

**PERMITTEE:**

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

*Authorized Representative:*

Mr. Jimmy L. Rabon, Plant Manager  
CEMEX North Brooksville Cement Plant

Air Permit No 0530010-036-AC  
North Brooksville Cement Plant Kilns 1 and 2  
Facility ID No. 0530010  
SIC No. 3241 Cement, Hydraulic  
Thallium and Mercury Sampling  
Filter Dust, Raw Materials and Fuel  
Permit Expires: September 30, 2008

**PROJECT AND LOCATION**

This permit is for the modification of the thallium sampling and analysis methods applicable to the Kiln 1 baghouse filter dust and for the introduction of mercury sampling, analysis and reporting requirements for Kilns 1 and 2.

The CEMEX North Brooksville Cement 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).

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(DRAFT)

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Joseph Kahn, Director  
Division of Air Resource  
Management

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(Date)

## SECTION I. GENERAL INFORMATION

### FACILITY AND PROJECT DESCRIPTION

The existing facility consists of two Portland cement lines (Lines 1 and 2) including: two Polysius GEPOLE preheater kilns (Kilns 1 and 2), 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 780,000 tons per year of clinker.

This permit is for the modification of the thallium sampling and analysis methods applicable to the Kiln 1 baghouse filter dust and for the introduction of mercury sampling, analysis and reporting requirements for Kilns 1 and 2.

The emissions units affected by this action are:

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

### REGULATORY CLASSIFICATION

The facility is a major source of hazardous air pollutants (HAPs).

The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.

The facility is a major stationary source (PSD-major source) in accordance with Rule 62-212.400, F.A.C.

The facility operates units subject to the Standards of Performance for New Stationary Sources pursuant to 40 CFR Part 60.

The facility operates units subject to National Emissions Standards for Hazardous Air Pollutants pursuant to 40 CFR Part 63.

### RELEVANT DOCUMENTS

The following relevant documents are not a part of this permit, but helped form the basis for this permitting action:

- Permit application related to the previous DEP File 0530010-018-AC and responses to requests for additional information;
- Comments from the Hernando County Planning Department dated October 17, 2007;
- Proposal dated November 15, 2007 submitted on behalf of CEMEX by Koogler and Associates;
- Final Determination accompanying Permit 0530010-018 that opened DEP File 0530010-036-AC; and
- Department's Technical Evaluation and Preliminary Determination accompanying Draft Permit 0530010-036-AC.

## SECTION II. ADMINISTRATIVE REQUIREMENTS

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1. Permitting Authority: The Permitting Authority for this project is the Bureau of Air Regulation in the Division of Air Resource Management of the Department. The mailing address for the Bureau of Air Regulation is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400.
2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Southwest District Office. The mailing address and phone number of the Southwest District Office is: 13051 N. Telecom Parkway, Temple Terrace, FL 33637-0926; 813-632-7600.
3. Appendices: The following Appendices are attached as part of this permit: Appendix GC (General Conditions); Appendix SC (Standard Conditions); and Appendix TI (Thallium Concentration Monitoring and Analysis Procedure).
4. Applicable Regulations, Forms and Application Procedures: Unless otherwise specified in this permit, the construction and operation of the subject emissions units shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403, F.S.; and Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations.
5. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]
6. Modifications: No emissions unit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]
7. Title V Permit: A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days implementing the changes to thallium sampling and testing requirements and the implementation of mercury sampling and testing requirements. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the submitted to the Southwest District Office at the address given in Condition 2 above.
8. Bureau of Air Regulation with copies to the Compliance Authority.  
[Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

#### Conditions related to Thallium and Mercury Sampling Testing and Reporting

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

##### **Emissions Unit 003 and 014 (Kilns 1 and 2)**

*Description:* Dry preheater process kiln and clinker cooler systems employing the Polysius GEPOL preheater design.

*Fuels:* Each kiln 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. Kiln No. 1 is also permitted to fire whole tire derived fuel.

*Capacity:* Each kiln is limited to 150 tons of preheater feed per hour (rolling 30-day average), with a maximum of 165 tons in any one hour, and a maximum annual limit of 1,300,000 TPY.

*Controls:* A baghouse is used on each kiln for the control of particulate matter (PM) emissions. Raw material properties, chemical reactions in the kiln, absorption into the clinker, and combustion controls minimize emissions of nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO) and volatile organic compounds (VOC). Selective non catalytic reduction (SNCR) systems have been installed on each kiln for NO<sub>x</sub> control.

*Monitors:* Emissions of CO and NO<sub>x</sub> are continuously monitored on both kilns.

*Stack Parameters:*

The stack for Kiln 1 has the following characteristics: stack height is 150 feet, exit diameter is 13 feet, exit temperature is 285 °F, and actual volumetric flow rate is approximately 315,000 actual cubic feet per minute (acfm).

The stack for Kiln 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.

#### **Administrative Requirements**

1. Relation to Other Permits: The conditions of this permit subsection, supplement all previously issued air construction and operation permits for this emissions unit. Unless otherwise specified, these conditions are in addition to all other applicable permit conditions and regulatory requirements. The permittee shall continue to comply with the conditions of these permits, which include restrictions and standards regarding capacities, production, operation, fuels, emissions, monitoring, record keeping, reporting, etc.  
[Rule 62-4.070, F.A.C.]

#### **Thallium Limits and Thallium/Mercury Sampling, Testing and Reporting Requirements**

[Deletions and additions compared with the relevant conditions of previous permits are shown in strikethrough (~~strikethrough~~) and double underline format.]

2. Thallium Concentration in the Kiln 1 Baghouse Dust: The concentration of thallium in the baghouse dust shall not exceed 1.5%, per sample.  
[Air Construction Permit AC27-240349]

### SECTION III. EMISSIONS UNIT SPECIFIC CONDITIONS

#### Conditions related to Thallium and Mercury Sampling Testing and Reporting

3. Kiln 1 Thallium Sampling and Recording Requirements: Daily sampling and weekly analysis and recording of the baghouse dust for the No. 1 kiln is required. Compliance shall be demonstrated using the "Thallium Concentration Monitoring and Analysis Procedure" as described in Mr. Bob Roger's letter to Dr. John Koogler, dated January 12, 1994 (Attachment #9 of Construction Permit AC27-240349 and included as Appendix T1 of this permit). [Applicant Request; Rule 62-4.070, F.A.C.; Air Construction Permit AC27-240349]
4. Kilns 1 and 2 Mercury Material Balances: The owner or operator shall determine monthly and rolling 12-month mercury throughput for Kilns 1 and 2 and maintain the records as an estimate of mercury emissions using the material balance method as follows:
  - a. Samples of the raw mill feed, kiln baghouse dust and all fuels, including fly ash, shall be collected each day. A monthly composite sample shall be made from each of the daily composite samples. Each monthly composite sample shall be analyzed to determine the mercury concentration of the materials representative for the month.
  - b. For each raw material and fuel, the monthly mercury throughput rate (pounds per month) shall be the product of the mercury concentration from the monthly composite sample and the mass of raw material or fuel used during the month. If the mercury concentration is below detection limit or below the limits of quantification, the detection limit will be assumed for the concentration of the raw material or fuel.
  - c. The permittee shall have the option of collecting, compositing, analyzing and calculating the Hg leaving the process via the clinker. If the Hg concentration is below the detectable limit or limits of quantification, a value of zero will be assumed for the concentration in the clinker.
  - d. The permittee shall collect, composite and analyze the Hg in the kiln baghouse dust for a period of 12 months. The permittee shall have the option of calculating the Hg leaving the process via the permanent withdrawal of baghouse dust. If the Hg concentration is below the detectable limit or limits of quantification, a value of zero will be assumed for the concentration in the dust when calculating the amount of Hg leaving the system.
  - e. For each month, the mass of mercury introduced into the pyroprocessing system (pounds per month) shall be the sum of the monthly mercury throughput rate for each raw material and fuel minus the amounts in the clinker and permanently withdrawn dust if any. The consecutive 12-month mercury throughput rate shall be the sum of the individual monthly records for the current month and the preceding eleven months (pounds of mercury per consecutive 12-months). Such records, including calculations and data, shall be completed no later than 25 days following the month of the records.
  - f. The analytical methods used to determine mercury concentration shall be EPA or ASTM methods such as EPA Method 7471A (Mercury in Solid or Semisolid Waste) or EPA Method 1631. No other methods may be used unless prior written approval is received from the Department.