



Jeb Bush
Governor

Department of Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

July 14, 2006

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Michael A. Gonzales, Plant Manager
CEMEX Cement, Inc.
Post Office Box 6
Brooksville, Florida 34605-006

Re: DEP File No. 0530010-022-AC
Brooksville Cement Plant - Brooksville, Hernando County

Enclosed is one copy of the Draft Air Construction Permit for the Brooksville Cement Plant on U.S. Highway 98, Brooksville, Hernando County. The Department's Intent to Issue Air Construction Permit, the Technical Evaluation, and the "Public Notice of Intent to Issue Air Construction Permit" are also included.

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 Cindy Mulkey at (850)921-8968 or Mr. Linero at (850)921-9523.

Sincerely,

For 

Trina Vielhauer, Chief
Bureau of Air Regulation

TLV/cm

Enclosures

"More Protection, Less Process"

Printed on recycled paper.

In the Matter of an
Application for Permit by:

CEMEX Cement, Inc
Post Office Box 6
Brooksville, Florida 34605-0006

DEP File No. 0530010-022-AC
Brooksville Cement Plant Kiln No. 2
Hernando County, Florida

Authorized Representative:

Mr. Michael A. Gonzales, Plant Manager

INTENT TO ISSUE AIR CONSTRUCTION PERMIT

The Department of Environmental Protection (Department) gives notice of its intent to issue a construction permit, copy of DRAFT Permit attached, for the proposed project as detailed in the application specified above and the attached Technical Evaluation for the reasons stated below.

The applicant, CEMEX Cement, Inc., applied on December 12, 2005 to the Department for a permit authorizing the use of tire derived fuel in Kiln No. 2 for a temporary trial period, and construction of a tire feeding system on Kiln No. 2 at the existing Brooksville Cement Plant northwest of Brooksville in Hernando County.

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 a construction permit 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 emissions units will not adversely impact air quality, and the emissions 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 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/ 922-6979). You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), 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 14 (fourteen) days from the date of publication of the enclosed Public Notice of Intent to Issue Permit. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If 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.

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) of the Florida Statutes 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 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 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 how and when petitioner received notice of the agency action or proposed action; (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; 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.

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.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542 F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2) F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.



Trina L. Vielhauer, Chief
Bureau of Air Regulation

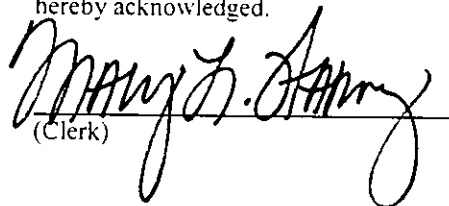
CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Intent to Issue Construction Permit (including the Public Notice, Technical Evaluation and Preliminary Determination, and the DRAFT permit) was sent by certified mail (*) and copies were mailed by U.S. Mail or by electronic mail before the close of business on 7/14/06 to the persons listed:

Michael A. Gonzales, CEMEX*
Charles Walz, CEMEX
Jeet Gill, CEMEX
Mara Nasca, DEP SWD
John Koogler, P.E., Koogler & Associates
Segundo J. Fernandez, OHF&C

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)

7/14/06
(Date)

PUBLIC NOTICE OF INTENT TO ISSUE PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 0530010-022-AC

CEMEX Cement, Inc.
Brooksville Cement Plant Kiln No. 2

Hernando County

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit to CEMEX Cement, Inc. The permit authorizes construction of a tire feed system for Kiln No. 2, and temporary field-testing to determine site specific emission characteristics and technical feasibility of firing whole tire derived fuel (TDF) in Kiln No. 2. The applicant's name and address are CEMEX Cement, Inc. Brooksville Cement Plant, Post Office Box 6, Brooksville, Florida 34605-0006.

The existing facility consists of two dry preheater kilns (Kiln No. 1 and Kiln No. 2). Both kilns are permitted to fire a variety of fuels including coal, fuel oil, natural gas, and on-site generated non-hazardous waste used oil and grease. CEMEX is currently permitted to fire up to 20 percent waste tire derived fuel (WTDF) in Kiln No. 1.

CEMEX requested authorization to construct a tire feed system for Kiln No. 2, and to conduct temporary field-testing to determine site specific emission characteristics and technical feasibility of firing up to 20 percent whole tire derived fuel (TDF) in Kiln No. 2 on a permanent basis. Permanent use of the supplemental fuel would be an economic benefit for the facility. CEMEX has proposed to certify and collect data from the existing carbon monoxide (CO) and nitrogen oxide (NO_x) continuous emissions monitors during the trial period, and to conduct testing for sulfur dioxide (SO₂) to establish "baseline" (firing only coal) emissions to be compared to emissions while firing coal and TDF.

Based on a literature review and review of similar testing performed on other cement kilns, the Department believes that the request for a trial period to test the feasibility of firing TDF in Kiln No. 2 is reasonable. Information acquired during the test period is also necessary before the Department will consider authorizing the permanent use of TDF in Kiln No. 2. However, the Department will require additional testing to that proposed by the applicant including testing for NO_x, CO, volatile organic compounds (VOCs), dioxin/furans, PM/PM₁₀, and visible emissions during the trial period. No emissions above the currently permitted levels are allowed during the trial period. Because there are no allowable emissions increases, a review of PSD applicability is not required.

The Department will issue the FINAL Permit, in accordance with the conditions of the DRAFT Permit, 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 a public meeting concerning the proposed permit issuance action for a period of 14 (fourteen) days from the date of publication of this Public Notice of Intent to Issue Permit. Written comments or requests for public meetings should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400 or the e-mail address provided below. Any written comments filed shall be made available for public inspection. If 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. If a petition for an administrative hearing on the Department's Intent to Issue is filed by a substantially affected person, that hearing shall be consolidated with the certification hearing, as provided under Section 403.507(3). 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 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 (14) 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) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen (14) 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 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 how and when petitioner received notice of the agency action or proposed action; (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; 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.

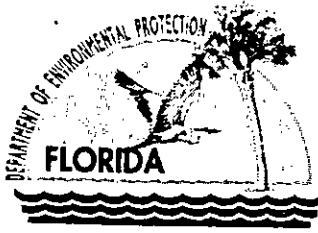
A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C. Because the administrative hearing process is designed 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 S. Magnolia Drive, Suite 4
Tallahassee, Florida, 32301
Telephone: 850/488-0114
Fax: 850/922-6979

Department of Environmental Protection
Southwest District Office
13051 N. Telecom Parkway
Temple Terrace, Florida 33637-0926
Telephone: 813/744-6100
Fax: 813/744-6084

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 Alvaro A. Linero, P.E., Program Administrator, South Permitting Section, Bureau of Air Regulation at: alvaro.linero@dep.state.fl.us and at 850/921-9523 or call 850/488-0114 for additional information. The application, key correspondence, draft permit and technical evaluation can be accessed at: <http://www.dep.state.fl.us/Air/permitting/construction/cemex.htm>



Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

PERMITTEE:

CEMEX Cement, Inc.
Post Office Box 6
Brooksville, Florida 34605-0006

Authorized Representative:

Michael A. Gonzales, Plant Manager

DEP File No. 0530010-022-AC
Brooksville Cement Plant
Expiration date: April 1, 2007

PROJECT AND LOCATION

This permit authorizes construction of a tire feed system for Kiln No. 2, and temporary field-testing to determine site specific emission characteristics and technical feasibility of firing whole tire derived fuel in Kiln No. 2 at CEMEX Cement's Brooksville Portland cement plant. The existing plant is located on Highway 98, northwest of Brooksville, in Hernando County, Florida.

STATEMENT OF BASIS

This 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.). The permittee is authorized to perform the proposed work 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 of Environmental Protection (Department). This permit supplements all other air construction and operation permits for the affected emissions units and does not alter any requirements from such previously issued air permits.

The attached Appendices are made a part of this permit:

Appendix GC Construction Permit General Conditions
Appendix SC Standard Conditions

(DRAFT)

Joseph Kahn, P.E., Acting Director
Division of Air Resource Management

SECTION I. GENERAL INFORMATION

FACILITY DESCRIPTION

The existing facility consists of two dry process kilns with a preheater design, two clinker coolers and associated raw mills, finish mills, cement and clinker handling equipment, coal handling equipment, silos, and air pollution control devices. The nominal capacity of each kiln is 788,400 ton per year of clinker. The plant is located on Highway 98, northwest of Brooksville in Hernando County, Florida.

PROJECT DESCRIPTION

This project allows the applicant to construct a tire feed system for Kiln No. 2 and to burn whole tire-derived fuel (TDF) in Kiln No. 2, for a designated trial period, in order to characterize and evaluate emissions from Kiln No. 2 while burning a combination of TDF and coal. Continuous emissions monitoring of CO and NO_x from certified continuous emissions monitoring systems (CEMS) are required during the trial period, as well as stack testing for dioxin/furan, VOC, PM/PM₁₀, and visible emissions.

EMISSIONS UNITS

This permit addresses the following emission units:

EU ID	Emissions Unit Description
003	Cement Kiln No. 1
014	Cement Kiln No. 2

REGULATORY CLASSIFICATION

Title III: The facility is a major source of hazardous air pollutants (HAP).

Title V: The facility is a Title V or "Major Source of Air Pollution" in accordance with Chapter 62-213, F.A.C. because the potential emissions of at least one regulated pollutant exceed 100 tons per year. Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter (PM/PM₁₀), sulfur dioxide (SO₂), and volatile organic compounds (VOC).

PSD: The plant is located in an area that is designated as "attainment", "maintenance", or "unclassifiable" for each pollutant subject to a National Ambient Air Quality Standard. It is classified as a "portland cement plant", which is one of the facility categories listed at 62-210.200 (Major Stationary Source) 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 major source of air pollution with respect to Rule 62-212.400 F.A.C., Prevention of Significant Deterioration of Air Quality.

NSPS: Portions of the cement plant are subject to the following New Source Performance Standards (NSPS) in 40 CFR 60: Subpart A (General Provisions); Subpart Y (Coal Preparation Plants); and Subpart OOO (Non Metallic Mineral Processing). Any affected source subject to the provisions of 40 CFR 63, Subpart LLL (Portland Cement Manufacturing Industry) is exempt from any otherwise applicable new source performance standard contained in 40 CFR 60, Subpart F (Portland Cement Plants).

NESHAP: Portions of the cement plant are subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) in 40 CFR 63: Subpart A (General Provisions); and Subpart LLL (Portland Cement Manufacturing Industry).

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

SECTION I. GENERAL INFORMATION

PERMITTING AUTHORITY

All documents related to applications for permits to construct, operate or modify an emissions unit shall be submitted to the Bureau of Air Regulation of the Florida Department of Environmental Protection (DEP) at 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400. Copies of all such documents shall also be submitted to the Compliance Authority.

COMPLIANCE AUTHORITY

All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Department of Environmental Protection Southwest District, 13051 N. Telecom Parkway, Temple Terrace, Florida 33637-3767.

RELEVANT DOCUMENTS

The documents listed below are not a part of this permit; however, this information is specifically related to the permitting action and is on file with the Department.

- Application for allowance of whole tire derived fuel (TDF) and petroleum coke as fuels in Kilns No. 1 and No. 2, various throughput adjustments and other changes received October 14, 2005.
- Application for petroleum coke and TDF fuel trial burn, received December 12, 2005.
- Department's Request for Additional Information dated January 10, 2006.
- Applicant's response to RAI dated April 14, 2006.
- Koogler letter requesting withdrawal of petroleum coke from trial burn, received June 27, 2006.
- Department's Final Determination issued concurrently with this Final Permit.

SECTION II. ADMINISTRATIVE REQUIREMENTS

1. General Conditions: The permittee shall operate under the attached General Conditions listed in Appendix GC of this permit. General Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
2. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403 of the Florida Statutes (F.S.); Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.); and the Title 40, Parts 51, 52, 60, and 63 of the Code of Federal Regulations (CFR), adopted by reference in Rule 62-204.800, F.A.C. The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]
3. Construction and Expiration: 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. The Department may extend the 18-month period upon a satisfactory showing that an extension is justified. In conjunction with an extension of the 18-month period to commence or continue construction (or to construct the project in phases), the Department may require the permittee to demonstrate the adequacy of any previous determination of Best Available Control Technology (BACT) for emissions units regulated by the project. 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), 62-4.080, 62-210.300(1), and 62-212.400(6)(b), F.A.C.]
4. 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.]
5. Source Obligation.
 - a. 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.
 - 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 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), F.A.C.]

SECTION II. ADMINISTRATIVE REQUIREMENTS

6. Modifications: No emissions unit or facility subject to this permit 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. [Chapters 62-210 and 62-212, F.A.C.]
7. Title V Permit: The scope of the temporary project included in this permit (Kiln No. 2 TDF trial burn) is to develop information in support of another project requesting permanent use of TDF in Kiln No. 2. Any future authorization to fire whole tire derived fuel would require a revision to the Title V air operation permit. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]



SECTION III. Facility Wide Conditions

The following conditions apply facility wide. (i.e., Kiln No. 1 and Kiln No. 2)

CEMS REQUIREMENTS

1. **CEMS Certification:** The NO_x and CO CEMS, and stack flow monitors shall be fully certified pursuant to Appendix B and functioning properly at least 30 days prior to the firing of TDF. A certification test schedule shall be submitted to the Department at least 30 days prior to certification. The Department shall be notified of any changes to the schedule at least 7 days prior to certification testing. Once certified, the CEMS (including flow monitor) shall be continuously operated to meet the quality assurance requirements of 40 CFR, Appendix F. If a CEMS fails to meet any of the requirements of certification, additional testing may be required for that system.

[Rule 62-4.070(3), F.A.C., CFR Part 60, Appendix B, Performance Specification 2, and Appendix F]

2. **CEMS Data Requirements:** The CEMS shall be installed, calibrated, maintained, and operated in the kiln system main stack to measure and record the emissions of CO and NO_x in a manner consistent with the existing emission limits for the kiln systems. The CEMS shall express the results in 1-hr averages in units of pounds per ton of dry kiln feed, pounds per ton of clinker produced, pounds per hour, and ppmvd @ 15% O₂ (parts per million dry volume corrected to 15 % oxygen).
 - 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. 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).
 - Each CEMS shall monitor and record emissions during all operations including episodes of startup, shutdown, and malfunction.

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

3. **Moisture Correction:** When needed to determine concentration on a dry basis, the owner or operator shall install a system to determine the moisture content of the exhaust gas and develop an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). [Rules 62-4.070(3), F.A.C]
4. **Ammonia Injection:** Hours in which ammonia injection occurred by the SNCR system shall be noted and the amount of ammonia shall be recorded with the CEMS data in the data acquisition handling system DAHS. [Rules 62-4.070(3), F.A.C]

SECTION III. Facility Wide Conditions

REPORTING REQUIREMENTS

5. CEMS Certification Reports: Within 30 days following certification of the CEMS, the permittee shall submit to the Department's Bureau of Ambient Monitoring and Mobile Sources, Emissions Monitoring Section, copies of the certification test reports which shall, at a minimum, meet the reporting requirements of 9.0 in Appendix B, Performance Specification 2.

[Rule 62-4.070(3), F.A.C., CFR Part 60, Appendix B, Performance Specification 2]

AUTHORIZATION

6. Burners and SNCR: An application for permanent use of the kiln burners and SNCR currently in operation on Kiln No. 1 and Kiln No. 2 is pending with the Department.

SECTION IV. EMISSIONS UNIT SPECIFIC CONDITIONS

A. Cement Kiln No. 2 (EU ID 014)

This section of the permit addresses the following existing emissions unit.

Emissions Unit 014 (Kiln No. 2)

Description: Dry preheater process kiln and clinker cooler system employing the Polysius GEPOL preheater design. Pillard Rotoflam ® burners in a semi-direct configuration were recently installed on Kiln No. 2 and an after-the-fact application for permanent authorization is pending.

Fuels: Kiln No. 2 is limited to a fuel heat input of 300 million British thermal units (MMBtu) per hour. Allowable fuels include: coal, Nos. 2, 4, 5, and 6 fuel oil, natural gas, and on-site generated non-hazardous waste used oil and grease.

Capacity: Kiln No. 2 is limited to 150 tons of preheater feed per hour (rolling 30-day average), with a maximum of 165 tons in any one hour.

Controls: A baghouse is used on Kiln No. 2 for the control of PM emissions. There are no other permitted add-on controls for any of the other pollutants emitted from the kiln. Raw material properties, chemical reactions in the kiln, absorption into the clinker, and combustion controls minimize emissions of NO_x, SO₂, CO, and VOC. SNCR has been installed for NO_x control (after-the-fact application for permanent authorization is pending).

Monitors: Emissions of CO and NO_x are continuously monitored on Kiln No. 2, however the CEMS are not certified. Additional CO and NO_x CEMS requirements are included in this permit.

Stack Parameters: The stack for Kiln No. 2 has the following characteristics: stack height is 105 feet, exit diameter is 14 feet, exit temperature is 250 °F, and actual volumetric flow rate is approximately 315,000 acfm.

EQUIPMENT DESCRIPTION

1. Tire Feed System: The permittee is authorized to install and operate a tire feed system on Kiln No. 2 for temporary use of whole tire derived fuel. The tire feeder will be equipped with a double air lock system to prevent leakage in and out of the kiln during the tire feeding process and will be connected to the existing tire handling system. Upon completion of the 60-day trial burn period established in this permit, the permittee shall cease use of the tire feed system and of tire burning until further authorized by the Department. [Application, 62-4.070(3), F.A.C.]

AUTHORIZATION

2. Relation to Other Permits: The conditions of this permit are in addition to those of any other air construction or operation permits. [Rule 62-4.030, 62-4.210, and 62-210.300(1)(b), F.A.C.]
3. Trial Use of TDF Firing: Subject to the conditions of this permit, the permittee is temporarily authorized to conduct a testing program to determine site specific emission characteristics and technical feasibility of firing up to 20 percent TDF in kiln system No. 2. Kiln system No. 2 (Units 014, and 015) shall remain subject to the conditions of all existing permits related to air pollution and control equipment during the field-testing program. [Rule 62-4.070(3), F.A.C.]
4. Schedule and Expiration: Beginning no earlier than 30 days from certification of the CEMS (pursuant to Section III, Facility Wide Conditions, Specific Condition 1), the permittee may begin testing tires as per this permit. Testing shall occur over a 60 consecutive calendar day period ("testing period") and shall end no later than March 1, 2007. At least 30 calendar days of data shall be recorded by the "certified" CO and NO_x CEMS (including flow data) prior to any TDF being fired in Kiln No. 2. [Rule 62-4.070(3), F.A.C.]
5. Trial Period Summary and Testing Protocol: The permittee shall submit to the Permitting and Compliance Authorities a summary outlining the testing objectives and a detailed testing protocol for the testing period

SECTION IV. EMISSIONS UNIT SPECIFIC CONDITIONS

A. Cement Kiln No. 2 (EU ID 014)

at least 45 days prior to the beginning of the testing period. Approval of the testing protocol must be obtained from the Permitting Authority prior to firing any TDF in Kiln No. 2. The permittee shall submit updates to the testing protocol and testing schedule as necessary, but no later than 7 days prior to any scheduled test. At a minimum the trial period summary and testing protocol shall include the following information:

- a. testing summary including outline, objectives, etc.,
- b. testing schedule,
- c. test methods to be used,
- d. sampling locations,
- e. quantity and duration of test runs for each test,
- f. expected process rates during testing,
- g. contact information for facility and test team,
- h. audit samples to be used,
- i. description of internal QA/QC procedures used by test team, and
- j. any deviation from any of the test methods listed must be approved with the submitted test protocol prior to testing.

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

PERFORMANCE RESTRICTIONS

6. Temporarily Authorized Fuels: Subject to the conditions of this permit, the permittee may fire TDF in kiln No. 2 in addition to other authorized fuels for the duration of the testing period. [Rule 62-210.200(203), F.A.C.]
7. Heat Input Rate: The maximum total heat input rate for the No. 2 kiln system shall remain at 300 MMBtu per hour. The maximum heat input rate from firing TDF for kiln system No. 2 shall not exceed 20 % of the total heat input rate and shall not exceed 60 MMBtu per hour (24-hr average). The remaining 80% of the total heat input rate shall be from the firing of other authorized fuels. [Rule 62-4.070(3), F.A.C.]

EMISSIONS AND TESTING REQUIREMENTS

8. Emissions Standards: This permit does not establish any new emissions standards for Kiln system No. 2. Kiln No. 2 shall continue to comply with the requirements of all existing Department permits. [Rule 6-4.070(3), F.A.C.]
9. Baseline Emissions Test: Initial testing for Kiln No. 2 when firing only coal shall be performed to determine NO_x, CO, VOC, dioxin/furans (both raw mill on and raw mill off conditions), PM/PM₁₀, and visible emissions to establish baseline levels. Baseline tests shall be performed at permitted capacity, and prior to firing any TDF. Emissions above any permitted standard experienced during baseline testing shall be reported to the Department. The test period shall not commence until baseline testing demonstrates that the unit is in compliance and operating within the permitted limits. [Rule 62-4.070(3), F.A.C.]

{Permitting note: Baseline coal emissions tests can be used for purposes of the annual compliance testing required by the facility's Title V air operation permit, provided all the criteria of the Title V permit are also met.}

SECTION IV. EMISSIONS UNIT SPECIFIC CONDITIONS

A. Cement Kiln No. 2 (EU ID 014)

10. **Alternative Fuel Emissions Tests:** During the test period, the permittee shall conduct tests to determine NO_x, CO, VOC, dioxin/furans (raw mill on and raw mill off), PM/PM₁₀, and visible emissions while co-firing the highest percentage of TDF that will be requested on a permanent basis. Additionally, the tests shall be conducted such that the average process rate, in terms of preheater feed rate, is nominally the same as the process rate achieved during the baseline emissions tests. [Rule 62-4.070(3), F.A.C.]
{Permitting Note: The NO_x and/or CO emissions testing is not required during TDF firing provided data from the CEMS is available, and all CEMS requirements of this permit have been satisfactorily met. If the CEMS fail to meet the requirements of this permit, additional testing may be required.}
11. **Data Requirements:** All test data shall be reported in units of pounds per ton of dry kiln feed, pounds per ton of clinker produced, and pounds per hour. Emissions of VOC shall be reported in units of the standards (lb/hr, lb/ton of clinker, lb/ton of dry feed) and ppmvd as propane corrected to 7% oxygen. [Rule 62-4.070(3), F.A.C.]
12. **Operating Rate During Testing:** The permittee shall attempt to conduct all tests at permitted capacity, which is defined as 90 - 100 percent of the maximum operating rate allowed by applicable construction and operation permits (total heat input rate of coal and TDF). If the permittee is unable to operate at this level, any application for permanent authorization to fire TDF shall be limited to 110 percent of the tested operating rate. [Rule 62-4.070(3), F.A.C.]
13. **Emission Rates During Testing:** If the co-firing of TDF results in any emissions that are not in accordance with the existing construction and operation permits, co-firing of TDF shall cease immediately. Co-firing of TDF shall not resume until appropriate actions are taken to correct the problem. The Compliance Authority shall be notified within one working day upon such cessation and again prior to resuming TDF co-firing. [Rules 62-297.310(7) and 62-4.070(3), F.A.C.]
14. **Test Notification:** In order to afford the Department the opportunity to witness the tests, the owner or operator shall notify the Department, at least 15 days prior to the date on which each test during the test period is scheduled to begin. [Rule 62-297.310(7)(a)9., F.A.C.]
15. **Test Methods:** Required tests shall be performed in accordance with the following reference test methods. The following methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. Tests shall also be conducted in accordance with the requirements specified in Appendix SC of this permit. Other equivalent methods may be used only if written approval is obtained from the Bureau of Air Regulation prior to conducting the tests.

Method	Description
1 - 4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content <i>{Permitting note: Tests performed as necessary to support other methods.}</i>
5 or 201/201A	Particulate Matter (PM). The minimum sample volume shall be 30 dry standard cubic feet.
7E	Nitrogen Oxides (NO _x)
9	Visible Determination of Opacity
10	Carbon Monoxide (CO). The method shall be based on a continuous sampling train.
23	Determination of Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans from Stationary Sources
25A	Measurement of Gaseous Organic Concentrations (Flame Ionization - Instrumental)

SECTION IV. EMISSIONS UNIT SPECIFIC CONDITIONS

A. Cement Kiln No. 2 (EU ID 014)

[Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

MONITORING REQUIREMENTS

16. Fuel Use Monitoring: The permittee shall continuously monitor and record the amount of TDF being fired on a tons per hour basis. The permittee shall record the daily total tons of TDF fired, the daily and hourly average TDF firing rate (tons per hour), and the daily and hourly average heat input rate from each fuel fired in the kiln (MMBtu per hour). [Rule 62-210.200(203), F.A.C.]

REPORTING REQUIREMENTS

17. CEMS/Process Data Reporting: All valid NO_x and CO CEMS data (including periods of startup, shutdown, and malfunction) recorded prior to the test period, beginning immediately following certification of the CEMS, and all data recorded during the 60-day test period shall be included in the Final Report to the Department in a common electronic format and consistent with the procedures in Section III, Facility Wide Conditions, Specific Condition 1 of this permit. All emissions data should be reported in terms of parts per million (ppmvd), lb/ton of feed, lb/ton of clinker, and lb/hour. The electronic file shall also include hourly averages (or hourly estimates as appropriate) of the following process data during the 60-day trial: clinker production, dry kiln feed, percent heat input of each fuel, heat input rates for each fuel (MMBtu/hr), average hourly stack flow (dscfm), and amounts of ammonia injected by the SNCR system. [Rule 62-4.070(3), F.A.C.]
18. Stack Test Reports: The permittee shall prepare and submit reports for all required stack tests in accordance with the requirements in Rule 62-297.310 (8), F.A.C. All stack test data collected during the field-testing program shall be submitted for review. For each test run, the report shall also indicate the information required by this permit. The permittee shall submit a written report that summarizes the results within 45 days of completing the stack tests. [Rule 62-297.310 (8), F.A.C.]
19. Final Report: Within 60 days of concluding the test period, the permittee shall submit a report summarizing the following: a complete description of the trial burn project; baseline emissions when firing coal; emissions when firing coal and tires; ambient conditions during each test; any other fuels fired during the trial period; fuel feed rates; and heat input rates for each fuel, and the maximum sustainable percentage of tire firing achieved. The final report shall detail any operational concerns related to the following items: kiln burner performance while firing TDF; control device performance; and opacity. Finally, the report shall include all CEMS and process data as required by Specific Condition 17 of this subsection. [Rule 62-4.070 (3), F.A.C.]

SECTION IV. APPENDIX GC

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

SECTION IV. APPENDIX GC

GENERAL CONDITIONS

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:
 - 1) The date, exact place, and time of sampling or measurements;
 - 2) The person responsible for performing the sampling or measurements;
 - 3) The dates analyses were performed;
 - 4) The person responsible for performing the analyses;
 - 5) The analytical techniques or methods used; and
 - 6) 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.

SECTION IV. APPENDIX SC
STANDARD CONDITIONS

Unless otherwise specified in the permit, the following conditions apply to all emissions units and activities at this 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 permittee 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) and 62-210.200(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. [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.]

TESTING REQUIREMENTS

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.]

SECTION IV. APPENDIX SC
STANDARD CONDITIONS

11. Operating Rate During Testing: Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. 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. [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. Test Procedures: Tests shall be conducted in accordance with all applicable requirements of Chapter 62-297, F.A.C.
 - a. Required Sampling Time. 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. The minimum observation period for a visible emissions compliance test shall be thirty (30) minutes. The observation period shall include the period during which the highest opacity can reasonably be expected to occur.
 - 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.[Rule 62-297.310(4), F.A.C.]
14. Determination of Process Variables
 - 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.[Rule 62-297.310(5), F.A.C.]
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.
16. 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.]
17. Test Reports: 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. 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. 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.

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STANDARD CONDITIONS

- 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.

[Rule 62-297.310(8), F.A.C.]

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

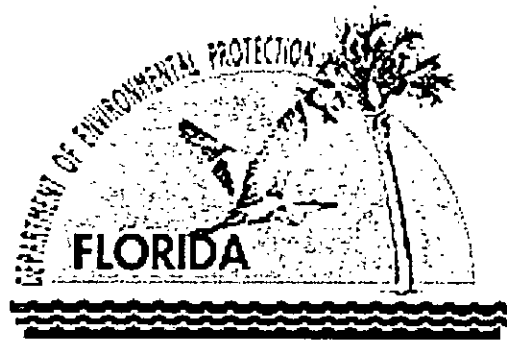
TECHNICAL EVALUATION

CEMEX Cement, Inc.
Brooksville Cement Plant

Tire Derived Fuel Testing Kiln No. 2

Hernando County

DEP File No. 0530010-022-AC



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

July 14, 2006

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

I. APPLICATION INFORMATION

A. APPLICANT NAME AND ADDRESS

Michael A. Gonzales, Plant Manager
CEMEX Cement, Inc.
Brooksville Cement Plant
Post Office Box 6
Brooksville, Florida 34605-0006

B. PROCESSING SCHEDULE

- Received application (0530010-018-AC) for allowance of whole tire derived fuel (TDF) in Kiln No. 2, and petroleum coke as fuel in Kilns No. 1 and No. 2, various throughput adjustments, and removal of thallium requirements October 14, 2005.
- Received application (0530010-022-AC) for petroleum coke and whole tire derived fuel trial burn for Kiln No. 1 and 2 December 12, 2005.
- Department's Request for Additional Information dated January 10, 2006.
- Applicant's response to RAI dated April 14, 2006.
- Koogler letter requesting withdrawal of petroleum coke from original application and the trial burn project, received June 21, 2006.
- Department's Final Determination issued concurrently with this Final Permit.

C. FACILITY LOCATION

The CEMEX Brooksville Cement Plant is located on Highway 98, northwest of Brooksville in Hernando County.

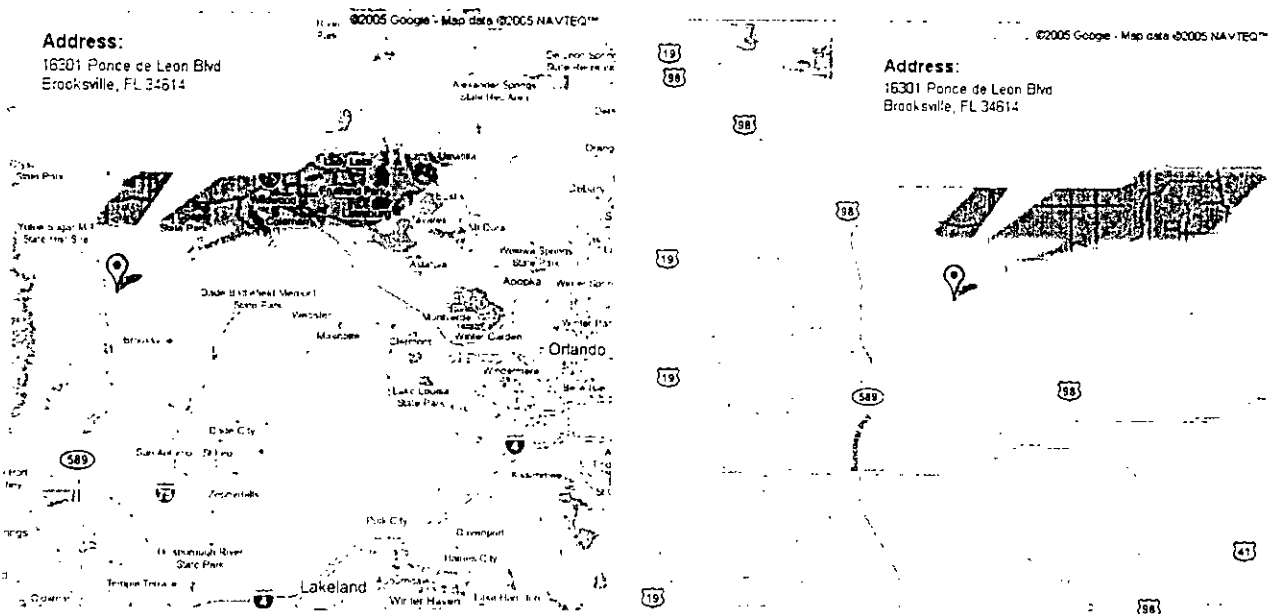


Figure 1. Location of the CEMEX Brooksville Cement Plant in Hernando County

D. FACILITY CLASSIFICATION CODE (SIC)

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

II. FACILITY INFORMATION

A. FACILITY DESCRIPTION

The existing Brooksville portland cement plant consists of two Polysius GEPOL preheater kilns (Kilns No. 1 and No. 2). Each kiln and clinker cooler combination is separately permitted with respect to preheater material feed rates and fuel heat input rates. Ancillary equipment at the plant includes raw mills, finish mills, cement and clinker handling equipment, coal handling equipment and silos, and particulate control/dust collection and recycling equipment.

A single, large, fabric filter system (baghouse) is used to capture particulate matter from each kiln and from each clinker cooler (four total). Smaller baghouses are used to limit particulate emissions from other process emissions points. There are no other permitted add-on controls for any pollutants emitted from the cement kilns. However, new burners and SNCR were recently installed on both kilns for NO_x control (after-the-fact application for permanent authorization pending). Raw material properties, chemical reactions in the kilns, absorption into the clinker, and combustion controls minimize emissions of NO_x, SO₂, CO, and VOC.

In order to restrict the net emissions of air pollution, current permits limit the production capacity by setting maximum preheater feed rates. All of the emission limits for the kilns at CEMEX Brooksville are expressed in terms of mass of pollutant per mass of preheater feed. Many dry process preheater kilns in the state have emission limits expressed as "lb/ton of clinker". 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.

The maximum daily heat input rate for each kiln is 300 MMBtu/hr. 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 on a British thermal unit (Btu) basis, or 2.14 tons TDF per hour.

B. REGULATORY CATEGORIES

Title III: The existing facility has the potential to emit 10 tons per year or more of any one hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants, and is therefore considered a major source of hazardous air pollutants (HAPs).

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

Title V: Because potential emissions of at least one regulated pollutant exceed 100 tons per year, the existing facility is a Title V major source of air pollution in accordance with Chapter 62-213, F.A.C. Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter (PM/PM₁₀), sulfur dioxide (SO₂), and volatile organic compounds (VOC).

PSD: The project is located in an area designated as "attainment" or "unclassifiable" for each pollutant subject to a National Ambient Air Quality Standard (NAAQS). The facility is considered a "portland cement plant," which is one of the 28 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.

NSPS: Portions of the cement plant are subject to the following New Source Performance Standards (NSPS) in 40 CFR 60: Subpart A (General Provisions); Subpart Y (Coal Preparation Plants); and Subpart OOO (Non Metallic Mineral Processing). Any affected source subject to the provisions of 40 CFR 63, Subpart LLL (Portland Cement Manufacturing Industry) is exempt from any otherwise

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

applicable new source performance standard contained in 40CFR 60, Subpart F (Portland Cement Plants).

NESHAP: Portions of the cement plant are subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) in 40 CFR 63: Subpart A (General Provisions); and Subpart LLL (Portland Cement Manufacturing Industry).

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

III. PROPOSED PROJECT SUMMARY

A. BACKGROUND

On October 14, 2005, the Department received an application (0530010-018-AC) for several projects at the CEMEX Brooksville facility. Included in this application was a request for the authorization to fire petcoke in Kiln No. 1 and Kiln No. 2, and to fire whole tire derived fuel (TDF) in Kiln No. 2. The Department established that a trial burn is necessary to characterize and evaluate emissions while burning the alternate fuels before a determination of whether to authorize their use can be made. On December 12, 2005 CEMEX submitted an application (0530010-022-AC) for authorization to conduct a trial burn on Kilns 1 and 2 to evaluate the use of petcoke and tires. On June 28, 2006 the Department received a letter from Koogler & Associates, for CEMEX, requesting removal of the request for permanent use of petcoke from the original application (0530010-018-AC) and from the subsequent trial burn application.

B. PROJECT DESCRIPTION

The project, as originally proposed by the applicant, was for authorization to fire petcoke in Kilns 1 and 2, and to fire TDF in Kiln 2 for a limited trial period. The following summarizes the details of the initial request:

- 180 day trial period
- Authority to fire up to 100 % petcoke in both kilns during the trial period
- Authority to fire up to 20 % TDF in Kiln No. 2 during the trial period
- Recognition that SNCR and low-NO_x burners were recently installed on both kilns
- All limits for both kilns be lifted during the trial period
- Certification of the recently installed CO and NO_x CEMS on both kilns
- Additional testing of SO₂ emissions while burning petroleum coke and TDF in varying amounts

Additional information included in a response to a Department request indicated that a tire feeding system, identical to the system on Kiln No. 1, would also need to be installed on Kiln No. 2. According to the applicant, the feeder will be equipped with a double air lock system to prevent leakage in and out of the kiln during the tire feeding process. There is currently a tire storage area and a tire handling system in place for Kiln No. 1. The tire handling system has recently been automated and will supply both tire feeders.

As mentioned above, on June 28th the request to fire petcoke during the trial period was withdrawn from the trial burn project. Accordingly, this project is now limited to the firing of tires in Kiln No. 2 while conducting various emissions testing, certification of the installed CEMS on both kilns, and authorization and temporary use of the tire feeding system for Kiln No. 2.

IV. Rule Applicability

A. State Regulations

The project is subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The Florida Statutes authorize the Department to establish rules and regulations regarding air quality as part of the Florida Administrative Code (F.A.C.). The state rules and regulations of the Florida Administrative Code applicable to this project include but are not limited to the following:

CEMEX Cement Inc.
Brooksville Plant

Permit No. 0530010-022-AC
Hernando County

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Table 1. 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 62-297.570	Test Reports
Rule 62-297.520	EPA Continuous Monitor Performance Specifications
Rule 62-297.701	Portland Cement Plants

B. Federal Regulations

This project is also subject to certain applicable federal provisions regarding air quality as established by the EPA in the Code of Federal Regulations (CFR) and summarized below.

Table 2. 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 F	Standards of Performance for Portland Cement Plants
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

The Department regulates major air pollution sources in accordance with Florida's PSD program, as defined in Rule 62-212.400, F.A.C. and approved by EPA in the State Implementation Plan. A PSD review is only required in areas that are currently in attainment with the NAAQS for a given pollutant or

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

areas designated as “unclassifiable” for the pollutant. A facility is considered “major” with respect to PSD if the facility emits or has the potential to emit:

- 250 tons per year or more of any regulated air pollutant, or
- 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the 28 Major Facility Categories (62-210.200-1, F.A.C.), or
- 5 tons per year of lead.

For new projects at existing PSD-major sources, each regulated pollutant is reviewed for PSD applicability based on emissions thresholds known as the Significant Emission Rates listed in 62-210.200(Definitions, Significant Emission Rate), F.A.C. Projects that result in a significant net emissions increase are considered “major modifications.” For each significant pollutant, the applicant must not only employ Best Available Control Technology (BACT) to minimize emissions but also conduct an appropriate ambient impact analyses. Although a facility may be “major” with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several significant regulated pollutants.

As previously established, this facility is a “major source” with respect to the PSD regulations. However, this temporary field-test of tire derived fuel is not a “major modification” to the existing major source. The field-test for TDF is a limited, short-term evaluation to determine (1) whether there are unforeseen operational problems with firing TDF, and (2) whether Kiln No. 2 can meet the existing emission limits when adding TDF as an allowable supplemental fuel. The current emission limits are not waived during the field test, and neither emissions nor production in excess of current permits are allowed by the temporary field-test permit.

Because no long-term, permanent modification, or increase in potential emissions is being authorized, the Department does not consider this field-test to be a “major modification” for purposes of the PSD regulations.

V. DEPARTMENT REVIEW

Supplementing fuel combustion with TDF has become an attractive alternative for certain industrial processes, including cement kilns. Scrap tires are readily available, relatively inexpensive, and have a higher heating value than bituminous coal. Fuel costs can be substantially lowered when using TDF as a supplemental fuel, and overall emissions of NO_x can actually be reduced¹. The high temperatures, long residence times, and inherent scrubbing that take place within a cement kiln provide an environment conducive to the destruction of many problem organic substances². For these reasons, firing TDF in cement kilns has become relatively common practice in the United States and other countries. Combustion of used tires also helps to alleviate the problems associated with stockpiling or landfilling of the waste tires.

However, because of the composition of waste tires, there are concerns regarding potential emissions of criteria and other pollutants resulting from the burning of TDF. “Burning tires can result in emissions of criteria pollutants such as carbon monoxide (CO), nitrogen and sulfur oxides (NO_x and SO_x), particulate matter (PM), hydrocarbons (HC): and non-criteria pollutants such as arsenic, cadmium, chromium, lead, zinc, dioxins and furans (D/F), polycyclic aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCB), benzene and other organic compounds.”³

Both kilns at the CEMEX Brooksville facility are dry, preheater kilns, a configuration in which all of the primary fuel is added at the lower discharge end of the kiln and essentially all combustion of the fuel takes place within the kiln. Additional fuels such as tires can be added mid kiln or directly into the riser duct at the base of the preheater. Kiln No. 1, originally permitted in 1973, has been authorized to use up to 20 percent TDF as a supplemental fuel since 1994. Tire derived fuel is now regularly fired in Kiln No. 1. Tires are introduced at the base of the preheater.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

A. CHARACTERISTICS OF TDF

Tires are manufactured from petrochemical feedstocks such as styrene and butadiene (both potential carcinogens).⁴ Tire derived fuel is composed mainly of hydrocarbons and steel with a range in metal content (zinc, iron, chromium, cadmium, and lead). Some amount of chlorine is also present in TDF. The following table is a comparison of the ultimate composition of tires and coal from a publication found on the Malcolm Pirnie website.⁵ It can be seen from the table that like coal, TDF is composed mainly of carbon, but it has a higher calorific value than coal and contains less ash.

Table 1. Comparison of Bituminous Coal and TDF Analysis

Ultimate Analysis (% by weight)									
Fuel Type	Volatiles**	Heating Value (Btu/lb)	Carbon	Hydrogen	Oxygen	Nitrogen	Sulfur	Chlorine	Ash
Passenger Tires		15,843	89.48	7.61	<0.01	0.27	1.88	0.07	3.9
Truck Tires		14,968	89.68	7.50	<0.01	0.25	2.09	0.06	5.5
TDF	66.6	15,688	89.51	7.59	<0.01	0.27	1.92	0.07	4.2
Bituminous Coal	28.3	13,560	75.8	5.1	8.2	1.5	1.6	0.11*	7.8

*Value not included in Malcom Pirnie Publication, table supplemented by information from Golder Reference⁶

**Values not included in Malcom Pirnie Publication, table supplemented by information from Kaantee Reference⁷

Tire derived fuel can be fed into the kiln as whole tires, or the tires can be shredded prior to introduction into the kiln. The applicant proposes the introduction of whole tires into Kiln No. 2.

B. Potential Impacts of Tire Derived Fuels on Emissions

Air emissions from relatively low temperature, open tire fires are highly toxic, with high concentrations of criteria pollutants (NO_x, SO_x, CO, and VOCs) as well as hazardous air pollutants including PAHs, D/F, hydrogen chloride, benzene, PCBs and metals. Dioxin/furans are byproducts of the combustion of organic compounds. Optimum temperatures for dioxin/furan production have been shown to be 200 to 450 °C which may occur in open fires, home woodstoves, and during cooling of high temperature combustion byproducts (such as cement kiln dust).⁸

The combustion of tires will result in emissions of several criteria and non-criteria pollutants as stated above. However, the question as related to this project is not whether burning of tires will result in these emissions, but whether total emissions will actually increase as a result of burning a certain percentage of TDF along with the primary fuel (in this case coal).

Over the past two decades several studies, similar to the proposed project, have been undertaken to evaluate the feasibility of firing TDF as a supplemental fuel in cement kilns as well as other industrial processes. One recent study entailed the collection of results of stack tests performed while burning TDF as a supplemental fuel and while burning only the primary fuel for comparison. The general trends observed are listed in Table 2. It should be noted that the "effect" in the table reflects the overall general trend in emissions for each pollutant. Pollutants showing no effect (none) is a result of some of the testing showing slight increases, while others showed slight decreases for that particular pollutant. This is an indication that a definitive increase or decrease in those pollutants cannot be accurately predicted when burning a percentage of TDF.⁹

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Table 2. General Expected Effects of TDF On Emissions

Pollutant	Expected Effect of TDF/Scrap Tire
CO	None
SO ₂	None
NO _x	Decrease
PM	None
Total Hydrocarbons	None
Zinc	Increase
Other Metals	None or Decrease
Dioxins/Furans	None
Benzene	Decrease
Formaldehyde	Decrease
Semi-volatiles	Decrease

The above results are consistent with a USEPA report citing that "with the exception of zinc emissions, potential emissions from TDF are not expected to be very much different from other conventional fossil fuels, as long as combustion occurs in a well-designed, well-operated, and well-maintained combustion device"¹⁰. [Emphasis added.] The data above is also consistent with claims of NO_x reductions as a result of firing TDF.

A comparison of emissions under baseline conditions firing coal, and emissions while firing coal and TDF was performed in 1993 on the Brooksville Kiln No. 1.¹¹ Tests included PM, SO₂, THC (total hydrocarbons), CO, NO_x, HCl, speciated VOCs (volatile organic compounds), metals, and D/F. The conclusion made by the consultant, was that "the use of TDF to provide up to 20 % of the heat input to Kiln No. 1 has no effect on emissions, operations, or clinker quality." Emissions of zinc were shown to be significantly greater when firing the TDF/coal mixture, which is consistent with other studies. Also, the concentrations of D/F were reported as below the limit of detection under both sets of operating conditions.

More recent D/F testing on both kilns however, has shown elevated levels of D/F and inconsistencies between the two kilns. Dioxin/furans remain a pollutant of special concern at this facility, and the Department has reason to conclude that D/F testing while firing TDF in Kiln No. 1 is not directly applicable to Kiln No. 2.

C. Conclusions

The use of TDF as a fuel supplement in dry preheater cement kilns, such as Brooksville Kilns No. 1 and No. 2, is no longer an uncommon practice. Many studies have been carried out over the years in order to characterize emissions from these types of kilns while firing TDF with the primary fuel, including the 1993 testing of Kiln No. 1.

However, the Department agrees that "the quantity of emissions from burning tires as a supplemental fuel, and the relative emissions compared to operating the facility without this supplemental fuel, can only be determined by emissions testing."¹² The use of up to 20 percent TDF during a temporary trial period will be authorized provided certain testing requirements, as specified by the Department, are met. Additional testing beyond that proposed by the applicant will be required.

VI. Testing Requirements

A. Emissions During Trial Period

The purpose of the trial burn is to determine whether TDF (up to 20 percent by heat input) can be fired in Kiln No. 2 while maintaining emissions at current levels. Emissions in excess of current standards are not permitted during the trial period. If the co-firing of TDF results in any emissions that are not in accordance with the existing construction and operation permits, co-firing of TDF shall cease immediately. Additionally, production and process rates in excess of currently permitted limits are not authorized during the trial period.

B. Compliance Demonstration

CEMEX will be required to conduct testing to establish baseline emissions while firing no TDF. Further testing will be required while firing up to 20 percent TDF in order to evaluate the effect on emissions. A detailed testing protocol will be required prior to testing as well as the certification of the existing CEMS on both kilns as stated in the application. Submittal of all stack test reports, CEMS certification reports, as well as a summary report of the trial period is required. Testing for the following pollutants will be required to establish baseline emissions and to characterize emissions while firing TDF for comparison:

- CO (CEMS data may replace testing if specific requirements are met)
- NO_x (CEMS data may replace testing if specific requirements are met)
- Particulate Matter
- VOC
- Dioxin/Furans (raw mill up and raw mill down)
- Visible Emissions

VII. Preliminary Determination

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 conclusion is based on a technical review of the information submitted by the applicant, other reasonable assurances provided by the applicant, a review of the available literature, and the conditions specified in the draft permit. Cindy Mulkey is responsible for reviewing the application, preparing the technical evaluation, and drafting the permit. Scott M. Sheplak, P.E. is the engineer overseeing the project and will be responsible for sealing the evaluation. Additional details of this analysis may be obtained by contacting the project engineer at (850)921-8968 or the Department's Bureau of Air Regulation at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida, 32399-2400.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

References

- ¹ Publication, May, M.S., and Walters, L., *Cement Americas*, "Low-NO_x Tire-derived Fuel for the Reduction of NO_x from the Portland Cement Manufacturing Process", August 1999.
- ² Report, USEPA OAQPS, "Burning Tires for Fuel and Tire Pyrolysis: Air Implications, December 1991.
- ³ Report to the Legislature, California Integrated Waste Management Board, Tires as a Fuel Supplement: Feasibility Study, January 1992.
- ⁴ Webpage, What to do with Used Tires, Burning Issues. <http://www.webcom.com/~bi/tires.htm>, Accessed July 1, 2006.
- ⁵ Publication, Karell, M., *Air Currents*, "Regulation Impacts on Scrap Tire Combustion: Part II, February 2000.
- ⁶ Reference, Golder Associates, Inc., *Survival Reference Guide*, April 2003.
- ⁷ Extended Abstract. Kääntee, U., Zevenhoven, R., and Backman, R., *XVII Nordic Concrete Research Symposium*, "Alternative Fuels: The Impact of Alternative Fuels on the Cement Manufacturing Process.", Helsingör, Denmark, 12-14 June 2002.
- ⁸ Study, Kirk, L., University of Idaho, "Potential Dioxin Release Associated with Tire Derived Fuel Use in a Cement Kiln Gallatin County, Montana, December 2000.
- ⁹ Publication, Karell, M., *Air Currents*, "Regulation Impacts on Scrap Tire Combustion: Part II, February 2000.
- ¹⁰ Report, USEPA, Report No. 600/R-97-115. "Air Emission From Scrap Tire Combustion", October 1997.
- ¹¹ Comparative Emissions Report, Koogler & Associates Environmental Services. "Comparison of Particulate Matter, Sulfur Dioxide, Total Hydrocarbons, Carbon Monoxide, Nitrogen Oxides, Hydrogen Chlorides, Speciated Volatile Organics, Metals and Dioxins/Furans Emission Measurements and Opacities of Emissions Under Baseline and Coal/TDF Firing Conditions, May and June 1993.
- ¹² Report to the Legislature, California Integrated Waste Management Board. "Tires as a Fuel Supplement: Feasibility Study, January 1992.



Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

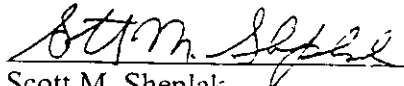
P.E. Certification Statement

Applicant:
CEMEX Cement, Inc.
Brooksville Cement Plant

Permit No.: 0530010-022-AC

Project Type: Air Construction Permit
Testing of Tire Derived Fuel (TDF) Combustion in Kiln No. 2

I HEREBY CERTIFY that the engineering features described in the above referenced application and subject to the proposed permit conditions provide reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4 and 62-204 through 62-297. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including but not limited to the electrical, mechanical, structural, hydrological, and geological features).

 07/12/06

Scott M. Sheplak Date
Professional Engineer (P.E.)
License Number 48866

Permitting Authority:
Department of Environmental Protection
Bureau of Air Regulation
111 South Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Telephone: 850/921-9532
Fax: 850/921-9533

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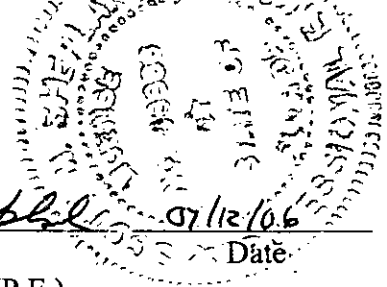
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Scott M. Sheplak

Scott M. Sheplak
Professional Engineer (P.E.)
License Number 48866
Date

Permitting Authority:
Department of Environmental Protection
Bureau of Air Regulation
111 South Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Telephone: 850/921-9532
Fax: 850/921-9533

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<p>1. Article Addressed to:</p> <p>Mr. Michael A. Gonzales Plant Manager CEMEX Cement, Inc. Post Office Box 6 Brooksville, Florida 34605-0006</p>	<p>D. Is delivery address different from item 1? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If YES, enter delivery address below:</p> <p>3. Service Type <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.</p> <p>4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes</p>
<p>2. Article Number (Transfer from service label)</p>	<p><i>7000 1670 0013 3110 0956</i></p>

PS Form 3811, February 2004

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