Florida Department of Environmental Protection

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PERMITTEE

CEMEX Construction Materials, LLC
1200 NW 137 Avenue
Miami, Florida 33182

Authorized Representative:
Mr. Luis Lopez, Cement Plant Manager

Final Permit No. 0250014-045-AC
Permit Expires: April 30, 2015
Minor Source Air Construction Permit
Miami Cement Plant
Alternative Fuels

PROJECT

This is the final air construction permit, which authorizes: construction of mechanical and pneumatic material handling systems for introduction of alternative fuels into the existing preheater/precalciner kiln system; and modification or replacement of the main kiln burner system to allow introduction of a variety of fuels to the kiln; and the firing of a variety of alternative fuels (AF) including tire-derived fuel (currently permitted), plastics, roofing materials, agricultural biogenic materials, untreated (currently permitted) and treated cellulosic biomass, carpet-derived fuels, and engineered fuels (EF). The proposed work will be conducted at the existing Miami Cement Plant, which is categorized under Standard Industrial Classification Code No. 3241. The existing Miami Cement is located in Miami-Dade County at 1200 NW 137 Avenue in Miami, Florida. The UTM coordinates Zone 17, 558.20 km East, and 2851.20 km North.

This final permit is organized into the following sections: Section 1 (General Information); Section 2 (Administrative Requirements); Section 3 (Emissions Unit Specific Conditions); Section 4 (Appendices). Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of Section 4 of this permit.

STATEMENT OF BASIS

This air pollution construction 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 conduct the proposed work in accordance with the conditions of this permit. This project is subject to the general preconstruction review requirements in Rule 62-212.300, F.A.C. and is not subject to the preconstruction review requirements for major stationary sources in Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

Upon issuance of this final permit, any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel (Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000) and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within 30 days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.
Electronic Signature

JFK/sa/sdc

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Final Air Permit package (including the Final Determination and Final Permit with Appendices) was sent by electronic mail, or a link to these documents made available electronically on a publicly accessible server, with received receipt requested before the close of business on the date indicated below to the following persons.

Mr. Luis Lopez, Cement Plant Manager, CEMEX: luisguillermo.lopez@cemex.com
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Ms. Lynn Scearce, DEP OPC: lynn.scearce@dep.state.fl.us (for reading file)

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.
Electronic Signature

FACILITY DESCRIPTION

This project will affect the following existing permitted emissions unit.

Facility ID No. 0250020	
ID No.	**Emission Unit Description**
018	Kiln System (In-Line Kiln/Raw Mill/Clinker Cooler), Tire Injection Mechanism System (TIMS), and mechanical Feed System, Pneumatic Feed System Grinding and Screening Operations for Alternative Fuels (Re-processing and Fugitives)

A baghouse controls particulate matter (PM) emissions from the preheater/precalciner kiln exhaust as well as exhausts from the clinker cooler, raw mill and coal mill. Emissions of carbon monoxide (CO), nitrogen oxides (NOx) and volatile organic compounds (VOC) are controlled by the efficient combustion design (long residence times at high temperatures) of the F.L. Smidth (FLS) preheater/precalciner kiln and good operating practices. Potential dioxin and furan emissions are controlled by high-temperature combustion followed by rapid cooling. Acid gases such as sulfur dioxide (SO_2) and hydrochloric acid (HCl) are controlled by limestone scrubbing as part of the raw material feed and clinker production. To demonstrate compliance with the emission limits specified in the permit, continuous emission monitoring systems (CEMS) in the main kiln/raw mill stack measure and record emissions of NOx, SO_2, total hydrocarbons or "THC" (which serves as a surrogate for VOC emissions), and CO_2. A continuous opacity monitoring system (COMS) measures and records the opacity of the flue gas exhaust in the main kiln/raw mill stack. CO is monitored for reasonable assurance per condition B.24 of Title V permit number 0250014-044-AV. The baghouse inlet temperature is continuously monitored and recorded to ensure that it is maintained below that of the most recent compliance stack test, which provides assurance of effective control of dioxins and furans.

FACILITY REGULATORY CLASSIFICATION

- The facility is a major source of hazardous air pollutants (HAP).
- 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 in accordance with Rule 62-212.400(PSD), F.A.C.

PROJECT DESCRIPTION

This permit authorizes: the construction of mechanical and pneumatic material handling systems for introduction of alternative fuels into the existing preheater/precalciner kiln system; use of shredding and screening equipment to further process these materials onsite as necessary; modification or replacement of the main kiln burner system to allow introduction of a variety of fuels to the kiln system; and the firing of a variety of alternative fuels (AF) including tire-derived fuel, plastics; roofing materials, agricultural biogenic materials, untreated and treated cellulosic biomass, carpet-derived fuels, and engineered fuels (EF).

SECTION 2. ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: The permitting authority for this project is the Office of Permitting and Compliance, Division of Air Resource Management, Florida Department of Environmental Protection (Department). The mailing address is 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400. All documents related to applications for permits to operate an emissions unit shall be submitted to Miami-Dade County Permitting, Environment and Regulatory Affairs at 701 NW 1st Court, Suite 400, Miami, FL 33136.
2. Compliance Authority: All documents related to compliance activities such as reports, tests and notifications shall be submitted to Miami-Dade County Permitting, Environment and Regulatory Affairs at 701 NW 1st Court, Suite 400, Miami, FL 33136.
3. Appendices: The following Appendices are attached as a part of this permit: Appendix A (Citation Formats and Glossary of Common Terms); Appendix B (General Conditions); Appendix C (Common Conditions); and Appendix D (Common Testing Requirements).
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: The permittee shall notify the Compliance Authority upon commencement of construction. No new emissions unit shall be constructed and no existing emissions unit shall be modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. A permittee may request that a permit be extended as a modification of the permit. Such a request must be submitted in writing before the expiration of the permit. Upon timely submittal of a request for extension, the permit will remain in effect until final agency action is taken on the request. For construction permits, an extension shall be granted if the applicant can demonstrate reasonable assurances that, upon completion, the extended permit will comply with the standards and conditions required by applicable regulation. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]
7. 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.

   (c) At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by exceeding its projected actual emissions, then the requirements of subsections 62-212.400(4)

through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.

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

8. Application for Title V Permit: This permit authorizes construction of mechanical and pneumatic material handling systems for introduction of alternative fuels into the existing preheater/precalciner kiln system and replace the main kiln burner to allow introduction of a variety of fuels to the kiln system; the firing of a variety of alternative fuels (AF); use of alternative fuels; and initial operation to determine compliance with Department rules. A Title V air operation permit is required for regular operation of the permitted emissions unit. Except as otherwise specified in this condition, the permittee shall apply for a Title V air operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after commencing operation of the installed equipment and completion of the first initial AF assessment. The permittee shall apply for a revised Title V air operation permit no later than 180 days after completing installation of equipment as necessary. The Title V permit will incorporate the requirements authorizing AF use and future subsequent assessments with the installed equipment. 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 appropriate Permitting Authority with copies to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220 and Chapter 62-213.420, F.A.C.]

9. Actual Emissions Reporting: This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (12), F.A.C. for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., the permittee is subject to the following monitoring, reporting and recordkeeping provisions.

   a. The permittee shall monitor the emissions of any PSD pollutant that the Department identifies could increase as a result of the construction or modification and that is emitted by any emissions unit that could be affected; and, using the most reliable information available, calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of 5 years following resumption of regular operations after the change. Emissions shall be computed in accordance with the provisions in Rule 62-210.370, F.A.C., which are provided in Appendix C of this permit.

   b. The permittee shall report to the Department within 60 days after the end of each calendar year during the 5-year period setting out the unit's annual emissions during the calendar year that preceded submission of the report. The report shall contain the following:

      1) The name, address and telephone number of the owner or operator of the major stationary source;
      2) The annual emissions calculations pursuant to the provisions of 62-210.370, F.A.C., which are provided in Appendix C of this permit;
      3) If the emissions differ from the preconstruction projection, an explanation as to why there is a difference; and
      4) Any other information that the owner or operator wishes to include in the report.

   c. The information required to be documented and maintained pursuant to subparagraphs 62-212.300(1)(e)1 and 2, F.A.C., shall be submitted to the Department, which shall make it available for review to the general public.

   For this project, the permit requires the annual reporting of actual emissions for the following pollutants: carbon monoxide (CO), nitrogen oxides (NOx), particulate matter (PM), sulfur dioxide (SO_2), volatile organic compounds (VOC), and mercury (Hg).

   The affected emissions unit is EU-018: pyroprocessing/raw mill system the mechanical feed system, the pneumatic feed system, associated grinding and screening operations, fugitives and combustion byproducts

from related engines) and fugitive dust associated with additional truck traffic as well as the unloading, loading and handling of the alternative fuels.

Once construction is finished on a fuel feed system or the main kiln burner, the first report is due within 60 days of completing the first full year of operation with the equipment in place. Note that if installation of the equipment is staggered to multiple years then, correspondingly, more than five reports may be required.

As specified in Condition 25 of this permit, the CO_2, NOx, SO_2, CO, and THC emissions data collected during the authorized shakedown/AF assessment periods may be excluded from the comparison of actual to baseline emissions. Excluded data shall be replaced with data estimated from: the actual clinker production rate; and an emissions factor based on the average emission rates from the rest of the year (i.e., all periods except the shakedown and/or assessment periods). The permittee shall report all of the original information as actual emissions, but may deduct emissions data collected during the equipment shakedown and assessment periods while developing good operating practices.

[Application 0250014-045-AC; and Rules 62-212.300(1)(e) and 62-210.370, F.A.C.]

This section of the permit addresses the following emissions units.

ID No.	Emission Unit Description
018	Kiln System (In-Line Kiln/Raw Mill/Clinker Cooler), Tire Injection Mechanism System (TIMS), and mechanical Feed System, Pneumatic Feed System Grinding and Screening Operations for Alternative Fuels (Re-processing and Fugitives)

COMPLIANCE WITH EXISTING PERMIT CONDITIONS

1. Existing Permits: This permit supplements all existing valid air permits. Unless otherwise specified, the permittee shall continue to comply with all applicable conditions from valid air construction and operation permits. [Rule 62-4.070(3), F.A.C.]

EQUIPMENT

2. New Equipment: The permittee is authorized to construct and operate the following permanent equipment for firing alternative fuels (AF) in the pyroprocessing kiln system. The permittee shall submit details of the final design once complete (e.g., design heat input rates and schematics).

   a. *Mechanical and Pneumatic Handling and Feed Systems*. Each feed system shall be designed to handle alternative fuels with multiple points of injection to accommodate various AF particle size, density and heating value. The nominal feed rate of each feed system is 15 tons of AF per hour.

      (1) The mechanical feed system(s) shall consist of mechanical feeder(s), weighing mechanism(s), load hopper(s) with required conveyors, storage bins, and other associated equipment.

      (2) The pneumatic feed systems shall consist of a system of mechanical feeder(s) and associated system of air movement equipment and related ductwork, weighing mechanism(s), loading hopper(s) with required conveyors, storage bins, and other associated equipment.

   b. *Kiln Burner, AF Handling and Firing Systems*. The permittee is authorized to replace the current kiln burner system with a multi-channel fuel burner(s) and/or other related feed equipment specifically designed for co-firing AF with authorized fuels in the kiln.

   c. *Feed Systems.* To the extent practicable, components of the feed systems shall be substantially enclosed or covered to prevent the loss of any AF and fugitive dust emissions. Each feed system shall be integrated into the existing kiln data system. The AF feed rate shall be recorded along with the other fuel feed rates.

   d. *Fuel Preparation Equipment*. The permittee is authorized to install grinding, shredding, screening, and sizing equipment to prepare the AF. This equipment will be powered by electric motors or diesel engines. In addition, the diesel engines shall comply with any applicable NSPS or NESHAP standards.

   [Application No. 0250014-045-AC and Rules 62-296.320 and 62-4.070(3), F.A.C]

AUTHORIZED FUELS

3. Currently Approved Fuels: The permittee is authorized to fire the following fossil fuels under the existing operating permit: bituminous coal, propane, No. 2 fuel oil, residual oil, flyash, on-specification and off-specification used oil, natural gas, petroleum coke paper currency, oil filters, booms and rags from clean petroleum spill clean ups, unused paper by-products, clean non-chlorinated plastic by-products, whole tires, tire-derived fuel and clean biomass. The non-startup fuels include whole tires and tire-derived fuels, booms and rags from clean petroleum spill clean ups, oil filters, unused paper by-products, and clean non-chlorinated plastic by-products. [Project No. 0250014-044-AV]

4. Approved Fuels: The permittee is authorized to fire coal in addition to bituminous coal. [Application No. 0250014-045-AC ; Rule 62-210.200(PTE), F.A.C.]

5. Prohibited Materials: The permittee is prohibited from firing the following materials in the pyroprocessing system: hazardous waste as defined in 40 CFR 261, nuclear waste, and radioactive waste. The permittee shall not knowingly fire biomedical waste, asbestos-containing materials per 40 CFR 61 Subpart M, whole batteries, and unsorted municipal waste. These prohibited materials shall not be used to manufacture engineered fuels.

   If the permittee identifies delivered material that falls under specific condition 4, the supplier shall be contacted and the material shall be returned, disposed, or any other appropriate legal method of handling the material shall be employed. The permittee shall maintain records of delivery, sampling and analysis, and actions taken to correct abnormalities. Such records shall be stored onsite for at least five years and available for inspection upon request.

6. AF: Subject to the AF Acceptance Criteria, the permittee is authorized to co-fire authorized fuels with any of the following AF.

   a. *Tire-Derived Fuel (TDF)*, which includes whole and shredded tires with or without steel belt material including portions of tires such as tirefluff. The kiln is currently permitted to use tire-derived fuel.

   b. *Plastics*, which includes materials such as polyethylene plastic used in agricultural and silvicultural operations. This may include incidental amounts of chlorinated plastics.

   c. *Roofing Materials*, which consists of roofing shingles and related roofing materials with the bulk of the incombustible grit material separated and which is not subject to regulations as an asbestos-containing material per 40 CFR 61 subpart M.

   d. *Agricultural Biogenic Materials*, which includes materials such as peanut hulls, rice hulls, corn husks, citrus peels, cotton gin byproducts, animal bedding and other similar types of materials.

   e. *Cellulosic Biomass - Untreated and Treated*, which includes materials such as untreated lumber, tree stumps, tree limbs, slash, bark, sawdust, sander dust, wood chips scraps, wood scraps, wood slabs, wood millings, wood shavings and processed pellets made from wood or other forest residues in addition to preservative-treated wood that may contain treatments such as creosote, copper-chromium-arsenic (CCA), or alkaline copper quaternary (ACQ), painted wood, or resinated woods (plywood, particle board, medium density fiberboard, oriented strand board, laminated beams, finger-jointed trim and other sheet goods). The permittee shall not fire more than 1,000 lb/hour averaged on a 7-day block average basis of segregated streams of wood treated with copper-chromium-arsenic (CCA) compounds. The kiln is currently permitted to use untreated cellulosic biomass and paper currency.

   f. *Carpet-Derived Fuel*, which includes shredded new, reject or used carpet materials.

   g. *Alternative Fuel Mix*, which includes a blended combination of two or more of any of the above materials.

   h. *Biosolids*, which includes organic materials sanitized to meet EPA Class A sanitization standards and is derived from treatment processes of public treatment water systems.

   i. *Engineered Fuel (EF)* is engineered to have targeted, consistent fuel properties such as: calorific value, moisture, particle size, ash content, and volatility. The specific targeted properties are established based on available alternative fuel material supply and are carefully controlled through blending of non-hazardous combustible materials or through separation of non-hazardous incombustible materials from combustible materials (mixes of any alternative fuels where the blending and processing may also include the addition of on-specification used oils or other non-hazardous liquids to ensure consistent and predictable fuel properties). EF is engineered largely from the above materials and could consist of

animal meal, automotive manufacturing byproducts, clean-up debris from natural disasters, processed municipal solid waste, dried/sanitized biosolids, paint filter cake, hospital materials (non-infectious), pharmaceuticals (expired prescriptions), cosmetics, and confiscated narcotics.

[Application No. 0250014-045-AC and Rule 62-210.200(PTE), F.A.C.]

7. Receiving AF: For AF received at the plant, the permittee shall comply with the following requirements.

   a. All AF materials received at the plant shall be in covered trucks and/or enclosed containers. When unloading and handing AF, the permittee shall take reasonable precautions to prevent fugitive dust emissions.

   b. The permittee shall record the amount the category/type and amount of each AF received.

   c. Each AF material received shall be sampled and analyzed in a manner consistently with industry standards for quality assurance and quality control to ensure that representative data is collected. The permittee shall obtain the analytical results of a representative sample of the AF prior to the initial delivery, quarterly for the first year, and if the analysis meets permit requirements the frequency of sampling and analysis shall be annual every January thereafter, if that material is present. All records and results of the analysis will be maintained at the facility as required for currently permitted fuels.

   d. Fuel Analyses Parameters: The following information shall be included when reporting the analytical results for an AF: higher heating value (Btu/lb) of AF; moisture, ash, volatiles, fixed carbon, sulfur and chlorine content (percent by weight); arsenic, beryllium, cadmium, chromium, lead, and mercury contents (ppm). All concentrations are on a dry basis. Reject roofing shingles, combusted separately as item 6.c. (Roofing Materials) and if included in item 6.i. (Engineered Fuel) shall include a certification from the manufacturer to be made without asbestos.

8. Processed/Prepared AF: The AF shall be stored:

   a. Under cover or in covered trailers, containers or buildings;

   b. On top of a paved or compacted clay surface; and

   c. By Best Management Practices to promote containment and prevent contamination of air, water and soil.

   [Application No. 0250014-045-AC; Rules 62-4.070(3) and 62-296.320, F.A.C.]

EQUIPMENT SHAKEDOWN AND AF ASSESSMENTS

9. Shakedown of Equipment and AF Assessments: The permittee shall comply with the emissions standards and terms of all valid air permits during shakedown of the equipment allowed under Specific Condition 2 and AF assessments.

   a. *Equipment Shakedown*: After completing the construction of each system listed in Specific Condition 2, the permittee is authorized 90 operational days irrespective of fuel fired to ensure proper installation as well as develop good operating practices for the AF resulting in steady operation of the kiln system.

   b. *AF Assessments*: For each category of AF, the permittee is authorized 60 operational days to introduce new AF into either the main kiln burner system or the precalciner/calciner to develop good operating practices for normal kiln system operation.

   The Division of Air Resource Management may approve a written request by the permittee for an additional shakedown and assessment periods due to specific extenuating circumstances. [Application No. 0250014-045-AC and Rule 62-4.070(3), F.A.C.]

PERFORMANCE REQUIREMENTS

10. Operation: Alternative fuels shall only be fired once the kiln has achieved normal operation, temperatures and production (i.e., when raw materials are introduced). [Rule 62-4.070(3), F.A.C.]

    a. AF 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/preheater.

    b. The Permittee shall make every effort during the shakedown and assessment periods to promote efficient combustion and minimize emissions impacts.

    c. Operators shall discontinue firing AF if one of the CEMS, COMS or other continuous monitors indicates a non-compliance issue related to alternative fuels. [Rule 62-204.800, F.A.C. and 40 CFR 60 Appendix A; and 40 CFR 63.1349, 1350 and 1354]

11. NESHAP 40 CFR 61 Requirements - Subpart A: When combusting biosolids the permittee shall comply with all applicable requirements of 40 CFR 61, Subpart A, General Provisions, which have been adopted by reference in Rule 62-204.800(10)(d), F.A.C., except for 40 CFR 61.08 and except that the Secretary is not the Administrator for the purposes of 40 CFR 61.04, 40 CFR 61.11, and 40 CFR 61.18. In lieu of the process set forth in 40 CFR 61.08, the Department will follow the permit processing procedures of Rule 62-4.055, F.A.C. When combusting biosolids the permittee shall comply with all applicable provisions of Appendix C. 40 CFR 61 Subpart A - General Provisions included with this permit. [Rule 62-204.800(10)(d), F.A.C.]

12. Mercury Emissions from Biosolids: The permitted maximum allowable emission rate for mercury is 7.1 pounds per 24-hour period. [Rule 62-204.800(10)(d), F.A.C. and 40 CFR 61.52]

    {Permitting Note: The permittee will remain subject to the current Title V permit limitation of 182 pounds per year of Hg, based on stack testing or mercury CEMS. If the plant runs at least 50 percent of the time, the effective maximum permitted 24-hour emissions would average 0.997 pound/24-hour. This value (0.997 pound/24-hour period) is less than 15 percent of the allowed Hg emissions of 40 CFR 61.52. As such the permittee is not expected to come near this limit. The compliance requirements for the mercury emissions from biosolids as specified in Condition 20 may be satisfied with the sampling requirements of Condition 19.}

MONITORING REQUIREMENTS

13. CEMS/COMS: The permittee shall continuously monitor the following with data collected by CEMS/COMS to demonstrate compliance with the emissions standards in the current Title V air operation permit:

    a. CO
    b. NO_X
    c. SO_2
    d. VOC
    e. Opacity.

    Mercury emissions shall be determined by stack sampling, material sampling, or Hg CEMS as specified in the Title V air operation permit. The default value for the mercury content of tires and TDF shall be 0.0081 µg/g; no additional sampling/analysis is required. [Application 0250014-045-AC and Rule 62-4.070(3), F.A.C.]

14. Operations and Emissions: The permittee shall continuously monitor the: fuel feed rates, kiln feed rate, clinker production rate and baghouse inlet temperature in accordance with the current Title V air operation permit. [Application No. 0250014-045-AC and Rule 62-4.070(3), F.A.C.]

15. Compliance Stack Tests: The permittee shall continue to conduct stack tests in accordance with the methods and requirements in current Title V air operation permit to demonstrate compliance with the emissions standards. The required stack tests for PM and dioxins/furans shall be conducted while firing an AF that has

completed the AF assessment period. [Rule 62-297.310(7)(a)4, F.A.C.]

{Permitting note: These emissions are not expected to be affected by alternative fuels.}

SAMPLING AND ANALYSIS

16. Sampling Criteria: Each AF material received shall be sampled and analyzed in a manner consistent with industry standards for quality assurance and quality control to ensure that representative data is collected. At a minimum, the frequency of sampling and analysis shall be consistent with the frequency of sampling and analysis of coal. All records and results of the analysis shall be maintained at the facility as required for currently permitted fuels. [Rule 62-4.070(3), F.A.C.]

17. AF Assessment and Analytical Methods: The permittee shall use the following analytical methods to determine the composition of the AF.

Parameter	Analytical Methods
Moisture, Volatiles, Ash and Fixed Carbon	Proximate Analysis appropriate for given fuel
Carbon, Hydrogen, Nitrogen Sulfur and Oxygen	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, or Proximate Analysis appropriate for given fuel
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 of the Division of Air Resource Management. [Rule 62-4.070(3), F.A.C.]

18. Sampling/Analysis by Permittee: For each AF assessment, the permittee shall obtain analytical results of the AF as required in Condition 6, the operator shall take a representative as-fired sample of the AF and have it analyzed for the parameters listed in specific condition 6.d. [Rule 62-4.070(3), F.A.C.]

19. Mercury: The permittee shall demonstrate compliance with the allowable emissions limiting standards for mercury (Hg) by using one of the following options specified in items a. or b. of this condition:

    a. *Stack testing using EPA Method 29 and Material Balance Demonstration:* The permittee shall demonstrate compliance with the mercury throughput limitation by conducting an initial and annual EPA Method 29 test, material balance and maintaining records of the monthly and rolling 12-month mercury throughput. Samples of the raw mill feed and all fuels shall be collected each day. A single composite daily sample shall be made from all samples collected during a 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. 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). No other methods may be used unless prior written approval is received from Miami-Dade County Permitting, Environment and Regulatory Affairs. For each raw material and fuel, the monthly mercury throughput rate (pounds per month) shall be the product of the mercury concentration from the monthly composite sample and the mass of raw material or fuel used during the month. If the mercury concentration is below detection limit or below the limits of quantification, the detection limit will be assumed for the concentration of the raw material or fuel. The permittee shall have the option of collecting, composting, analyzing and calculating the Hg leaving the process via the clinker or dust permanently withdrawn from the pyroprocessing system. If the mercury

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

b. *Mercury Continuous Emissions Monitoring System (Hg-CEMS):* The permittee shall install any model of Hg-CEMS that has been demonstrated to meet the requirements in Performance Specification 12A (PS-12A), "Specifications and Test Procedures for Total Vapor phase Mercury Continuous Monitoring Systems in Stationary Sources," or that has passed verification tests conducted under the auspices of the U.S. Environmental Protection Agency's (EPA) Environmental Technology Verification (ETV) Program. During the subsequent 90 days, the permittee shall certify the Hg-CEMS and begin reporting Hg mass emissions data. The permittee shall adhere to the calibration drift and quarterly accuracy assessment procedures in 40 CFR Part 60, Appendix F or 40 CFR Part 75, Appendix B. The 12-month rolling mass emissions and average monthly mass emissions shall be reported based on the actual data collected not later than 10 days following the end of month. Upon certification, the permittee may use the Hg-CEMS to demonstrate compliance with the cumulative 12-month rolling mass emission limitation as specified in Permit 0250014-016-AC/ PSD-FL-324A, in lieu of the procedures described in the preceding paragraph. Prior to use of the Hg-CEMS as the method to demonstrate compliance, the permittee shall submit written notice to the Miami-Dade County Permitting, Environment and Regulatory Affairs and OPC, and receive approval for a missing data substitution plan. The installed Hg-CEMS shall be capable of speciating the form of Hg measured as Hg(0) and Hg++ but will be held only to the manufacturer's performance specifications for the total (i.e. all Hg) values. The owner or operator may submit an alternative sampling procedure request to the Department for evaluation by EPA to use the Hg-CEMS or the associated relative accuracy test audit (RATA) to demonstrate compliance with the Hg test requirements pursuant to 40 CFR 63, Subpart LLL.

[Rules 62-4.070(3), 62-212.400 (12)(c) and 62-204.800, F.A.C., and Permit No. 0250014-04-AV]

20. <u>Testing of Biosolids for Mercury</u>: The permittee shall test biosolids unless a waiver of emission testing is obtained under 40 CFR 61.13 from the Department. Such tests shall be conducted in accordance with the procedures set forth in 40 CFR 61 Subpart E as follows.

    a. The emission or sampling test shall be performed within 90 days of startup of firing biosolids per Method 101A or 105 in Appendix B to 40 CFR 61 Subpart E. A total of three composite samples or as necessary shall be obtained within an operating period of 24 hours. When the 24-hour operating period is not continuous, the total sampling period shall not exceed 72 hours after the first grab sample is obtained. Samples shall not be exposed to any condition that may result in mercury contamination or loss.

    b. The Department shall be notified at least 30 days prior to an emission or sampling test.

    c. The permittee shall take samples over such a period or periods as are necessary to determine accurately the maximum emissions which will occur in a 24-hour period. No changes shall be made in the operation which would potentially increase emissions above the level determined by the most recent stack test, until the new emission level has been estimated by calculation and the results reported to the Department.

    d. All samples shall be analyzed and mercury emissions shall be determined within 30 days after the stack or sampling test. Each determination shall be reported to the Department by a registered letter within 15 calendar days following the date such determination is completed. Records of emission test results and other data needed to determine total emissions shall be retained at the source and shall be made available, for inspection by the Department, for a minimum of 2 years.

e. The maximum 24-hour period biosolids firing rate shall be determined by use of a flow rate measurement device that can measure the mass rate of biosolids charged to the incinerator or dryer with an accuracy of ±5 percent over its operating range. Other methods of measuring biosolids mass charging rates may be used if they have received prior approval by the Department.

f. If sampling is used, mercury emissions shall be determined by use of the following equation.

$$E_{Hg} = \frac{MQ\,F_{sm(avg)}}{1000}$$ where:

E_{Hg} = Mercury emissions, g/day.

M = Mercury concentration of biosolids on a dry solids basis, µg/g.

Q = Biosolids changing rate, kg/day.

F_{sm} = Weight fraction of solids in the collected biosolids after mixing.

1000 = Conversion factor, kg µg/g^2.

g. No changes in the operation of a plant shall be made after a biosolids test has been conducted which would potentially increase emissions above the level determined by the most recent biosolids test, until the new emission level has been estimated by calculation and the results reported to the Department.

h. If mercury emissions exceed 3.5 pound per 24-hour period, demonstrated either by stack sampling according to 40 CFR 61.53 or biosolids sampling, the permittee shall monitor mercury emissions at intervals of at least once per year. The results of monitoring shall be reported and retained as indicated in Condition 18.d.

[Rule 62-204.800(10)(d), F.A.C. and 40 CFR 61.53, 53, 54, and 55]

{Permitting Note: The sampling requirements of Condition 20 may be met by satisfying the sampling requirements in Condition 19.}

21. AF Target Levels: Targets levels are the desired AF properties for as-fired fuel in the system. Target Levels are not enforceable.

Parameter	Target Levels[a]
Higher Heating Value	> 5,000 Btu/lb
Arsenic	< 2,000 ppm by weight
Beryllium	< 20 ppm by weight
Cadmium	< 200 ppm by weight
Chromium	< 200 ppmw (mg/kg)
Lead	< 1,000 ppmw (mg/kg)
Mercury	< 0.3 ppm by weight

* Heating value is on dry basis. All concentrations are dry basis.

Target levels are based on USGS data of coal samples, (http://pubs.usgs.gov/of/2010/11961)

[Application No. 0250014-045-AC and Rule 62-4.070(3), F.A.C.]

{Permitting Note: Title V permitting requires stack testing or Hg CEMs to comply with the limit of 182 pounds of mercury per 12-month period.}

NOTIFICATIONS, RECORDS AND REPORTS

22. Shakedown Notifications: Within fifteen days of completing construction, the permittee shall notify the Compliance Authority and provide a schedule for shakedown and the initial AF assessment. The Compliance Authority may waive this deadline. [Rule 62-4.070(3), F.A.C.]

23. AF Assessment Notifications: At least five days prior to firing each new type of AF material listed in Specific Condition 4, the permittee shall notify the Compliance Authority with a proposed schedule. The Compliance Authority may waive this deadline. [Rule 62-4.070(3), F.A.C.]

24. Records of Fuels and Heat Input: The permittee shall record the fuel-firing rate continuously. The permittee shall maintain records of the quantity and representative analysis of fuels purchased, and such records shall include the parameters listed in specific condition 6.d. [Rule 62-4.070(3), F.A.C.]

25. Reports for Shakedown and AF Assessments: During periods of authorized shakedowns and AF assessments, the permittee shall document the shakedown and/or AF assessment period. These periods may end early when the operator is confident that good operating practices have been defined for the AF that result in steady kiln system operation. Within 45 days of completing a shakedown and/or assessment of each AF material listed in Specific Condition 4, the permittee shall provide a written report summarizing the following information collected from the shakedown and/or AF assessment period.

    a. For a 24-hour period representing good operating practices and steady kiln operation, report: the representative analysis of the AF fired; hourly AF and fossil fuel firing rates; hourly clinker production; hourly CO (process monitor), NOx, SO_2 and THC emissions data from the CEMS; the 6-minute block averages from the COMS; and the inlet temperature to main kiln baghouse (3-hour average). Identify the good operating practices resulting in steady kiln operation.

    b. The AF assessments may occur over several years. Emissions from the initial AF assessment of a new fuel may be excluded from the report requiring a comparison of actual-to-baseline emissions (Rules 62-212.300(1)(e) and 62-210.370, F.A.C.) since operators are still establishing good operating practices and the AF will not have been available for the full calendar year. To exclude emissions data collected during an authorized shakedown and/or AF assessment period from this report, the permittee shall submit the following information for: total clinker production; fossil fuel fired; AF fired; total CO, NOx, SO_2 and THC emissions (tons). Excluded data shall be replaced with data estimated from: the actual clinker production rate; and an emissions factor based on the average emission rates from the rest of the year (i.e., all periods except the shakedown and/or AF assessment periods).

    [Rules 62-4.070(3) and 62-210.370 and 62-212.300, F.A.C.]

26. Test Reports: The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Appendix D (Common Testing Requirements) of this permit. The permittee shall use the most accurate of the approaches below to compute the emissions of a pollutant.

    a. If the emissions unit is equipped with a CEMS meeting the requirements of paragraph 62-210.370(2)(b), F.A.C., the permittee shall use the CEMS to compute the emissions of the pollutant.

    b. If a CEMS is not available or does not meet the requirements of paragraph 62-210.370(2)(b), F.A.C, but emissions of the pollutant can be calculated using the mass balance methodology of paragraph 62-210.370(2)(c), F.A.C., the permittee shall use that methodology, unless the permittee demonstrates to the Department that an alternative approach is more accurate.

    c. If a CEMS is not available or does not meet the requirements of paragraph 62-210.370(2)(b), F.A.C., and emissions cannot be computed pursuant to the mass balance methodology, the permittee shall use an emission factor meeting the requirements of paragraph 62-210.370(2)(d), F.A.C., unless the permittee demonstrates to the Department that an alternative approach is more accurate.

    [Rules 62-210.370 and 62-297.310(8), F.A.C.]