**Golder Associates Inc.**

6241 NW 23rd Street, Suite 500
Gainesville, FL 32653-1500
Telephone (352) 336-5600
Fax (352) 336-6603



September 29, 2005

0537511

Bureau of Air Regulation
Division of Air Resource Management
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Attention: Mr. Alvaro Linero, P.E., South Permitting Section Administrator

RE: TITAN AMERICA PENNSUCO CEMENT PLANT
DEP FILE NO. 0250020-017-AV
APPLICATION TO INCREASE PRODUCTION

Dear Mr. Linero:

Based on our recent discussions, Titan is submitting the following and attached additional information in order to allow the Department to continue to process Titan's application for a production rate increase for the Pennsuco cement plant. Since the project now triggers Prevention of Significant Deterioration (PSD) for carbon monoxide (CO) emissions, a check in the amount of $7,500 is enclosed. The additional information being submitted is described below.

1. The PSD baseline emissions will be the years 2002 and 2003, the last 2 full years that the old wet process cement plant operated. Therefore, these emissions form the basis of determining PSD applicability for the project. With the new baseline emissions, potential emissions from the main kiln stack (raw mill/coal mill/pyroprocessing system) have been revised to avoid PSD review for all pollutants except CO. Nitrogen oxide ($NO_x$) emissions have been adjusted to 2.17 pounds per ton (lb/ton) clinker on a 30-day rolling average. Volatile organic compounds (VOC) emissions are now 0.16 lb/ton clinker for both the short-term and annual averaging times. Particulate matter (PM) emissions have been reduced slightly to 0.067 lb/ton dry kiln feed. Lastly, based on your recommendations, we are revising the CO emissions to reflect a 30-day rolling average of 2.0 lb/ton clinker, reflecting best available control technology (BACT).

2. Attached are revised Tables 2-6 and 3-4 reflecting the above changes.

3. Attached are the revised application form pages reflecting these changes.

4. As we discussed, Golder Associates has performed a CO air quality modeling analysis of the main stack emissions at the new cement plant. The main stack has a stack height of 410 feet, an exit diameter of 14 feet, an exit temperature of 200 degrees Fahrenheit (°F), and a flowrate of 515,000 acfm. The modeled CO emission rate is 576 pounds per hour (lb/hr). The building downwash analysis included 7 structures that have to potential to influence the wind flow at the stack (see attached artist's rendering).

All air dispersion modeling was performed as per EPA guidelines, using the ISCST3 model. Five years of meteorological data (1987-1991) were used in the modeling analysis. Surface data was collected from the Miami International Airport and upper air data from National Weather Service stations in West Palm Beach.

A Cartesian receptor grid was used in the modeling analysis with the following spacing:

Along the nearest facility property boundary – 50 meters
From the property boundary out to 2.5 km from the facility – 100 meters
From 2.5 to 5.0 km from the facility – 250 meters

The air modeling results are presented in Table 1. As indicated, the highest predicted 1-hour and 8-hour CO impacts are well below EPA Class II Significant Impact Levels. Air modeling files are being forwarded to you via email.

Thank you for consideration of this information. If you have any questions, please contact me at (352) 336-5600 or via email at smarks@golder.com.

Sincerely,

GOLDER ASSOCIATES INC.

David A. Buff

David A. Buff, P.E., Q.E.P.
Principal Engineer

SRM/all

cc: Al Townsend
T. Lancaster
Miami-Dade Co.

L092905

## FACILITY INFORMATION

**Professional Engineer Certification**

1. Professional Engineer Name: **David A. Buff**
   Registration Number: **19011**
2. Professional Engineer Mailing Address...
   Organization/Firm: **Golder Associates Inc.****
   Street Address: **6241 NW 23rd Street, Suite 500**
   City: **Gainesville** State: **FL** Zip Code: **32653**
3. Professional Engineer Telephone Numbers...
   Telephone: **(352) 336-5600** ext.**545** Fax: **(352) 336-6603**
4. Professional Engineer Email Address: **dbuff@golder.com**
5. Professional Engineer Statement:

*I, the undersigned, hereby certify, except as particularly noted herein*, that:*

*(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and*

*(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.*

*(3) If the purpose of this application is to obtain a Title V air operation permit (check here ☐, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.*

*(4) If the purpose of this application is to obtain an air construction permit (check here ☒, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here ☐, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.*

*(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here ☐, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.*

David A. Buff
Signature

9/29/05
Date

(seal)

* Attach any exception to certification statement.
** Board of Professional Engineers Certificate of Authorization #0000167

**EMISSIONS UNIT INFORMATION**
**Section [4]**
**Raw Mill and Pyroprocessing Unit**

## A. GENERAL EMISSIONS UNIT INFORMATION

### Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

☒ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

☐ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

### Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

☒ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

☐ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
**Raw Mill and Pyroprocessing Unit**

3. Emissions Unit Identification Number: **028**

| 4. Emissions Unit Status Code: | 5. Commence Construction Date: | 6. Initial Startup Date: | 7. Emissions Unit Major Group SIC Code: | 8. Acid Rain Unit? |
|---|---|---|---|---|
| **A** | | | **32** | ☐ Yes ☒ No |

9. Package Unit:
Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:
**Pyroprocessing consists of the preheater/calciner, kiln, and cooler.**

**EMISSIONS UNIT INFORMATION**
**Section [4]**
**Raw Mill and Pyroprocessing Unit**

## C. EMISSION POINT (STACK/VENT) INFORMATION
**(Optional for unregulated emissions units.)**

**Emission Point Description and Type**

| | | |
|---|---|---|
| 1. Identification of Point on Plot Plan or Flow Diagram: **028** | 2. Emission Point Type Code: **3** | |
| 3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: **7 baghouse stacks. See Attachment TM-EU4-C15.** | | |
| 4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: | | |
| 5. Discharge Type Code: **V** | 6. Stack Height: **410** feet | 7. Exit Diameter: **14** feet |
| 8. Exit Temperature: **200** °F | 9. Actual Volumetric Flow Rate: **515,000** acfm | 10. Water Vapor: % |
| 11. Maximum Dry Standard Flow Rate: dscfm | 12. Nonstack Emission Point Height: feet | |
| 13. Emission Point UTM Coordinates... Zone: East (km): North (km): | 14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS) | |
| 15. Emission Point Comment: **Data for main stack. Representative of clinker production with raw mill operating. With raw mill down, parameters are 605,000 acfm @ 500°F. See Attachment TM-EU4-C15 for stack parameters for other sources.** | | |

## F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

**(Optional for unregulated emissions units.)**

**Potential/Estimated Fugitive Emissions**

**Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

| | |
|---|---|
| 1. Pollutant Emitted: **$SO_2$** | 2. Total Percent Efficiency of Control: |
| 3. Potential Emissions: **320** lb/hour **548** tons/year | 4. Synthetically Limited? ☒ Yes ☐ No |
| 5. Range of Estimated Fugitive Emissions (as applicable): to tons/year | |
| 6. Emission Factor: **See Below** Reference: | 7. Emissions Method Code: **2** |

8. Calculation of Emissions:

**24 Hour:**
**1.28 lb $SO_2$/ton clinker produced (24-hour average) x 250 TPH clinker produced (24-hour average) = 320 lb $SO_2$/hr**

**Annual:**
**0.50 lb $SO_2$/ton clinker produced (annual average) x 2,190,000 TPY clinker produced x 1 ton/2,000 lb = 548 TPY $SO_2$**

9. Pollutant Potential/Estimated Fugitive Emissions Comment:
**See Part B, Table 2-6.**

## F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

**Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 4

| | |
|---|---|
| 1. Basis for Allowable Emissions Code:<br>**OTHER** | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units:<br>**320 lb/hr** | 4. Equivalent Allowable Emissions:<br>**320** lb/hour tons/year |
| 5. Method of Compliance:<br>**$SO_2$ CEMS** | |
| 6. Allowable Emissions Comment (Description of Operating Method):<br>***Allowable emissions on a 24-hour average basis.** | |

**Allowable Emissions** Allowable Emissions 2 of 4

| | |
|---|---|
| 1. Basis for Allowable Emissions Code:<br>**OTHER** | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units:<br>**0.50 lb/ton clinker** | 4. Equivalent Allowable Emissions:<br>lb/hour **548** tons/year |
| 5. Method of Compliance:<br>**$SO_2$ CEMS** | |
| 6. Allowable Emissions Comment (Description of Operating Method):<br>**Annual limit based on 30-day rolling average.** | |

**Allowable Emissions** Allowable Emissions 3 of 4

| | |
|---|---|
| 1. Basis for Allowable Emissions Code:<br>**RULE** | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units:<br>**1.2 lb/MMBtu** | 4. Equivalent Allowable Emissions:<br>**810** lb/hour tons/year |
| 5. Method of Compliance:<br>**EPA Method 6** | |
| 6. Allowable Emissions Comment (Description of Operating Method):<br>**Additional $SO_2$ limit when liquid fuel is fired (24-hour average). Miami-Dade Co. Code, Section 24-17(2)(a).** | |

## F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

**(Optional for unregulated emissions units.)**

**Potential/Estimated Fugitive Emissions**

**Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

| | |
|---|---|
| 1. Pollutant Emitted: **PM** | 2. Total Percent Efficiency of Control: |
| 3. Potential Emissions: **30.1** lb/hour **131.7** tons/year | 4. Synthetically Limited? ☐ Yes ☒ No |
| 5. Range of Estimated Fugitive Emissions (as applicable): to tons/year | |
| 6. Emission Factor: **0.067 lb/ton dry kiln feed (DKF)** Reference: **Proposed limit** | 7. Emissions Method Code: **0** |

8. Calculation of Emissions:

**Main Stack – Hourly:**
**425 TPH DKF x 0.067 lb/ton clinker = 28.5 lb/hr**

**Main Stack – Annual:**
**3,723,000 TPY DKF x 0.067 lb/ton x ton/2,000 lb = 124.7 TPY**

**Other Baghouses:**
**1.6 lb/hr; 7.0 TPY**

9. Pollutant Potential/Estimated Fugitive Emissions Comment:

## F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

**Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 4

| | |
|---|---|
| 1. Basis for Allowable Emissions Code:<br>**ESC PSD** | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units:<br>**0.067 lb/ton dry kiln feed (DKF)** | 4. Equivalent Allowable Emissions:<br>**28.5** lb/hour **124.7** tons/year |
| 5. Method of Compliance:<br>**Annual Method 5** | |
| 6. Allowable Emissions Comment (Description of Operating Method):<br>**Applies to emissions from main stack only.** | |

**Allowable Emissions** Allowable Emissions 2 of 4

| | |
|---|---|
| 1. Basis for Allowable Emissions Code:<br>**RULE** | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units:<br>**0.3 lb/ton dry Kiln feed** | 4. Equivalent Allowable Emissions:<br>**127.5** lb/hour **558.5** tons/year |
| 5. Method of Compliance:<br>**Annual Method 5** | |
| 6. Allowable Emissions Comment (Description of Operating Method):<br>**40 CFR 63.1344. For kiln only, based on feed to kiln. Equivalent allowable emissions are emissions out of the main stack.** | |

**Allowable Emissions** Allowable Emissions 3 of 4

| | |
|---|---|
| 1. Basis for Allowable Emissions Code:<br>**RULE** | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units:<br>**0.1 lb/ton dry Kiln feed** | 4. Equivalent Allowable Emissions:<br>**42.5** lb/hour **186.2** tons/year |
| 5. Method of Compliance:<br>**Annual Method 5** | |
| 6. Allowable Emissions Comment (Description of Operating Method):<br>**40 CFR 63.1345. For cooler only, based on feed to kiln. Equivalent allowable emissions are emissions out of the main stack.** | |

## F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

**Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions **4** of **4**

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: **OTHER** | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: **0.0095 gr/dscf** | 4. Equivalent Allowable Emissions: **1.6** lb/hour **7.0** tons/year |
| 5. Method of Compliance: **Annual Method 5** | |
| 6. Allowable Emissions Comment (Description of Operating Method): **Applies to emissions from baghouses other than main stack baghouse 331.BF200.** | |

**Allowable Emissions** Allowable Emissions _____ of _____

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: | 4. Equivalent Allowable Emissions: lb/hour tons/year |
| 5. Method of Compliance: | |
| 6. Allowable Emissions Comment (Description of Operating Method): | |

**Allowable Emissions** Allowable Emissions _____ of _____

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: | 4. Equivalent Allowable Emissions: lb/hour tons/year |
| 5. Method of Compliance: | |
| 6. Allowable Emissions Comment (Description of Operating Method): | |

## F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

**(Optional for unregulated emissions units.)**

**Potential/Estimated Fugitive Emissions**

**Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

| | |
|---|---|
| 1. Pollutant Emitted: **$PM_{10}$** | 2. Total Percent Efficiency of Control: |
| 3. Potential Emissions: **25.5** lb/hour **111.8** tons/year | 4. Synthetically Limited? ☐ Yes ☒ No |
| 5. Range of Estimated Fugitive Emissions (as applicable): to tons/year | |
| 6. Emission Factor: **84 percent of PM** Reference: | 7. Emissions Method Code: **0** |
| 8. Calculation of Emissions: **84 percent of PM for Main Stack** **100 percent of PM for other baghouses** | |
| 9. Pollutant Potential/Estimated Fugitive Emissions Comment: | |

## F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

**Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 2

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: **ESC PSD** | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: **0.056 lb/ton dry kiln feed (DKF)** | 4. Equivalent Allowable Emissions: **23.9** lb/hour **104.8** tons/year |
| 5. Method of Compliance: **Annual Method 5** | |
| 6. Allowable Emissions Comment (Description of Operating Method): **Applies to emissions from main stack only. See Part B, Tables 2-5 and 2-6.** | |

**Allowable Emissions** Allowable Emissions 2 of 2

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: **OTHER** | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: **100 percent of PM** | 4. Equivalent Allowable Emissions: **1.6** lb/hour **7.0** tons/year |
| 5. Method of Compliance: **Annual Method 9** | |
| 6. Allowable Emissions Comment (Description of Operating Method): **Applies to emissions from baghouses other than main stack baghouse 331.BF200.** | |

**Allowable Emissions** Allowable Emissions _____ of _____

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: | 4. Equivalent Allowable Emissions: lb/hour tons/year |
| 5. Method of Compliance: | |
| 6. Allowable Emissions Comment (Description of Operating Method): | |

## F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

**(Optional for unregulated emissions units.)**

**Potential/Estimated Fugitive Emissions**

**Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

| | |
|---|---|
| 1. Pollutant Emitted: **DIOX** | 2. Total Percent Efficiency of Control: |
| 3. Potential Emissions: **$3.46x10^{-7}$** lb/hour **$1.51x10^{-6}$** tons/year | 4. Synthetically Limited? ☐ Yes ☒ No |
| 5. Range of Estimated Fugitive Emissions (as applicable): to tons/year | |
| 6. Emission Factor: **0.4 ng/dscm @ 7% $O_2$** Reference: **40 CFR 63.1343(b)(3)** | 7. Emissions Method Code: **0** |

8. Calculation of Emissions:

**0.4 ng TEQ/dscm x (1 lb/454g) x (1 g/$10^9$ ng) x 230,911 dscf/min x ($m^3$/35.3 $ft^3$) x 60 min/hr = $3.46x10^{-7}$lb/hr**

**$3.46x10^{-7}$ lb/hr x 8,760 hr/yr x 1 ton/2,000 lb = $1.51x10^{-6}$ TPY**

9. Pollutant Potential/Estimated Fugitive Emissions Comment:
**Emissions are from main stack. Flow rate based on 360,637 dscfm @ 12% $O_2$ = 230,911 dscfm @ 7% $O_2$.**

## F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

**Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions **1** of **1**

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: **RULE** | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: **0.4 ng/dscm @ 7% $O_2$** | 4. Equivalent Allowable Emissions: **$3.46 \times 10^{-7}$** lb/hour **$1.51 \times 10^{-6}$** tons/year |
| 5. Method of Compliance: **EPA Method 23** | |
| 6. Allowable Emissions Comment (Description of Operating Method): **Based on limit in Permit No. 0250020-010-AC and Rule 40 CFR 63.1343(b)(3).** | |

**Allowable Emissions** Allowable Emissions _____ of _____

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: | 4. Equivalent Allowable Emissions: lb/hour tons/year |
| 5. Method of Compliance: | |
| 6. Allowable Emissions Comment (Description of Operating Method): | |

**Allowable Emissions** Allowable Emissions _____ of _____

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: | 4. Equivalent Allowable Emissions: lb/hour tons/year |
| 5. Method of Compliance: | |
| 6. Allowable Emissions Comment (Description of Operating Method): | |

## F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

**(Optional for unregulated emissions units.)**

**Potential/Estimated Fugitive Emissions**

**Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

| | |
|---|---|
| 1. Pollutant Emitted: **$NO_x$** | 2. Total Percent Efficiency of Control: |
| 3. Potential Emissions: **720** lb/hour **2,376** tons/year | 4. Synthetically Limited? ☐ Yes ☒ No |
| 5. Range of Estimated Fugitive Emissions (as applicable): to tons/year | |
| 6. Emission Factor: **See Below** Reference: | 7. Emissions Method Code: **0** |

8. Calculation of Emissions:

**24-Hour:**
**2.88 lb $NO_x$/ton clinker produced (24-hour average) x 250 TPH clinker produced (24-hour average) = 720 lb $NO_x$/hr**

**Annual:**
**2.17 lb $NO_x$/ton clinker produced (annual average) x 2,190,000 TPY clinker x 1 ton/2,000 lb = 2,376 TPY $NO_x$**

9. Pollutant Potential/Estimated Fugitive Emissions Comment:

## F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

**Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 3

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: **OTHER** | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: **720 lb/hr, 24-hr average** | 4. Equivalent Allowable Emissions: **720** lb/hour tons/year |
| 5. Method of Compliance: **$NO_x$ CEMS** | |
| 6. Allowable Emissions Comment (Description of Operating Method): **Proposed permit limit. Equivalent allowable emissions are emissions out of main stack.** | |

**Allowable Emissions** Allowable Emissions 2 of 3

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: **ESC PSD** | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: **2.17 lb/ton clinker** | 4. Equivalent Allowable Emissions: lb/hour **2,376** tons/year |
| 5. Method of Compliance: **$NO_x$ CEMS** | |
| 6. Allowable Emissions Comment (Description of Operating Method): **Annual limit in lb/ton based on 12-month rolling average.** | |

**Allowable Emissions** Allowable Emissions 3 of 3

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: **RULE** | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: **2.0 lb/MMBtu** | 4. Equivalent Allowable Emissions: **1,350** lb/hour **5,913** tons/year |
| 5. Method of Compliance: **$NO_x$ CEMS** | |
| 6. Allowable Emissions Comment (Description of Operating Method): **Emission limit based on Rule 62-296.570(4)(b)8. Maximum heat input is 675 MMBtu/hr.** | |

## F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

**(Optional for unregulated emissions units.)**

**Potential/Estimated Fugitive Emissions**

**Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

| | |
|---|---|
| 1. Pollutant Emitted: **CO** | 2. Total Percent Efficiency of Control: |
| 3. Potential Emissions: **576** lb/hour **2,190** tons/year | 4. Synthetically Limited? ☐ Yes ☒ No |
| 5. Range of Estimated Fugitive Emissions (as applicable): to tons/year | |
| 6. Emission Factor: **See Below** Reference: | 7. Emissions Method Code: **0** |

8. Calculation of Emissions:

**24-Hour:**
**2.3 lb CO/ton clinker produced (24-hour average) x 250 TPH clinker produced (24-hour average) = 576 lb CO/hr**

**Annual:**
**2.0 lb CO/ton clinker produced (annual average) x 2,190,000 TPY clinker x 1 ton/2,000 lb = 2,190 TPY CO**

9. Pollutant Potential/Estimated Fugitive Emissions Comment:

## F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

**Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 2

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: **OTHER** | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: **2.3 lb/ton CP** | 4. Equivalent Allowable Emissions: **576** lb/hour tons/year |
| 5. Method of Compliance: **EPA Method 10** | |
| 6. Allowable Emissions Comment (Description of Operating Method): **Allowable based on 24-hour block average. Annual average limit is 1.33 lb/ton clinker product.** | |

**Allowable Emissions** Allowable Emissions 2 of 2

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: **ESC PSD** | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: **2.0 lb/ton clinker** | 4. Equivalent Allowable Emissions: lb/hour **2,190** tons/year |
| 5. Method of Compliance: **EPA Method 10** | |
| 6. Allowable Emissions Comment (Description of Operating Method): **Annual limit in lb/ton clinker based on 30-day rolling average.** | |

**Allowable Emissions** Allowable Emissions _____ of _____

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: | 4. Equivalent Allowable Emissions: lb/hour tons/year |
| 5. Method of Compliance: | |
| 6. Allowable Emissions Comment (Description of Operating Method): | |

## F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

**(Optional for unregulated emissions units.)**

**Potential/Estimated Fugitive Emissions**

**Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

| | |
|---|---|
| 1. Pollutant Emitted: **VOC** | 2. Total Percent Efficiency of Control: |
| 3. Potential Emissions: **40** lb/hour **175** tons/year | 4. Synthetically Limited? ☐ Yes ☒ No |
| 5. Range of Estimated Fugitive Emissions (as applicable): to tons/year | |
| 6. Emission Factor: **Permit Limit** Reference: **Permit No. 0250020-016-AC** | 7. Emissions Method Code: **0** |

8. Calculation of Emissions:

**24-Hour:**
**0.16 lb VOC/ton clinker produced (24-hour average) x 250 TPH clinker produced (24-hour average) = 40 lb/hr**

**Annual:**
**0.16 lb VOC/ton clinker produced (annual average) x 2,190,000 TPY clinker produced x 1 ton/2,000 lb = 175 TPY VOC**

9. Pollutant Potential/Estimated Fugitive Emissions Comment:

## F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

**Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions **1** of **2**

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: **OTHER** | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: **40 lb/hr** | 4. Equivalent Allowable Emissions: **40** lb/hour tons/year |
| 5. Method of Compliance: **VOC CEMS** | |
| 6. Allowable Emissions Comment (Description of Operating Method): **Allowable based on 24-hour block average.** | |

**Allowable Emissions** Allowable Emissions **2** of **2**

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: **ESC PSD** | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: **0.16 lb/ton clinker** | 4. Equivalent Allowable Emissions: lb/hour **175** tons/year |
| 5. Method of Compliance: **VOC CEMS** | |
| 6. Allowable Emissions Comment (Description of Operating Method): **Emission limit in lb/ton clinker based on 12-month rolling average.** | |

**Allowable Emissions** Allowable Emissions _____ of _____

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: | 4. Equivalent Allowable Emissions: lb/hour tons/year |
| 5. Method of Compliance: | |
| 6. Allowable Emissions Comment (Description of Operating Method): | |

## F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

**(Optional for unregulated emissions units.)**

**Potential/Estimated Fugitive Emissions**

**Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.**

| | |
|---|---|
| 1. Pollutant Emitted: **SAM** | 2. Total Percent Efficiency of Control: |
| 3. Potential Emissions: **2.70** lb/hour **11.8** tons/year | 4. Synthetically Limited? ☐ Yes ☒ No |
| 5. Range of Estimated Fugitive Emissions (as applicable): to tons/year | |
| 6. Emission Factor: **0.0108 lb/ton clinker** Reference: **Vendor Information** | 7. Emissions Method Code: **2** |

8. Calculation of Emissions:

**Short-term:**
**0.0108 lb SAM/ton clinker produced (24-hour average) x 250 TPH clinker produced (24-hour average) = 2.70 lb/hr**

**Annual:**
**0.0108 lb SAM/ton clinker produced (annual average) x 2,190,000 TPY clinker produced x 1 ton/2,000 lb = 11.8 TPY SAM**

9. Pollutant Potential/Estimated Fugitive Emissions Comment:

## F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

**Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.**

**Allowable Emissions** Allowable Emissions 1 of 1

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: | 4. Equivalent Allowable Emissions: lb/hour tons/year |
| 5. Method of Compliance: | |
| 6. Allowable Emissions Comment (Description of Operating Method): | |

**Allowable Emissions** Allowable Emissions _____ of _____

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: | 4. Equivalent Allowable Emissions: lb/hour tons/year |
| 5. Method of Compliance: | |
| 6. Allowable Emissions Comment (Description of Operating Method): | |

**Allowable Emissions** Allowable Emissions _____ of _____

| | |
|---|---|
| 1. Basis for Allowable Emissions Code: | 2. Future Effective Date of Allowable Emissions: |
| 3. Allowable Emissions and Units: | 4. Equivalent Allowable Emissions: lb/hour tons/year |
| 5. Method of Compliance: | |
| 6. Allowable Emissions Comment (Description of Operating Method): | |

Table 2-6. Dry Kiln, Cooler, and Raw Mill (EU ID No. 028) Potential Emissions Vented From the Main Stack: **2,190,000 TPY Clinker (revised 9-28-05)**

| | Proposed Increase in Production | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | Emission Rate | | Current Permit Limits | | |
| Pollutant | Emission Factor | Activity Factor | lb/hr | TPY | lb/ton[b] | lb/hr | TPY |
| | | 24-Hour | | | | | |
| Particulate Matter (PM)[a] | 0.067 lb/ton DKF | 425 TPH DKF | 28.5 | -- | 0.125 | 50 | -- |
| Particulate Matter (PM10)[a] | 84% of PM | -- | 23.9 | -- | 84% of PM | 42 | -- |
| Sulfur Dioxide | 1.28 lb/ton CP | 250 TPH CP | 320 | -- | 1.28 | 320 | -- |
| Nitrogen Oxides | 2.88 lb/ton CP | 250 TPH CP | 720 | -- | 2.88 | 720 | -- |
| Carbon Monoxide | -- | 250 TPH CP | 576 | -- | -- | 576 | -- |
| Volatile Organic Compounds | 0.16 lb/ton CP | 250 TPH CP | 40 | -- | 0.16 | 40 | -- |
| Sulfuric Acid Mist | 0.0108 lb/ton CP | 250 TPH CP | 2.7 | -- | 0.0108 | 2.24 | -- |
| Dioxin/Furan | 0.4 ng/dscm TEQ | 230.911 dscf/min[c] | 3.46E-07 | -- | -- | -- | -- |
| | | Annual Average | | | | | |
| Particulate Matter (PM)[a] | 0.067 lb/ton DKF | 3,723,000 TPY DKF | -- | 124.7 | 0.125 | -- | 175 |
| Particulate Matter (PM10)[a] | 84% of PM | -- | -- | 104.8 | 84% of PM | -- | 147 |
| Sulfur Dioxide | 0.50 lb/ton CP | 2,190,000 TPY CP | -- | 548 | 0.98 | -- | 806 |
| Nitrogen Oxides | 2.17 lb/ton CP | 2,190,000 TPY CP | -- | 2,376 | 2.38 | -- | 1,953 |
| Carbon Monoxide | 2.0 lb/ton CP | 2,190,000 TPY CP | -- | 2,190 | 1.77 | -- | 1,457 |
| Volatile Organic Compounds | 0.16 lb/ton CP | 2,190,000 TPY CP | -- | 175 | 0.189 | -- | 155 |
| Sulfuric Acid Mist | 0.0108 lb/ton CP | 2,190,000 TPY CP | -- | 11.8 | 0.0108 | -- | 8.68 |
| Dioxin/Furan | 3.46E-07 lb/hr | 8,760 hr/yr | -- | 1.51E-06 | -- | -- | -- |

DKF = Dry Kiln Feed
CP = Clinker Production
TPH = tons per hour
TPY = tons per year

[a] Includes Coal Mill (EU ID No 001) emissions during concurrent operation of Kiln/Cooler/Raw Mill and Coal Mill.

[b] 24-hour limits are based on 250 TPH clinker production rate.

[c] Flow rate @ 7% $O_2$.

Table 3-4. Net Change in Emissions and PSD Significant Emission Rates, Tarmac Cement Plant Modification: **2,190,000 TPY Clinker (revised 9-29-05)**

| | PSD Baseline Emissions (TPY)[a] | | | | | | Future Potential Emissions (TPY) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pollutant | Kiln No. 2 | Kiln No 3 | Material Handling Point Sources | Slag Dryer | Material Handling Fugitive Sources[c] | Total | New Raw Mill Preheater/ Calciner/Kiln/ Cooler | Material Handling Point Sources | Material Handling Fugitive Sources | Total | Net Increase in Emissions (TPY) | PSD Significant Emission Rate (TPY) | PSD Review Applies? |
| Particulate Matter [PM(TSP)] | 41.13 | 99.16 [b] | 199.50 | 1.35 | 43.96 | 385.1 | 124.7 | 207.9 | 22.7 | 355.3 | -29.8 | 25 | No |
| Particulate Matter ($PM_{10}$) | 34.97 | 84.29 [b] | 171.20 | 1.15 | 15.39 | 307.0 | 104.8 | 207.9 | 8.0 | 320.6 | 13.6 | 15 | No |
| Sulfur Dioxide | 42.74 | 471.60 | -- | NR | -- | 514.3 | 548 | -- | -- | 548 | 33.7 | 40 | No |
| Nitrogen Dioxide | 516.70 | 1,827.28 | -- | NR | -- | 2,344.0 | 2,376 | -- | -- | 2,376 | 32.0 | 40 | No |
| Carbon Monoxide | 71.94 | 1,251.24 | -- | NR | -- | 1,323.2 | 2,190 | -- | -- | 2,190 | 866.8 | 100 | Yes |
| Votatile Organic Compounds | 27.78 | 117.39 [c] | -- | NR | -- | 145.2 | 175 | -- | -- | 175 | 29.8 | 40 | No |
| Sulfuric Acid Mist | 0.30 | 18.86 [d] | -- | NR | -- | 19.16 | 11.8 | -- | -- | 11.8 | -7.3 | 7 | No |
| Lead | 0.00757 | 0.03096 | -- | 0.00080 | -- | 0.0393 | 0.0465 | -- | -- | 0.0465 | 0.0071 | 0.6 | No |
| Mercury | 0.00458 | 0.01875 | -- | 0.00027 | -- | 0.0236 | 0.0149 | -- | -- | 0 0149 | -0.0087 | 0.1 | No |

NR = not reported
NEG = Negligible.

[a] Based on average of 2002-2003 AOR data,

[b] For PM/PM10, only 2003 data used since 2002 was not representative.

[c] Based on historic test data using 2002-2003 production data.

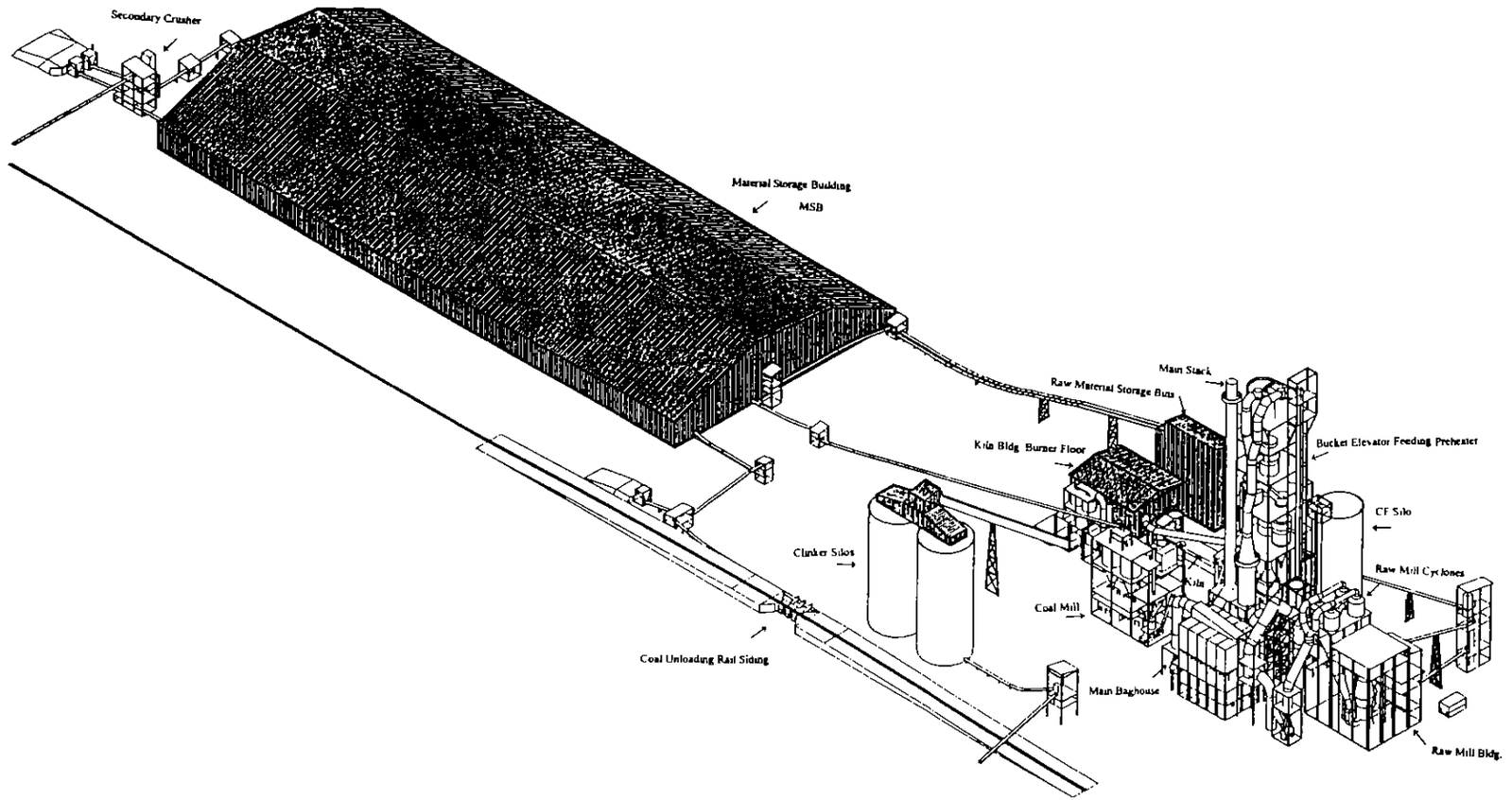
[d] Not reported on AOR. Based on 4% of $SO_2$ emissions.

[e] Not quantified in AOR. Used 1996-1997 baseline emissions based on 2002-2003 emissions being at least as high.

Table 1. Maximum CO Concentrations Predicted for Titan Pennusco Dry Process Cement Plant Compared to the EPA Class II Significant Impact Levels

| Averaging Time | Year | Concentration[a] ($ug/m^3$) | Receptor Location (m) X | Receptor Location (m) Y | Period Ending (YYMMDDHH) | EPA Class II Significant Impact Levels ($ug/m^3$) |
|---|---|---|---|---|---|---|
| 8-Hour | 1987 | 31.0 | 880.3 | -73 9 | 87081116 | 500 |
| | 1988 | 18.8 | -2750 | 0 | 88091716 | |
| | 1989 | 19.6 | -1800 | -400 | 89050316 | |
| | 1990 | 28.0 | -1900 | 800 | 90071116 | |
| | 1991 | 21.6 | -2100 | 1400 | 91081216 | |
| 1-Hour | 1987 | 115.4 | -200 | -1000 | 87091412 | 2,000 |
| | 1988 | 83.9 | -1200 | -300 | 88062911 | |
| | 1989 | 113 6 | 910.4 | -36 9 | 89051811 | |
| | 1990 | 97.4 | 600 | -800 | 90070711 | |
| | 1991 | 89.2 | -1143 6 | 600.8 | 91081111 | |

[a] Highest predicted concentration using the ISCST3 model and 5 years of meteorological data


Secondary Crusher
Material Storage Building
MSB
Main Stack
Raw Material Storage Bins
Kiln Bldg. Burner Floor
Bucket Elevator Feeding Preheater
CF Silo
Clinker Silos
Raw Mill Cyclones
Kiln
Coal Mill
Coal Unloading Rail Siding
Main Baghouse
Raw Mill Bldg.

# Department of Environmental Protection

Jeb Bush
Governor

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

Colleen M. Castille
Secretary


May 18, 2005

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Hardy Johnson
President, Florida Division
Tarmac America
455 Fairway Drive
Deerfield Beach, Florida 33441

Re: DEP File No. 0250020-017-AC
Pennsuco Cement Plant

Dear Mr. Johnson:

The Department received your application to increase the annual feed rate and clinker production rate at the Miami Cement Plant. We appreciated the opportunity to meet with environmental and plant personnel in April to discuss the status of this request. Based on the review of the application, the Department has determined that the application is incomplete and requires the submittal of additional information as described below.

Following are the items required to process the annual production increase application.

1. Test Results

   Particulate Matter (PM)/ and or Opacity Test Results of Materials Handling Point Sources (all baghouses) as stated in Section III- Subsection C, Specific Condition of Permits 0250020-010-AC and 0250020-016. Please submit a summary of these test results. We received the summary of the test reports dated January 12, 2005 for the *main stack*. We are reviewing this report.

2. Fugitive Emissions Evaluation:

   During a recent site visit, Department personnel observed visible fugitive emissions from the unloading, handling, and loading of raw materials as well as vehicular traffic over unpaved roads. As these types of activities tend to increase with increased production, please submit your plans to mitigate these additional impacts.

3. Submission of five year contemporaneous emission calculations.

   This relates to the information submitted in Table 3-4 as "Net Changes in Emissions and PSD Significant Emissions Rates". The original permit issued in 1999 for the modernization relied on a tabulation of emissions reductions (shutdowns of old wet systems) and increases (including the new dry system) so that net emissions reductions were achieved. This production increase application relies again on a comparison of the same past actual emissions (1998 and previous years) to future potential emissions after the production increase. Updated contemporaneous emission calculations are required based on reductions and increases from 2000 to 2004, inclusive.

4. Missing Baghouse Design Specifications

   Submit missing baghouse design specifications as indicated in Permit 0250014-016-AC.

5. Continuous Emissions Monitoring (CEM) Data

   Submit recent (6-months) electronic file of the CEM and COMS data for all pollutants subject to Continuous Emissions Monitoring requirements.

6. Process Description

   Please submit a brief description of the operations conducted at each process subsystem (i.e. finish mill system, coal handling system, pyroprocessing/raw mill system, clinker handling system, coal handling system, cement products system)

[Basis is: Permit 0250014-010-AC and Permit 0250014-016-AC; Rule 62-4.070, F.A.C., Standards for Issuing and Denying Permits; and Rule 62-212.400, F.A.C., Prevention of Significant Deterioration]

Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. Please note that per Rule 62-4.055(1): "The applicant shall have ninety days after the Department mails a timely request for additional information to submit that information to the Department ..... Failure of an applicant to provide the timely requested information by the applicable date shall result in denial of the application."

If you have any questions regarding this matter, please call me at 850/921-9523 or Teresa Heron at 850/921-9529.

Sincerely,

A. A. Linero, Program Administrator
South Permitting Section

Cc: Scott Quaas, Titan
David Buff, P.E.
H. Patrick Wong, Miami-Dade-DERM

**Golder Associates Inc.**

6241 NW 23rd Street, Suite 500
Gainesville, FL USA 32653
Telephone (352) 336-5600
Fax (352) 336-6603
www.golder.com



July 22, 2005 0537511

Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Attention: Mr. A. A. Linero, Program Administrator, South Permitting Section

RE: TITAN AMERICA PENNSUCO CEMENT PLANT
DEP FILE NO. 0250020-017-~~AV~~ AC
APPLICATION TO INCREASE PRODUCTION

Dear Mr. Linero:

Titan America has received the Department's request for additional information (RAI) dated May 18, 2005. On behalf of Titan, please find below responses to each of the Department's requests. The responses are based in part on our meeting with you and your staff on June 29, 2005, in Tallahassee. The responses are presented in the same order as in the RAI.

**1. Test Results**
Please see attached table which summarizes the latest VE tests conducted on all the sources located at Pennsuco for which VE testing was required.

**2. Fugitive Emissions Evaluation**
Titan has met with its Pennsuco cement plant and aggregate plant managers and extensively discussed improvements which could be implemented to further reduce potential fugitive dust emissions from the facility. The result from this meeting is the attached "Fugitive Dust Improvement Plan". The Plan details the improvements Titan has already implemented with the startup of the new dry process cement plant, and the improvements planned to be undertaken in the future.

**3. Submission of five year contemporaneous calculations**
Based on our meeting of June 29, it was agreed that the original PSD baseline emissions (1996-1997) would be retained as the basis of determining PSD applicability for the project. From Golder's review of the historic emissions data reported in the AORs for the facility, it was determined that using future years for the PSD baseline (2000-2004) would result in some pollutants having a lower baseline while other pollutants (such as $NO_x$) would have a higher baseline. Overall, it was agreed that there would be no benefit in choosing a new baseline period for PSD applicability, and it would not result in significantly different emission rates for the new dry process plant.

**4. Missing Baghouse Design Specifications**
The following baghouse design specifications were identified as being missing from permit no. 0250020-016-AC. These were for the following:

a. Clinker handling & Storage System (EU 027) – Clinker Silos 21-23 and 26-28 – baghouse F633
b. Finish Mills (EU 012) – Finish Mill No. 3 – O-Sepa Cement Separator – baghouse 533.BF340
c. Packhouse – all baghouses
d. Raw Material Handling (EU 029) – Lime/Gyp Silos – baghouse 232.BF01

The missing information for items a., b., and c. above are attached. For item d., the Lime/Gyp Silos, these have been eliminated (were never constructed and will not be constructed). Note that for baghouse F633, the design air flow rate (1,500 cfm) is less than that contained in the permit application (6,000 cfm). However, we prefer to retain the previously submitted calculation of PM emissions as this will be conservative and result in insignificant change in PM emissions fro the project. As an alternative, you may wish to make the change in the PM emissions yourself.

**5. Continuous Emissions Monitoring (CEM) Data**
Please see attached summary of CEMS and COMS data from the new dry process plant's main stack. These data represent 24-hour averages. These data have also been sent to you electronically.

**6. Process Description**
Process descriptions for each emissions unit have been developed and are attached.

As discussed in our meeting, Titan would like to proceed in a timely manner in order to receive a final construction permit no later than October 1, 2005. Thank you for consideration of this information. If you have any questions, please do not hesitate to call me at (352)336-5600.

Sincerely,

GOLDER ASSOCIATES INC.

David A. Buff

David A. Buff, P.E., Q.E.P.
Principal Engineer
Florida P. E. #19011

SEAL

DB/jej

Enclosures

cc: T. Lancaster
A. Townsend
Miami-Dade County DERM
S. McCann

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TITAN AMERICA

## Visible Emissions Observations Summary

| EU ID. | BF Unit ID | EU Source | Model | CFM | VE Date | Opacity |
|---|---|---|---|---|---|---|
| 010 | F-130 | Finish Mill #1 | 468 AMT | 12000 | 12/16/04 | 0% |
| 010 | F-113 | Finish Mill #1 | 16FF-10-20 | 11800 | 12/16/04 | 0% |
| 011 | F-230 | Finish Mill #2 | 468 AMT | 12000 | 12/17/04 | 0% |
| 011 | F-213 | Finish Mill #2 | 16FF-10-20 | 11800 | 12/17/04 | 0% |
| 012 | F-313 | Finish Mill #3 | 196S-10-20 | 8000 | 12/16/04 | 0% |
| 012 | F-330 | Finish Mill #3 | 702 AMT | 20000 | 12/16/04 | 0% |
| 012 | F-332 | Finish Mill #3 | 390 AMT | 13500 | 12/16/04 | 0% |
| 013 | F-430 | Finish Mill #4 | 6 zone #96 | 30000 | 12/16/04 | 0% |
| 013 | F-432 | Finish Mill #4 | 5 zone #48 | 17000 | 12/16/04 | 0% |
| 013 | F-728 | Finish Mill #4 | 6 zone #96 | 20000 | 12/16/04 | 0% |
| 014 | F-511 | Cement Storage | 2 zone #78 | 18000 | 12/17/04 | 0% |
| 014 | F-512 | Cement Storage | 156 AMT | 10000 | 12/17/04 | 0% |
| 014 | F-513 | Cement Storage | 121S-10-20B | 5000 | 12/17/04 | 0% |
| 014 | F-514 | Cement Storage | 121S-10-20B | 5000 | 12/17/04 | 0% |
| 014 | F-515 | Cement Storage | 121S-10-20B | 5000 | 12/17/04 | 0% |
| 015 | B-110 | Bulk Cement Loadout | 120 AMT | 3000 | 12/16/04 | 0% |
| 015 | B-210 | Bulk Cement Loadout | 120 AMT | 3000 | 12/17/04 | 0% |
| 015 | B-372 | Bulk Cement Loadout | 36S-8-30-C | 2000 | 12/16/04 | 0% |
| 015 | B-374 | Bulk Cement Loadout | 36S-8-30-C | 2000 | 12/16/04 | 0% |
| 015 | B-382 | Bulk Cement Loadout | 121S-10-20C | 5000 | 12/16/04 | 0% |
| 016 | B-621 | Packhouse | 2 zone #78 | 12000 | 12/17/04 | 0% |
| 026 | 461.BF130 | Coal System | 36TAX10FM | 1400 | 12/21/04 | 0% |
| 026 | 461.BF230 | Coal System | 36TAX10FM | 1400 | 12/21/04 | 0% |
| 026 | 461.BF350 | Coal System | 121CX10 | 5550 | 12/21/04 | 0% |
| 026 | 461.BF650 | Coal System | 800/7 | 294 | 12/21/04 | 0% |
| 026 | 461.BF750 | Coal System | 800/7 | 294 | 12/21/04 | 0% |
| 027 | K-633 | Clinker Handling & Storage | HE-66 | 1500 | 12/16/04 | 0% |
| 027 | 441.BF540 | Clinker Handling & Storage | 100C10 | 4600 | 12/20/04 | 0% |
| 027 | 481.BF140 | Clinker Handling & Storage | 196C10 | 12000 | 12/16/04 | 0% |
| 027 | 481.BF330 | Clinker Handling & Storage | 100C10 | 6100 | 12/16/04 | 0% |
| 027 | 481.BF540 | Clinker Handling & Storage | 100C10 | 4700 | 12/16/04 | 0% |
| 027 | 481.BF640 | Clinker Handling & Storage | 100C10 | 4700 | 12/16/04 | 0% |
| 027 | 481.BF730 | Clinker Handling & Storage | 304C10 | 18700 | 12/16/04 | 0% |
| 027 | 481.BF930 | Clinker Handling & Storage | 304C10 | 15000 | 12/16/04 | 0% |
| 028 | 331.BF645 | Pyroprocessing | MVL54H | 3500 | not operating | 0% |
| 028 | 331.BF740 | Pyroprocessing | 100C10 | 4250 | 12/21/04 | 0% |
| 028 | 341.BF350 | Blending & Kiln Feed | 64C10 | 3760 | 12/21/04 | 0% |
| 028 | 351.BF410 | Blending & Kiln Feed | 64C10 | 4000 | 12/21/04 | 0% |
| 028 | 351.BF440 | Blending & Kiln Feed | 100C10 | 4760 | 12/21/04 | 0% |
| 028 | 351.BF470 | Blending & Kiln Feed | 100C10 | 4100 | 12/20/04 | 0% |
| 029 | 311.BF650 | Raw Mill Feed & Grinding | 144C10 | 8500 | 12/17/04 | 0% |
| 029 | 311.BF750 | Raw Mill Feed & Grinding | 144C10 | 7750 | 12/17/04 | 0% |
| 029 | 311.BF950 | Raw Mill & Feed Grinding | 225C10 | 11700 | 12/20/04 | 0% |
| 029 | 321.BF470 | Raw Mill & Feed Grinding | 225C10 | 10800 | 12/21/04 | 0% |

* all VEO's Method 9 -- 30 minutes

# FUGITIVE DUST IMPROVEMENT PLAN
# TITAN AMERICA PENNSUCO PLANT
## July 2005

Titan America (TA) has, over the last three years, completed projects not only in the cement plant but also within the entire facility that has contributed to a significant reduction in fugitive dust emissions. It is estimated that the reduction in fugitive dust emissions could be as high as approximately 25 to 30 percent of total particulate matter (PM) emissions.

The new preheater/calciner/kiln has reduced point source PM emissions by approximately 5 tons per year (TPY) by eliminating the dust insufflation system. However, this system was a significant source of fugitive dust emissions due to the transfer of the insufflated dust by front-end loaders. The new system has eliminated cement kiln dust load-out and the truck traffic involved in this operation.

The new dry process system has also eliminated the four (4) electrostatic precipitators (ESPs) on the old wet process kilns and clinker coolers, and replaced them with a single baghouse. TA has also reduced fugitive dust emissions by significantly reducing outside storage and handling of raw materials and fuels. Whereas these materials were stored completely outside in the past and moved by front-end loader, they are now stored in the new raw material and fuel storage building, and moved primarily by stacker/reclaimer and covered conveyor belts.

TA has reduced truck traffic within the aggregate facility by approximately 20 percent by selling less trucked aggregate product to other companies within the area. Traffic patterns within the facility have been changed to keep more trucks on concrete surfaces within the loadout and Packhouse part of the facility.

Approximately 3 miles of concrete paving has also been added to the facility, further reducing fugitive emissions. Two watering trucks are now serving the entire facility. Dedicated berm areas have been established throughout the facility to further reduce wind erosion from ground areas.

TA has also committed to completing the following items within the next 18 to 24 months:

- TA is evaluating further changes and improvements to the traffic patterns at the facility, as well as the need for additional paving, in order to further reduce fugitive dust emissions.
- TA is planning to install a wheel wash system in an area directly leading out of the aggregate facility. This area will also include a dewatering area for trucks which will assist in cutting down on the amount of drag-out from the facility.
- The dust collector preventative maintenance crew is in the process of developing and implementing an Operation and Maintenance Program for all dust collectors at the facility. Upgrades to the air slides on the cement load-out and the new Packhouse will be completed within the next 2 months. This new system will eliminate a package load-out system designed and built in the early 1900's. Within this area a new clunker silo distribution system is being designed to improve the distribution of clunker to areas of the plant. This will result in reducing fugitive dust emissions from these areas.
- The last project TA is in the process of completing is to upgrade the finish mill systems. This will include installing a new finish mill (No. 6) and a dust suppression system. Once this system is in operation, one of the old finish mill systems will be permanently shut down.
- Finally, TA has committed to landscape upgrades to further enhance not only the aesthetics of the facility, but also to further decrease the wind erosion of unpaved areas.

Table 1. Missing Control Equipment Information

| Source ID | Baghouse ID No. | Manufacturer | Model No. | Flow Rate (acfm) | Flow Rate (dscfm) | Cloth Area ($ft^2$) | Air to Cloth Ratio |
|---|---|---|---|---|---|---|---|
| **Clinker Handling & Storage System (EU 027)** | | | | | | | |
| Clinker Silos 21-23 and 26-28 | F633 | Norblo | HE-66 | 1,500 | -- | 1,040 | 1.4 |
| **Finish Mills (EU 012)** | | | | | | | |
| Finish Mill No. 3 (O-Sepa Cement Separator) | 533.BF340 | Fuller | 1110S12(6) | 77,800 | 65,307 | 20,923 | 3.7 |

TITAN AMERICA

**Pennsuco Cement**
**Packhouse Baghouse Descriptions**

Control Equipment Information for Packhouse

| ID No: | **BF-120** | **BF-200** | **BF-400** |
|---|---|---|---|
| Model: | 100TA8 | 144TA8 | 304C10 |
| Make | FLS Airtech's Model "TA" Series Jet Pulse | FLS Airtech's Model "TA" Series Jet Pulse | FLS Airtech's Model "C" Series Jet Pulse |
| Design Air Volume | 4,000 acfm | 6,200 acfm | 15,000 acfm |
| Design Air Temperature: | 275°F Max | 275°F Max. | 250°F |
| Dust | Cement | Cement | Cement |
| Inlet Grain Loading: | ≤ 5.0 grains per ACF | ≤ 5.0 grains per ACF | ≤ 5.0 grains per ACF |
| Outlet Grain Loading: | 0.01 grains per ACF | 0 01 grains per ACF | 0 01 grains per ACF |
| Total Filter Area | 1,047 $ft^2$ | 1,508 $ft^2$ | 3,958 $ft^2$ |
| Air to Cloth Ratio. | 3 82:1 | 4 11 to 1 | 3 8 to 1 |
| Interstitial Velocity: | 140 FPM | 158 FPM | |
| Baghouse Foot Print: | 6' 2½" x 6' 2½" | 7' 6½" x 7' 4½" | 11' - 11" x 9' - 6" |
| Overall Height: | 23' 5" from hopper flange to top of Handrail | 15' 10" from hopper flange to top of Handrail | 34' – 1" |
| Compressed Air Used: | 10 to 20 scfm @90 psig and 200 milliseconds | 15 to 30 scfm @ 90 psig and 200 milliseconds | |
| Filter Access: | Top | Top | Side |
| Filter Quantity | 100 bags | 144 bags | 304 bags |
| Filter Size: | 5" Diameter x 96" long | 5" Diameter x 96" long | 5" Diameter x 120" long |
| Design Pressure: | +/- 20" w.c. | +/- 20" w.c | +/- 20" w.c. |

**Summary of Titan America CEMS/COMS Data for New Raw Mill/Preheater/Kiln System (Main Stack)**

**Note: all values are 24-hour averages**

| | Opacity | Clinker Prod. | SO2 | NOx | VOC | CO | PMCD Inlet Temp. |
|---|---|---|---|---|---|---|---|
| | % | short TPH | lb/hr | lb/hr | lb/hr | lb/ton | 3-hr °F |
| 1-Jan-05 | 3.8 | 222.5 | | 369.9 | 20.0 | 1.74 | 214.5 |
| 2-Jan-05 | 3.0 | 215.8 | 0.1 | 559.9 | 15.7 | 1.79 | 232.0 |
| 3-Jan-05 | 3.4 | 221.2 | | 557.8 | 17.8 | 1.84 | 301.6 |
| 4-Jan-05 | 3.5 | 211.6 | | 593.4 | 14.8 | 1.75 | 210.6 |
| 5-Jan-05 | 3.2 | 225.8 | | 548.3 | 17.4 | 1.92 | 255.0 |
| 6-Jan-05 | 3.4 | 225.7 | | 474.1 | 17.2 | 1.89 | 277.3 |
| 7-Jan-05 | 4.5 | 225.6 | | 533.5 | 22.0 | 2.18 | 331.6 |
| 8-Jan-05 | 3.9 | 224.6 | | 533.0 | 20.3 | 1.96 | 208.1 |
| 9-Jan-05 | 4.7 | 227.6 | | 566.3 | 20.9 | 1.90 | 223.0 |
| 10-Jan-05 | 4.0 | 223.6 | | 515.1 | 22.2 | 1.94 | 235.6 |
| 11-Jan-05 | 4.0 | 224.2 | | 562.1 | 26.2 | 2.06 | 325.7 |
| 12-Jan-05 | 4.1 | 224.4 | | 546.8 | 24.7 | 1.98 | 275.1 |
| 13-Jan-05 | 3.0 | 209.1 | | 506.6 | 20.0 | 1.92 | 330.1 |
| 14-Jan-05 | 3.8 | 202.9 | | 603.6 | 16.4 | 1.89 | 209.6 |
| 15-Jan-05 | 4.1 | 226.1 | | 582.1 | 19.4 | 1.91 | 247.4 |
| 16-Jan-05 | 4.4 | 225.8 | | 579.5 | 17.5 | 1.66 | 228.7 |
| 17-Jan-05 | 4.8 | 223.8 | | 549.9 | 17.1 | 1.55 | 232.8 |
| 18-Jan-05 | 4.7 | 222.1 | | 474.5 | 16.2 | 1.59 | 246.9 |
| 19-Jan-05 | 3.8 | 194.9 | | | | 1.73 | 339.1 |
| 20-Jan-05 | 3.9 | 153.8 | 0.4 | 629.1 | 9.0 | 1.87 | 263.5 |
| 21-Jan-05 | 4.5 | 188.4 | | 556.1 | 11.6 | 1.76 | 225.2 |
| 22-Jan-05 | 3.9 | 203.4 | | | | 1.62 | 258.1 |
| 23-Jan-05 | 4.4 | 218.5 | | 437.4 | 15.2 | 1.41 | 218.2 |
| 24-Jan-05 | 4.2 | 224.0 | | 481.6 | 16.2 | 1.35 | 220.5 |
| 25-Jan-05 | 4.3 | 220.7 | | 467.0 | 16.5 | 1.23 | 232.4 |
| 26-Jan-05 | 3.6 | 206.2 | | 459.0 | 12.8 | 1.18 | 283.6 |
| 27-Jan-05 | 4.0 | 204.0 | | 445.4 | 16.1 | 1.18 | 227.5 |
| 28-Jan-05 | 3.8 | 212.7 | | 432.8 | 15.8 | 1.10 | 225.3 |
| 29-Jan-05 | 3.9 | 216.7 | | 524.4 | 14.3 | 1.11 | 263.7 |
| 30-Jan-05 | 3.9 | 190.4 | | | | 1.37 | 370.7 |
| 31-Jan-05 | | | | | | | |
| 1-Feb-05 | 4.9 | 183.3 | 0 | 664.2 | 12.2 | 1.29 | 217.5 |
| 2-Feb-05 | 4.5 | 198.9 | 0 | 503.2 | 13.5 | 1.28 | 241.7 |
| 3-Feb-05 | 4.1 | 198.4 | 0 | 487.7 | 13.0 | 1.30 | 247.9 |
| 4-Feb-05 | 4.6 | 201.6 | 0 | 529.4 | 13.5 | 1.28 | 258.9 |
| 5-Feb-05 | 4.5 | 199.8 | 0 | 512.7 | 12.3 | 1.15 | 245.7 |
| 6-Feb-05 | 4.8 | 187.3 | 0 | 423.7 | 10.0 | 1.03 | 210.4 |
| 7-Feb-05 | 3.9 | 176.9 | 0 | | | 1.08 | 344.1 |
| 8-Feb-05 | 4.0 | 167.7 | 0 | 675.3 | 9.2 | 1.26 | 254.1 |
| 9-Feb-05 | 3.7 | 174.7 | 0 | 598.7 | 11.1 | 1.35 | 232.4 |
| 10-Feb-05 | 3.7 | 180.3 | 0 | 471.6 | 12.3 | 1.83 | 241.3 |
| 11-Feb-05 | 3.9 | 180.9 | 0 | 489.5 | 12.9 | 1.92 | 267.0 |
| 12-Feb-05 | 4.3 | 181.7 | 0 | 561.2 | 11.4 | 1.59 | 233.8 |
| 13-Feb-05 | 3.7 | 192.6 | 0 | 576.1 | 11.3 | 1.58 | 206.3 |
| 14-Feb-05 | 3.6 | 216.9 | 0 | 484.4 | 15.3 | 1.56 | 232.7 |
| 15-Feb-05 | 3.4 | 216.5 | 0 | 516.5 | 17.1 | 1.64 | 253.1 |
| 16-Feb-05 | 3.5 | 221.3 | 0 | 456.2 | 16.5 | 1.63 | 194.0 |
| 17-Feb-05 | 3.9 | 209.0 | 0 | 474.8 | 18.6 | 1.98 | 296.2 |
| 18-Feb-05 | 4.3 | 223.9 | 0 | 433.1 | 16.8 | 1.67 | 193.6 |
| 19-Feb-05 | 3.9 | 225.7 | 0 | 439.4 | 16.7 | 1.58 | 226.2 |
| 20-Feb-05 | 4.4 | 225.6 | 0 | 485.5 | 16.8 | 1.50 | 248.3 |
| 21-Feb-05 | 4.0 | 208.4 | 0 | 517.2 | 16.7 | 1.78 | 301.1 |
| 22-Feb-05 | 4.0 | 206.8 | 0 | 457.5 | 16.8 | 1.66 | 242.8 |
| 23-Feb-05 | 3.6 | 213.6 | 0 | 488.3 | 17.8 | 1.69 | 251.9 |

**Summary of Titan America CEMS/COMS Data for New Raw Mill/Preheater/Kiln System (Main Stack)**

Note: all values are 24-hour averages

| | Opacity | Clinker Prod. | SO2 | NOx | VOC | CO | PMCD Inlet Temp. |
|---|---|---|---|---|---|---|---|
| | % | short TPH | lb/hr | lb/hr | lb/hr | lb/ton | 3-hr °F |
| 24-Feb-05 | 3.2 | 212.9 | 0 | 176.1 | 13.7 | 1.39 | 239.0 |
| 25-Feb-05 | 2.5 | 205.7 | 0 | 493.2 | 12.8 | 1.62 | 224.2 |
| 26-Feb-05 | 3.0 | 211.7 | 0 | | | 1.45 | 230.2 |
| 27-Feb-05 | 3.6 | 152.7 | 0 | 481.4 | 7.3 | 1.32 | 270.3 |
| 28-Feb-05 | 3.7 | 197.7 | 0 | 454.4 | 11.2 | 1.46 | 207.5 |
| 1-Mar-05 | 3.2 | 195.6 | 0 | 444.4 | 11.9 | 1.73 | 273.2 |
| 2-Mar-05 | | | 0 | | | 1.77 | |
| 3-Mar-05 | 2.5 | 195.6 | 0 | 444.2 | 12 0 | 1.55 | 211.9 |
| 4-Mar-05 | 1.5 | 202.0 | 0 | 518.5 | 11.8 | 1.33 | 236.3 |
| 5-Mar-05 | 1.1 | 196.7 | 0 | 529.7 | 11.1 | 1.40 | 223.3 |
| 6-Mar-05 | 1.3 | 215.1 | 0 | 505.3 | 12.5 | 1.12 | 231.2 |
| 7-Mar-05 | 1.5 | 216.6 | 0 | 459.5 | 11.8 | 1.21 | 267.7 |
| 8-Mar-05 | 1.8 | 211.7 | 0 | 479.9 | 12.1 | 1.22 | 264.6 |
| 9-Mar-05 | 2.1 | 190.5 | 0 | 483.3 | 11.0 | 1.40 | 469.9 |
| 10-Mar-05 | 2.4 | 184.5 | 0 | 518.5 | 9.4 | 1.30 | 244.2 |
| 11-Mar-05 | 2.6 | 176.2 | 0 | 529.4 | 8.5 | 1.36 | 274.0 |
| 12-Mar-05 | 2.0 | 168.5 | 0 | 469.3 | 8.2 | 1.40 | 249.1 |
| 13-Mar-05 | 2 1 | 179.2 | 0 | 448.5 | 9.9 | 1.75 | 237.8 |
| 14-Mar-05 | 2.1 | 187.4 | 0 | 466.3 | 10.6 | 1.54 | 253.8 |
| 15-Mar-05 | 2.1 | 181.0 | 0 | 458.1 | 12.1 | 1.93 | 261.1 |
| 16-Mar-05 | 2.0 | 194.4 | 0 | 481.6 | 16.2 | 1.65 | 220.2 |
| 17-Mar-05 | 2.4 | 186.6 | 0 | 525.1 | 14.6 | 1.80 | 280.2 |
| 18-Mar-05 | 2.5 | 185.3 | 0 | 492.2 | 13.3 | 1.87 | 410.4 |
| 19-Mar-05 | 2.4 | 192.0 | 0 | 535.8 | 17.9 | 1.75 | 225 3 |
| 20-Mar-05 | 2.7 | 214.3 | 0 | 509.1 | 12.1 | 1.42 | 190.6 |
| 21-Mar-05 | 2.0 | 206.3 | 0 | 543.8 | 15 5 | 1.70 | 289.1 |
| 22-Mar-05 | 2.1 | 210.1 | 0 | 520.1 | 15.8 | 1.79 | 218.0 |
| 23-Mar-05 | 2.0 | 217.8 | 0 | 553.2 | 15.4 | 1.90 | 206.5 |
| 24-Mar-05 | 1.7 | 215.8 | 0 | 556.2 | 17.6 | 1.92 | 203.5 |
| 25-Mar-05 | 1.0 | 208.3 | 0 | | | 2.33 | 309.5 |
| 26-Mar-05 | | | 0 | | | 2.37 | |
| 27-Mar-05 | | | 0 | | | 0.00 | |
| 28-Mar-05 | 1.3 | 211.6 | 0 | 555.7 | 17 2 | 1.89 | 195.1 |
| 29-Mar-05 | 1.8 | 221.0 | 0 | 581.7 | 15.4 | 2.24 | 278.8 |
| 30-Mar-05 | 1.3 | 206.2 | 0 | 533.0 | 10.9 | 1.63 | 217.2 |
| 31-Mar-05 | 1.2 | 200.6 | 0 | | | 1.63 | 261.8 |
| 1-Apr-05 | | | | | | | |
| 2-Apr-05 | | | | | | | |
| 3-Apr-05 | | | | | | | |
| 4-Apr-05 | | | | | | | |
| 5-Apr-05 | | | | | | | |
| 6-Apr-05 | | | | | | | |
| 7-Apr-05 | | | | | | | |
| 8-Apr-05 | | | | | | | |
| 9-Apr-05 | | | | | | | |
| 10-Apr-05 | | | | | | | |
| 11-Apr-05 | | | | | | | |
| 12-Apr-05 | 0.7 | 146 4 | | | | 2.45 | 270.6 |
| 13-Apr-05 | 1.3 | 184.7 | 0.9 | 599.3 | 9 4 | 2.23 | 293.5 |
| 14-Apr-05 | 1.1 | 205.7 | 0.1 | 509.9 | 14.2 | 1.55 | 252.2 |
| 15-Apr-05 | 1.1 | 200.6 | 0.1 | 444.1 | 10.7 | 1.17 | 269.8 |
| 16-Apr-05 | 1.1 | 205.2 | 0.1 | 510.8 | 8.9 | 1.14 | 222.5 |
| 17-Apr-05 | 1.1 | 208.2 | 0.1 | 486.1 | 6.4 | 1.31 | 234.1 |
| 18-Apr-05 | 1.5 | 209.6 | | | | 1.35 | 210.3 |

**Summary of Titan America CEMS/COMS Data for New Raw Mill/Preheater/Kiln System (Main Stack)**

**Note: all values are 24-hour averages**

| | | | | | | | PMCD |
|---|---|---|---|---|---|---|---|
| | Opacity | Clinker Prod. | SO2 | NOx | VOC | CO | Inlet Temp. |
| | % | short TPH | lb/hr | lb/hr | lb/hr | lb/ton | 3-hr °F |
| 19-Apr-05 | 1.0 | 193.5 | 0 | 495.4 | 6.6 | 1.34 | 219.5 |
| 20-Apr-05 | 1.0 | 210.8 | 0 | 474 7 | 6.3 | 1.23 | 222.9 |
| 21-Apr-05 | 1.1 | 210.6 | 0.2 | 459 5 | 5.1 | 1 22 | 214.7 |
| 22-Apr-05 | 1.2 | 200.7 | 0.3 | 505 3 | 7.9 | 1.30 | 332.1 |
| 23-Apr-05 | 1.0 | 200.9 | 0.4 | 529 2 | 7.9 | 1.06 | 231.6 |
| 24-Apr-05 | 1.0 | 201.4 | 0 3 | 469 8 | 7.4 | 0.94 | 237.9 |
| 25-Apr-05 | 1 2 | 200.8 | 0 | 484.3 | 7.9 | 0.81 | 195.6 |
| 26-Apr-05 | 0 8 | 188.8 | 0.4 | 431.5 | 7.7 | 0.78 | 248.6 |
| 27-Apr-05 | 0.8 | 200.8 | 0.3 | 421.0 | 7.8 | 0.97 | 234.7 |
| 28-Apr-05 | 1.2 | 202.0 | 0 3 | 476.6 | 9 5 | 0.89 | 228.6 |
| 29-Apr-05 | 0.8 | 206.1 | 0 1 | 480.6 | 8.7 | 0.88 | 200.6 |
| 30-Apr-05 | 0.8 | 209.2 | 0 4 | 425.9 | 6.1 | 0.90 | 204.5 |
| 1-May-05 | 0.7 | 211.4 | 0 | | | 0.94 | 225.1 |
| 2-May-05 | 1.3 | 209.9 | 0.2 | 459.2 | 5.3 | 0.96 | 240.5 |
| 3-May-05 | 1.2 | 209.9 | 0.5 | 458.2 | 7.4 | 1.00 | 301.3 |
| 4-May-05 | 1.0 | 213.2 | 0.6 | 425.7 | 4.3 | 1.00 | 213 5 |
| 5-May-05 | 1.0 | 229.7 | | | | 0.98 | 205.9 |
| 6-May-05 | | | | | | | |
| 7-May-05 | | | | | | | |
| 8-May-05 | 1.0 | 180.6 | 0 | 443.5 | 1 4 | 1.07 | 248.2 |
| 9-May-05 | 1.0 | 175.1 | 0 | 478.5 | 4.1 | 1.11 | 253.4 |
| 10-May-05 | 1.0 | 187.8 | 0 | 517.6 | 6 4 | 1.07 | 266.4 |
| 11-May-05 | 1.3 | 211.5 | 0 | 464.6 | 9 1 | 1.08 | 239.4 |
| 12-May-05 | 1.3 | 214.2 | 0 | 466.5 | 9 5 | 0.97 | 213.2 |
| 13-May-05 | 1.3 | 217.3 | 0 | 459.8 | 12.7 | 0.82 | 236.6 |
| 14-May-05 | 1.4 | 223.5 | 0 1 | 457.4 | 11.5 | 0.77 | 194.9 |
| 15-May-05 | 1 5 | 225.3 | 0 1 | 474.9 | 9.2 | 0.79 | 205.9 |
| 16-May-05 | 1 5 | 217.1 | 0.1 | 470.7 | 6.0 | 0.87 | 269 0 |
| 17-May-05 | 1 5 | 174.6 | 0 | 420.1 | 5.1 | 1.01 | 241 5 |
| 18-May-05 | 1 7 | 202.5 | 0 | 399.5 | 4.8 | 0.88 | 259 5 |
| 19-May-05 | 1.8 | 212.5 | 1 | 458.8 | 5.5 | 0.77 | 233.4 |
| 20-May-05 | 1.9 | 199.4 | 1.8 | 442.7 | 6.2 | 0.81 | 235 1 |
| 21-May-05 | 1.9 | 209.8 | 2.1 | 393.8 | 7.5 | 0.83 | 210.4 |
| 22-May-05 | 1.9 | 216.0 | 2.3 | 398.9 | 8 3 | 0.82 | 211.5 |
| 23-May-05 | 2.4 | 205.2 | 2.3 | 407.7 | | 0.78 | 246.0 |
| 24-May-05 | 2 3 | 211.7 | 3 5 | 424.9 | 0.0 | 0.75 | 226.6 |
| 25-May-05 | 2.6 | 214.1 | 0 | 445.9 | 4 8 | 0.83 | 873 9 |
| 26-May-05 | 2.6 | 209.4 | 0 | 423.1 | 6 2 | 0.76 | 210.5 |
| 27-May-05 | 2.7 | 209.1 | | | | 0.83 | 244.5 |
| 28-May-05 | 2 5 | 210.0 | 0 | 410.5 | 4.2 | 0.78 | 203.9 |
| 29-May-05 | 3 0 | 216.7 | 0 | 467.0 | 2.7 | 0.73 | 206.7 |
| 30-May-05 | 2.6 | 219.0 | 0 | 429.7 | 2.7 | 0.72 | 204 9 |
| 31-May-05 | 2.7 | 225.7 | 1.4 | 458.0 | 3 2 | 0.73 | 201.4 |
| 1-Jun-05 | 2.8 | 223.3 | 3 3 | 423.2 | 3 0 | 0.99 | 193.3 |
| 2-Jun-05 | 3.1 | 222.0 | 3.3 | 433.5 | 5.8 | 1.06 | 328.1 |
| 3-Jun-05 | 3.7 | 226.1 | 1.6 | 415.4 | 7.4 | 1.07 | 241.7 |
| 4-Jun-05 | 3 6 | 221.5 | | 364.3 | 7.7 | 0.93 | 213.7 |
| 5-Jun-05 | 3 9 | 226.1 | | 388.1 | 8.4 | 0.96 | 211.1 |
| 6-Jun-05 | 3.7 | 220.3 | | 366.1 | 13.5 | 0.88 | 202.8 |
| 7-Jun-05 | 4.4 | 210.0 | | 356.9 | 13.7 | 0.79 | 254.1 |
| 8-Jun-05 | 3 5 | 221.5 | | 319.8 | 16.1 | 0.82 | 218.9 |
| 9-Jun-05 | 2 7 | 221.2 | | 346.4 | 21.7 | 1.02 | 327.6 |
| 10-Jun-05 | 1 9 | 205.6 | | 375.0 | 17.2 | 1.15 | 204.4 |
| 11-Jun-05 | 2 1 | 210.1 | | 342.4 | 16.8 | 1.11 | 199.0 |

**Summary of Titan America CEMS/COMS Data for New Raw Mill/Preheater/Kiln System (Main Stack)**

**Note: all values are 24-hour averages**

| | | | | | | | PMCD |
|---|---|---|---|---|---|---|---|
| | Opacity | Clinker Prod. | SO2 | NOx | VOC | CO | Inlet Temp. |
| | % | short TPH | lb/hr | lb/hr | lb/hr | lb/ton | 3-hr °F |
| 12-Jun-05 | 2.7 | 219.7 | | 400.7 | 13.7 | 0.72 | 204.7 |
| 13-Jun-05 | 3.0 | 227.9 | 0.6 | 398.2 | 13.0 | 0.55 | 201.3 |
| 14-Jun-05 | 2.8 | 224.8 | 1.8 | 463.4 | 22.9 | 0.62 | 271.1 |
| 15-Jun-05 | 2.7 | 223.9 | 1.2 | 452.4 | 20.1 | 0.53 | 212.5 |
| 16-Jun-05 | 2.7 | 217.3 | 1.6 | 422.7 | 19.8 | 0.56 | 346.7 |
| 17-Jun-05 | 2.8 | 186.1 | 2.4 | 375.0 | 18.3 | 0.68 | 232.9 |
| 18-Jun-05 | 2.2 | 205.5 | 2.1 | 381.9 | 18.3 | 0.45 | 200.2 |
| 19-Jun-05 | 2.6 | 215.7 | | | | 0.46 | 203.2 |
| 20-Jun-05 | 3.0 | 223.8 | 1.1 | 437.4 | 28.8 | 0.51 | 194.0 |
| 21-Jun-05 | 2.9 | 226.9 | | 426.1 | 17.1 | 0.49 | 197.0 |
| 22-Jun-05 | 2.9 | 223.3 | | 431.6 | 17.9 | 0.57 | 196.9 |
| 23-Jun-05 | 2.8 | 218.4 | | 440.0 | 17.7 | 0.51 | 332.7 |
| 24-Jun-05 | 3.3 | 215.3 | | 474.1 | 21.1 | 0.52 | 285.2 |
| 25-Jun-05 | 3.1 | 212.3 | | 453.8 | 14.3 | 0.38 | 199.2 |
| 26-Jun-05 | 3.0 | 218.0 | | 428.7 | 13.1 | 0.40 | 195.1 |
| 27-Jun-05 | 3.3 | 218.4 | | 467.0 | 14.0 | 0.42 | 193.5 |
| 28-Jun-05 | 3.7 | 218.9 | | 415.8 | 18.1 | 0.60 | 234.5 |
| 29-Jun-05 | 3.6 | 217.0 | | 454.2 | 25.6 | 0.76 | 222.9 |
| 30-Jun-05 | 3.8 | 207.0 | | 463.0 | 23.5 | 0.74 | 292.0 |

# PROCESS DESCRIPTIONS

## Coal Handling (EU 026)

Two solid fuels, coal and petroleum coke (petcoke), are utilized in the new cement plant at Titan's Pennsuco facility. These fuels are delivered by rail and transferred from the railcars using a bottom-dump system, where they are gravity fed into an underground hopper and onto a belt conveyor. Two additional conveyor-to-conveyor transfer points exist between the railcar unloading operation and the Materials Storage Building. Each of these transfer points is enclosed. Inside the Materials Storage Building, coal and petcoke are transferred from the conveyor belt entering the building to an automatic stacker, where the fuel is transferred onto the storage piles inside the building.

As needed, coal or petcoke is reclaimed from the storage pile using an automatic reclaimer and transferred by belt conveyor to the Coal and Petcoke Feed Bins. These transfer points and the Coal/Pet Coke Feed Bins are controlled using two baghouses (Equipment ID Nos. 461.BF130 and 461.BF230).

Occasionally, when the Materials Storage Building is at capacity, coal/pet coke is temporarily stored on the ground. A front-end loader is used to move the coal from a separate railcar unloading operation to a storage pile. As capacity is available in the Materials Storage Building, the front-end loader is used to reclaim coal from the pile and transfer it to railcars where it is processed normally (bottom-dumped from railcar and transferred to the Materials Storage Building). Up to one-third of the total coal throughput could be handled in this way.

From the feed bins, coal and petcoke are transferred to the Coal Mill for grinding. PM emissions from the transfer points of the feed bins to the Coal Mill are controlled by using a baghouse (Equipment ID No. 461.BF350). In the Coal Mill, the coal/pet coke is ground, and is then blown to a baghouse (Equipment ID No. 461.BF300), which acts as a product separator. Exhaust gases from the baghouse are vented to the plant Main Stack.

The ground coal/pet coke collected in the Coal Mill baghouse is transferred a coal surge bin or a pet coke surge bin. PM emissions from this transfer operation are controlled using two identical baghouses (Equipment ID Nos. 461.BF650 and 461.BF750). These surge bins are used to feed the kiln and preheater/calciner.

**Raw Material Handling**

Raw materials used in the cement production process include mineral aggregates (ash, bauxite, gypsum, etc.) and limestone. Limestone is supplied from the adjacent Aggregate Plant, and is conveyed to the Materials Storage Building where it is stockpiled. The limestone is then reclaimed by means of a continuous pile reclaimer, and then transferred to the Limestone Feed Bins.

The mineral aggregates are delivered to the site by means of truck or railcar, and are stored in temporary piles. The materials are reclaimed via frontend loader and then dropped into a choke feed hopper. From the feed hopper, the materials are conveyed into the Materials Storage Building. The mineral aggregates are then reclaimed by means of a continuous pile reclaimer, and then transferred to the Mineral Aggregates Feed Bins. PM emissions from the Limestone and Mineral Aggregates Feed Bins and conveying system are controlled by a single baghouse (Equipment ID No. 311.BF650).

Raw materials are next conveyed to the Raw Mill. Three baghouses control PM emissions from the conveying system located between the Feed Bins and the Raw Mill (Equipment ID Nos. 311.BF750, 321.BF470, and 311.BF950).

**Raw Mill and Pyroprocessing Unit**

This emissions unit consists of the Raw Mill, Clinker Feed Silo, Preheater/Calciner/Kiln, Clinker Cooler, and the Kiln Dust system. Raw materials from the Limestone and Mineral Aggregates Feed Bins enter the Raw Mill, where the material is ground to size and the moisture content is reduced. Heated air is supplied from the Clinker Cooler exhaust gases. From the Raw Mill, the material is blown to a series of mechanical cyclones, which recover the material. The exhaust streams from the cyclones pass through a baghouse (the Main Stack baghouse, Equipment ID No. 331.BF200), before being discharged to the Main Stack.

The properly sized raw material is pneumatically conveyed to the Clinker Feed silo, which is controlled by a baghouse (Equipment ID No. 341.BF350). Material from the Clinker Feed Silo is then conveyed to the Preheater Tower. The conveying system is controlled by two baghouses (Equipment ID Nos. 351.BF440 and 351.BF470). The material then passes through the Preheater/Calciner/Kiln system, where chemical reactions convert the raw materials into clinker.

Coal/pet coke is fed to both the Calciner and the Kiln to provide heat for the process. Clinker produced from the process is then conveyed to the Clinker Silos.

Exhaust gases from the system pass from the Kiln to the Calciner and then to the Preheater in order to utilize the available heat in the gases. These gases are then sent through the Clinker Cooler and then on to the Raw Mill (when operating) or to the Main Stack baghouse (Raw Mill off-line).

Kiln dust captured in the Main Stack baghouse (331.BF740) is conveyed to a storage bin. From the storage bin, the kiln dust is returned to the process in an enclosed system or is loaded out to truck. The conveying operation and the storage bin are controlled by a baghouse (Equipment ID No. 331.BF740). The truck loadout operation is also controlled by a baghouse Equipment ID No. 331.BF645).

**Clinker Handling and Storage**

Clinker from the pyroprocessing unit is cooled in the Clinker Cooler. From the Clinker Cooler, the clinker is transferred to one of two clinker storage silos. PM emission from the conveying and transfer operations are controlled by two baghouses (Equipment ID Nos. 441.BF540 and 481.BF140). Any off-specification clinker is stored in the off-spec clinker silo, which is controlled by a baghouse (Equipment ID No. 481.BF330).

The clinker is then transferred to one of twelve clinker storage silos that were associated with the previous wet process cement plant. These transfer and storage operations are controlled by a total of six baghouses (Equipment ID Nos. 481.BF330, 481.BF540, 481.BF640, 481.BF740, 481.BF930, and F633).

**Finish Mills**

The Finish Mills Nos. 1, 3, 4 and 6 include a number of conveyors used to transfer clinker in and out of one or a series of ball mills. The ground clinker from the ball mills is transferred to cement separators for sizing of the product, using an air classification system. The processed clinker, now in a granular or powdered form, may then be cooled or sent directly to storage.

A total of twelve baghouses are used to control PM emissions from the conveyor systems and from the grinding operations (Equipment ID Nos. F113, F130, F313, F330, 533.BF340, F603,

F604, F605, F432, F430, 536.BF500 and 536.BF340). Three of the baghouses (533.BF340, F430, and 536.BF340) are part of the O'Sepa separator systems, and act as product conveyance/collection devices.

**Cement Storage, Loadout and Packhouse**

Cement from the finish mills is sent to storage silos. From the storage silos, the cement is transferred to one of several operations for delivery, including a combination rail/truck loadout, two truck-only loadouts, or a bagging operation (Packhouse).

PM emissions from the Cement Storage Silos (12) are controlled by five baghouses (Equipment ID Nos. F511, F512, F513, F514, and F515). Rail/Truck Loadout Unit #1 is controlled by a baghouse (Equipment ID No. B110); Truck Loadout Unit #2 is controlled by a baghouse (Equipment ID No. B210); Truck Loadout Unit #31 is controlled by three baghouses (Equipment ID Nos. B372, B374, and B382); and the Packhouse is controlled by three baghouse (Equipment ID Nos. BF120, BF205, and BF400).