Title V Air Operation Permit Revision
Permit No. 0250014-044-AV

APPLICANT

The applicant for this project is CEMEX Construction Materials Florida, LLC. The applicant's responsible official and mailing address are: Luis G. Lopez, Plant Manager, CEMEX Construction Materials Florida, LLC, Miami Cement Plant, 1200 NW 137 Avenue, Miami, FL 33182.

FACILITY DESCRIPTION

The applicant operates the Miami Cement Plant, which is located at 1200 NW 137 Avenue, Miami, FL 33182.

This facility consists of the following emissions units:

ARMS E.U. ID No.	Brief Description
-001	Finish Mill System: Finish Mill No. 1
-002	Finish Mill System: Finish Mill No. 2
-003	Finish Mill System: Finish Mill No. 3
-004	Cement Handling System: (32) Bulk Cement Storage Silos
-005	Cement Handling System: Mortar Packhouse
-006	Cement Handling System: Cement Packhouse
-012	Finish Mill System: Finish Mill No. 4
-013	Finish Mill System: Finish Mill No. 5
-014	Stone Dryer & Soil Thermal Treatment Facility
-015	Cement Handling System: Cement Truck Loading
-016	Facility Wide Fugitive Emissions
-017	Cement Plant Raw Material Handling (Baghouses)
-018	In-Line Kiln/Raw Mill/Clinker Cooler/TIMS/Clean Biomass Feeder System
-019	Clinker Handling and Storage System
-020	Cement Plant Coal Handling System: Coal Mill System
-021	Sweetwater Concrete Block and Concrete Batch Plants
-022	Quarry Operations Subject to 40 CFR 60 Subpart OOO: Aggregate Plant Crushers
-023	Quarry Operations Subject to 40 CFR 60 Subpart OOO: Other Affected Screening Operations/Belt Conveyors
-025	Quarry Operations Not Subject to 40 CFR 60 Subpart OOO
-028	Finish Mill System: Finish Mill 6
-029	Two (2) Diesel Fuel Limited Use Reciprocating Internal Combustion Engines

This facility consists of the following: a dry-process kiln with pre-heater, precalciner and clinker cooler capable of producing approximately 1,300,000 tons per year of clinker, a limestone quarry and crushing system, material receiving facilities (both by rail and truck), open short-term material storage piles, a storage building for intermediate raw material and clinker storage, a stone dryer & soil thermal treatment plant, a raw mill system, six finish mills, two packhouses, thirty two cement silos, a rail and truck bulk loadout facility, and a liquid fuel tank farm. CEMEX also operates a concrete batch plant and a concrete block plant (Sweetwater). The plant is located on the adjacent property to the CEMEX, Miami Cement Plant.

Particulate matter emissions from most of the emissions units are controlled by baghouses. The stone dryer and soil thermal treatment (Emissions Unit 014) is equipped with a multi-cyclone, baghouse, and afterburner. Fugitive emissions are controlled by water sprinkler systems, chemical wetting agents, etc. Fuels used in the stone dryer soil thermal treatment are limited to used petroleum oil meeting the provisions of 40 CFR 266, Subpart E, propane, natural gas, No. 2 fuel oil for the dryer, on-specification used oil per 40 CFR 279.11, natural gas and propane for the afterburner. Fuels fired in the pyroprocessing system (Emissions Unit 018) do not exceed a total heat input rate

of 485 MMBtu/hr on a 24-hour average. Start-up fuels consist of bituminous coal, natural gas, petroleum coke, propane, No. 2 fuel oil, residual fuel oil, and on-specification and off-specification used oil. The pyroprocessing system utilizes continuous emissions monitors (CEMS) for compliance purposes for NO_X, SO_2, and Opacity.

Also included in this permit are miscellaneous unregulated/insignificant emissions units and/or activities.

PROJECT DESCRIPTION

The purpose of this permitting project is to revise the existing Title V Air Operation Permit for the above referenced facility. This project incorporates the terms and conditions of previously issued Air Construction Permit Nos. 0250014-038-AC, and 0250014-042-AC for the above referenced facility. Air construction permit No. 0250014-038-AC was issued on January 26, 2011 for the installation of one (1) 800 BBL twin-compartment silo, and one (1) concrete mixer at the southeast corner of the existing batch tower located at the Sweetwater Concrete Batch Plant. The twin-compartment silo is equipped with two (2) C&W Dust Systems, Model No. CP-305-839 cartridge dust collectors. The applicant stated that the concrete mixer was not installed, and as such will not be incorporated into this Title V Air Operation Permit Revision. Air construction permit No. 0250014-042-AC was issued on November 10, 2011 to allow CEMEX to burn clean biomass as a supplemental fuel in the cement kiln on a permanent basis.

Sweetwater Concrete (a division of CEMEX Construction Materials of Florida, LLC.) operates a concrete batch plant and a concrete block plant (Emissions unit 021). The plant is located on the adjacent property to the CEMEX, Inc., Miami Cement Plant, and operates under the provisions of Title V Air Operation Permit No. 0250014-032-AV issued October 4, 2011.

PROCESSING SCHEDULE AND RELATED DOCUMENTS

Application for a Title V Air Operation Permit Revision received October5, 2011.
Email correspondence from P.E. requesting incorporation of Air Construction Permit No. 0250014-042-AC received November 14, 2011.

PRIMARY REGULATORY REQUIREMENTS

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

Title V: The facility is a Title V major source of air pollution in accordance with Chapter 62-213, Florida Administrative Code (F.A.C.).

PSD: The facility is a Prevention of Significant Deterioration (PSD)-major source of air pollution in accordance with Rule 62-212.400, F.A.C.

NSPS: The facility does operate units subject to the New Source Performance Standards (NSPS) of 40 Code of Federal Regulations (CFR) 60.

NESHAP: The facility does operate units subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) of 40 CFR 63.

CAIR: The facility is not subject to the Clean Air Interstate Rule (CAIR) set forth in Rule 62-296.470, F.A.C.

CAM: Compliance Assurance Monitoring (CAM) applies to Emissions Unit 014, and 018. The facility currently has a CAM Plan in its Title V Permit, and this CAM Plan will be incorporated into this Title V Revision. Incorporation of the CAM Plan, Appendix CAM, for each pollutant specific emission unit (PSEU) subject to the CAM Rule (40 CFR 64), are as follows:

a. The in-line kiln/raw mill/clinker cooler, EU-018, is subject to a specific PM emissions limit (0.10 lb/ton kiln feed) pursuant to 40 CFR 63 Subpart LLL. However, this EU is also subject to a PM emissions limitation (0.152 lb/ton of kiln feed) through Permit No. 0250014-016-AC/PSD-FL-324A.

The facility uses a baghouse control device to achieve compliance, and has potential pre-control emissions equal to or in excess of the major source threshold of 100 TPY.

b. The soil thermal treatment facility, EU-014, has a VOC emissions limit of 22.8 lb/hr, uses an afterburner control device to achieve compliance, and has potential pre-control emissions equal to or in excess of the major source threshold of 100 TPY.

PROJECT REVIEW

Specific changes were made to the previous Title V Air Operation Permit No. 0250014-032-AV, and are in this FINAL Title V Air Operational Permit Revision.

Items numbered 1-6 below represent the changes to the previous Title V Air Operation Permit. Underline text indicates additions. .

1. Changes in Section III – Subsection I, Emissions Unit Specific Conditions, Emissions Unit 021 – Sweetwater Concrete Batch Plant & Concrete Block Plant. The incorporation of air construction permit No. 0250014-038-AC required that the emissions unit description and table be updated as follows. The changes include information about the two (2) additional dust collectors, and incorporation of the manufacturer and model Nos. for the existing dust collectors.

ARMS Emissions Unit No.	Brief Description of Emissions Unit
021	Sweetwater Concrete Batch Plant & Concrete Block Plant

Emission Unit ID No. 021: The Sweetwater Ready Mix Concrete Batch Facility and Concrete Block Plant, with a 94 TPH process rate, is adjacent to the cement plant site, and are of the same SIC Major Group. Particulate emissions are controlled by six (6) dust collectors; five (5) for the ready mix operation and one (1) for the concrete block plant as described below.

Emission Point ID	Description of Emissions Points	Manufacturer	Model No.	Flow Rate (acfm)	Cloth Area (ft^2)	Air to Cloth Ratio
No ID	Bin Dust Collector (Concrete Block Plant)	BHA	Pulse-Pleat	750	150	5.1 to 1.0
No ID	Truck Loadout Mixer Central Dust Collector (Ready Mix Plant)	C&W	CP-900-1278	5,000	912	5.5 to 1.0
No ID	Two (2) Dust Collectors (Ready Mix Plant Twin-Compartment Silo)	C&W	CP-305-839	1,600	304	5.3 to 1.0
No ID	Two (2) Dust Collectors (Ready Mix Plant 800 BBL Twin-Compartment Silo)	C&W	CP-305-839	1,600	356	5.3 to 1.0

2. Changes in Section III – Subsection I, Emissions Unit Specific Conditions, Emissions Unit 021 – Sweetwater Concrete Batch Plant & Concrete Block Plant. The incorporation of air construction permit No. 0250014-038-AC required that specific conditions also cite permit No. 0250014-038-AC. Five (5) specific conditions under Section I reference both permit Nos. 0250014-026-AC, and 0250014-042-AC.

3. Changes in Section III – Subsection B, Emissions Unit Specific Conditions, Emissions Unit 018 – Cement Plant Pyroprocessing & Raw Mill System. The incorporation of air construction permit No. 0250014-042-AC required that the unit description be updated as follows due to the installation of the Biomass Feeder System.

ARMS E.U. ID No.	Brief Description
-018	In-Line Kiln, Raw Mill , Clinker Cooler, Tire Injection Mechanism System (TIMS), and Biomass Feeder System

The pyroprocessing system & raw mill system is controlled by the following baghouse:

Emission Point	Descriptions of Emissions Points
421-BF1	Main Stack with dust collector for preheater/precalciner/raw mill/kiln/clinker cooler

4. Changes in Section III – Subsection B, Emissions Unit Specific Conditions, Emissions Unit 018 – Cement Plant Pyroprocessing & Raw Mill System. The incorporation of air construction permit No. 0250014-042-AC required that some specific conditions be either modified or added as follows. The facility is currently allowed to fire clean biomass as supplemental fuel and the following specific conditions pertain to the clean biomass.

B.4. Paper Currency: The permittee is allowed to burn up to a maximum of 2,000 tons of paper currency as a fuel on a consecutive 12-month period.
[Rule 62-4.070(3), F.A.C., and Permit No. 0250014-042-AC]

B.6.2 Supplemental Fuels/Non Start-Up Fuels
a. The following permitted non-hazardous solid waste may be used as supplemental fuel: whole tires and tire-derived fuels, booms and rags from clean petroleum spill clean ups, oil filters, unused paper by-products, clean non-chlorinated plastic by-products, and clean biomass. Clean biomass means clean cellulosic biomass and/or agricultural organic fibrous organic byproducts as defined in i & ii of this condition. This non-hazardous solid waste material shall not be used as a start-up fuel.

i. Clean Cellulosic Biomass: This material includes clean untreated lumber, tree stumps, tree limbs, slash, bark, sawdust, sander dust, wood chips scraps, wood scraps, wood slabs, wood millings, wood shavings, paper currency, and processed pellets made from wood or other forest residues. This material excludes copper-chromium-arsenic (CCA)-treated wood, creosote-treated wood, construction and demolition (C&D) debris, plywood, particle board, medium density fiberboard, oriented strand board, laminated beams, finger-jointed trim and sheet goods.

ii. Agricultural Organic Fibrous Byproducts: This material includes peanut hulls, rice hulls, corn husks, citrus peels, cotton gin byproducts, animal bedding and other similar types of materials that may be fired with prior written approval of the PERA.

[Miami-Dade County Environmental Quality Control Board, Board Order 99-55 dated December 9, 1999; Rule 62-4.070(3), F.A.C., Permit Nos. 0250014-002-AC, and 0250014-042-AC]

c. Tire Injection Mechanism System (TIMS) Equipment: A tire injection mechanism system (TIMS) that consists of a door (portal) located externally on the left front face of the kiln burner hood, centered horizontally between the west burner hood wall and the burner pipe. It also has a tire feed belt, and a tire injection mechanism. The TIMS uses an automated "pitching" device to shoot a tire, one at a time, into the kiln. A single gate valve opens for a few seconds every time a tire is fed to the front of the kiln.
[Rule 62-4.070(3), F.A.C., and Permit No. 0250014-041-AC]

d. Clean Biomass Feeder System: A Schenck Accurate feeder system or equivalent to measure and dose clean biomass pneumatically through a port into the precalciner; a diesel-powered Vermeer Model No. HG6000 grinder and screen or equivalent (approximately 630 HP); and other miscellaneous equipment to unload, store and handle the clean biomass.
[Rule 62-4.070(3), F.A.C., and Permit No. 0250014-042-AC]

B.7. Receiving Clean Biomass: For clean biomass received at the plant, the permittee shall comply with the following requirements.

a. All clean biomass received at the plant shall be in covered trucks and/or enclosed containers. When unloading and handling clean biomass, the permittee shall take reasonable precautions to prevent fugitive dust emissions. The permittee shall also visually check the delivered clean biomass for particle size and components.

b. Fuel Analyses Parameters: The following information shall be included when reporting the analytical results for clean biomass: lower heating value (Btu/lb) of clean biomass; moisture, ash, volatiles, fixed carbon, sulfur and chlorine content (percent by weight); arsenic, cadmium, chromium, copper, lead and mercury contents (ppmw). All concentrations are on a dry basis.

[Rule 62-4.070(3), and Permit No. 0250014-042-AC]

B.8. Sampling/Analysis Frequency: When the facility receives clean biomass from a new supplier, the permittee shall comply with the following requirements:

a. On the first day that clean biomass from a new supplier is fired, the permittee shall collect a grab sample at least once every four hours of as-fired material (approximately one gallon) before transfer to the feed bin of the feeder system. At the end of the day, the grab samples shall be thoroughly mixed and a representative composite sample made (approximately 2 lb). This procedure shall be followed for each day of sample collection.
b. Analytical tests shall be conducted for the parameters specified in Specific Condition B.7.b. on a minimum of three daily composite samples, each collected at least three days apart.
c. For every subsequent 10,000 tons of clean biomass received on site from a supplier, the permittee shall obtain the analytical results for a representative composite sample of the clean biomass.
d. The permittee shall collect and obtain analytical results of a representative daily composite sample for each day that stack testing is conducted.

[Rules 62-4.070(3), 62-296.320, F.A.C., and Permit No. 0250014-042-AC]

B.9. Analytical Methods: The permittee shall use the following analytical methods in Table 3 below to determine the composition of the clean biomass.

Table 3

Parameter	**Analytical Methods**
Moisture, Volatiles, Ash and Fixed Carbon	Proximate Analysis appropriate for given fuel
Carbon, and Sulfur	Ultimate Analysis appropriate for given fuel
Heating Value	ASTM E711 - 87(2004) Standard Test Method for Gross Calorific Value of Refuse-Derived Fuel by the Bomb Calorimeter, or ASTM D5468 - 02(2007) Standard Test Method for Gross Calorific and Ash Value of Waste Materials
Chlorine	EPA SW-846 or EPA Method 9056
Mercury	EPA 7470A/7471A
Other Metals	EPA SW-846 or EPA Method 6010B

Other equivalent methods may be used with prior written approval from the State of Florida Department of Environmental Protection (FDEP).
[Rule 62-4.070(3), F.A.C., and Permit No. 0250014-042-AC]

B.10. Storing and Handling Clean Biomass: The clean biomass shall be stored:

a. Under cover or in covered trailers or containers;
b. On top of a paved or compacted clay surface;
c. To promote containment and prevent contamination of air, water and soil; and
d. Storage design should be appropriate to maintain the quality of the materials (e.g., first in, first out).

[Rules 62-4.070(3), 62-296.320, F.A.C., and Permit No. 0250014-042-AC]

B.18. Operation: Clean biomass shall only be fired once the kiln has achieved steady operation, temperatures and production (i.e., when raw materials are introduced).

a. Depending on the clean biomass to be fired, the operator shall carefully select the appropriate clean biomass feed system and feed location according to the nature of the clean biomass to promote efficient combustion and reduce emissions impacts. Key clean biomass parameters include the particle size, heating value, moisture content, chlorine content and ash content. Clean biomass shall be introduced only in the high-temperature combustion zones of the main kiln burner, the precalciner burner or appropriate secondary firing points in the precalciner.

b. Based on the clean biomass fuel analysis, the permittee shall develop a written informational plan identifying operating practices for firing clean biomass to provide and maintain steady kiln operation. Elements of the plan are not enforceable and may be changed by the plant at any time. The purpose of the plan is to make all operators aware of good operating practices for clean biomass. *{Permitting Note: As a matter of practical operations, the kiln operators will gradually introduce clean biomass to provide steady kiln operations and minimize emissions. Once the desired clean biomass fuel feed rate is achieved, the operator will maintain a constant feed rate to promote efficient combustion, minimize emissions and steady-state operation. Indicators of complete combustion include flue gas oxygen content, CO levels and THC levels. As necessary, operators will review the clean biomass characteristics for possible adjustments to promote steady operation (e.g., account for increased flue gas volume and velocity from elevated moisture content, high chlorine and/or sulfur contents that may cause buildups, etc.).}*

c. Operators shall discontinue firing clean biomass if:

(1) One of the CEMS, COMS or other continuous monitors indicates a non-compliance issue;

(2) One of the CEMS, COMS or other continuous monitors is down for more than two consecutive hours; or
(3) The operator is made aware that the kiln is producing off-specification clinker due to clean biomass. The firing of that clean biomass may resume once the issue is addressed and corrective action taken.

[Rule 62-4.070(3), F.A.C., and Permit No. 0250014-042-AC]

B.19. Reasonable Precautions to Prevent Fugitive Dust: The permittee shall employ the following "reasonable precautions" to minimize fugitive dust emissions at the plant:

a. Substantially enclose conveyors and bucket elevators to prevent clean biomass loss and fugitive dust emissions;
b. Store clean biomass under cover;
c. Conduct secondary processing (shredding, screening and sizing) under cover;
d. If necessary to prevent fugitive dust caused by any clean biomass from leaving the plant property, the permittee shall apply water to the clean biomass; otherwise, the clean biomass shall be kept dry to facilitate burning; and

[Rules 62-4.070(3), 62-296.320, F.A.C., and Permit No. 0250014-042-AC]

B.20. Operations and Emissions: The permittee shall continuously monitor the: fuel feed rates, kiln feed rate, clinker production rate and baghouse inlet temperature.
[Rule 62-4.070(3), F.A.C., and Permit No. 0250014-042-AC]

B.30. Clean Biomass Burning: In order to document compliance with clean biomass fuel usage limits, the following records shall be established and maintained**:**

(1) A log to document the number of hours per day, and number of days per month that clean biomass was introduced into the kiln.
(2) A log indicating the clean biomass utilization rate in tons per hour, as well as the dates and times the clean biomass was utilized.
(3) A log that includes the date of all clean biomass deliveries to the facility, the supplier, and the quantity of clean biomass received (in tons) in each delivery.

[Rule 62-4.070(3), F.A.C., and Permit No. 0250014-042-AC]

5. Changes in Section III – Subsection B, Emissions Unit Specific Conditions, Emissions Unit 018 – Cement Plant Pyroprocessing & Raw Mill System. The incorporation of air construction permit No. 0250014-042-AC required that some specific conditions and Tables be renumbered accordingly, and some specific conditions also cite permit No. 0250014-042-AC (clean biomass permit).

6. Other changes. The incorporation of air construction permit Nos. 0250014-038-AC, and 0250014-042-AC required that Section III of the Table of Contents – Emissions Units and Conditions (Page No. i) references be renumbered accordingly. Page No. i of the permit is also revised to reflect the changes being made in this Title V air operation permit revision. Recent organizational changes have occurred within the Miami-Dade County Government and the Department of Environmental Resources Management (DERM) has become Permitting, Environment and Regulatory Affairs (PERA). As a result, all references to DERM in the permit have been changed to PERA.

CONCLUSION

This project revises Title V air operation permit No. 0250014-032-AV, which was issued on October 4, 2011. This Title V air operation permit revision is issued under the provisions of Chapter 403, Florida Statues (F.S.), and Chapters 62-4, 62-210 and 62-213, F.A.C.