349(b)(2)]

8. Periodic Monitoring Requirements: Each affected source subject to an opacity standard shall be periodically monitored using the procedures described in 40 CFR 63.1350(a) (4) (i) through (vii) to ensure compliance with the emissions limits of condition No. 6. [Rule 62-4.070(3), and 40 CFR, 63.1350, Subpart LLL]

9. Test Methods: Any required tests shall be performed in accordance with the following reference methods and the applicable requirements of Appendix C of this permit, and the applicable NESHAP provisions.

Method	Description of Method and Comments
9	Visual Determination of the Opacity of Emissions from Stationary Sources
22	Visual Determination of Fugitive Emissions From Material Sources

REPORTING AND RECORD KEEPING

10. Baghouse O&M Plan: For each baghouse the permittee shall prepare an operation and maintenance (O&M) plan to address proper operation, parametric monitoring, and a schedule for conducting periodic inspections and preventive maintenance. Baghouse inspections and maintenance activities shall be recorded in a log. The O&M plan shall be submitted to the Compliance Authority prior to the initial compliance tests for this unit. [Rule 62-4.070(3), and 40 CFR 63.1350, Subpart LLL]

11. Test Reports: For each test conducted, the permittee shall file a test report including the information specified in Rule 62-297.310(8), F.A.C. with the compliance authority no later than 45 days after the last run of each test is completed. [Rules 62-297.310(8), F.A.C.]

D. Pyroprocessing System

The specific conditions of this subsection apply to the following emissions unit after construction is complete.

ID No.	Emissions Unit Description
035	Pyroprocessing System including Preheater/Calciner Kiln with In-line Raw Mill and Air Heater

The Emissions Point for the Pyroprocessing System is the stack following the large baghouse that serves as the main Particulate Matter Control Device (PMCD):

Point ID	Emissions Point Description
PS67	Pyroprocessing System Stack

APPLICABLE STANDARDS AND REGULATIONS

1. BACT Determinations: A determination of the Best Available Control Technology (BACT) was made for carbon monoxide (CO), nitrogen oxides (NO_X), sulfur dioxide (SO_2), volatile organic compounds (VOC), and particulate matter (PM/PM_{10}).

2. NESHAP Requirements: This unit is subject to 40 CFR 63, Subpart A (Identification of General Provisions) and 40 CFR 63, Subpart LLL (National Emissions Standard for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry). The Department determines that the BACT emissions performance requirements are as stringent as or more stringent than the limits imposed by this Subpart. Some separate reporting and monitoring may be required by this Subpart.

EQUIPMENT AND CONTROL TECHNOLOGY

3. Pyroprocessing System: The permittee is authorized to construct a pyroprocessing system consisting of a dry process pre-heater/calciner (PH/C) rotary kiln with in-line raw mill that simultaneously dries raw materials using the exhaust gas from the kiln, PH/C or clinker cooler. The preheater is designed with a staged combustion calciner and shall incorporate additional NO_X control measures as described in Condition 5 below. The kiln will be equipped with a Low NO_X main kiln burner capable of burning coal, petroleum coke, natural gas, used oil, and fuel oil. Other equipment includes an air heater for use when additional drying capacity is required, and hot air ducting to the kiln, PH/C and/or in-line raw mill. The air heater will be capable of firing fuel oil and natural gas. All emissions from the pyroprocessing system are directed to a single stack. The exhaust stack shall be no more than 14 feet in diameter and no less than 319 feet tall. [Applicant Request]

4. Kiln Design: The kiln will be designed to process approximately 260 tons per hour of dry preheater feed material (including baghouse dust recirculation and excluding dry coal ash) with an annual nominal throughput of 2,278,000 tons per year. The preheater feed rate is indirectly limited by the clinker production limitations specified in Condition 9 below. [Applicant Request]

5. NO_X Controls
   a) *Primary NO_X Control:* The main kiln and calciner will be equipped with Low NO_X burners that will create distinct combustion zones within the flame. An indirect firing system will be used to reduce the amount of primary air injected with the fuel used in the main kiln burner.
   b) *Secondary NO_X Control:* Staged Combustion in the Calciner (SCC) shall be incorporated into the design such that introduction of fuel, air and meal to the calciner will be staged or sequenced for the reduction of NO_X emissions.

c) *Add-on NO_X Control:* An Ammonia Injection System (AIS) shall be designed, constructed and operated to achieve the permitted levels for NO_X emissions from the pyroprocessing system. The AIS will include at least aqueous ammonia and/or urea storage tank(s), pumps, piping, compressed air delivery, injectors, control system, ancillary equipment and, at the option of the permittee, a reactor and catalyst. Aqueous ammonia and/or urea solution will be injected at location(s) in the preheater/calciner or downcomer with appropriate temperature profiles. The applicant may submit an application with supporting information to install an alternative add-on NO_X control system.

6. Particulate Matter (PM/PM_{10}) Controls: The permittee shall install a particulate matter control device consisting of at least a baghouse to remove particulate matter emissions from the pyroprocessing exhaust gas stream to achieve the PM/PM_{10} emissions standards specified in this permit.

7. Sulfur Dioxide Controls: The permittee shall primarily use low-sulfur raw materials to achieve the SO_2 permitted limits. The permittee is authorized to install a hydrated lime injection system for utilization as needed to reduce SO_2 emissions.

PERFORMANCE REQUIREMENTS

8. Hours of Operation: The hours of operation for this emissions unit are not limited (8760 hours per year). [Rule 62-210.200(PTE), F.A.C.]

9. Process Rate Limitations: Kiln preheater feed rate shall be monitored and recorded for purposes of determining clinker production. The nominal clinker production rate is 160.4 tons per hour (TPH) and shall not exceed 176.5 TPH (24-hour rolling average) and 1,405,100 tons during any consecutive 12 month period. The clinker production rate shall be determined using kiln feed loss on ignition (LOI) factors. The feed rates and kiln feed LOIs shall be 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 burns fuel. [Rules 62-4.070(3), and 62-212.200(PTE), F.A.C.]

10. Authorized Fuels: Only the following authorized fuels shall be fired in the pyroprocessing system (kiln and calciner): coal, petroleum coke, tire derived fuel (whole or chipped tires), natural gas, distillate oil, "on-specification" used oil fuel, and other non-hazardous wastes described in paragraph d). The maximum heat input rate to the pyroprocessing system (kiln and calciner) shall not exceed 13,200 MMBtu per day (nominally 550 MMBtu/hr).

    a) The maximum heat input rate from tire derived fuel (TDF) shall not exceed 35% of the total pyroprocessing heat input rate (kiln and calciner) and shall not exceed 200 MMBtu per hour (24-hour rolling basis). TDF may be fed anywhere between the kiln feed shelf and lower cyclone. TDF may be injected through the main kiln burner and the discharge end of the kiln. The whole tire feed mechanisms shall be designed with an airlock/gate system. TDF shall be stored, handled and managed in accordance with the provisions of Chapter 62-711, F.A.C.

    b) The air heater shall fire only natural gas or distillate fuel oil (No. 2 or No. 4) with a design maximum heat input rate of 55 MMBtu per hour.

    c) The firing of "on-specification" used oil fuel shall not exceed 2000 gallons per hour and 3,000,000 gallons during any consecutive 12 months. On-Specification Used Oil Fuel shall meet the following specifications:

        1. Arsenic shall not exceed 5.0 ppm;
        2. Cadmium shall not exceed 2.0 ppm;
        3. Chromium shall not exceed 10.0 ppm;
        4. Lead shall not exceed 100.0 ppm;
        5. Total halogens shall not exceed 1000 ppm; and
        6. Flash point shall not be less than 100° F.

Used oil fired as a fuel may be generated from on site sources or purchased from a vendor. Used oil shall not contain any PCB's. [40 CFR 279.61; 40 CFR 761.20(e); Rule 62-4.070(3), F.A.C.]

d) The maximum heat input rate from other non-hazardous waste shall not exceed 15% of the total pyroprocessing heat input rate (kiln and calciner) and shall not exceed 85 MMBtu per hour (24-hour rolling basis). Such fuels will be stored in enclosed bins or silos, pneumatically fed through a metering system and introduced into the kiln via the main kiln burner. The approved fuels are limited to: rice hulls; corn husks; cotton gin wastes; sugarcane bagasse; sawdust and wood chips from clean untreated and unpainted wood; paper and cardboard; non-chlorinated plastic; citrus peel waste; and carpet derived fuel.

e) Prior to initial use of any fuel listed in d) above, the permittee shall provide a notification from the including: origin of the fuel, percent fuel substitution, a schedule for firing such fuels, and a proposal to evaluate emissions of NO_X, CO, VOC and SO_2 from the CEMS record to demonstrate no increase in emissions above permitted levels. Air contaminants to be tested for include (but are not limited to) NO_X, SO_2, and CO.

f) The permittee shall maintain records indicating the origin and profile of sawdust and wood chips derived from clean untreated and unpainted wood. The permittee is required to maintain records to demonstrate that material is not and does not contain hazardous waste as defined by Rule 62-730.030, F.A.C., or 40 CFR Part 261.

[Applicant request, Rule 62-4.070(3), F.A.C.]

EMISSIONS AND TESTING REQUIREMENTS

11. Emissions Standards: Emissions from the pyroprocessing system (including the air heater) shall not exceed the following emissions standards.

Pollutant	Emission Limit	Averaging Time	Compliance Method	Basis
CO[a]	2.0 lb/ton of clinker 321 lb/hr	30-day rolling	CEMS	BACT
NO_X[b]	1.50 lb/ton of clinker 241 lb/hr	30-day rolling	CEMS	BACT
PM/PM_{10}[c]	0.10 lb/ton of clinker 17.6 lb/hr	Three 1-hr runs	Annual Test	BACT
Visible Emissions	10 % opacity	6-minute block	COMS	BACT
SO_2	0.20 lb/ton of clinker 32.1 lb/hr	24-hr rolling	CEMS	BACT
VOC[d]	0.115 lb/ton of clinker 18.5 lb/hr	30-day block	CEMS	BACT
Dioxin/Furan[e]	0.20 ng/dscm (TEQ) @ 7% O_2 0.40 ng/dscm (TEQ) @ 7% O_2	Three 3-hr runs	Temperature Monitoring	NESHAP LLL
THC[f]	20 ppmvd (as propane)@ 7% O_2 or 98 percent reduction	1-hour block	CEMS	NESHAP LLL
Mercury[g]	190 lb/12-month period	12-month rolling	Fuel/Materials and/or CEMS	Avoid PSD
	41 μg/dscm @ 7% O_2	Three 1-hr runs	Annual Test	NESHAP LLL

a. For an "initial startup period" (0 to 269 calendar days after startup) CO emissions shall not exceed 2.9 lb/ton of clinker (466 lb/hour) based on a 30-day rolling average. In the event the permittee has not burned a fuel mix of at least 30% petcoke averaged over a period of 30 operating days, the final 2.0 lb/ton limit shall apply 270 calendar days and thereafter. Otherwise a 2.5 lb/ton limit (401 lb/hr) shall apply from 270 to 629 calendar days after startup and the final 2.0 lb/ton limit (321 lb/hr) shall apply 630 calendar days after startup and thereafter.

b. For an "initial startup period" (0 to 269 calendar days after startup) NO_X emissions shall not exceed 3.0 lb/ton of clinker (481 lb/hour) based on a 30-day rolling average. In the event the permittee has not burned a fuel mix of at least 30% petcoke averaged over a period of 30 operating days, the final 1.50 lb/ton limit (241 lb/hr) shall apply 270 calendar days after startup and thereafter. Otherwise a limit of 1.95 lb/ton limit (313 lb/hr) shall apply from 270 to 629 calendar days after startup and the final 1.50 lb/ton limit (241 lb/hr) shall apply thereafter.

c. All PM emitted from the baghouse exhaust is assumed to be PM_{10}. The BACT standard for the PM is equivalent to approximately 0.06 lb per ton of preheater feed. The emissions limits for particulate matter and visible emissions imposed by Rule 62-212.400(BACT) are as stringent as or more stringent than the limits imposed by the applicable NESHAP provisions. The BACT requirements do not waive or vary any applicable NESHAP monitoring or record keeping requirements.

d. Compliance shall be demonstrated by THC CEMS. VOC emissions shall be measured as total hydrocarbons (THC) and expressed as "propane" for the mass emissions rate.

e. Dioxin/furans shall not exceed 0.20 ng/dscm (TEQ) @ 7% oxygen when the average of the performance test run temperatures at the inlet to the particulate matter control device is 204° C (400° F) or more and shall not exceed 0.40 ng/dscm (TEQ) @ 7% oxygen when the average of the performance test run average particulate matter control device inlet temperature is 204° C (400° F) or less.

f. The owner or operator may demonstrate a 98% reduction from the kiln exit to the discharge. The basis of this condition is 40 CFR 63, Subpart LLL that is under reconsideration by EPA. The THC limit will be revised in accordance with any future revision of Subpart LLL.

g. Compliance with the Hg requirements shall be demonstrated using the sampling, analysis, and calculation methods specified in Condition No. 20 of this subsection. The basis of the concentration-based limit is 40 CFR 63, Subpart LLL that is under reconsideration by EPA. The concentration based limit will be revised in accordance with any future revision of Subpart LLL.

[Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

12. Test Methods: Any required stack tests shall be performed in accordance with the following methods.

Method	Description of Method and Comments
EPA 1 - 4	Determination of Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content. Methods shall be performed as necessary to support other methods.
EPA 5	Determination of Particulate Emissions. The minimum sample volume shall be 30 dry standard cubic feet.
EPA 6C	Determination of SO_2 Emissions (Instrumental).
EPA 7E	Determination of NO_X Emissions (Instrumental). NO_X emissions testing shall be conducted with the air heater operating at the highest heat input possible during the test.
EPA 9	Visual Determination of Opacity
EPA 10	Measurement of Carbon Monoxide Emissions (Instrumental). The method shall be based on a continuous sampling train.
EPA 23	Measurement of Dioxin/Furan Emissions
EPA 25A	Measurement of Gaseous Organic Concentrations (Flame Ionization – Instrumental)
EPA 29 or ASTM D6784–02	Determination of Metals Emissions from Stationary Sources
	Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method).

The EPA methods are specified in Appendix A of 40 CFR 60, adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. Tests shall be conducted in accordance with the appropriate test method and the applicable requirements specified in Appendix C of this permit, NSPS Subpart A in 40 CFR 60, and NESHAP Subparts A and LLL in 40 CFR 63. [Rules 62-204.800, F.A.C.; 40 CFR 60, Appendix A]

13. Testing Requirements: Initial tests shall be conducted between 90% and 100% of permitted capacity; otherwise, this permit shall be modified to reflect the true maximum capacity as constructed. Subsequent annual tests shall be conducted between 90% and 100% of permitted capacity in accordance with the requirements of Rule 62-297.310(2), F.A.C. Tests shall be conducted for each required pollutant under the fuel scenario representing the highest potential for generating emissions. In general, this fuel scenario is firing coal as the primary fuel and TDF and petroleum coke as secondary fuels. If a secondary fuel listed above is not available at the time of testing, tests shall be based on the fuels that are available. If a secondary fuel is added later, additional tests shall be conducted with that fuel scenario within 60 days of first fire of the new secondary fuel. [Rule 62-297.310(7)(a) and (b), F.A.C.; 40 CFR 60.8]
14. Initial Compliance Demonstration: Initial compliance stack tests shall be conducted within 60 days after achieving a 24-hour clinker production rate of 160.4 tons per hour, but not later than 180 days after the initial startup. In accordance with the test methods specified in this permit, the kiln system exhaust stack shall be tested to demonstrate compliance with the emission standards for particulate matter, CO, SO_2, NO_X, dioxin/furans, Hg and THC. The initial compliance demonstration with the THC, Hg and dioxin/furans emissions standards shall be carried out in accordance with 63.1349(b). The permittee shall provide the Compliance Authority with any other initial emissions performance tests conducted to satisfy vendor guarantees. [Rule 62-297.310(7)(a) and (b), F.A.C.; 40 CFR 60.8]
15. Subsequent Compliance Testing: Annual compliance stack tests for particulate matter CO, NO_X, and SO_2 shall be conducted during each federal fiscal year (October 1st to September 30th). Subsequent dioxins/furans tests shall be conducted in accordance with the provisions of 40 CFR 63.1349. Data collected from the reference method during the required RATA tests for CO, NO_X, and SO_2 may be used to satisfy the annual testing requirement provided the notification requirements and emission testing requirements for performance and compliance tests of this permit are satisfied.
[Rules 62-297.310(7)(a) and (b), F.A.C.; 40 CFR 60.8]
16. Continuous Compliance: Continuous compliance with the permit standards for opacity and emissions of CO, NO_X, SO_2, and VOC/THC shall be demonstrated with data collected from the required continuous monitoring systems. [Rules 62-212.400(5)(c) and 62-297.310(7)(a) and (b), F.A.C.; 40 CFR 60.8]
17. Significant Change: Dioxin/Furan, Hg and PM/PM_{10}: The owner or operator shall notify the Compliance Authority prior to initiating any significant change in the feed or fuel used in the most recent compliant performance test for dioxin/furan, Hg or PM/PM_{10}. For purposes of this condition, significant means any of the following: a physical or chemical change in the feed or fuel; the use of a raw material not previously used; a change in the LOI of the coal ash; a change between non-beneficiated coal ash and beneficiated coal ash. Based on the information provided, the Compliance Authority will promptly determine if performance testing pursuant to 40 CFR 63.1349 will be required for the new feed or fuel. A significant change shall not include switching to a feed/fuel mix for which the permittee already tested in compliance with the dioxin/furan and PM/PM_{10} emission limits. [62-4.070(3), F.A.C.]

18. Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department. [Rule 62-297.310(7)(b), F.A.C.]

19. Additional Mercury (Hg) Compliance Demonstration:

    a. *Material Balance Demonstration:* The owner or operator shall demonstrate compliance with the mercury throughput limitation by material balance and maintaining records of the monthly and rolling 12-month mercury throughput.

    Samples of the raw mill feed and all fuels shall be collected each day. A monthly composite sample shall be made from each of the daily composite samples. Each monthly composite sample shall be analyzed to determine the mercury concentration of the materials representative for the month.

    For each raw material and fuel, the monthly mercury throughput rate (pounds per month) shall be the product of the mercury concentration from the monthly composite sample and the mass of raw material or fuel used during the month. If the mercury concentration is below detection limit or below the limits of quantification, the detection limit will be assumed for the concentration of the raw material or fuel.

    The permittee shall have the option of collecting, compositing, analyzing and calculating the Hg leaving the process via the clinker or dust permanently withdrawn from the pyroprocessing system. If the Hg concentration is below the detectable limit or limits of quantification, a value of zero will be assumed for the concentration in the clinker or dust.

    For each month, the mass of mercury introduced into the pyroprocessing system (pounds per month) shall be the sum of the monthly mercury throughput rate for each raw material and fuel minus the amounts in the clinker and permanently withdrawn dust. The consecutive 12-month mercury throughput rate shall be the sum of the individual monthly records for the current month and the preceding eleven months (pounds of mercury per consecutive 12-months). Such records, including calculations and data, shall be completed no later than 25 days following the month of the records.

    The analytical methods used to determine mercury concentration shall be EPA or ASTM methods such as EPA Method 7471A (Mercury in Solid or Semisolid Waste) or EPA Method 1631. No other methods may be used unless prior written approval is received from the Department.

    b. *Mercury Continuous Emissions Monitoring System (Hg-CEMS):* Within 60 days following the first year of operation, the owner or operator shall install any model of Hg-CEMS that has been demonstrated to meet the requirements in Performance Specification 12A (PS-12A), "Specifications and Test Procedures for Total Vapor phase Mercury Continuous Monitoring Systems in Stationary Sources," or that has passed verification tests conducted under the auspices of the U.S. Environmental Protection Agency's (EPA) Environmental Technology Verification (ETV) Program. During the subsequent 90 days, the owner or operator shall certify the Hg-CEMS and begin reporting Hg mass emissions data.

    The owner or operator shall adhere to the calibration drift and quarterly accuracy assessment procedures in 40 CFR Part 60, Appendix F or 40 CFR Part 75, Appendix B. The 12-month rolling mass emissions shall be estimated based on the actual data collected no later than 10 days following the end of the month. Upon certification, the owner or operator may use the Hg-CEMS to demonstrate compliance with the cumulative 12-month rolling mass emission limitation (190 pounds per rolling 12-month period) in lieu of the procedures described in Condition 20.a. above. Prior to use of the Hg-

CEMS as the method to demonstrate compliance, the owner or operator shall submit written notice to the Department, and receive approval for a missing data substitution plan. For purposes of this requirement, the first year of operation ends 365 calendar days following the first day the kiln produces clinker.

The installed Hg-CEMS shall be capable of speciating the form of Hg measured as $Hg^{(0)}$ and Hg^{++} but will held only to the manufacturer's performance specifications for the total (i.e. all Hg) values.

The owner or operator may submit an alternative sampling procedure request to the Department for evaluation by EPA to use the Hg-CEMS or the associated relative accuracy test audit (RATA) to demonstrate compliance with the Hg test requirements pursuant to 40 CFR 63, Subpart LLL.

[Rules 62-4.070(3), 62-212.400 (12)(c) and 62-204.800, F.A.C.]

20. Main Baghouse Dust and Cement Kiln Dust (CKD): Main baghouse dust and CKD shall be re-circulated to the process or to the product clinker or cement to the extent feasible without contravening the requirements of 40 CFR 63, Subpart LLL. Dust classified as cement kiln dust (CKD) shall be confined and controlled at all times and shall be managed in accordance with the applicable provisions of 40 CFR 261. [Rule 62-4.070(3), F.A.C.]

EXCESS EMISSIONS

{Note: The following conditions apply only to the SIP-based emissions standards specified in Condition No. 13 of this section. Rule 62-210-700, F.A.C. (Excess Emissions) cannot vary or supersede any federal provision of the NSPS or the NESHAP programs.}

21. Operating Procedures: The Best Available Control Technology (BACT) determinations established by this permit rely on "good operating practices" to reduce emissions. Therefore, all operators and supervisors shall be properly trained to operate and maintain the kiln and calciner, and pollution control systems in accordance with the guidelines and procedures established by each manufacturer. The training shall include good operating practices as well as methods for minimizing excess emissions. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

22. Definitions:
    a. *Startup* is defined as the commencement of operation of any emissions unit which has shut down or ceased operation for a period of time sufficient to cause temperature, pressure, chemical or pollution control device imbalances, which result in excess emissions.
    b. *Shutdown* means the cessation of the operation of an emissions unit for any purpose.
    c. *Malfunction* means any unavoidable mechanical and/or electrical failure of air pollution control equipment or process equipment or of a process resulting in operation in an abnormal or unusual manner.

    [Rules 62-210.200 and 62-4.070(3), F.A.C.]

23. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. All such preventable emissions shall be included in any compliance determinations based on CEMS data. [Rule 62-210.700(4), F.A.C.]

24. Allowable Data Exclusions: Continuous monitoring data collected during periods of startup, shutdown, and malfunction may be excluded from the compliance demonstrations only in accordance with the following requirements, provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions are minimized. As provided by the authority in Rule 62-210.700(5), F.A.C., the following conditions replace the provisions in Rule 62-210.700(1), F.A.C.

    a. *CO Data*: Each 30-day rolling average shall include all periods of operation (including startup, shutdown, and malfunction), but may exclude limited periods due to equipment malfunctions. No more than 30 hours in any calendar month shall be excluded from the compliance determinations due to equipment malfunctions. Malfunctions do not include process upsets that occur as a normal part of cement production.

    b. *NO_X Data*: Each 30-day rolling average shall include all periods of operation (including startup, shutdown, and malfunction), but may exclude limited periods due to malfunctions of the SNCR or SCR system. "Malfunctions of the SNCR or SCR system" are defined as any unavoidable mechanical and/or electrical failure that prevents introduction of ammonia-based solutions into the kiln system. No more than 30 hours in any calendar month shall be excluded from the compliance determinations due to malfunctions of the SNCR or SCR system.

    c. *SO_2 Data*. Each 24-hr rolling average shall include all periods of operation (including startup, shutdown, and malfunction).

    d. *Other Data*: All opacity and VOC data shall be included in the compliance determination. If the mercury CEMS is used as the method for demonstrating compliance, all valid data shall be included in the compliance determination.

    The permittee shall notify the Compliance Authority within one working day of discovering any emissions in excess of a CEMS standard subject to the specified averaging period. Within one working day of occurrence, the owner or operator shall notify the Compliance Authority of any malfunction resulting in the exclusion of CEMS data. All such reasonably preventable emissions shall be included in any CEMS compliance determinations. All valid emissions data (including data collected during startup, shutdown and malfunction) shall be used to report emissions for the Annual Operating Report.

    [Rules 62-210.200, 62-212.400(BACT) and 62-210.700, F.A.C.]

CONTINUOUS MONITORING REQUIREMENTS

25. CEM Systems: The permittee shall install, calibrate, operate and maintain continuous emissions monitoring systems (CEMS) to measure and record concentrations of CO, NO_X, SO_2, and VOC/THC in the kiln system exhaust stack in a manner sufficient to demonstrate continuous compliance with the emissions standards specified in this section. All continuous monitoring systems other than the Hg CEMS shall be installed and functioning within the required performance specifications by the time of the initial performance tests. The Hg CEMS shall be installed and functioning within the required performance specifications following the first year of operation as specified in condition No. 21.

    a. *CO Monitor*. The CO monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4 or 4A. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F. The required RATA tests shall be performed using EPA Method 10 in Appendix A of 40 CFR 60 and shall be based on a continuous sampling train. The CO monitor span values shall be set appropriately, considering the expected range of emissions and corresponding emission standards.

b. *NO_X Monitor.* The NO_X monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 2. Quality assurance procedures shall conform to the requirements of in 40 CFR 60, Appendix F. The required RATA tests shall be performed using EPA Method 7E in Appendix A of 40 CFR 60. The NO_X monitor span values shall be set appropriately, considering the expected range of emissions and corresponding emission standards.

c. *SO_2 Monitor.* The SO_2 monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 2. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F. The required RATA tests shall be performed using EPA Method 6C in Appendix A of 40 CFR 60. The SO_2 monitor span values shall be set appropriately, considering the expected range of emissions and corresponding emission standards.

d. *THC Monitor.* A monitor shall be installed to determine THC emissions from the stack and shall meet the requirements of NESHAP Subpart LLL in 40 CFR 63 (40 CFR 63.1349 and 63.1350). The THC monitor shall include provisions to determine the moisture content of the exhaust gas and an algorithm to enable correction of the monitoring results to a dry basis (0% moisture).

e. *Diluent Monitor.* An oxygen monitor shall be installed at the THC monitor location to correct measured THC emissions to the required oxygen concentration. The basis of this requirement is 40 CFR 63, Subpart LLL that is under reconsideration by EPA. The requirement will be revised in accordance with any future revision of Subpart LLL.

f. *Mercury Monitor.* A mercury monitor (Hg-CEMS) shall be installed and operated as described in Condition 21 b. of this subsection.

CEMS, other than the Hg CEMS, are also subject to the General Provisions specified in Subpart A of 40 CFR 60 (CO, NO_X, and SO_2) and Subpart A of 40 CFR 63 (THC/VOC).
[Rules 62-4.070(3), 62-210.800, 62-212.400(BACT) and 62-297.520, F.A.C.]

26. COMS: A continuous opacity monitoring system (COMS) shall be installed, calibrated, operated, and maintained in the kiln system exhaust stack, after the baghouse, in a manner sufficient to demonstrate continuous compliance with the opacity standards specified in this section. Opacity shall be based on a 6-minute block average computed from at least one observation (measurement) every 15 seconds. For the COMS, the 6-minute block averages shall begin at the top of each hour. The COMS shall meet the applicable requirements of 40 CFR 63.1350. [NESHAP Subpart LLL in 40 CFR 63]

27. CEMS/COMS Certification and Initial Startup: Each CEMS/COMS required by this permit, other than Hg, shall be installed prior to startup. Within 60 calendar days of achieving an average daily clinker production rate of 160 tons per hour, but no later than 180 calendar days after initial startup, the owner or operator shall certify each CEMS/COMS. Upon certification of each CEMS/COMS, the owner or operator shall demonstrate compliance with all applicable standards as specified in this permit. The Hg CEMS shall be installed and functioning within the required performance specifications following the first year of operation as specified in condition No. 21 b. [Rules 62-4.070(3), 62-210.800, 62-212.400(BACT) and 62-297.520, F.A.C.; 40 CFR 60.7(a), 60.13(b) and Appendix B; and 40 CFR 63.7(a)(2)]

28. CEMS Data Requirements: The CEMS shall be installed, calibrated, maintained, and operated in the in-line kiln/raw mill stack to measure and record the emissions of CO, NO_X, SO_2, and THC/VOC in a manner sufficient to demonstrate compliance with the emission limits of this permit. The CEMS shall express the results in units of pounds per ton of clinker produced, and pounds per hour. Emissions of THC/VOC shall be reported in units of the standards (lb/hr, lb/ton of clinker) and ppmvd as propane.

a. *Valid Hourly Averages:* Each CEMS shall be designed and operated to sample, analyze, and record data evenly spaced over the hour at a minimum of one measurement per minute. Except as provided in Condition 25, all valid measurements collected during an hour shall be used to calculate a 1-hour block average that begins at the top of each hour. Each 1-hour block average shall be computed using at least one data point in each fifteen-minute quadrant of an hour, where the unit combusted fuel (or produced clinker) during that quadrant of an hour. Notwithstanding this requirement, a 1-hour average shall be computed from at least two data points separated by a minimum of 15 minutes (where the unit operates for more than one quadrant of an hour). If less than two such data points are available, there is insufficient data and the 1-hour block average is not valid.

- Hours during which there is no kiln feed and no fuel fired are not valid hours.
- Hours during which the plant is firing fuel but producing no clinker are valid, but these hours are excluded from the production-normalized emission rate computation (pounds per ton of clinker). These hours are included in any pollutant mass emission rate computation (pounds per hour).

b. *24-hour Rolling Averages*: Compliance with the emission limit for SO_2 shall be based on a 24-hour rolling average that shall be recomputed after every valid hour as the arithmetic average of that hourly average and the preceding 23 valid hourly averages.

c. *30-day Rolling Averages*: Compliance with the emission limits for CO and NO_X shall be based on a 30-day rolling average. Each 30-day rolling average shall be the arithmetic average of all valid hourly averages collected during the last 30 operating days. A new 30-day rolling average shall be recomputed after every day of operation for the new day and the preceding 29 operating days. For purposes of computing these emission limits, an operating day is any day that the kiln produces clinker or fires fuel.

d. *30-day Block Average:* Compliance with the emission limit for VOC shall be based on a 30-day block average. Each 30-day block average shall be the arithmetic average of all valid hourly averages occurring within each 30 operating-day block and shall be consistent with the averaging period specified in 40 CFR 63.1350(h) for THC emissions.

e. *Data Exclusion*: Except for monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, each CEMS shall monitor and record emissions during all operations including episodes of startups, shutdowns, and malfunctions. Limited amounts of CEMS emissions data recorded during some of these episodes may be excluded from the corresponding compliance demonstration subject to the provisions of Condition No. 25 in this section. The permittee shall minimize the duration of data excluded for such episodes to the extent practicable.

f. *Availability*. Monitor availability for each CEMS used to demonstrate compliance shall be 95% or greater in any calendar quarter. Monitor availability shall be reported in the quarterly excess emissions report. In the event 95% availability is not achieved, the permittee shall provide the Department with a report identifying the problems in achieving 95% availability and a plan of corrective actions that will be taken to achieve 95% availability. The permittee shall implement the reported corrective actions within the next calendar quarter. Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit, except as otherwise authorized by the Compliance Authority.

g. *Public Access:* Emission data will be available in real time on the company website.

29. Continuous Flow Monitor: A continuous flow monitor shall be installed to determine the stack exhaust flow rate to be used in determining mass emission rates. The flow monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 6.

30. Baghouse Temperature Monitor: A continuous temperature monitor shall be installed, calibrated, operated, and maintained at the inlet to the baghouse for the kiln system exhaust in accordance with the requirements of 40 CFR 63.1350(f). [NESHAP Subpart LLL in 40 CFR 63]

31. Ammonia Injection Monitoring: A system to continuously monitor and record the ammonia and/or urea injection rate (1-hour block averages) shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

REPORTING AND RECORD KEEPING REQUIREMENTS

32. Operational Records: To demonstrate compliance with the limitations specified in this section, the owner or operator shall maintain the following records on site.
    a. For each 1-hour block of operation, continuously monitor and record the dry preheater feed rate, clinker production rate, fuel firing rate, heat input rate (the representative heating value of each fuel and the hourly fuel firing rate), and estimates of the ammonia injection rate or NH_3/NO_X molar ratio. Records shall also document the dry preheater feed rate and clinker production rates for each 24-hour rolling period and consecutive12 months.
    b. For each fuel delivery, maintain records of the quantity of fuel delivered and a representative analysis of the fuel. Records shall include the sulfur content, higher and lower heating value, proximate analysis, and ultimate analyses.
    c. Maintain records demonstrating compliance with the mercury throughput limitation as required in Conditions No. 13 and 20 of this subsection.

    All records shall be made available to the Department and Compliance Authority upon request. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

33. Stack Test Reports: The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Compliance Authority on the results of each such test. The required test report shall be filed with the Compliance Authority as soon as practical but no later than 45 days after the last sampling run of each test is completed. The test report shall provide sufficient detail on the emissions unit tested and the test procedures used to allow the Compliance Authority to determine if the test was properly conducted and the test results properly computed. As a minimum, the test report, other than for an EPA or DEP Method 9 test, shall provide the specified in Rule 62-297.310(8), F.A.C. [Rule 62-297.310(8), F.A.C.]

34. Malfunction Notifications: If temporarily unable to comply with any condition of the permit due to breakdown of equipment (malfunction) or destruction by hazard of fire, wind or by other cause, the permittee shall immediately (within one working day) notify the Compliance Authority. Notification shall include pertinent information as to the cause of the problem, and what steps are being taken to correct the problem and to prevent its recurrence, and where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with Department rules. If requested by the Compliance Authority, the owner or operator shall submit a quarterly written report describing the malfunction. [Rules 62-210.700(6) and 62-4.130, F.A.C.]

35. SIP Quarterly Report: Within 30 days following the end of each calendar quarter, the permittee shall submit a report to the Compliance Authority summarizing: equipment malfunctions resulting in excluded CEMS data and/or excess emissions; mercury throughput rates; and the monitor availability of each CEMS. The report shall contain the information and follow the general format specified in Appendix F of this permit. [Rules 62-4.070(3), 62-4.130, and 62-212.400(BACT), F.A.C.]

36. Used Oil Records: For each shipment of used oil received, the owner or operator shall maintain records from the vendor certifying that the used oil meets the above requirements for "on-specification" used oil fuel. Records shall include the following parameters: arsenic, cadmium, chromium, lead, total halogens, flash point, PCBs, sulfur content, ash, and heating value. Otherwise, the owner or operator shall sample and analyze each shipment of used oil received for the above parameters. If vendor certifications are relied upon, the owner or operator shall analyze at least one sample obtained each calendar year for the above parameters. If analytical results show that the used oil does not meet the above requirements, the owner or operator shall immediately: cease burning of the used oil, and notify the Compliance Authority of the analytical results. The analysis shall be performed via EPA-approved or ASTM methods. The permittee shall obtain, make, and keep the following records: Gallons of on-specification used oil received and burned each month;

    a. Gallons of on-specification used oil received and burned each month;
    b. Name and address of all vendors delivering used oil to the facility
    c. Copies of the vendor certifications, if obtained, and any supporting information; and
    d. Analytical results.

    The records shall be retained in a form suitable for inspection at the facility by the Department, and shall be retained permanently. [40 CFR 279.61; 40 CFR 761.20(e), and Rule 62-4.070(3), F.A.C.]

37. O&M Plan for Baghouse: The permittee shall prepare an operation and maintenance (O&M) plan to address the schedule for inspection and preventive maintenance of the baghouse control system. The O&M plan shall be submitted to the Compliance Authority prior to expiration of this permit. The permittee shall maintain records of the condition of the control equipment for each inspection and any maintenance activities performed. [Rule 62-4.070(3), F.A.C., and 40 CFR 63.1350, Subpart LLL]

E. Clinker Production System

The specific conditions of this subsection apply to the following emissions unit after construction is complete.

EU ID	Emissions Unit Description
036	Clinker Cooler No.3
037	Clinker Handling and Storage Clinker Silo

The Clinker Cooler and the Clinker Handling and Storage System include clinker handling from the point of discharge from the kiln, through the cooler grate and air system and subsequent conveyance to the clinker silo, including truck unloading of clinker. The Emissions Point for the Clinker Cooler is the stack following a large baghouse. Emissions Unit 036 and 37 contains the following emission points controlled by baghouses:

Point ID	Emissions Point Description
PS74	Clinker Cooler Stack
PS75	Clinker Transfer Deep Pan Conveyor
PS76	Clinker Silo
PS77	Truck Unload Clinker Buffer

APPLICABLE STANDARDS AND REGULATIONS

1. BACT Determinations: A determination of the Best Available Control Technology (BACT) was made for particulate matter (PM/PM_{10}). To satisfy the BACT requirements for each unit the visible emissions limits act as surrogate standards for PM.

2. NESHAP Requirements: Each unit is subject to 40 CFR 63, Subpart A (Identification of General Provisions) and 40 CFR 63, Subpart LLL (National Emissions Standard for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry). The Department determines that the BACT emissions performance requirements are as stringent as or more stringent than the limits imposed by this Subpart. Some separate reporting and monitoring may be required by this Subpart.

EQUIPMENT AND CONTROL TECHNOLOGY

3. Process Rate Limitations: The clinker process/production rate is calculated and limited by the rates given for the pyroprocessing equipment in Section 3.D.9 above.

4. Equipment Description: The permittee is authorized to construct, operate, and maintain equipment needed for the cooling, handling and conveyance of clinker from the kiln discharge to the clinker silo, including truck unloading of clinker. Equipment will include a clinker cooler, clinker silo, deep-pan conveyor, and control equipment.

5. Baghouse Controls: Each emissions point identified for storage and conveyance shall be controlled by a baghouse system. Each required baghouse shall be designed, operated, and maintained to achieve a PM design specification of 0.01 gr/dscf and a PM_{10} design specification of 0.007 gr/dscf.
[Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

PERFORMANCE REQUIREMENTS

6. Hours of Operation: These emissions units are allowed to operate 8,760 hours per year.
[Applicant Request, Rule 62-210.200(PTE), F.A.C]

E. Clinker Production System

EMISSIONS AND TESTING REQUIREMENTS

7. Emissions Limits: The following standards apply to each emissions point of these units including the clinker cooler and all clinker handling and clinker silo transfer points:

   a. A continuous opacity monitor systems shall be installed, operated, and maintained at the outlet of the clinker cooler baghouse pursuant to 40 CFR 60.63.

   b. Particulate matter emissions from the clinker cooler are limited to 0.05 lb/ton of clinker and 8.8 lb/hr controlled by baghouse PS74. Visible emissions shall not exceed 10% opacity.

   c. Emissions are limited to 5% opacity from each of the above Clinker Handling and Clinker Silo unit emissions points controlled by a baghouse. Exceedance of the 5% opacity limit shall be deemed an exceedance of this permit condition and not necessarily an exceedance of the opacity limitations given in 40 CFR 63, Subpart LLL.

   d. Emissions are limited to 10% opacity from any emissions point not controlled by a baghouse.

   [Rules 62-4.070(3), 62-212.400 (BACT), F.A.C. and 40 CFR 63.1348]

8. Compliance Demonstrations: Each emission point shall be tested to demonstrate initial compliance with the emission standards for visible emissions in accordance with EPA Method 9. The tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after the initial startup. Thereafter, compliance with the visible emission limits shall be demonstrated during each federal fiscal year (October 1st to September 30th).
   [Rules 62-4.070(3), 62-297.310(7)(a), F.A.C. and 40 CFR 63.1349(b)(2)]

9. Periodic Monitoring Requirements: Each affected source subject to an opacity standard shall be periodically monitored using the procedures described in 40 CFR 63.1350(a) (4) (i) through (vii) to ensure compliance with the emissions limits of condition No. 6. [Rule 62-4.070(3), and 40 CFR, 63.1350, Subpart LLL]

10. Test Methods: Any required tests shall be performed in accordance with the following reference methods and the applicable requirements of Appendix C of this permit, and the applicable NESHAP provisions.

Method	Description of Method and Comments
9	Visual Determination of the Opacity of Emissions from Stationary Sources
22	Visual Determination of Fugitive Emissions From Material Sources

REPORTING AND RECORD KEEPING

11. Baghouse O&M Plan: For each baghouse the permittee shall prepare an operation and maintenance (O&M) plan to address proper operation, parametric monitoring, and a schedule for conducting periodic inspections and preventive maintenance. Baghouse inspections and maintenance activities shall be recorded in a written log. The O&M plan shall be submitted to the Compliance Authority prior to the initial compliance tests for this unit. [Rule 62-4.070(3), and 40 CFR 63.1350, Subpart LLL]

12. Test Reports: For each test conducted, the permittee shall file a test report including the information specified in Rule 62-297.310(8), F.A.C. with the compliance authority no later than 45 days after the last run of each test is completed. [Rules 62-297.310(8), F.A.C.]

F. Finish Mill System

The specific conditions of this subsection apply to the following emissions unit after construction is complete.

EU ID	Emissions Unit Description
038	Finish Mill Feed Transportation
039	Finish Mill Processing and Product Recovery

The Finish Mill Feed Transportation emissions unit includes the finish mill feed from the clinker silo and the additive silos (slag, gypsum and limestone) to the finish mills. The Finish Mill Processing and Recovery emissions unit controls the air stream containing the finished product. Emissions Units 038 and 039 contains the following emission points controlled by fabric filter baghouses.

Point ID	Emissions Point Description
PS78	Finish Mill Feed
PS78G	Gyspsum Silo
PS78S	Slag Silo
PS78L	Limestone Dust Silo
PS78GO	Gypsum Transfer From Silo
PS78SO	Slag Transfer From Silo
PS78LO	Limestone Dust Transfer From Silo
PS79	Finish Mill Processing and Product Recovery Stack

APPLICABLE STANDARDS AND REGULATIONS

1. BACT Determinations: A determination of the Best Available Control Technology (BACT) was made for particulate matter (PM/PM_{10}). To satisfy the BACT requirements for this unit the visible emissions limits act as surrogate standards for PM.

2. NESHAP Requirements: This unit is subject to 40 CFR 63, Subpart A (Identification of General Provisions) and 40 CFR 63, Subpart LLL (National Emissions Standard for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry). The Department determines that the BACT emissions performance requirements are as stringent as or more stringent than the limits imposed by this Subpart. Some separate reporting and monitoring may be required by this Subpart.

EQUIPMENT AND CONTROL TECHNOLOGY

3. Equipment Description: The permittee is authorized to construct, operate, and maintain equipment needed for the handling, conveying and grinding of clinker from Line 3 storage silos together with gypsum, slag or limestone dust from their respective silos to make the final cement product. Equipment will include associated conveyors, and control equipment.

4. Process Rate Specification: The nominal cement production rate is 198 TPH and shall not exceed 220 TPH (24-hour rolling average) and 1,734,500 tons during any consecutive 12 month period. [Applicant Request]

5. Baghouse Controls: Each emissions point identified for clinker storage and conveying shall be controlled by a baghouse system. Each required baghouse shall be designed, operated, and maintained to achieve a PM design specification of 0.01 gr/dscf and a PM_{10} design specification of 0.007 gr/dscf. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

F. Finish Mill System

PERFORMANCE REQUIREMENTS

6. Hours of Operation: This emissions unit is allowed to operate 8,760 hours per year. [Applicant Request, Rule 62-210.200(PTE), F.A.C]

EMISSIONS AND TESTING REQUIREMENTS

7. Emissions Limits: The following standards apply to each emissions point of this unit including clinker and additive conveyance to the finish mill, the finish mill and cement product exiting the finish mill.

   a. Particulate matter emissions from the finish mill baghouse PS79 are limited to 18.8 lb/hr. Visible emissions shall not exceed 10% opacity.

   b. Emissions are limited to 5% opacity from each of the Finish Mill Feed Transportation unit emissions points controlled by a baghouse. Exceedance of the 5% opacity limit shall be deemed an exceedance of this permit condition and not necessarily an exceedance of the opacity limitations given in 40 CFR 63, Subpart LLL.

   c. Emissions are limited to 10% opacity from any emissions point not controlled by a baghouse.

   [Rules 62-4.070(3), 62-212.400 (BACT), F.A.C. and 40 CFR 63.1348]

8. Testing Requirements: The finish mill (baghouse PS79) shall be stack tested to demonstrate initial compliance with the applicable emission standards for PM/PM_{10} and visible emissions. The tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after the initial startup. Thereafter, compliance with the particulate limits (PM/PM_{10}) shall be demonstrated within the 12 month period prior to each renewal of the operation permit and compliance with the visible emissions limits for each unenclosed transfer point shall be demonstrated during each federal fiscal year (October 1st to September 30th). [Rule 62-297.310(7)(a), F.A.C.]

9. Compliance Demonstrations: Each emission point shall be tested to demonstrate initial compliance with the emission standards for visible emissions in accordance with EPA Method 9. The tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after the initial startup. Thereafter, compliance with the visible emission limits shall be demonstrated during each federal fiscal year (October 1st to September 30th). [Rules 62-4.070(3), 62-297.310(7)(a), F.A.C. and 40 CFR 63.1349(b)(2)]

10. Periodic Monitoring Requirements: Each affected source subject to an opacity standard shall be periodically monitored using the procedures described in 40 CFR 63.1350(a) (4) (i) through (vii) to ensure compliance with the emissions limits of condition No. 6. [Rule 62-4.070(3), and 40 CFR, 63.1350, Subpart LLL]

11. Test Methods: Any required tests shall be performed in accordance with the following reference methods and the applicable requirements of Appendix C of this permit, and the applicable NESHAP provisions.

Method	Description of Method and Comments
1 - 4	Determination of Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content. Methods shall be performed as necessary to support other methods.
5	Determination Particulate Matter from Stationary Sources
9	Visual Determination of the Opacity of Emissions from Stationary Sources
22	Visual Determination of Fugitive Emissions From Material Sources

REPORTING AND RECORD KEEPING

12. Baghouse O&M Plan: For each baghouse the permittee shall prepare an operation and maintenance (O&M) plan to address proper operation, parametric monitoring, and a schedule for conducting periodic inspections and preventive maintenance. Baghouse inspections and maintenance activities shall be recorded in a written log. The O&M plan shall be submitted to the Compliance Authority prior to the initial compliance tests for this unit. [Rule 62-4.070(3), and 40 CFR 63.1350, Subpart LLL]

13. Test Reports: For each test conducted, the permittee shall file a test report including the information specified in Rule 62-297.310(8), F.A.C. with the compliance authority no later than 45 days after the last run of each test is completed. [Rules 62-297.310(8), F.A.C.]

G. Cement Silos and Loadout System

The specific conditions of this subsection apply to the following emissions unit after construction is complete.

EU ID	Emissions Unit Description
040	Cement Silos & Loadout

The Cement Silos and Loadout system includes cement conveyed into silos, the cement packhouse and cement loadout to trucks and railcars from the cement silos. Emission unit 040 contains the following emission points controlled by fabric filter baghouses.

Point ID	Emissions Point Description
PS80	Cement Transfer
PS81	Cement From Bucket Elevator to Belt Conveyor
PS82A	Quadrate Silo #8
PS83A	Quadrate Silo #9
PS82	Loadout Spout, #8 Side
PS83	Loadout Spout, #9 Side

APPLICABLE STANDARDS AND REGULATIONS

1. BACT Determinations: A determination of the Best Available Control Technology (BACT) was made for particulate matter (PM/PM_{10}). To satisfy some of the BACT requirements for this unit the visible emissions limits act as surrogate standards for PM.

2. NESHAP Requirements: This unit is subject to 40 CFR 63, Subpart A (Identification of General Provisions) and 40 CFR 63, Subpart LLL (National Emissions Standard for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry). The Department determines that the BACT emissions performance requirements are as stringent as or more stringent than the limits imposed by this Subpart. Some separate reporting and monitoring may be required by this Subpart.

EQUIPMENT AND CONTROL TECHNOLOGY

3. Equipment Description: The permittee is authorized to construct, operate, and maintain equipment needed for cement storage, packaging and loadout. Equipment will include conveyors, bucket elevators, silos, distribution box, and air slides to vented loading spouts.

4. Baghouse Controls: Each emissions point identified for cement silos and loadout shall be controlled by a baghouse system. Each required baghouse shall be designed, operated, and maintained to achieve a PM design specification of 0.01 gr/dscf and a PM_{10} design specification of 0.007 gr/dscf.
[Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

PERFORMANCE REQUIREMENTS

5. Hours of Operation: This emissions unit is allowed to operate 8,760 hours per year.
[Applicant Request, Rule 62-210.200(PTE), F.A.C]

EMISSIONS AND TESTING REQUIREMENTS

6. Emissions Limits: The following standards apply to each emissions point of this unit including all cement handling and cement silo transfer points:

a. Emissions are limited to 5% opacity from each of the above listed emissions points controlled by a baghouse. Exceedance of the 5% opacity limit shall be deemed an exceedance of this permit condition and not necessarily an exceedance of the opacity limitations given in 40 CFR 63, Subpart LLL.

b. Emissions are limited to 10% opacity from any emissions point not controlled by a baghouse.

[Rules 62-4.070(3), 62-212.400 (BACT), F.A.C. and 40 CFR 63.1348]

7. Compliance Demonstrations: Each emission point shall be tested to demonstrate initial compliance with the emission standards for visible emissions in accordance with EPA Method 9. The tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after the initial startup. Thereafter, compliance with the visible emission limits shall be demonstrated during each federal fiscal year (October 1st to September 30th).
[Rules 62-4.070(3), 62-297.310(7)(a), F.A.C. and 40 CFR 63.1349(b)(2)]

8. Periodic Monitoring Requirements: Each affected source subject to an opacity standard shall be periodically monitored using the procedures described in 40 CFR 63.1350(a) (4) (i) through (vii) to ensure compliance with the emissions limits of condition No. 6. [Rule 62-4.070(3), and 40 CFR, 63.1350, Subpart LLL]

9. Test Methods: Any required tests shall be performed in accordance with the following reference methods and the applicable requirements of Appendix C of this permit, and the applicable NESHAP provisions.

Method	Description of Method and Comments
9	Visual Determination of the Opacity of Emissions from Stationary Sources
22	Visual Determination of Fugitive Emissions From Material Sources

REPORTING AND RECORD KEEPING

10. Baghouse O&M Plan: For each baghouse the permittee shall prepare an operation and maintenance (O&M) plan to address proper operation, parametric monitoring, and a schedule for conducting periodic inspections and preventive maintenance. Baghouse inspections and maintenance activities shall be recorded in a written log. The O&M plan shall be submitted to the Compliance Authority prior to the initial compliance tests for this unit. [Rule 62-4.070(3), and 40 CFR 63.1350, Subpart LLL]

11. Test Reports: For each test conducted, the permittee shall file a test report including the information specified in Rule 62-297.310(8), F.A.C. with the compliance authority no later than 45 days after the last run of each test is completed. [Rules 62-297.310(8), F.A.C.

H. Coal and Petroleum Coke Mill System

The specific conditions of this subsection apply to the following emissions unit.

EU ID	Emissions Unit Description
041	Coal and Petroleum Coke Mill

The Coal and Petroleum Coke (Petcoke) Mill system includes coal/coke handling from storage to the pulverized fuel bins. Emissions unit 041 contains the following emission points controlled by fabric filter baghouses.

Point ID	Emissions Point Description
PS84	Coal/Petcoke Transfer to Mill
PS84A	Coal/Petcoke Transfer to Mill
PS87	Coal/Petcoke Mill
PS88	Pulverized Fuel Bin (1 of 2)
PS89	Pulverized Fuel Bin (2 of 2)
PS85	Coal/Petcoke Bin
PS86	Coal/Petcoke Bin

APPLICABLE STANDARDS AND REGULATIONS

1. BACT Determinations: A determination of the Best Available Control Technology (BACT) was made for particulate matter (PM/PM_{10}). To satisfy some of the BACT requirements for this unit the visible emissions limits act as surrogate standards for PM.

2. NSPS Requirements: This unit is subject to 40 CFR 60, Subpart A (Identification of General Provisions) and 40 CFR 60, Subpart Y (Standards of Performance for Coal Preparation Plants). The Department determines that the BACT emissions performance requirements are as stringent as or more stringent than the limits imposed by this Subpart. Some separate reporting and monitoring may be required by this Subpart.

EQUIPMENT AND CONTROL TECHNOLOGY

3. Equipment Description: The permittee is authorized to construct, operate, and maintain equipment needed for coal and petroleum coke grinding and storage. Equipment will include a coal/petcoke grinding mill, storage bins and associated conveyor systems. Clinker cooler gas will be used for drying.

4. Baghouse Controls: Each emissions point identified for the coal and petroleum coke grinding and storage system shall be controlled by a baghouse system. Each required baghouse shall be designed, operated, and maintained to achieve a PM design specification of 0.01 gr/dscf and a PM_{10} design specification of 0.007 gr/dscf. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

PERFORMANCE REQUIREMENTS

5. Hours of Operation: The hours of operation for this emissions unit are not limited (8760 hours per year). [Rule 62-210.200(PTE), F.A.C.]

6. Process Rate Limitation: The coal/petroleum coke mill may process up to 50 tons per hour of coal/petroleum coke. No more than 394,200 tons of coal/petroleum coke shall be process during any consecutive 12 months. [Rule62-210.200(PTE), F.A.C.]

H. Coal and Petroleum Coke Mill System

EMISSIONS AND TESTING REQUIREMENTS

7. Particulate Matter Standards: Particulate matter emissions from the coal/petcoke mill (Emissions Point PS87) shall not exceed 0.007 grains per dscf of exhaust gas and shall not exceed 3.35 lb/hr as determined by EPA Method 5. All PM emitted from the baghouse exhaust is assumed to be PM_{10}. The BACT requirements do not waive or vary any applicable NESHAP monitoring or record keeping requirements. [Rules 62-212.400 (BACT), F.A.C. and 40 CFR 60.252]

8. Visible Emissions Standards: Visible emissions shall not exceed the following limits.
   a. Visible emission from any emissions point described above and controlled by a baghouses shall not exceed 5% opacity.
   b. Visible emissions from all coal/petcoke processing and conveying equipment, coal/petcoke storage system, or coal/petcoke transfer and loading system processing coal/petcoke, and not controlled by a baghouse, shall not exceed 10% opacity.

   [Rules 62-212.400 (BACT), F.A.C. and CFR 60.252]

9. Testing and Compliance Requirements: Emissions Point PS87 shall be stack tested to demonstrate initial compliance with the applicable emission standards for PM/PM_{10} and visible emissions. All other emissions points shall be tested for visible emissions only. The tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after the initial startup. Thereafter, Emissions Point PS87 shall be stack tested within the 12 month period prior to each renewal of the operation permit and compliance with the visible emission limits shall be demonstrated for all of the emissions points during each federal fiscal year (October 1st to September 30th). [Rule 62-297.310(7)(a), F.A.C.]

10. Test Methods: Any required tests shall be performed in accordance with the following reference methods and the applicable requirements of Appendix C of this permit, and the applicable NSPS provisions.

Method	Description of Method and Comments
1 - 4	Determination of Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content. Methods shall be performed as necessary to support other methods.
5	Determination Particulate Matter from Stationary Sources
9	Visual Determination of the Opacity of Emissions from Stationary Sources

CONTINUOUS MONITORING REQUIREMENTS

11. Thermal Dryer Exit Temperature: A monitoring device for the continuous measurement of the temperature of the gas stream at the exit of the thermal dryer shall be installed, calibrated, maintained, and continuously operated to measure the temperature of the gas stream in pursuant to the requirements of 40 CFR 60.253.

REPORTING AND RECORD KEEPING

12. Baghouse O&M Plan: For each baghouse the permittee shall prepare an operation and maintenance (O&M) plan to address proper operation, parametric monitoring, and a schedule for conducting periodic inspections and preventive maintenance. Baghouse inspections and maintenance activities shall be recorded in a written log. The O&M plan shall be submitted to the Compliance Authority prior to the initial compliance tests for this unit. [Rule 62-4.070(3), and 40 CFR 63.1350, Subpart LLL]

13. Test Reports: For each test conducted, the permittee shall file a test report including the information specified in Rule 62-297.310(8), F.A.C. with the compliance authority no later than 45 days after the last run of each test is completed. [Rules 62-297.310(8), F.A.C.]

I. Fugitive Emissions

The following specific conditions apply to the following emissions unit after construction.

EU ID	Emissions Unit Description
042	Fugitive Emissions from Vehicle Travel and Miscellaneous Sources

The Fugitive Emissions from Vehicle Travel emission unit addresses paved road emissions from raw material and cement hauling associated with Line No. 3.

PERFORMANCE REQUIREMENTS

1. Unconfined Emissions of Particulate Matter

   a. No person shall cause, let, permit, suffer or allow the emissions of unconfined particulate matter from any activity without taking reasonable precautions to prevent such emissions. Such activities include, but are not limited to: vehicular movement; transportation of materials; construction, alteration, demolition or wrecking; or industrially related activities such as loading, unloading, storing or handling.

   b. Reasonable precautions shall include the following:

      (1) Landscaping and planting of vegetation.

      (2) Application of water to control fugitive dust from activities such as demolition of buildings, grading roads, construction, and land clearing.

      (3) Water supply lines, hoses and sprinklers shall be located near all stockpiles of raw materials, coal, and petroleum coke.

      (4) All plant operators shall be trained in basic environmental compliance and shall perform visual inspections of raw materials, coal and petroleum coke periodically and before handling. If the visual inspections indicate a lack of surface moisture, such materials shall be wetted with sprinklers. Wetting shall continue until the potential for unconfined particulate matter emissions are minimized.

      (5) Water spray shall be used to wet the materials and fuel if inherent moisture and moisture from wetting the storage piles are not sufficient to prevent unconfined particulate matter emissions.

      (6) As necessary, applications of asphalt, water, or dust suppressants to unpaved roads, yards, open stockpiles and similar activities.

      (7) Paving of access roadways, parking areas, manufacture area, and fuel storage yard.

      (8) Removal of dust from buildings, roads, and other paved areas under the control of the owner or operator of the facility to prevent particulate matter from becoming airborne.

      (9) A vacuum sweeper shall be used to remove dust from paved roads, parking, and other work areas.

      (10) Enclosure or covering of conveyor systems where practicably feasible.

      (11) All materials at the plant shall be stored under roof. Materials, other than quarried materials, shall be stored on compacted clay or concrete, or in enclosed vessels.

      (12) Use of hoods, fans, filters, and similar equipment to contain, capture and/or vent particulate matter.

      (13) Confining abrasive blasting where possible.

   c. In determining what constitutes reasonable precautions for a particular source, the Department shall consider the cost of the control technique or work practice, the environmental impacts of the technique or practice, and the degree of reduction of emissions expected from a particular technique or practice.

   [Rules 62-212.400(BACT) and 62-296.320(4)(c), F.A.C.]

2. Fugitive Dust Improvement Plan: Prior to actual construction, the owner or operator shall submit to the Department a facility-wide specific Fugitive Dust Improvement Plan outlining how the measures in the previous condition will be implemented for the proposed project as well as measures to improve the present fugitive dust control program.

AMBIENT MONITORING REQUIREMENTS

3. Ambient Monitoring Required:

   a. The owner or operator shall operate a continuous ambient monitoring device for suspended particulate matter less than 2.5 microns ($PM_{2.5}$) at an offsite location (site) to be determined in consultation with the Department. The device shall be operational within 120 days of final issuance of this permit. This device shall operate continuously with access to the instrument provided to the Ambient Monitoring Section (AMS) of the Department's Bureau of Ambient Monitoring and Mobile Sources (BAMMS) by means of telephone. The monitoring equipment shall be operated as long as required by the Department, however, the owner or operator may petition the Department to review the monitoring requirements after five years of operation, and every five years thereafter. Requests for review shall be directed to the AMS. Ambient monitoring activities required by this permit for $PM_{2.5}$ shall be conducted in such a manner so as to meet the Department's minimum quality assurance requirements as delineated in 40 CFR Parts 50 and 58.11(3); Part 58, Appendices A, C, D and E; and the Department's *Quality Assurance Project Plan for the State of Florida's $PM_{2.5}$ Ambient Air Monitoring Program at State and Local Monitoring Stations* (*Plan*). Changes to the *Plan* will be distributed by the BAMMS to the owner or operator. The owner or operator shall comply with *Plan* changes as soon as practicable, but no later than upon renewal of this permit.

   b. The owner or operator shall, within ninety (90) days of the effective permit date, submit to the Department for review and approval standard operating procedures for each monitor, calibrator and ancillary piece of equipment utilized in the production of the required ambient air quality data. The owner or operator shall submit the verified monitoring data and quality assurance results to BAMMS within sixty (60) days after the end of each calendar quarter in an electronic medium and format: either the Air Quality System (AQS) [preferred] or the Aerometric Information Retrieval System (AIRS) for the monitoring data, and the Precision and Accuracy Data (PAData) format for the quality assurance data, or as specified by the Department. In addition, the owner or operator shall verify the data in the Department's data base within sixty (60) days after the end of the quarter in which those data were produced. The owner or operator shall allow Department auditors, with a minimum of seven (7) days prior notification, access to the monitoring locations for the purpose of the performance of accuracy audits which may be completed in lieu of, or in addition to, the owner or operator's quarterly accuracy audits as specified in 40 CFR, Part 58, Appendix A, 3.2 and 3.3. The owner or operator shall also submit to an annual management systems audit. The management systems audit, which reviews the quality assurance and monitoring effort for the preceding year, shall be conducted between February and June of the year following the year in which the audited data were produced. In addition, the Department staff shall be allowed access to the monitoring locations, with a minimum of seven (7) days prior notification, on an annual basis, for the purpose of determining compliance with the siting requirements as specified in 40 CFR Part 58, Appendix E.

   [Rule 62-212.400(7) F.A.C.]

J. Non-hazardous Waste Fuel Handling

The following specific conditions apply to the following emissions unit after construction.

EU ID	Emissions Unit Description
043	Non-hazardous Waste Fuel Handling

The Non-hazardous Waste Fuel Handling Unit includes receipt, storage and conveyance of the following fuels that may be burned in the main kiln burner or calciner: rice hulls; corn husks; cotton gin wastes; sugarcane bagasse; sawdust and wood chips from clean untreated and unpainted wood; paper and cardboard; non-chlorinated plastic; citrus peel waste; and carpet derived fuel.

1. Unconfined Emissions of Particulate Matter: The receiving areas and storage areas for these fuels must be fully enclosed, and vented to a fabric filter. If conveyed pneumatically, the exhaust shall be vented to the fabric filter. If conveyed mechanically, the system shall be fully enclosed.

2. Cemex shall work with suppliers to ensure that the wood chips/sawdust are free of plastics, rubber, glass, painted wood, chemically treated wood, and non-combustible materials. The firing of any household garbage, hazardous wastes, or toxic materials is prohibited. A list of suppliers and contact information shall be maintained on site.

3. Adequate staff shall be properly trained as "Fuel Handlers" to visually inspect deliveries of wood chips/sawdust in Cemex's truck receiving area. Wood chip/sawdust loads that contain any amounts of household garbage, hazardous wastes, or toxic materials shall be immediately rejected. Wood chip/sawdust loads that contain plastics, rubber, glass, painted wood, chemically treated wood, and other non-combustible materials shall also be rejected.

4. Six grab samples shall be taken from each shipment destined for use in Kiln 3. Each grab sample shall be approximately one pound, and be stored in sealable plastic bags. The six grab samples shall be combined to form a "composite sample", which shall be produced by mixing the individual grab samples into a homogeneous mixture and then cutting out a single representative sample. In accordance with Methods 3050/6010 (EPA Method SW-846) the composite sample shall be analyzed for copper, chromium, and arsenic and reported as ppmw (wet and dry basis). Results of each analysis shall be available within 10 calendar days of making the composite sample. The remaining portion of the homogenous mixture shall be retained on site for use as a control sample to the verify lab test results, if necessary.

   If analysis of a composite sample indicates concentrations in excess of 50 ppmw (dry) for copper, chromium, or arsenic, Cemex shall take the following actions within 3 working days of receiving the results:

   - Provide results to the Bureau of Air Regulation and the Air Resource Section of the Southwest District Office.
   - Produce two additional representative samples from the remainder of the composite sample and send to a lab for analysis.
   - Review the material screening and segregation procedures with the suppliers.

   Results of each analysis shall be available within 10 calendar days of making the additional composite samples. If one of the additional composite samples also indicates concentrations of copper, chromium, or arsenic exceeding the levels specified above, Cemex shall discontinue firing wood chips and begin an investigation to evaluate the source of contamination. If the source and cause can be identified and corrected, Cemex may submit to the Department's Bureau of Air Regulation a corrective action plan and request the resumption of wood chip firing. Cemex may resume firing wood chips only with written approval from the Department.

SECTION 4. APPENDICES
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SECTION 4. APPENDIX BACT

BEST AVAILABLE CONTROL TECHNOLOGY SUMMARY

The Best Available Control Technology (BACT) determinations are will be summarized in this Appendix. The limits are in the Draft Permit under the respective sections for each Emissions Unit. The key limits for the pyroprocessing system are in Draft Permit Section 3.D Specific Condition 11. The rationale is given in the Department's Technical Evaluation and Preliminary Determinations document dated July 17, 2007.

SECTION 4. APPENDIX C
COMMON STATE RULES

Unless otherwise specified in the permit, the following conditions apply to all emissions units and activities at the facility.

EMISSIONS AND CONTROLS

1. Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify each Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; steps being taken to correct the problem and prevent future recurrence; and, where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit or the regulations. [Rule 62-4.130, F.A.C.]
2. Circumvention: The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]
3. Excess Emissions Allowed: Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]
4. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]
5. Excess Emissions - Notification: In case of excess emissions resulting from malfunctions, the permitee shall notify the Department or the appropriate Local Program in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700(6), F.A.C.]
6. VOC or OS Emissions: No person shall store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. [Rule 62-296.320(1), F.A.C.]
7. Objectionable Odor Prohibited: No person shall cause, suffer, allow or permit the discharge of air pollutants, which cause or contribute to an objectionable odor. An "objectionable odor" means any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [Rules 62-296.320(2) and62-210.200(203), F.A.C.]
8. General Visible Emissions: No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity equal to or greater than 20 percent opacity. This regulation does not impose a specific testing requirement. [Rule 62-296.320(4)(b)1, F.A.C.]
9. Unconfined Particulate Emissions: During the construction period, unconfined particulate matter emissions shall be minimized by dust suppressing techniques such as covering and/or application of water or chemicals to the affected areas, as necessary. [Rule 62-296.320(4)(c), F.A.C.]

GENERAL COMPLIANCE TESTING REQUIREMENTS

The focal point of a compliance test is the stack or duct which vents process and/or combustion gases and air pollutants from an emissions unit into the ambient air. [Rule 62-297.310, F.A.C.]

10. Required Number of Test Runs: For mass emission limitations, a compliance test shall consist of three complete and separate determinations of the total air pollutant emission rate through the test section of the stack or duct and three complete and separate determinations of any applicable process variables corresponding to the three distinct time periods during which the stack emission rate was measured; provided, however, that three complete and separate determinations shall not be required if the process variables are not subject to variation during a compliance test, or if three determinations are not necessary in order to calculate the unit's emission rate. The three required test runs shall be completed within one consecutive five-day period. In the event that a sample is lost or one of the three runs must be discontinued because of circumstances beyond the control of the owner or operator, and a valid third run cannot be obtained within the five-day period allowed for the test, the Secretary or his or her designee may accept the results of two complete runs as proof of compliance, provided that the arithmetic mean of the two complete runs is at least 20% below the allowable emission limiting standard. [Rule 62-297.310(1), F.A.C.]

11. Operating Rate During Testing: Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. [Rule 62-297.310(2), F.A.C.]
12. Calculation of Emission Rate: For each emissions performance test, the indicated emission rate or concentration shall be the arithmetic average of the emission rate or concentration determined by each of the three separate test runs unless otherwise specified in a particular test method or applicable rule. [Rule 62-297.310(3), F.A.C.]
13. Applicable Test Procedures [Rule 62-297.310(4), F.A.C.]
    a. *Required Sampling Time.*
        (1) Unless otherwise specified in the applicable rule, the required sampling time for each test run shall be no less than one hour and no greater than four hours, and the sampling time at each sampling point shall be of equal intervals of at least two minutes.
        (2) Opacity Compliance Tests. When either EPA Method 9 or DEP Method 9 is specified as the applicable opacity test method, the required minimum period of observation for a compliance test shall be sixty (60) minutes for emissions units which emit or have the potential to emit 100 tons per year or more of particulate matter, and thirty (30) minutes for emissions units which have potential emissions less than 100 tons per year of particulate matter and are not subject to a multiple-valued opacity standard. The opacity test observation period shall include the period during which the highest opacity emissions can reasonably be expected to occur. Exceptions to these requirements are as follows:
            (a) For batch, cyclical processes, or other operations which are normally completed within less than the minimum observation period and do not recur within that time, the period of observation shall be equal to the duration of the batch cycle or operation completion time.
            (b) The observation period for special opacity tests that are conducted to provide data to establish a surrogate standard pursuant to Rule 62-297.310(5)(k), F.A.C., Waiver of Compliance Test Requirements, shall be established as necessary to properly establish the relationship between a proposed surrogate standard and an existing mass emission limiting standard.
            (c) The minimum observation period for opacity tests conducted by employees or agents of the Department to verify the day-to-day continuing compliance of a unit or activity with an applicable opacity standard shall be twelve minutes.
    b. *Minimum Sample Volume.* Unless otherwise specified in the applicable rule or test method, the minimum sample volume per run shall be 25 dry standard cubic feet.
    c. *Calibration of Sampling Equipment.* Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1, F.A.C.
    d. *Calibration of Sampling Equipment.* Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1.
    e. *Allowed Modification to EPA Method 5.* When EPA Method 5 is required, the following modification is allowed: the heated filter may be separated from the impingers by a flexible tube.
14. Determination of Process Variables [Rule 62-297.310(5), F.A.C.]
    a. *Required Equipment.* The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.
    b. *Accuracy of Equipment.* Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value.

15. Sampling Facilities: The permittee shall install permanent stack sampling ports and provide sampling facilities that meet the requirements of Rule 62-297.310(6), F.A.C. Sampling facilities include sampling ports, work platforms, access to work platforms, electrical power, and sampling equipment support. All stack sampling facilities must also comply with all applicable Occupational Safety and Health Administration (OSHA) Safety and Health Standards described in 29 CFR Part 1910, Subparts D and E. [Rule 62-297.310(6), F.A.C.]

    a. *Permanent Test Facilities.* The owner or operator of an emissions unit for which a compliance test, other than a visible emissions test, is required on at least an annual basis, shall install and maintain permanent stack sampling facilities.

    b. *Temporary Test Facilities.* The owner or operator of an emissions unit that is not required to conduct a compliance test on at least an annual basis may use permanent or temporary stack sampling facilities. If the owner chooses to use temporary sampling facilities on an emissions unit, and the Department elects to test the unit, such temporary facilities shall be installed on the emissions unit within 5 days of a request by the Department and remain on the emissions unit until the test is completed.

    c. *Sampling Ports.*

        (1) All sampling ports shall have a minimum inside diameter of 3 inches.

        (2) The ports shall be capable of being sealed when not in use.

        (3) The sampling ports shall be located in the stack at least 2 stack diameters or equivalent diameters downstream and at least 0.5 stack diameter or equivalent diameter upstream from any fan, bend, constriction or other flow disturbance.

        (4) For emissions units for which a complete application to construct has been filed prior to December 1, 1980, at least two sampling ports, 90 degrees apart, shall be installed at each sampling location on all circular stacks that have an outside diameter of 15 feet or less. For stacks with a larger diameter, four sampling ports, each 90 degrees apart, shall be installed. For emissions units for which a complete application to construct is filed on or after December 1, 1980, at least two sampling ports, 90 degrees apart, shall be installed at each sampling location on all circular stacks that have an outside diameter of 10 feet or less. For stacks with larger diameters, four sampling ports, each 90 degrees apart, shall be installed. On horizontal circular ducts, the ports shall be located so that the probe can enter the stack vertically, horizontally or at a 45 degree angle.

        (5) On rectangular ducts, the cross sectional area shall be divided into the number of equal areas in accordance with EPA Method 1. Sampling ports shall be provided which allow access to each sampling point. The ports shall be located so that the probe can be inserted perpendicular to the gas flow.

    d. *Work Platforms.*

        (1) Minimum size of the working platform shall be 24 square feet in area. Platforms shall be at least 3 feet wide.

        (2) On circular stacks with 2 sampling ports, the platform shall extend at least 110 degrees around the stack.

        (3) On circular stacks with more than two sampling ports, the work platform shall extend 360 degrees around the stack.

        (4) All platforms shall be equipped with an adequate safety rail (ropes are not acceptable), toe board, and hinged floor-opening cover if ladder access is used to reach the platform. The safety rail directly in line with the sampling ports shall be removable so that no obstruction exists in an area 14 inches below each sample port and 6 inches on either side of the sampling port.

    e. *Access to Work Platform.*

        (1) Ladders to the work platform exceeding 15 feet in length shall have safety cages or fall arresters with a minimum of 3 compatible safety belts available for use by sampling personnel.

        (2) Walkways over free-fall areas shall be equipped with safety rails and toe boards.

    f. *Electrical Power.*

        (1) A minimum of two 120-volt AC, 20-amp outlets shall be provided at the sampling platform within 20 feet of each sampling port.

        (2) If extension cords are used to provide the electrical power, they shall be kept on the plant's property and be available immediately upon request by sampling personnel.

g. *Sampling Equipment Support.*

(1) A three-quarter inch eyebolt and an angle bracket shall be attached directly above each port on vertical stacks and above each row of sampling ports on the sides of horizontal ducts.

(a) The bracket shall be a standard 3 inch × 3 inch × one-quarter inch equal-legs bracket which is 1 and one-half inches wide. A hole that is one-half inch in diameter shall be drilled through the exact center of the horizontal portion of the bracket. The horizontal portion of the bracket shall be located 14 inches above the centerline of the sampling port.

(b) A three-eighth inch bolt which protrudes 2 inches from the stack may be substituted for the required bracket. The bolt shall be located 15 and one-half inches above the centerline of the sampling port.

(c) The three-quarter inch eyebolt shall be capable of supporting a 500 pound working load. For stacks that are less than 12 feet in diameter, the eyebolt shall be located 48 inches above the horizontal portion of the angle bracket. For stacks that are greater than or equal to 12 feet in diameter, the eyebolt shall be located 60 inches above the horizontal portion of the angle bracket. If the eyebolt is more than 120 inches above the platform, a length of chain shall be attached to it to bring the free end of the chain to within safe reach from the platform.

(2) A complete monorail or dualrail arrangement may be substituted for the eyebolt and bracket.

(3) When the sample ports are located in the top of a horizontal duct, a frame shall be provided above the port to allow the sample probe to be secured during the test.

16. Frequency of Compliance Tests. The following provisions apply only to those emissions units that are subject to an emissions limiting standard for which compliance testing is required. [Rule 62-297.310(7), F.A.C.]

a. *General Compliance Testing.*

1. The owner or operator of a new or modified emissions unit that is subject to an emission limiting standard shall conduct a compliance test that demonstrates compliance with the applicable emission limiting standard prior to obtaining an operation permit for such emissions unit.

2. For excess emission limitations for particulate matter specified in Rule 62-210.700, F.A.C., a compliance test shall be conducted annually while the emissions unit is operating under soot blowing conditions in each federal fiscal year during which soot blowing is part of normal emissions unit operation, except that such test shall not be required in any federal fiscal year in which a fossil fuel steam generator does not burn liquid and/or solid fuel for more than 400 hours other than during startup.

3. The owner or operator of an emissions unit that is subject to any emission limiting standard shall conduct a compliance test that demonstrates compliance with the applicable emission limiting standard prior to obtaining a renewed operation permit. Emissions units that are required to conduct an annual compliance test may submit the most recent annual compliance test to satisfy the requirements of this provision. In renewing an air operation permit pursuant to sub-subparagraph 62-210.300(2)(a)3.b., c., or d., F.A.C., the Department shall not require submission of emission compliance test results for any emissions unit that, during the year prior to renewal:

(a) Did not operate; or

(b) In the case of a fuel burning emissions unit, burned liquid and/or solid fuel for a total of no more than 400 hours,

4. During each federal fiscal year (October 1 – September 30), unless otherwise specified by rule, order, or permit, the owner or operator of each emissions unit shall have a formal compliance test conducted for:

(a) a. Visible emissions, if there is an applicable standard;

(b) b. Each of the following pollutants, if there is an applicable standard, and if the emissions unit emits or has the potential to emit: 5 tons per year or more of lead or lead compounds measured as elemental lead; 30 tons per year or more of acrylonitrile; or 100 tons per year or more of any other regulated air pollutant; and

(c) c. Each NESHAP pollutant, if there is an applicable emission standard.

5. An annual compliance test for particulate matter emissions shall not be required for any fuel burning emissions unit that, in a federal fiscal year, does not burn liquid and/or solid fuel, other than during startup, for a total of more than 400 hours.
6. For fossil fuel steam generators on a semi-annual particulate matter emission compliance testing schedule, a compliance test shall not be required for any six-month period in which liquid and/or solid fuel is not burned for more than 200 hours other than during startup.
7. For emissions units electing to conduct particulate matter emission compliance testing quarterly pursuant to paragraph 62-296.405(2)(a), F.A.C., a compliance test shall not be required for any quarter in which liquid and/or solid fuel is not burned for more than 100 hours other than during startup.
8. Any combustion turbine that does not operate for more than 400 hours per year shall conduct a visible emissions compliance test once per each five-year period, coinciding with the term of its air operation permit.
9. The owner or operator shall notify the Department, at least 15 days prior to the date on which each formal compliance test is to begin, of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted for the owner or operator.
10. An annual compliance test conducted for visible emissions shall not be required for units exempted from air permitting pursuant to subsection 62-210.300(3), F.A.C.; units determined to be insignificant pursuant to subparagraph 62-213.300(2)(a)1., F.A.C., or paragraph 62-213.430(6)(b), F.A.C.; or units permitted under the General Permit provisions in paragraph 62-210.300(4)(a) or Rule 62-213.300, F.A.C., unless the general permit specifically requires such testing.

b. *Special Compliance Tests.* When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department.

c. *Waiver of Compliance Test Requirements.* If the owner or operator of an emissions unit that is subject to a compliance test requirement demonstrates to the Department, pursuant to the procedure established in Rule 62-297.620, F.A.C., that the compliance of the emissions unit with an applicable weight emission limiting standard can be adequately determined by means other than the designated test procedure, such as specifying a surrogate standard of no visible emissions for particulate matter sources equipped with a bag house or specifying a fuel analysis for sulfur dioxide emissions, the Department shall waive the compliance test requirements for such emissions units and order that the alternate means of determining compliance be used, provided, however, the provisions of paragraph 62-297.310(7)(b), F.A.C., shall apply.

RECORDS AND REPORTS

17. Test Reports [Rule 62-297.310(8), F.A.C.]

a. The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Department on the results of each such test.

b. The required test report shall be filed with the Department as soon as practical but no later than 45 days after the last sampling run of each test is completed.

c. The test report shall provide sufficient detail on the emissions unit tested and the test procedures used to allow the Department to determine if the test was properly conducted and the test results properly computed. As a minimum, the test report, other than for an EPA or DEP Method 9 test, shall provide the following information.

1. The type, location, and designation of the emissions unit tested.
2. The facility at which the emissions unit is located.
3. The owner or operator of the emissions unit.
4. The normal type and amount of fuels used and materials processed, and the types and amounts of fuels used and material processed during each test run.
5. The means, raw data and computations used to determine the amount of fuels used and materials processed, if necessary to determine compliance with an applicable emission limiting standard.

6. The type of air pollution control devices installed on the emissions unit, their general condition, their normal operating parameters (pressure drops, total operating current and GPM scrubber water), and their operating parameters during each test run.
7. A sketch of the duct within 8 stack diameters upstream and 2 stack diameters downstream of the sampling ports, including the distance to any upstream and downstream bends or other flow disturbances.
8. The date, starting time and duration of each sampling run.
9. The test procedures used, including any alternative procedures authorized pursuant to Rule 62-297.620, F.A.C. Where optional procedures are authorized in this chapter, indicate which option was used.
10. The number of points sampled and configuration and location of the sampling plane.
11. For each sampling point for each run, the dry gas meter reading, velocity head, pressure drop across the stack, temperatures, average meter temperatures and sample time per point.
12. The type, manufacturer and configuration of the sampling equipment used.
13. Data related to the required calibration of the test equipment.
14. Data on the identification, processing and weights of all filters used.
15. Data on the types and amounts of any chemical solutions used.
16. Data on the amount of pollutant collected from each sampling probe, the filters, and the impingers, are reported separately for the compliance test.
17. The names of individuals who furnished the process variable data, conducted the test, analyzed the samples and prepared the report.
18. All measured and calculated data required to be determined by each applicable test procedure for each run.
19. The detailed calculations for one run that relate the collected data to the calculated emission rate.
20. The applicable emission standard and the resulting maximum allowable emission rate for the emissions unit plus the test result in the same form and unit of measure.
21. A certification that, to the knowledge of the owner or his authorized agent, all data submitted are true and correct. When a compliance test is conducted for the Department or its agent, the person who conducts the test shall provide the certification with respect to the test procedures used. The owner or his authorized agent shall certify that all data required and provided to the person conducting the test are true and correct to his knowledge.

RECORDS AND REPORTS

18. Records Retention: All measurements, records, and other data required by this permit shall be documented in a permanent, legible format and retained for at least five (5) years following the date on which such measurements, records, or data are recorded. Records shall be made available to the Department upon request. [Rules 62-4.160(14) and 62-213.440(1)(b)2, F.A.C.]
19. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(2), F.A.C.]

SECTION 4. APPENDIX GC
CONSTRUCTION PERMIT GENERAL CONDITIONS

The permittee shall comply with the following general conditions from Rule 62-4.160, F.A.C.

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

   a. Have access to and copy and records that must be kept under the conditions of the permit;
   b. Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
   c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

   Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

   a. A description of and cause of non-compliance; and

   b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

    a. Determination of Best Available Control Technology;
    b. Determination of Prevention of Significant Deterioration;
    c. Compliance with National Emission Standards for Hazardous Air Pollutants; and
    d. Compliance with New Source Performance Standards.

14. The permittee shall comply with the following:

    a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

    b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

    c. Records of monitoring information shall include:

        a. The date, exact place, and time of sampling or measurements;
        b. The person responsible for performing the sampling or measurements;
        c. The dates analyses were performed;
        d. The person responsible for performing the analyses;
        e. The analytical techniques or methods used; and
        f. The results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

NESHAP SUBPART LLL PROVISIONS – PORTLAND CEMENT MANUFACTURING INDUSTRY

The provisions of this subsection apply to the following emissions units.

EU ID	Emissions Unit Description
033	Raw Materials Receiving, Handling and Storage System
034	Raw Mix and Raw Meal Handling and Storage System
035	Pyroprocessing System. Kiln No. 3 with preheater, calciner, in-line raw mill and air heater
036	Clinker Cooler No. 3
037	Clinker Handling and Storage Clinker Silo
038	Finish Mill Feed Transportation
039	Finish Mill Processing and Recovery
040	Cement Silos & Loadout
042	Fugitive Emissions from Vehicle Travel and Miscellaneous Sources
043	Non-hazardous Waste Fuel Handling

1. NESHAP Subpart A: The affected emissions units are subject to the applicable General Provisions in NESHAP Subpart A of 40 CFR 63, as adopted by Rule 62-204.800(11), F.A.C. At the end of Appendix LLL, Table LLL-1 summarizes the portions of the NESHAP General Provisions that are applicable to the affected NESHAP Subpart LLL units. [40 CFR 63, Subpart A]

2. NESHAP Subpart LLL: The affected emissions units are subject to the applicable requirements for the Portland Cement Manufacturing Industry specified in NESHAP Subpart LLL of 40 CFR 63, as adopted by Rule 62-204.800(11), F.A.C. [40 CFR 63, Subpart LLL]

§63.1340 Applicability and designation of affected sources.

(a) Except as specified in paragraphs (b) and (c) of this section, the provisions of this subpart apply to each new and existing portland cement plant which is a major source or an area source as defined in §63.2.

(b) The affected sources subject to this subpart are:

(1) Each kiln and each in-line kiln/raw mill at any major or area source, including alkali bypasses, except for kilns and in-line kiln/raw mills that burn hazardous waste and are subject to and regulated under subpart EEE of this part;

(2) Each clinker cooler at any portland cement plant which is a major source;

(3) Each raw mill at any portland cement plant which is a major source;

(4) Each finish mill at any portland cement plant which is a major source;

(5) Each raw material dryer at any portland cement plant which is a major source and each greenfield raw material dryer at any portland cement plant which is a major or area source;

(6) Each raw material, clinker, or finished product storage bin at any portland cement plant which is a major source;

(7) Each conveying system transfer point including those associated with coal preparation used to conveycoal from the mill to the kiln at any portland cement plant which is a major source;

(8) Each bagging system at any portland cement plant which is a major source; and

(c) For portland cement plants with on-site nonmetallic mineral processing facilities, the first affected source in the sequence of materials handling operations subject to this subpart is the raw material storage, which is just prior to the raw mill. The primary and secondary crushers and any other equipment of the on-site nonmetallic mineral processing plant which precedes the raw material storage are not subject to this subpart. Furthermore, the first conveyor transfer point subject to this subpart is the transfer point associated with the conveyor transferring material from the raw material storage to the raw mill.

(d) The owner or operator of any affected source subject to the provisions of this subpart is subject to title V permitting requirements.

§63.1341 Definitions.

(a) All terms used in this subpart that are not defined below have the meaning given to them in the CAA and in subpart A of this part.

(b) Alkali bypass means a duct between the feed end of the kiln and the preheater tower through which a portion of the kiln exit gas stream is withdrawn and quickly cooled by air or water to avoid excessive buildup of alkali, chloride and/or sulfur on the raw feed. This may also be referred to as the "kiln exhaust gas bypass".

(c) Bagging system means the equipment which fills bags with portland cement.

(d) Bin means a manmade enclosure for storage of raw materials, clinker, or finished product prior to further processing at a Portland cement plant.

(e) Clinker cooler means equipment into which clinker product leaving the kiln is placed to be cooled by air supplied by a forced draft or natural draft supply system.

(f) Continuous monitor means a device which continuously samples the regulated parameter specified in §63.1350 of this subpart without interruption, evaluates the detector response at least once every 15 seconds, and computes and records the average value at least every 60 seconds, except during allowable periods of calibration and except as defined otherwise by the continuous emission monitoring system performance specifications in appendix B to part 60 of this chapter.

(g) Conveying system means a device for transporting materials from one piece of equipment or location to another location within a facility. Conveying systems include but are not limited to the following: feeders, belt conveyors, bucket elevators and pneumatic systems.

(h) Conveying system transfer point means a point where any material including but not limited to feed material, fuel, clinker or product, is transferred to or from a conveying system, or between separate parts of a conveying system.

(i) Dioxins and furans (D/F) means tetra-, penta-, hexa-, hepta-, and octa- chlorinated dibenzo dioxins and furans.

(j) Facility means all contiguous or adjoining property that is under common ownership or control, including properties that are separated only by a road or other public right-of-way.

(k) Feed means the prepared and mixed materials, which include but are not limited to materials such as limestone, clay, shale, sand, iron ore, mill scale, cement kiln dust and flyash, that are fed to the kiln. Feed does not include the fuels used in the kiln to produce heat to form the clinker product.

(l) Finish mill means a roll crusher, ball and tube mill or other size reduction equipment used to grind clinker to a fine powder. Gypsum and other materials may be added to and blended with clinker in a finish mill. The finish mill also includes the air separator associated with the finish mill.

(m) Greenfield kiln, in-line kiln/raw mill, or raw material dryer means a kiln, in-line kiln/raw mill, or raw material dryer for which construction is commenced at a plant site (where no kilns and no in-line kiln/raw mills were in operation at any time prior to March 24, 1998) after March 24, 1998.

(n) Hazardous waste is defined in §261.3 of this chapter.

(o) In-line kiln/raw mill means a system in a portland cement production process where a dry kiln system is integrated with the raw mill so that all or a portion of the kiln exhaust gases are used to perform the drying operation of the raw mill, with no auxiliary heat source used. In this system the kiln is capable of operating without the raw mill operating, but the raw mill cannot operate without the kiln gases, and consequently, the raw mill does not generate a separate exhaust gas stream.

(p) Kiln means a device, including any associated preheater or precalciner devices, that produces clinker by heating limestone and other materials for subsequent production of portland cement.

(q) Kiln exhaust gas bypass means alkali bypass.

(r) Monovent means an exhaust configuration of a building or emission control device (e. g. positive pressure fabric filter) that extends the length of the structure and has a width very small in relation to its length (i. e., length to width ratio is typically greater than 5:1). The exhaust may be an open vent with or without a roof, louvered vents, or a combination of such features.

(s) New brownfield kiln, in-line kiln raw mill, or raw material dryer means a kiln, in-line kiln/raw mill or raw material dryer for which construction is commenced at a plant site (where kilns and/or in-line kiln/raw mills were in operation prior to March 24, 1998) after March 24, 1998.

(t) One-minute average means the average of thermocouple or other sensor responses calculated at least every 60 seconds from responses obtained at least once during each consecutive 15 second period.

(u) Portland cement plant means any facility manufacturing portland cement.

(v) Raw material dryer means an impact dryer, drum dryer, paddle-equipped rapid dryer, air separator, or other equipment used to reduce the moisture content of feed materials.

(w) Raw mill means a ball and tube mill, vertical roller mill or other size reduction equipment, that is not part of an in-line kiln/raw mill, used to grind feed to the appropriate size. Moisture may be added or removed from the feed during the grinding operation. If the raw mill is used to remove moisture from feed materials, it is also, by definition, a raw material dryer. The raw mill also includes the air separator associated with the raw mill.

(x) Rolling average means the average of all one-minute averages over the averaging period.

(y) Run average means the average of the one-minute parameter values for a run.

(z) TEQ means the international method of expressing toxicity equivalents for dioxins and furans as defined in U.S. EPA, Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-dioxins and -dibenzofurans (CDDs and CDFs) and 1989 Update, March 1989.

§63.1342 Standards: General.

(a) Table 1 to this subpart provides cross references to the 40 CFR part 63, subpart A, general provisions, indicating the applicability of the general provisions requirements to subpart LLL.

(b) Table 1 of this section provides a summary of emission limits and operating limits of this subpart.

Table 1 to §63.1342. Emission Limits and Operating Limits.

Affected Source	Pollutant or Opacity	Emission and Operating Limit
All kilns and in-line kiln/raw mills at major sources (including alkali bypass)	PM	0.15 kg/Mg of feed (dry basis)
	Opacity	20 percent
All kilns and in-line kiln/raw mills at major and area sources (including alkali bypass)	D/F	0.20 ng TEQ/dscm or 0.40 ng TEQ/dscm when the average of the performance test run average particulate matter control device (PMCD) inlet temperatures is 204° C or less. [Corrected to 7 percent oxygen] Operate such that the three-hour rolling average PMCD inlet temperature is no greater than the temperature established at performance test. If activated carbon injection is used: Operate such that the three-hour rolling average activated carbon injection rate is no less than rate established at performance test. Operate such that either the carrier gas flow rate or carrier gas pressure drop exceeds the value established at performance test. Inject carbon of equivalent specifications to that used at performance test.
New greenfield kilns and in-line kiln/raw mills at major and area sources	THC	50 ppmvd, as propane, corrected to 7 percent oxygen

Affected Source	Pollutant or Opacity	Emission and Operating Limit
All clinker coolers at major sources	PM	0.050 kg/Mg of feed (dry basis)
	Opacity	10 percent
All raw mills and finish mills at major sources	Opacity	10 percent
New greenfield raw material dryers at major and area sources	THC	50 ppmvd, as propane, corrected to 7 percent oxygen
All raw material dryers and material handling points at major sources	Opacity	10 percent
Reconstructed or New Kilns at Major Sources	Hg	Refer to Section 63.1343(c)(5) below
	THC	Refer to Section 63.1343(c)(4) below

§63.1343 Standards for kilns and in-line kiln/raw mills.

(a) General. The provisions in this section apply to each kiln, each in-line kiln/raw mill, and any alkali bypass associated with that kiln or in-line kiln/raw mill. All gaseous, mercury and D/F emission limits are on a dry basis, corrected to 7 percent oxygen. All total hydrocarbon (THC) emission limits are measured as propane. The block averaging periods to demonstrate compliance are hourly for 20 ppmv total hydrocarbon (THC) limits and monthly for the 50 ppmv THC limit.

(b) Existing kilns located at major sources. No owner or operator of an existing kiln or an existing kiln/raw mill located at a facility that is a major source subject to the provisions of this subpart shall cause to be discharged into the atmosphere from these affected sources, any gases which:

(1) Contain particulate matter (PM) in excess of 0.15 kg per Mg (0.30 lb per ton) of feed (dry basis) to the kiln. When there is an alkali bypass associated with a kiln or in-line kiln/raw mill, the combined particulate matter emissions from the kiln or in-line kiln/raw mill and the alkali bypass are subject to this emission limit.

(2) Exhibit opacity greater than 20 percent.

(3) Contain D/F in excess of:

(i) 0.20 ng per dscm (8.7×10^{-11} gr per dscf) (TEQ); or

(ii) 0.40 ng per dscm (1.7 x 10-10 gr per dscf) (TEQ) when the average of the performance test run average temperatures at the inlet to the particulate matter control device is 204 [deg]C (400 [deg]F) or less.

(c) Reconstructed or new kilns located at major sources. No owner or operator of a reconstructed or new kiln or reconstructed or new inline kiln/raw mill located at a facility which is a major source subject to the provisions of this subpart shall cause to be discharged into the atmosphere from these affected sources any gases which:

(1) Contain particulate matter in excess of 0.15 kg per Mg (0.30 lb per ton) of feed (dry basis) to the kiln. When there is an alkali bypass associated with a kiln or in-line kiln/raw mill, the combined particulate matter emissions from the kiln or in-line kiln/raw mill and the bypass stack are subject to this emission limit.

(2) Exhibit opacity greater than 20 percent.

(3) Contain D/F in excess of:

(i) 0.20 ng per dscm (8.7 x 10-11 gr per dscf) (TEQ); or

(ii) 0.40 ng per dscm (1.7 x 10-10 gr per dscf) (TEQ) when the average of the performance test run average temperatures at the inlet to the particulate matter control device is 204 [deg]C (400 [deg]F) or less.

(4) Contain total hydrocarbons (THC), from the main exhaust of the kiln, or main exhaust of the in-line kiln/raw mill, in excess of 20 ppmv if the source is a new or reconstructed source that commenced construction after December 2, 2005. As an alternative to meeting the 20 ppmv standard you may demonstrate a 98 percent reduction of THC emissions from the exit of the kiln to discharge to the atmosphere. If the source is a greenfield kiln that commenced construction on or prior to December 2, 2005, then the THC limit is 50 ppmv.

(5) Contain mercury from the main exhaust of the kiln, or main exhaust of the in-line kiln/raw mill, or the alkali bypass in excess of 41[mu]g/dscm if the source is a new or reconstructed source that commenced construction after December 2, 2005. As an alternative to meeting the 41 [mu]g/dscm standard you may route the emissions through a packed bed or spray tower wet scrubber with a liquid-to-gas (l/g) ratio of 30 gallons per 1000 actual cubic feet per minute (acfm) or more and meet a site-specific emissions limit based on the measured performance of the wet scrubber.

(d) Existing kilns located at area sources. No owner or operator of an existing kiln or an existing in-line kiln/raw mill located at a facility that is an area source subject to the provisions of this subpart shall cause to be discharged into the atmosphere from these affected sources any gases which:

(1) Contain D/F in excess of 0.20 ng per dscm (8.7 x 10-11 gr per dscf) (TEQ); or

(2) Contain D/F in excess of 0.40 ng per dscm (1.7 x 10-10 gr per dscf) (TEQ) when the average of the performance test run average temperatures at the inlet to the particulate matter control device is 204 [deg]C (400 [deg]F) or less.

(e) New or reconstructed kilns located at area sources. No owner or operator of a new or reconstructed kiln or new or reconstructed in-line kiln/raw mill located at a facility that is an area source subject to the provisions of this subpart shall cause to be discharged into the atmosphere from these affected sources any gases which:

(1) Contain D/F in excess of:

(i) 0.20 ng per dscm (8.7 x 10-11 gr per dscf) (TEQ; or

(ii) 0.40 ng per dscm (1.7 x 10-10 gr per dscf) (TEQ) when the average of the performance test run average temperatures at the inlet to the particulate matter control device is 204 [deg]C (400 [deg]F) or less.

(2) Contain total hydrocarbons (THC), from the main exhaust of the kiln, or main exhaust of the in-line kiln/raw mill, in excess of 20 ppmv if the source is a new or reconstructed source that commenced construction after December 2, 2005. As an alternative to meeting the 20 ppmv standard you may demonstrate a 98 percent reduction of THC emissions from the exit of the kiln to discharge to the atmosphere. If the source is a greenfield kiln that commenced construction on or prior to December 2, 2005, then the THC limit is 50 ppmv.

(3) Contain mercury from the main exhaust of the kiln, or main exhaust of the in-line kiln/raw mill, or the alkali bypass in excess of 41 [mu]g/dscm if the source is a new or reconstructed source that commenced construction after December 2, 2005. As an alternative to meeting the 41 [mu]g/dscm standard you may route the emissions through a packed bed or spray tower wet scrubber with a liquid-to-gas (l/g) ratio of 30 gallons per 1000 actual cubic feet per minute (acfm) or more and meet a site-specific emissions limit based on the measured performance of the wet scrubber.

§63.1344 Operating Limits for kilns and in-line kiln/raw mills.

(a) The owner or operator of a kiln subject to a D/F emission limitation under §63.1343 must operate the kiln such that the temperature of the gas at the inlet to the kiln particulate matter control device (PMCD) and alkali bypass PMCD, if applicable, does not exceed the applicable temperature limit specified in paragraph (b) of this section. The owner or operator of an in-line kiln/raw mill subject to a D/F emission limitation under §63.1343 must operate the in-line kiln/raw mill, such that,

(1) When the raw mill of the in-line kiln/raw mill is operating, the applicable temperature limit for the main in-line kiln/raw mill exhaust, specified in paragraph (b) of this section and established during the performance test when the raw mill was operating is not exceeded.

(2) When the raw mill of the in-line kiln/raw mill is not operating, the applicable temperature limit for the main in-line kiln/raw mill exhaust, specified in paragraph (b) of this section and established during the performance test when the raw mill was not operating, is not exceeded.

(3) If the in-line kiln/raw mill is equipped with an alkali bypass, the applicable temperature limit for the alkali bypass, specified in paragraph (b) of this section and established during the performance test when the raw mill was operating, is not exceeded.

(b) The temperature limit for affected sources meeting the limits of paragraph (a) of this section or paragraphs (a)(1) through (a)(3) of this section is determined in accordance with §63.1349(b)(3)(iv).

(c) The owner or operator of an affected source subject to a mercury, THC or D/F emission limitation under Sec. 63.1343 that employs carbon injection as an emission control technique must operate the carbon injection system in accordance with paragraphs (c)(1) and (c)(2) of this section.

(1) The three-hour rolling average activated carbon injection rate shall be equal to or greater than the activated carbon injection rate determined in accordance with Sec. 63.1349(b)(3)(vi).

(2) The owner or operator shall either:

(i) Maintain the minimum activated carbon injection carrier gas flow rate, as a three-hour rolling average, based on the manufacturer's specifications. These specifications must be documented in the test plan developed in accordance with Sec. 63.7(c), or

(ii) Maintain the minimum activated carbon injection carrier gas pressure drop, as a three-hour rolling average, based on the manufacturer's specifications. These specifications must be documented in the test plan developed in accordance with Sec. 63.7(c).

(d) Except as provided in paragraph (e) of this section, the owner or operator of an affected source subject to a mercury, THC or D/F emission limitation under Sec. 63.1343 that employs carbon injection as an emission control technique must specify and use the brand and type of activated carbon used during the performance test until a subsequent performance test is conducted, unless the site-specific performance test plan contains documentation of key parameters that affect adsorption and the owner or operator establishes limits based on those parameters, and the limits on these parameters are maintained.

(e) The owner or operator of an affected source subject to a D/F, THC, or mercury emission limitation under Sec. 63.1343 that employs carbon injection as an emission control technique may substitute, at any time, a different brand or type of activated carbon provided that the replacement has equivalent or improved properties compared to the activated carbon specified in the site-specific performance test plan and used in the performance test. The owner or operator must maintain documentation that the substitute activated carbon will provide the same or better level of control as the original activated carbon.

(f) Existing kilns and in-line kilns/raw mills must implement good combustion practices (GCP) designed to minimize THC from fuel combustion. GCP include training all operators and supervisors to operate and maintain the kiln and calciner, and the pollution control systems in accordance with good engineering practices. The training shall include methods for minimizing excess emissions.

(g) No kiln and in-line kiln/raw mill may use as a raw material or fuel any fly ash where the mercury content of the fly ash has been increased through the use of activated carbon, or any other sorbent unless the facility can demonstrate that the use of that fly ash will not result in an increase in mercury emissions over baseline emissions (i.e. emissions not using the fly ash). The facility has the burden of proving there has been no emissions increase over baseline.

(h) All kilns and in-line kilns/raw mills must remove (i.e. not recycle to the kiln) from the kiln system sufficient cement kiln dust to maintain the desired product quality.

(i) New and reconstructed kilns and in-line kilns/raw mills must not exceed the average hourly CKD recycle rate measured during mercury performance testing. Any exceedance of this average hourly rate is considered a violation of the standard.

§63.1345 Standards for clinker coolers.

(a) No owner or operator of a new or existing clinker cooler at a facility which is a major source subject to the provisions of this subpart shall cause to be discharged into the atmosphere from the clinker cooler any gases which:

(1) Contain particulate matter in excess of 0.050 kg per Mg (0.10 lb per ton) of feed (dry basis) to the kiln.

(2) Exhibit opacity greater than ten percent.

(b) [Reserved]

§63.1346 Standards for new and reconstructed raw material dryers.

(a) New or reconstructed raw material dryers located at facilities that are major sources can not discharge to the atmosphere any gases which:

(1) Exhibit opacity greater than ten percent, or

(2) Contain THC in excess of 20 ppmv, on a dry basis as propane corrected to 7 percent oxygen if the source commenced construction after December 2, 2005. As an alternative to the 20 ppmv standard, you may demonstrate a 98 percent reduction in THC emissions from the exit of the raw materials dryer to discharge to the atmosphere. If the source is a greenfield dryer constructed on or prior to December 2, 2005, then the THC limit is 50 ppmv, on a dry basis corrected to 7 percent oxygen.

(b) New or reconstructed raw materials dryers located at a facility that is an area source cannot discharge to the atmosphere any gases which contain THC in excess of 20 ppmv, on a dry basis as propane corrected to 7 percent oxygen if the source commenced construction after December 2, 2005. As an alternative to the 20 ppmv standard, you may demonstrate a 98 percent reduction in THC emissions from the exit of the raw materials dryer to discharge to the atmosphere. If the source is a greenfield dryer constructed on or prior to December 2, 2005, then the THC limit is 50 ppmv, on a dry basis corrected to 7 percent oxygen.

§63.1347 Standards for raw and finish mills.

The owner or operator of each new or existing raw mill or finish mill at a facility which is a major source subject to the provisions of this subpart shall not cause to be discharged from the mill
sweep or air separator air pollution control devices of these affected sources any gases which exhibit opacity in excess of ten percent.

§63.1348 Standards for affected sources other than kilns; in-line kiln/raw mills; clinker coolers; new and reconstructed raw material dryers; and raw and finish mills.

The owner or operator of each new or existing raw material, clinker, or finished product storage bin; conveying system transfer point; bagging system; and bulk loading or unloading system; and each existing raw material dryer, at a facility which is a major source subject to the provisions of this subpart shall not cause to be discharged any gases from these affected sources which exhibit opacity in excess of ten percent.

§63.1349 Performance Testing Requirements.

(a) The owner or operator of an affected source subject to this subpart shall demonstrate initial compliance with the emission limits of §63.1343 and §§63.1345 through 63.1348 using the test methods and procedures in paragraph (b) of this section and §63.7. Performance test results shall be documented in complete test reports that contain the information required by paragraphs (a)(1) through (a)(10) of this section, as well as all other relevant information. The plan to be followed during testing shall be made available to the Administrator prior to testing, if requested.

(1) A brief description of the process and the air pollution control system;

(2) Sampling location description(s);

(3) A description of sampling and analytical procedures and any modifications to standard procedures;

(4) Test results;

(5) Quality assurance procedures and results;

(6) Records of operating conditions during the test, preparation of standards, and calibration procedures;

(7) Raw data sheets for field sampling and field and laboratory analyses;

(8) Documentation of calculations;

(9) All data recorded and used to establish parameters for compliance monitoring; and

(10) Any other information required by the test method.

(b) Performance tests to demonstrate initial compliance with this subpart shall be conducted as specified in paragraphs (b)(1) through (b)(4) of this section.

(1) The owner or operator of a kiln subject to limitations on particulate matter emissions shall demonstrate initial compliance by conducting a performance test as specified in paragraphs (b)(1)(i) through (b)(1)(iv) of this section. The owner or operator of an in-line kiln/raw mill subject to limitations on particulate matter emissions shall demonstrate initial compliance by conducting separate performance tests as specified in paragraphs (b)(1)(i) through (b)(1)(iv) of this section while the raw mill of the in-line kiln/raw mill is under normal operating conditions and while the raw mill of the in-line kiln/raw mill is not operating. The owner or operator of a clinker cooler subject to limitations on particulate matter emissions shall demonstrate initial compliance by conducting a performance test as specified in paragraphs (b)(1)(i) through (b)(1)(iii) of this section. The opacity exhibited during the period of the Method 5 of Appendix A to part 60 of this chapter performance tests required by

paragraph (b)(1)(i) of this section shall be determined as required in paragraphs (b)(1)(v) through (vi) of this section.

(i) Method 5 of appendix A to part 60 of this chapter shall be used to determine PM emissions. Each performance test shall consist of three separate runs under the conditions that exist when the affected source is operating at the representative performance conditions in accordance with Sec. 63.7(e). Each run shall be conducted for at least 1 hour, and the minimum sample volume shall be 0.85 dscm (30 dscf). The average of the three runs shall be used to determine compliance. A determination of the PM collected in the impingers (``back half") of the Method 5 particulate sampling train is not required to demonstrate initial compliance with the PM standards of this subpart. However, this shall not preclude the permitting authority from requiring a determination of the ``back half" for other purposes.

(ii) Suitable methods shall be used to determine the kiln or inline kiln/raw mill feed rate, except for fuels, for each run.

(iii) The emission rate, E, of PM shall be computed for each run using equation 1:

$E = (c_s Q_{sd}) / P$ **(Eq 1)**

Where: E = emission rate of particulate matter, kg/Mg of kiln feed.
cs = concentration of PM, kg/dscm.
Qsd = volumetric flow rate of effluent gas, dscm/hr.
P = total kiln feed (dry basis), Mg/hr.

(iv) When there is an alkali bypass associated with a kiln or in-line kiln/raw mill, the main exhaust and alkali bypass of the kiln or in-line kiln/raw mill shall be tested simultaneously and the combined emission rate of particulate matter from the kiln or in-line kiln/raw mill and alkali bypass shall be computed for each run using equation 2,

$E_c = (c_{sk}Q_{sdk} + c_{sb}Q_{sdb})/P$ **(Eq 2)**

Where: E_c = the combined emission rate of particulate matter from the kiln or in-line kiln/raw mill and bypass stack, kg/Mg of kiln feed.

c_{sk} = concentration of particulate matter in the kiln or in-line kiln/raw mill effluent, kg/dscm.

Q_{sdk} = volumetric flow rate of kiln or in-line kiln/raw mill effluent, dscm/hr.

c_{sb} = concentration of particulate matter in the alkali bypass gas, kg/dscm.

Q_{sdb} = volumetric flow rate of alkali bypass gas, dscm/hr.

P = total kiln feed (dry basis), Mg/hr.

(v) Except as provided in paragraph (b)(1)(vi) of this section the opacity exhibited during the period of the Method 5 performance tests required by paragraph (b)(1)(i) of this section shall be determined through the use of a continuous opacity monitor (COM). The maximum six-minute average opacity during the three Method 5 test runs shall be determined during each Method 5 test run, and used to demonstrate initial compliance with the applicable opacity limits of §63.1343(b)(2), §63.1343(c)(2), or §63.1345(a)(2).

(vi) Each owner or operator of a kiln, in-line kiln/raw mill, or clinker cooler subject to the provisions of this subpart using a fabric filter with multiple stacks or an electrostatic precipitator with multiple stacks may, in lieu of installing the continuous opacity monitoring system required by paragraph (b)(1)(v) of this section, conduct an opacity test in accordance with Method 9 of appendix A to part 60 of this chapter during each Method 5 performance test required by paragraph (b)(1)(i) of this section. If the control device exhausts through a monovent, or if the use of a COM in accordance with the installation specifications of Performance Specification 1 (PS-1) of appendix B to part 60 of this chapter is not feasible, a test shall be conducted in accordance with Method 9 of appendix A to part 60 of this chapter during each Method 5 performance test required by paragraph (b)(1)(i) of this section. The maximum six-minute average opacity shall be determined during the three Method 5 test runs, and used to demonstrate initial compliance with the applicable opacity limits of §63.1343(b)(2), §63.1343(c)(2), or §63.1345(a)(2).

(2) The owner or operator of any affected source subject to limitations on opacity under this subpart that is not subject to paragraph (b)(1) of this section shall demonstrate initial compliance with the affected source opacity limit by conducting a test in accordance with Method 9 of appendix A to part 60 of this chapter. The performance test shall

be conducted under the conditions that exist when the affected source is operating at the representative performance conditions in accordance with Sec. 63.7(e). The maximum 6-minute average opacity exhibited during the test period shall be used to determine whether the affected source is in initial compliance with the standard. The duration of the Method 9 performance test shall be 3 hours (30 6-minute averages), except that the duration of the Method 9 performance test may be reduced to 1 hour if the conditions of paragraphs (b)(2)(i) through (ii) of this section apply:

(i) There are no individual readings greater than 10 percent opacity;

(ii) There are no more than three readings of 10 percent for the first 1-hour period.

(3) The owner or operator of an affected source subject to limitations on D/F emissions under this subpart shall demonstrate initial compliance with the D/F emission limit by conducting a performance test using Method 23 of appendix A to part 60 of this chapter. The owner or operator of an in-line kiln/raw mill shall demonstrate initial compliance by conducting separate performance tests while the raw mill of the in-line kiln/raw mill is under normal operating conditions and while the raw mill of the in-line kiln/raw mill is not operating. The owner or operator of a kiln or in-line kiln/raw mill equipped with an alkali bypass shall conduct simultaneous performance tests of the kiln or in-line kiln/raw mill exhaust and the alkali bypass. However, the owner or operator of an in-line kiln/raw mill may conduct a performance test of the alkali bypass exhaust when the raw mill of the in-line kiln/raw mill is operating or not operating.

(ii) Each performance test shall consist of three separate runs; each run shall be conducted under the conditions that exist when the affected source is operating at the representative performance conditions in accordance with Sec. 63.7(e). The duration of each run shall be at least 3 hours, and the sample volume for each run shall be at least 2.5 dscm (90 dscf). The concentration shall be determined for each run, and the arithmetic average of the concentrations measured for the three runs shall be calculated and used to determine compliance.

(iii) The temperature at the inlet to the kiln or in-line kiln/raw mill PMCD, and where applicable, the temperature at the inlet to the alkali bypass PMCD, must be continuously recorded during the period of the Method 23 test, and the continuous temperature record(s) must be included in the performance test report.

(iv) One-minute average temperatures must be calculated for each minute of each run of the test.

(v) The run average temperature must be calculated for each run, and the average of the run average temperatures must be determined and included in the performance test report and will determine the applicable temperature limit in accordance with §63.1344(b).

(vi) If activated carbon injection is used for D/F control, the rate of activated carbon injection to the kiln or in-line kiln/raw mill exhaust, and where applicable, the rate of activated carbon injection to the alkali bypass exhaust, must be continuously recorded during the period of the Method 23 test, and the continuous injection rate record(s) must be included in the performance test report. In addition, the performance test report must include the brand and type of activated carbon used during the performance test and a continuous record of either the carrier gas flow rate or the carrier gas pressure drop for the duration of the test. Activated carbon injection rate parameters must be determined in accordance with paragraphs (b)(3)(vi) of this section.

(vii) The run average injection rate must be calculated for each run, and the average of the run average injection rates must be determined and included in the performance test report and will determine the applicable injection rate limit in accordance with §63.1344(c)(1).

(4) (i) The owner or operator of an affected source subject to limitations on emissions of THC shall demonstrate initial compliance with the THC limit by operating a continuous emission monitor in accordance with Performance Specification 8A of appendix B to part 60 of this chapter. The duration of the performance test shall be three hours, and the average THC concentration (as calculated from the one-minute averages) during the three-hour performance test shall be calculated. The owner or operator of an in-line kiln/raw mill shall demonstrate initial compliance by conducting separate performance tests while the raw mill of the in-line kiln/raw mill is under normal operating conditions and while the raw mill of the in-line kiln/raw mill is not operating.

(i) The owner or operator of an affected source subject to limitations on emissions of THC who elects to demonstrate compliance with the alternative THC emission limit of 98 percent weight reduction must demonstrate compliance by also operating a continuous emission monitor in accordance with Performance Specification 8A of appendix B to part 60 at the inlet to the THC control device of the kiln, inline kiln raw mill, or raw materials dryer in the same manner as prescribed in paragraph (i) above. Alternately, you may elect to demonstrate a 98 weight percent reduction in THC across the control device using the performance test requirements in 40 CFR part 63, subpart SS.

(5) The owner or operator of a kiln or in-line kiln/raw mill subject to the 41 [mu]g/dscm mercury standard shall demonstrate compliance using EPA Method 29 of 40 CFR part 60. ASTM D6784-02, Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method), is an acceptable alternative to EPA Method 29 (portion for mercury only). If the kiln has an in-line raw mill, you must demonstrate compliance with both raw mill off and raw mill on. You must record the hourly recycle rate of CKD during both test conditions and calculate an average hourly rate for the three test runs for each test condition.

§63.1350 Monitoring requirements.

(a) The owner or operator of each portland cement plant shall prepare for each affected source subject to the provisions of this subpart, a written operations and maintenance plan. The plan shall be submitted to the Administrator for review and approval as part of the application for a part 70 permit and shall include the following information:

(1) Procedures for proper operation and maintenance of the affected source and air pollution control devices in order to meet the emission limits and operating limits of §§63.1343 through 63.1348;

(2) Corrective actions to be taken when required by paragraph (e) of this section;

(3) Procedures to be used during an inspection of the components of the combustion system of each kiln and each in-line kiln raw mill located at the facility at least once per year; and

(4) Procedures to be used to periodically monitor affected sources subject to opacity standards under §§63.1346 and 63.1348. Such procedures must include the provisions of paragraphs (a)(4)(i) through (a)(4)(iv) of this section.

(i) The owner or operator must conduct a monthly 1-minute visible emissions test of each affected source in accordance with Method 22 of Appendix A to part 60 of this chapter. The test must be conducted while the affected source is in operation.

(ii) If no visible emissions are observed in six consecutive monthly tests for any affected source, the owner or operator may decrease the frequency of testing from monthly to semi-annually for that affected source. If visible emissions are observed during any semi-annual test, the owner or operator must resume testing of that affected source on a monthly basis and maintain that schedule until no visible emissions are observed in six consecutive monthly tests.

(iii) If no visible emissions are observed during the semi-annual test for any affected source, the owner or operator may decrease the frequency of testing from semi-annually to annually for that affected source. If visible emissions are observed during any annual test, the owner or operator must resume testing of that affected source on a monthly basis and maintain that schedule until no visible emissions are observed in six consecutive monthly tests.

(iv) If visible emissions are observed during any Method 22 test, the owner or operator must conduct a 6-minute test of opacity in accordance with Method 9 of appendix A to part 60 of this chapter. The Method 9 test must begin within one hour of any observation of visible emissions.

(v) The requirement to conduct Method 22 visible emissions monitoring under this paragraph shall not apply to any totally enclosed conveying system transfer point, regardless of the location of the transfer point. ``Totally enclosed conveying system transfer point'' shall mean a conveying system transfer point that is enclosed on all sides, top, and bottom.

(vi) If any partially enclosed or unenclosed conveying system transfer point is located in a building, the owner or operator of the portland cement plant shall have the option to conduct a Method 22 visible emissions monitoring test according to the requirements of paragraphs (a)(4)(i) through (iv) of this section for each such conveying system transfer point located within the building, or for the building itself (according to paragraph (a)(4)(vii) of this section).

(vii) If visible emissions from a building are monitored, the requirements of paragraphs (a)(4)(i) through (iv) of this section apply to the monitoring of the building, and you must also do the following: Test visible emissions from each side, roof and vent of the building for at least 1 minute. The test must be conducted under normal operating conditions.

(b) Failure to comply with any provision of the operations and maintenance plan developed in accordance with paragraph (a) of this section shall be a violation of the standard.

(c) The owner or operator of a kiln or in-line kiln/raw mill shall monitor opacity at each point where emissions are vented from these affected sources including alkali bypasses in accordance with paragraphs (c)(1) through (c)(3) of this section.

(1) Except as provided in paragraph (c)(2) of this section, the owner or operator shall install, calibrate, maintain, and continuously operate a continuous opacity monitor (COM) located at the outlet of the PM control device to continuously monitor the opacity. The COM shall be installed, maintained, calibrated, and operated as required by subpart A, general provisions of this part, and according to PS-1 of appendix B to part 60 of this chapter.

(2) The owner or operator of a kiln or in-line kiln/raw mill subject to the provisions of this subpart using a fabric filter with multiple stacks or an electrostatic precipitator with multiple stacks may, in lieu of installing the continuous opacity monitoring system required by paragraph (c)(1) of this section, monitor opacity in accordance with paragraphs (c)(2)(i) through (ii) of this section. If the control device exhausts through a monovent, or if the use of a COM in accordance with the installation specifications of PS-1 of appendix B to part 60 of this chapter is not feasible, the owner or operator must monitor opacity in accordance with paragraphs (c)(2)(i) through (ii) of this section.

(i) Perform daily visual opacity observations of each stack in accordance with the procedures of Method 9 of appendix A of part 60 of this chapter. The Method 9 test shall be conducted while the affected source is operating at the highest load or capacity level reasonably expected to occur within the day. The duration of the Method 9 test shall be at least 30 minutes each day.

(ii) Use the Method 9 procedures to monitor and record the average opacity for each six-minute period during the test.

(3) To remain in compliance, the opacity must be maintained such that the 6-minute average opacity for any 6-minute block period does not exceed 20 percent. If the average opacity for any 6-minute block period exceeds 20 percent, this shall constitute a violation of the standard.

(d) The owner or operator of a clinker cooler shall monitor opacity at each point where emissions are vented from the clinker cooler in accordance with paragraphs (d)(1) through (d)(3) of this section.

(1) Except as provided in paragraph (d)(2) of this section, the owner or operator shall install, calibrate, maintain, and continuously operate a COM located at the outlet of the clinker cooler PM control device to continuously monitor the opacity. The COM shall be installed, maintained, calibrated, and operated as required by subpart A, general provisions of this part, and according to PS-1 of appendix B to part 60 of this chapter.

(2) The owner or operator of a clinker cooler subject to the provisions of this subpart using a fabric filter with multiple stacks or an electrostatic precipitator with multiple stacks may, in lieu of installing the continuous opacity monitoring system required by paragraph (d)(1) of this section, monitor opacity in accordance with paragraphs (d)(2)(i) through (ii) of this section. If the control device exhausts through a monovent, or if the use of a COM in accordance with the installation specifications of PS-1 of appendix B to part 60 of this chapter is not feasible, the owner or operator must monitor opacity in accordance with paragraphs (d)(2)(i) through (ii) of this section.

(i) Perform daily visual opacity observations of each stack in accordance with the procedures of Method 9 of appendix A of part 60 of this chapter. The Method 9 test shall be conducted while the affected source is operating at the highest load or capacity level reasonably expected to occur within the day. The duration of the Method 9 test shall be at least 30 minutes each day.

(ii) Use the Method 9 procedures to monitor and record the average opacity for each six-minute period during the test.

(3) To remain in compliance, the opacity must be maintained such that the 6-minute average opacity for any 6-minute block period does not exceed 10 percent. If the average opacity for any 6-minute block period exceeds 10 percent, this shall constitute a violation of the standard.

(e) The owner or operator of a raw mill or finish mill shall monitor opacity by conducting daily visual emissions observations of the mill sweep and air separator PMCDs of these affected sources, in accordance with the procedures of Method 22 of appendix A of part 60 of this chapter. The Method 22 test shall be conducted while the affected source is operating at the highest load or capacity level reasonably expected to occur within the day. The duration of the Method 22 test shall be six minutes. If visible emissions are observed during any Method 22 visible emissions test, the owner or operator must:

(1) Initiate, within one-hour, the corrective actions specified in the site specific operating and maintenance plan developed in accordance with paragraphs (a)(1) and (a)(2) of this section; and

(2) Within 24 hours of the end of the Method 22 test in which visible emissions were observed, conduct a followup Method 22 test of each stack from which visible emissions were observed during the previous Method 22 test. If visible emissions are observed during the followup Method 22 test from any stack from which visible emissions were observed during the previous Method 22 test, conduct a visual opacity test of each stack from which emissions were observed during the follow up Method 22 test in accordance with Method 9 of appendix A to part 60 of this chapter. The duration of the Method 9 test shall be 30 minutes.

(f) The owner or operator of an affected source subject to a limitation on D/F emissions shall monitor D/F emissions in accordance with paragraphs (f)(1) through (f)(6) of this section.

(1) The owner or operator shall install, calibrate, maintain, and continuously operate a continuous monitor to record the temperature of the exhaust gases from the kiln, in-line kiln/raw mill and alkali bypass, if applicable, at the inlet to, or upstream of, the kiln, in-line kiln/raw mill and/or alkali bypass PM control devices.

(i) The recorder response range must include zero and 1.5 times either of the average temperatures established according to the requirements in §63.1349(b)(3)(iv).

(ii) The reference method must be a National Institute of Standards and Technology calibrated reference thermocouple-potentiometer system or alternate reference, subject to approval by the Administrator.

(2) The owner or operator shall monitor and continuously record the temperature of the exhaust gases from the kiln, in-line kiln/raw mill and alkali bypass, if applicable, at the inlet to the kiln, in-line kiln/raw mill and/or alkali bypass PMCD.

(3) The three-hour rolling average temperature shall be calculated as the average of 180 successive one-minute average temperatures.

(4) Periods of time when one-minute averages are not available shall be ignored when calculating three-hour rolling averages. When one-minute averages become available, the first one-minute average is added to the previous 179 values to calculate the three-hour rolling average.

(5) When the operating status of the raw mill of the in-line kiln/raw mill is changed from off to on, or from on to off the calculation of the three-hour rolling average temperature must begin anew, without considering previous recordings.

(6) The calibration of all thermocouples and other temperature sensors shall be verified at least once every three months.

(g) The owner or operator of an affected source subject to an emissions limitation on D/F, THC or mercury emissions that employs carbon injection as an emission control technique shall comply with the monitoring requirements of paragraphs (f)(1) through (f)(6) and (g)(1) through (g)(6) of this section to demonstrate continuous compliance with the D/F, THC or mercury emissions standard.

(1) Install, operate, calibrate and maintain a continuous monitor to record the rate of activated carbon injection. The accuracy of the rate measurement device must be 1 percent of the rate being measured.

(2) Verify the calibration of the device at least once every three months.

(3) The three-hour rolling average activated carbon injection rate shall be calculated as the average of 180 successive one-minute average activated carbon injection rates.

(4) Periods of time when one-minute averages are not available shall be ignored when calculating three-hour rolling averages. When one-minute averages become available, the first one-minute average is added to the previous 179 values to calculate the three-hour rolling average.

(5) When the operating status of the raw mill of the in-line kiln/raw mill is changed from off to on, or from on to off, the calculation of the three-hour rolling average activated carbon injection rate must begin anew, without considering previous recordings.

(6) The owner or operator must install, operate, calibrate and maintain a continuous monitor to record the activated carbon injection system carrier gas parameter (either the carrier gas flow rate or the carrier gas pressure drop) established during the mercury, THC or D/F performance test in accordance with paragraphs (g)(6)(i) through (g)(6)(iii) of this section.

(i) The owner or operator shall install, calibrate, operate and maintain a device to continuously monitor and record the parameter value.

(ii) The owner or operator must calculate and record three-hour rolling averages of the parameter value.

(iii) Periods of time when one-minute averages are not available shall be ignored when calculating three-hour rolling averages. When one-minute averages become available, the first one-minute average shall be added to the previous 179 values to calculate the three-hour rolling average.

(h) The owner or operator of an affected source subject to a limitation on THC emissions under this subpart shall comply with the monitoring requirements of paragraphs (h)(1) through (h)(3) of this section to demonstrate continuous compliance with the THC emission standard:

(1) The owner or operator shall install, operate and maintain a THC continuous emission monitoring system in accordance with Performance Specification 8A, of appendix B to part 60 of this chapter and comply with all of the requirements for continuous monitoring systems found in the general provisions, subpart A of this part.

(2) The owner or operator is not required to calculate hourly rolling averages in accordance with section 4.9 of Performance Specification 8A if they are only complying with the 50 ppmv THC emissions limit.

(3) For facilities complying with the 50 ppmv THC emissions limit, any thirty-day block average THC concentration in any gas discharged from a greenfield raw material dryer, the main exhaust of a greenfield kiln, or the main exhaust of a greenfield in-line kiln/raw mill, exceeding 50 ppmvd, reported as propane, corrected to seven percent oxygen, is a violation of the standard.

(4) For new facilities complying with the 20 ppmv THC emissions limit, any hourly average THC concentration in any gas discharged from a raw material dryer, the main exhaust of a greenfield kiln, or the main exhaust of a kiln or in-line kiln/raw mill, exceeding 20 ppmvd, reported as propane, corrected to seven percent oxygen, is a violation of the standard.

(i) The owner or operator of any kiln or in-line kiln/raw mill subject to a D/F emission limit under this subpart shall conduct an inspection of the components of the combustion system of each kiln or in-line kiln raw mill at least once per year.

(j) The owner or operator of an affected source subject to a limitation on opacity under §63.1346 or §63.1348 shall monitor opacity in accordance with the operation and maintenance plan developed in accordance with paragraph (a) of this section.

(k) The owner or operator of an affected source subject to a particulate matter standard under §63.1343 shall install, calibrate, maintain and operate a particulate matter continuous emission monitoring system (PM CEMS) to measure the particulate matter discharged to the atmosphere. All requirements relating to installation, calibration, maintenance, operation or performance of the PM CEMS and implementation of the PM CEMS requirement are deferred pending further rulemaking.

(l) An owner or operator may submit an application to the Administrator for approval of alternate monitoring requirements to demonstrate compliance with the emission standards of this subpart, except for emission standards for THC, subject to the provisions of paragraphs (l)(1) through (l)(6) of this section.

(1) The Administrator will not approve averaging periods other than those specified in this section, unless the owner or operator documents, using data or information, that the longer averaging period will ensure that emissions do not exceed levels achieved during the performance test over any increment of time equivalent to the time required to conduct three runs of the performance test.

(2) If the application to use an alternate monitoring requirement is approved, the owner or operator must continue to use the original monitoring requirement until approval is received to use another monitoring requirement.

(3) The owner or operator shall submit the application for approval of alternate monitoring requirements no later than the notification of performance test. The application must contain the information specified in paragraphs (l)(3)(i) through (l)(3)(iii) of this section:

(i) Data or information justifying the request, such as the technical or economic infeasibility, or the impracticality of using the required approach;

(ii) A description of the proposed alternative monitoring requirement, including the operating parameter to be monitored, the monitoring approach and technique, the averaging period for the limit, and how the limit is to be calculated; and

(iii) Data or information documenting that the alternative monitoring requirement would provide equivalent or better assurance of compliance with the relevant emission standard.

(4) The Administrator will notify the owner or operator of the approval or denial of the application within 90 calendar days after receipt of the original request, or within 60 calendar days of the receipt of any supplementary information, whichever is later. The Administrator will not approve an alternate monitoring application unless it would

provide equivalent or better assurance of compliance with the relevant emission standard. Before disapproving any alternate monitoring application, the Administrator will provide:

(i) Notice of the information and findings upon which the intended disapproval is based; and

(ii) Notice of opportunity for the owner or operator to present additional supporting information before final action is taken on the application. This notice will specify how much additional time is allowed for the owner or operator to provide additional supporting information.

(5) The owner or operator is responsible for submitting any supporting information in a timely manner to enable the Administrator to consider the application prior to the performance test. Neither submittal of an application, nor the Administrator's failure to approve or disapprove the application relieves the owner or operator of the responsibility to comply with any provision of this subpart.

(6) The Administrator may decide at any time, on a case-by-case basis that additional or alternative operating limits, or alternative approaches to establishing operating limits, are necessary to demonstrate compliance with the emission standards of this subpart.

(m) The requirements under paragraph (e) of this section to conduct daily Method 22 testing shall not apply to any specific raw mill or finish mill equipped with a continuous opacity monitor COM or bag leak detection system (BLDS). If the owner or operator chooses to install a COM in lieu of conducting the daily visual emissions testing required under paragraph (e) of this section, then the COM must be installed at the outlet of the PM control device of the raw mill or finish mill, and the COM must be installed, maintained, calibrated, and operated as required by the general provisions in subpart A of this part and according to PS-1 of appendix B to part 60 of this chapter. To remain in compliance, the opacity must be maintained such that the 6-minute average opacity for any 6-minute block period does not exceed 10 percent. If the average opacity for any 6-minute block period exceeds 10 percent, this shall constitute a violation of the standard. If the owner or operator chooses to install a BLDS in lieu of conducting the daily visual emissions testing required under paragraph (e) of this section, the requirements in paragraphs (m)(1) through (9) of this section apply to each BLDS:

(1) The BLDS must be certified by the manufacturer to be capable of detecting PM emissions at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less. ``Certify" shall mean that the instrument manufacturer has tested the instrument on gas streams having a range of particle size distributions and confirmed by means of valid filterable PM tests that the minimum detectable concentration limit is at or below 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.

(2) The sensor on the BLDS must provide output of relative PM emissions.

(3) The BLDS must have an alarm that will activate automatically when it detects a significant increase in relative PM emissions greater than a preset level.

(4) The presence of an alarm condition should be clearly apparent to facility operating personnel.

(5) For a positive-pressure fabric filter, each compartment or cell must have a bag leak detector. For a negative-pressure or induced-air fabric filter, the bag leak detector must be installed downstream of the fabric filter. If multiple bag leak detectors are required (for either type of fabric filter), detectors may share the system instrumentation and alarm.

(6) All BLDS must be installed, operated, adjusted, and maintained so that they are based on the manufacturer's written specifications and recommendations. The EPA recommends that where appropriate, the standard operating procedures manual for each bag leak detection system include concepts from EPA's ``Fabric Filter Bag Leak Detection Guidance" (EPA-454/R-98-015, September 1997).

(7) The baseline output of the system must be established as follows:

(i) Adjust the range and the averaging period of the device; and

(ii) Establish the alarm set points and the alarm delay time.

(8) After initial adjustment, the range, averaging period, alarm set points, or alarm delay time may not be adjusted except as specified in the operations and maintenance plan required by paragraph (a) of this section. In no event may the range be increased by more than 100 percent or decreased by more than 50 percent over a 1 calendar year period unless a responsible official as defined in Sec. 63.2 certifies in writing to the Administrator that the fabric filter has been inspected and found to be in good operating condition.

(9) The owner or operator must maintain and operate the fabric filter such that the bag leak detector alarm is not activated and alarm condition does not exist for more than 5 percent of the total operating time in a 6-month block period. Each time the alarm activates, alarm time will be counted as the actual amount of time taken by the owner or operator to initiate corrective actions. If inspection of the fabric filter demonstrates that no corrective actions are necessary, no alarm time will be counted. The owner or operator must continuously record the output from the BLDS during periods of normal

operation. Normal operation does not include periods when the BLDS is being maintained or during startup, shutdown or malfunction.
(n) Any kiln or kiln/in-line raw mill using a control device (other then ACI) to comply with a mercury emissions limit or equipment standard will monitor the control device parameters as specified in 40 CFR part 63 subpart SS.
(o) For kilns and in-line kilns/raw mills complying with the requirements in Section 63.1344(g), each owner or operator must obtain a certification from the supplier for each shipment of fly ash received
to demonstrate that the fly ash was not derived from a source in which the use of activated carbon, or any other sorbent, is used as a method of mercury emissions control. The certification shall include the name of the supplier and a signed statement from the supplier confirming that the fly ash was not derived from a source in which the use of activated carbon, or any other sorbent, is used as a method of emission control.
(p) If the facility opts to use a fly ash derived from a source in which the use of activated carbon, or any other sorbent, is used as a method of mercury emissions control and demonstrate that the use of this fly ash does not increase mercury emissions, they must obtain daily fly ash samples, composites monthly, and analyze the samples for mercury.

§63.1351 Compliance dates.

(a) Except as noted in paragraph (c) below, the compliance date for an owner or operator of an existing affected source subject to the provisions of this subpart is June 14, 2002.
(b) Except as noted in paragraph (d) below, the compliance date for an owner or operator of an affected source subject to the provisions of this subpart that commences new construction or reconstruction after March 24, 1998, is June 14, 1999, or upon startup of operations, whichever is later.
(c) The compliance date for an existing source to meet the requirements of GCP for THC is December 20, 2007.
(d) The compliance date for a new source which commenced construction after December 2, 2005, and before December 20, 2006 to meet the THC emission limit of 20 ppmv/98 percent reduction or the mercury standard of 41 [mu]g/dscm or a site-specific standard based on application of a wet scrubber will be December 21, 2009

63.1352 Additional Test Methods.
(a) Owners or operators conducting tests to determine the rates of emission of hydrogen chloride (HCl) from kilns, in-line kiln/raw mills and associated bypass stacks at portland cement manufacturing facilities, for use in applicability determinations under §63.1340 are permitted to use Method 320 or Method 321 of appendix A of this part.
(b) Owners or operators conducting tests to determine the rates of emission of hydrogen chloride (HCl) from kilns, in-line kiln/raw mills and associated bypass stacks at portland cement manufacturing facilities, for use in applicability determinations under §63.1340 are permitted to use Methods 26 or 26A of appendix A to part 60 of this chapter, except that the results of these tests shall not be used to establish status as an area source.
(c) Owners or operators conducting tests to determine the rates of emission of specific organic HAP from raw material dryers, kilns and in-line kiln/raw mills at portland cement manufacturing facilities, for use in applicability determinations under §63.1340 of this subpart are permitted to use Method 320 of appendix A to this part, or Method 18 of appendix A to part 60 of this chapter.

§63.1353 Notification requirements.
(a) The notification provisions of 40 CFR part 63, subpart A that apply and those that do not apply to owners and operators of affected sources subject to this subpart are listed in Table 1 of this subpart. If any State requires a notice that contains all of the information required in a notification listed in this section, the owner or operator may send the Administrator a copy of the notice sent to the State to satisfy the requirements of this section for that notification.
(b) Each owner or operator subject to the requirements of this subpart shall comply with the notification requirements in §63.9 as follows:

(1) Initial notifications as required by §63.9(b) through (d). For the purposes of this subpart, a Title V or 40 CFR part 70 permit application may be used in lieu of the initial notification required under §63.9(b), provided the same information is contained in the permit application as required by §63.9(b), and the State to which the permit application has been submitted has an approved operating permit program under part 70 of this chapter and has received delegation of authority from the EPA. Permit applications shall be submitted by the same due dates as those specified for the initial notification.

(2) Notification of performance tests, as required by §§63.7 and 63.9(e).

(3) Notification of opacity and visible emission observations required by §63.1349 in accordance with §§63.6(h)(5) and 63.9(f).

(4) Notification, as required by §63.9(g), of the date that the continuous emission monitor performance evaluation required by §63.8(e) of this part is scheduled to begin.

(5) Notification of compliance status, as required by §63.9(h).

§63.1354 Reporting requirements.

(a) The reporting provisions of subpart A of this part that apply and those that do not apply to owners or operators of affected sources subject to this subpart are listed in Table 1 of this subpart. If any State requires a report that contains all of the information required in a report listed in this section, the owner or operator may send the Administrator a copy of the report sent to the State to satisfy the requirements of this section for that report.

(b) The owner or operator of an affected source shall comply with the reporting requirements specified in §63.10 of the general provisions of this part 63, subpart A as follows:

(1) As required by §63.10(d)(2), the owner or operator shall report the results of performance tests as part of the notification of compliance status.

(2) As required by §63.10(d)(3), the owner or operator of an affected source shall report the opacity results from tests required by §63.1349.

(3) As required by §63.10(d)(4), the owner or operator of an affected source who is required to submit progress reports as a condition of receiving an extension of compliance under §63.6(i) shall submit such reports by the dates specified in the written extension of compliance.

(4) As required by §63.10(d)(5), if actions taken by an owner or operator during a startup, shutdown, or malfunction of an affected source (including actions taken to correct a malfunction) are consistent with the procedures specified in the source's startup, shutdown, and malfunction plan specified in §63.6(e)(3), the owner or operator shall state such information in a semiannual report. Reports shall only be required if a startup, shutdown, or malfunction occurred during the reporting period. The startup, shutdown, and malfunction report may be submitted simultaneously with the excess emissions and continuous monitoring system performance reports; and

(5) Any time an action taken by an owner or operator during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures in the startup, shutdown, and malfunction plan, the owner or operator shall make an immediate report of the actions taken for that event within 2 working days, by telephone call or facsimile (FAX) transmission. The immediate report shall be followed by a letter, certified by the owner or operator or other responsible official, explaining the circumstances of the event, the reasons for not following the startup, shutdown, and malfunction plan, and whether any excess emissions and/or parameter monitoring exceedances are believed to have occurred.

(6) As required by §63.10(e)(2), the owner or operator shall submit a written report of the results of the performance evaluation for the continuous monitoring system required by §63.8(e). The owner or operator shall submit the report simultaneously with the results of the performance test.

(7) As required by §63.10(e)(2), the owner or operator of an affected source using a continuous opacity monitoring system to determine opacity compliance during any performance test required under §63.7 and described in §63.6(d)(6) shall report the results of the continuous opacity monitoring system performance evaluation conducted under §63.8(e).

(8) As required by §63.10(e)(3), the owner or operator of an affected source equipped with a continuous emission monitor shall submit an excess emissions and continuous monitoring system performance report for any event when the continuous monitoring system data indicate the source is not in compliance with the applicable emission limitation or operating parameter limit.

(9) The owner or operator shall submit a summary report semiannually which contains the information specified in §63.10(e)(3)(vi). In addition, the summary report shall include:

(i) All exceedences of maximum control device inlet gas temperature limits specified in §63.1344(a) and (b);

(ii) All failures to calibrate thermocouples and other temperature sensors as required under §63.1350(f)(7) of this subpart; and

(iii) All failures to maintain the activated carbon injection rate, and the activated carbon injection carrier gas flow rate or pressure drop, as applicable, as required under §63.1344(c).

(iv)The results of any combustion system component inspections conducted within the reporting period as required under §63.1350(i).

(v) All failures to comply with any provision of the operation and maintenance plan developed in accordance with §63.1350(a).

(10) If the total continuous monitoring system downtime for any CEM or any continuous monitoring system (CMS) for the reporting period is ten percent or greater of the total operating time for the reporting period, the owner or operator shall submit an excess emissions and continuous monitoring system performance report along with the summary report.

§63.1355 Recordkeeping requirements.

(a) The owner or operator shall maintain files of all information (including all reports and notifications) required by this section recorded in a form suitable and readily available for inspection and review as required by §63.10(b)(1). The files shall be retained for at least five years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent two years of data shall be retained on site. The remaining three years of data may be retained off site. The files may be maintained on microfilm, on a computer, on floppy disks, on magnetic tape, or on microfiche.

(b) The owner or operator shall maintain records for each affected source as required by §63.10(b)(2) and (b)(3) of this part; and

(1) All documentation supporting initial notifications and notifications of compliance status under §63.9 of this part;

(2) All records of applicability determination, including supporting analyses; and

(3) If the owner or operator has been granted a waiver under §63.8(f)(6), any information demonstrating whether a source is meeting the requirements for a waiver of recordkeeping or reporting requirements.

(c) In addition to the recordkeeping requirements in paragraph (b) of this section, the owner or operator of an affected source equipped with a continuous monitoring system shall maintain all records required by §63.10(c).

(d) You must keep annual records of the amount of CKD which is removed from the kiln system and either disposed of as solid waste or otherwise recycled for a beneficial use outside of the kiln system.

(e) You must keep records of the amount of CKD recycled on an hourly basis.

(f) You must keep records of all fly ash supplier certifications as required by Sec. 63.1350(o).

§63.1356 Exemption from new source performance standards.

(a) Except as provided in paragraphs (a)(1) and (2) of this section, any affected source subject to the provisions of this subpart is exempt from any otherwise applicable new source performance standard contained in subpart F or subpart OOO of part 60 of this chapter.

(1) Kilns and in-line kiln/raw mills, as applicable, under 40 CFR 60.60(b), located at area sources are subject to PM and opacity limits and associated reporting and recordkeeping, under 40 CFR part 60, subpart F.

(2) Greenfield raw material dryers, as applicable under 40 CFR 60.60(b), located at area sources, are subject to opacity limits and associated reporting and recordkeeping under 40 CFR part 60, subpart F.

(b) The requirements of subpart Y of part 60 of this chapter, ``Standards of Performance for Coal Preparation Plants,'' do not apply to conveying system transfer points used to convey coal from the mill to the kiln that are associated with coal preparation at a portland cement plant that is a major source under this subpart.

§63.1357 Temporary, conditioned exemption from particulate matter and opacity standards.

(a) Subject to the limitations of paragraphs (b) through (f) of this section, an owner or operator conducting PM CEMS correlation tests (that is, correlation with manual stack methods) is exempt from:

(1) Any particulate matter and opacity standards of part 60 or part 63 of this chapter that are applicable to cement kilns and in-line kiln/raw mills.

(2) Any permit or other emissions or operating parameter or other limitation on workplace practices that are applicable to cement kilns and in-line kiln raw mills to ensure compliance with any particulate matter and opacity standards of this part or part 60 of this chapter.

(b) The owner or operator must develop a PM CEMS correlation test plan. The plan must be submitted to the Administrator for approval at least 90 days before the correlation test is scheduled to be conducted. The plan must include:

(1) The number of test conditions and the number of runs for each test condition;

(2) The target particulate matter emission level for each test condition;

(3) How the operation of the affected source will be modified to attain the desired particulate matter emission rate; and

(4) The anticipated normal particulate matter emission level.
(c) The Administrator will review and approve or disapprove the correlation test plan in accordance with §63.7(c)(3)(i) and (iii). If the Administrator fails to approve or disapprove the correlation test plan within the time period specified in §63.7(c)(3)(iii), the plan shall be considered approved, unless the Administrator has requested additional information.
(d) The stack sampling team must be on-site and prepared to perform correlation testing no later than 24 hours after operations are modified to attain the desired particulate matter emissions concentrations, unless the correlation test plan documents that a longer period is appropriate.
(e) The PM and opacity standards and associated operating limits and conditions will not be waived for more than 96 hours, in the aggregate, for the purposes of conducting tests to correlate PM CEMS with manual method test results, including all runs and conditions, except as described in this paragraph. Where additional time is required to correlate a PM CEMS device, a source may petition the Administrator for an extension of the 96-hour aggregate waiver of compliance with the PM and opacity standards. An extension of the 96-hour aggregate waiver is renewable at the discretion of the Administrator.
(f) The owner or operator must return the affected source to operating conditions indicative of compliance with the applicable particulate matter and opacity standards as soon as possible after correlation testing is completed.

§63.1358 Delegation of Authority.
(a) In delegating implementation and enforcement authority to a State under subpart E of this part, the authorities contained in paragraph (b) of this section shall be retained by the Administrator and not transferred to a State.
(b) Authority which will not be delegated to States:
(1) Approval of alternative non-opacity emission standards under §63.6(g).
(2) Approval of alternative opacity standards under §63.6(h)(9).
(3) Approval of major changes to test methods under §§63.7(e)(2)(ii) and 63.7(f). A major change to a test method is a modification to a federally enforceable test method that uses unproven technology or procedures or is an entirely new method (sometimes necessary when the required test method is unsuitable).
(4) Approval of major changes to monitoring under §63.8(f). A major change to monitoring is a modification to federally enforceable monitoring that uses unproven technology or procedures, is an entirely new method (sometimes necessary when the required monitoring is unsuitable), or is a change in the averaging period.
(5) Waiver of recordkeeping under §63.10(f).

§63.1359 [Reserved]

Table LLL-1. Applicability of NESHAP Subpart A Provisions to Affected NESHAP Subpart LLL Units

Citation	Requirement	Applies?	Explanation
63.1(a)(1)–(4)	Applicability	Yes	
63.1(a)(5)		No	[Reserved]
63.1(a)(6)–(8)	Applicability	Yes	
63.1(a)(9)		No	[Reserved]
63.1(a)(10)–(14)	Applicability	Yes	
63.1(b)(1)	Initial Applicability Determination	No	§ 63.1340 specifies applicability.
63.1(b)(2)–(3)	Initial Applicability Determination	Yes	
63.1(c)(1)	Applicability After Standard Established	Yes	
63.1(c)(2)	Permit Requirements	Yes	Area sources must obtain Title V permits.
63.1(c)(3)		No	[Reserved]
63.1(c)(4)–(5)	Extensions, Notifications	Ye	
63.1(d)		No	[Reserved]
63.1(e)	Applicability of Permit Program	Yes	
63.2	Definitions	Yes	Additional definitions in § 63.1341.
63.3(a)–(c)	Units and Abbreviations	Yes	
63.4(a)(1)–(3)	Prohibited Activities	Yes	
63.4(a)(4)		No	[Reserved]
63.4(a)(5)	Compliance date	Yes	
63.4(b)–(c)	Circumvention, Severability	Yes	
63.5(a)(1)–(2)	Construction/Reconstruction	Yes	

SECTION 4. APPENDIX LLL

NESHAP SUBPART LLL PROVISIONS – PORTLAND CEMENT MANUFACTURING INDUSTRY

Citation	Requirement	Applies?	Explanation
63.5(b)(1)	Compliance Dates	Yes	
63.5(b)(2)		No	[Reserved]
63.5(b)(3)–(6)	Construction Approval, Applicability	Yes	
63.5(c)		No	[Reserved]
63.5(d)(1)–(4)	Approval of Construction/Reconstruction	Yes	
63.5(e)	Approval of Construction/Reconstruction	Yes	
63.5(f)(1)–(2)	Approval of Construction/Reconstruction	Yes	
63.6(a)	Compliance for Standards and Maintenance	Yes	
63.6(b)(1)–(5)	Compliance Dates	Yes	
63.6(b)(6)		No	[Reserved]
63.6(b)(7)	Compliance Dates	Yes	
63.6(c)(1)–(2)	Compliance Dates	Yes	
63.6(c)(3)–(4)		No	[Reserved]
63.6(c)(5)	Compliance Dates	Yes	
63.6(d)		No	[Reserved]
63.6(e)(1)–(2)	Operation & Maintenance	Yes	
63.6(e)(3)	Startup, Shutdown Malfunction Plan	Yes	
63.6(f)(1)–(3)	Compliance with Emission Standards	Yes	
63.6(g)(1)–(3)	Alternative Standard	Yes	
63.6(h)(1)–(2)	Opacity/VE Standards	Yes	
63.6(h)(3)	Opacity/VE Standards	No	[Reserved]
63.6(h)(4)–(h)(5)(i)	Opacity/VE Standards	Yes	
63.6(h)(5)(ii)–(iv)	Opacity/VE Standards	No	Test duration specified in subpart LLL.
63.6(h)(6)	Opacity/VE Standards	Yes	
63.6(h)(7)	Opacity/VE Standards	Yes	
63.6(i)(1)–(14)	Extension of Compliance	Yes	
63.6(i)(15)		No	[Reserved]
63.6(i)(16)	Extension of Compliance		Yes
63.6(j)	Exemption from Compliance	Yes	
63.7(a)(1)–(3)	Performance Testing Requirements	Yes	§ 63.1349 has specific requirements.
63.7(b)	Notification	Yes	
63.7(c)	Quality Assurance/Test Plan	Yes	
63.7(d)	Testing Facilities	Yes	
63.7(e)(1)–(4)	Conduct of Tests	Yes	
63.7(f)	Alternative Test Method	Yes	
63.7(g)	Data Analysis	Yes	
63.7(h)	Waiver of Tests	Yes	
63.8(a)(1)	Monitoring Requirements	Yes	
63.8(a)(2)	Monitoring	No	§ 63.1350 includes CEMS requirements.
63.8(a)(3)	Monitoring	No	[Reserved]
63.8(a)(4)	Monitoring	No	Flares not applicable.
63.8(b)(1)–(3)	Conduct of Monitoring	Yes	
63.8(c)(1)–(8)	CMS Operation/Maintenance	Yes	PS supersedes requirements for THC CEMS. Temperature and activated carbon injection monitoring data reduction requirements given in Subpart LLL.
63.8(d)	Quality Control	Yes	
63.8(e)	Performance Evaluation for CMS	Yes	PS supersedes requirements for THC CEMS.
63.8(f)(1)–(5)	Alternative Monitoring Method	Yes	Additional requirements in § 63.1350(l).
63.8(f)(6)	Alternative to RATA Test	Yes	
63.8(g)	Data Reduction	Yes	
63.9(a)	Notification Requirements	Yes	
63.9(b)(1)–(5)	Initial Notifications	Yes	
63.9(c)	Request for Compliance Extension	Yes	

NESHAP SUBPART LLL PROVISIONS – PORTLAND CEMENT MANUFACTURING INDUSTRY

Citation	Requirement	Applies?	Explanation
63.9(d)	New Source Notification for Special Compliance Req.	Yes	
63.9(e)	Notification of Performance Test	Yes	
63.9(f)	Notification of VE/Opacity Test	Yes	Notification not required under § 63.1350(e) and (j).
63.9(g)	Additional CMS Notifications	Yes	
63.9(h)(1)–(3)	Notification of Compliance Status	Yes	
63.9(h)(4)		No	[Reserved]
63.9(h)(5)–(6)	Notification of Compliance Status	Yes	
63.9(i)	Adjustment of Deadlines	Yes	
63.9(j)	Change in Previous Information	Yes	
63.10(a)	Recordkeeping/Reporting	Yes	
63.10(b)	General Requirements	Yes	
63.10(c)(1)	Additional CMS Recordkeeping	Yes	PS–8A supersedes requirements for THC CEMS.
63.10(c)(2)–(4)		No	[Reserved]
63.10(c)(5)–(8)	Additional CMS Recordkeeping	Yes	PS–8A supersedes requirements for THC CEMS.
63.10(c)(9)		No	[Reserved]
63.10(c)(10)–(15)	Additional CMS Recordkeeping	Yes	PS–8A supersedes requirements for THC CEMS.
63.10(d)(1)	General Reporting Requirements	Yes	
63.10(d)(2)	Performance Test Results	Yes	
63.10(d)(3)	Opacity or VE Observations	Yes	
63.10(d)(4)	Progress Reports	Yes	
63.10(d)(5)	Startup, Shutdown, Malfunction Reports	Yes	
63.10(e)(1)–(2)	Additional CMS Reports	Yes	
63.10(e)(3)	Excess Emissions and CMS Performance Reports	Yes	Exceedances are defined in subpart LLL.
63.10(f)	Waiver for Recordkeeping/Reporting	Yes	
63.11(a)–(b)	Control Device Requirements	No	Flares not applicable.
63.12(a)–(c)	State Authority and Delegations	Yes	
63.13(a)–(c)	State/Regional Addresses	Yes	
63.14(a)–(b)	Incorporation by Reference	Yes	
63.15(a)–(b)	Availability of Information	Yes	

SECTION 4. APPENDIX OOO

NSPS SUBPART OOO – NONMETALLIC MINERAL PROCESSING PLANTS

The provisions of this subsection apply to the following emissions unit.

EU ID	Emissions Unit Description
031	Raw Material Quarrying, Crushing and Storage System.

1. NSPS Subpart A: The affected emissions units are subject to the applicable General Provisions in NSPS Subpart A of 40 CFR 60, as adopted by Rule 62-204.800(8), F.A.C. [40 CFR 60, Subpart A]
2. NSPS Subpart OOO: The affected emissions units are subject to the applicable requirements for Nonmetallic Mineral Processing Plants specified in NSPS Subpart OOO of 40 CFR 60, as adopted by Rule 62-204.800(8), F.A.C. [40 CFR 60, Subpart OOO]

{Permitting Note: Numbering of the original NSPS rules in the following conditions has been preserved for ease of reference with the rules. Paragraphs that are not applicable have been omitted for clarity and brevity. When used in 40 CFR 60, the term "Administrator" shall mean the Secretary or the Secretary's designee.}

§ 60.670 Applicability and Designation of Affected Facility.

(a) (1) The provisions of 40 CFR 60 Subpart OOO are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each belt conveyor or crusher.

§ 60.671 Definitions.

Belt conveyor means a conveying device that transports material from one location to another by means of an endless belt that is carried on a series of idlers and routed around a pulley at each end.

Crusher means a machine used to crush any nonmetallic materials, and includes, but is not limited to, the following types: jaw, gyratory, cone roll, rod mill, hammermill, and impactor.

§ 60.672 Standard for Particulate Matter.

(b) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under 40 CFR 60.11, no owner or operator shall cause to be discharged into the atmosphere from any transfer point on belt conveyors or from any other affected facility any fugitive emissions which exhibit greater than 10 percent opacity, except as provided in paragraph (c) and (d) of this section.

(c) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under 40 CFR 60.11, no owner or operator shall cause to be discharged into the atmosphere from any crusher, at which a capture system is not used, fugitive emissions which exhibit greater than 15 percent opacity.

(d) Truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher is exempt from the requirements of this section.

§ 60.675 Test Methods and Procedures.

(a) In conducting the performance tests required in 40 CFR 60.8, the owner or operator shall use as reference methods and procedures the test methods in 40 CFR 60 Appendix A or other methods and procedures as specified in this section, except as provided in 40 CFR 60.8(b). Acceptable alternative methods and procedures are given in paragraph (e) of this section.

(c) (1) In determining compliance with the particulate matter standards in 40 CFR 60.672 (b) and (c), the owner or operator shall use Method 9 and the procedures in 40 CFR 60.11, with the following additions:

(i) The minimum distance between the observer and the emissions source shall be 4.57 meters (15 feet).

(ii) The observer shall, when possible, select a position that minimizes interference from other fugitive emissions units (e.g., road dust). The required observer position relative to the sun (Method 9, Section 2.1) must be followed.

(iii) For affected emissions units using wet dust suppression for particulate matter control, a visible mist is sometimes generated by the spray. The water mist must not be confused with particulate matter emissions and

is not to be considered a visible emission. When a water mist of this nature is present, the observation of emissions is to be made at a point in the plume where the mist is no longer visible.

(3) When determining compliance with the fugitive emissions standard for any affected facility described under Section 60.672(b) of this subpart, the duration of the Method 9 observations may be reduced from 3 hours (thirty 6-minute averages) to 1 hour (ten 6-minute averages) only if the following conditions apply:

(i) There are no individual readings greater than 10 percent opacity; and

(ii) There are no more than 3 readings of 10 percent for the 1-hour period.

(4) When determining compliance with the fugitive emissions standard for any crusher at which a capture system is not used as described under Section 60.672(c) of this subpart, the duration of the Method 9 observations may be reduced from 3 hours (thirty 6-minute averages) to 1 hour (ten 6- minute averages) only if the following conditions apply:

(i) There are no individual readings greater than 15 percent opacity; and

(ii) There are no more than 3 readings of 15 percent for the 1-hour period.

(e) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this section:

(1) For the method and procedure of 40 CFR 60.675(c), if emissions from two or more facilities continuously interfere so that the opacity of fugitive emissions from an individual affected facility cannot be read, either of the following procedures may be used:

(i) Use for the combined emission stream the highest fugitive opacity standard applicable to any of the individual affected facilities contributing to the emissions stream.

(ii) Separate the emissions so that the opacity of emissions from each affected facility can be read.

(g) If, after 30 days notice for an initially scheduled performance test, there is a delay (due to operation problems, etc.) in conducting any rescheduled performance test required in this section, the owner or operator of an affected facility shall submit a notice to the Administrator at least 7 days prior to any rescheduled performance test.

§ 60.676 Reporting and Recordkeeping.

(f) The owner or operator of any affected facility shall submit written reports of the results of all performance tests conducted to demonstrate compliance with the standards set forth in 40 CFR 60.672, including reports of opacity observations made using Method 9 to demonstrate compliance with 40 CFR 60.672(b) and (c).

(h) The Subpart A requirement under 40 CFR 60.7(a)(2) for notification of the anticipated date of initial startup of an affected facility shall be waived for owners or operators of affected facilities regulated under this subpart.

(i) A notification of the actual date of initial startup of each affected facility shall be submitted to the Administrator.

(1) For a combination of affected facilities in a production line that begin actual initial startup on the same day, a single notification of startup may be submitted by the owner or operator to the Administrator. The notification shall be postmarked within 15 days after such date and shall include a description of each affected facility, equipment manufacturer, and serial number of the equipment, if available.

SECTION 4. APPENDIX Y

NSPS SUBPART Y – COAL PREPARATION PLANTS

The provisions of this subsection apply to the following emissions unit.

EU ID	Emissions Unit Description
041	Coal and Petroleum Coke Mill

1. NSPS Subpart A: The affected emissions units are also subject to the applicable General Provisions in Subpart A of 40 CFR 60, as adopted by Rule 62-204.800(8), F.A.C. [40 CFR 60, Subpart A]
2. NSPS Subpart Y: The affected emissions units are also subject to the applicable requirements for Coal Preparation Plants specified in NSPS Subpart Y of 40 CFR 60, as adopted by Rule 62-204.800(8), F.A.C. [40 CFR 60, Subpart Y]

{Permitting Note: Numbering of the original NSPS rules in the following conditions has been preserved for ease of reference with the rules. Paragraphs that are not applicable have been omitted for clarity and brevity. When used in 40 CFR 60, the term "Administrator" shall mean the Secretary or the Secretary's designee.}

§ 60.250 Applicability and Designation of Affected Facility.

(a) The provisions of this subpart are applicable to any of the following affected facilities in coal preparation plants which process more than 200 tons per day: thermal dryers, pneumatic coal cleaning equipment (air tables), coal processing and conveying equipment (including breakers and crushers), and coal storage systems.

§ 60.251 Definitions.

(a) *Coal preparation plant* means any facility (excluding underground mining operations) which prepares coal by one or more of the following processes: breaking, crushing, screening, wet or dry cleaning, and thermal drying.

(b) *Bituminous coal* means solid fossil fuel classified as bituminous coal by ASTM Designation D388-77, 90, 91, 95, or 98a (incorporated by reference; see § 60.17).

(c) *Coal* means all solid fossil fuels classified as anthracite, bituminous, sub bituminous, or lignite by ASTM Designation D388-77, 90, 91, 95, or 98a (incorporated by reference; see § 60.17).

(d) *Cyclonic flow* means a spiraling movement of exhaust gases within a duct or stack.

(e) *Thermal dryer* means any facility in which the moisture content of bituminous coal is reduced by contact with a heated gas stream which is exhausted to the atmosphere.

(f) *Pneumatic coal-cleaning equipment* means any facility which classifies bituminous coal by size or separates bituminous coal from refuse by application of air stream(s).

(g) *Coal processing and conveying equipment* means any machinery used to reduce the size of coal or to separate coal from refuse, and the equipment used to convey coal to or remove coal and refuse from the machinery. This includes, but is not limited to, breakers, crushers, screens, and conveyor belts.

(h) *Coal storage system* means any facility used to store coal except for open storage piles.

(i) *Transfer and loading system* means any facility used to transfer and load coal for shipment.

§ 60.252 Standards for Particulate Matter.

(a) On and after the date on which the performance test required to be conducted by 40 CFR 60.8 is completed, an owner or operator shall not cause to be discharged into the atmosphere from any thermal dryer gases which:

(1) Contain particulate matter in excess of 0.070 g/dscm (0.031 gr/dscf).

(2) Exhibit 20 percent opacity or greater.

(c) On and after the date on which the performance test required to be conducted by 40 CFR 60.8 is completed, an owner or operator shall not cause to be discharged into the atmosphere from any coal processing and conveying equipment or coal storage system, gases which exhibit 20 percent opacity or greater. [40 CFR 60.252(a) and (c)]

§ 60.253 Monitoring of Operations.

(a) The owner or operator of any thermal dryer shall install, calibrate, maintain, and continuously operate monitoring devices as follows:

(1) A monitoring device for the measurement of the temperature of the gas stream at the exit of the thermal dryer on a continuous basis. The monitoring device is to be certified by the manufacturer to be accurate within ±3° Fahrenheit.

(b) All monitoring devices under paragraph (a) of this section are to be recalibrated annually in accordance with procedures under 40 CFR 60.13(b). [40 CFR 60.253(a) and (b)]

§ 60.254 Test Methods and Procedures.

(a) In conducting the performance tests required in 40 CFR 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in 40 CFR 60.8(b).

(b) The owner or operator shall determine compliance with the particular matter standards in 40 CFR 60.252 as follows:

(1) Method 5 shall be used to determine the particulate matter concentration. The sampling time and sample volume for each run shall be at least 60 minutes and 0.85 dscm (30 dscf). Sampling shall begin no less than 30 minutes after startup and shall terminate before shutdown procedures begin.

(2) Method 9 and the procedures in 40 CFR 60.11 shall be used to determine opacity.