REVISED MODELING ANALYSIS FOR PSD PERMIT APPLICATION

LANDFILL GAS-TO-ENERGY PLANT AT THE MEDLEY LANDFILL

WASTE MANAGEMENT, INC. OF FLORIDA

(FDEP Project No. 0250615-012-AC/PSD-FL-414)

Prepared For: Waste Management, Inc. of Florida
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Distribution: Florida Department of Environmental Protection (4 copies)
Waste Management, Inc. of Florida (2 copies)
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December 2010 **093-87674**

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December 29, 2010 093-87674

Cleve Holladay
Division of Air Resources Management
Florida Department of Environmental Protection
Bob Martinez Center
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RE: WASTE MANAGEMENT, INC. OF FLORIDA
AIR PERMIT APPLICATION NO. 0250615-012-AC (PSD-FL-414)
MEDLEY LANDFILL GAS-TO-ENERGY PROJECT
REQUEST FOR ADDITIONAL MODELING INFORMATION

Dear Mr. Holladay:

Waste Management Inc. of Florida (WMIF) received a request for additional modeling information (RAMI) from the Florida Department of Environmental Protection (FDEP) dated September 30, 2010, regarding the PSD air construction permit application for the landfill gas-to-energy (LFGTE) project at the existing Medley Landfill in Miami-Dade County.

On November 17, 2010, WMIF submitted a response to FDEP's request for additional information (RAI) regarding the non-modeling related items. In that response, WMIF stated that a revised air quality analysis was being performed to address an increase in the $PM_{10}/PM_{2.5}$ emission rate for the proposed CAT 3520 engines. The revised air quality analysis also includes an increase in the heights of the CAT 3520 engine stacks. The report summarizing the modeling procedures and results of the revised air quality analysis is provided in Attachment A of this letter.

The revised air quality analysis was performed following the U.S. Environmental Protection Agency (EPA's) most recent recommendations and considering FDEP's information requests in the RAMI dated September 30, 2010. As a result, most of the requested information is provided in the modeling report. Each of the information requests is listed below followed by either a response or reference to the modeling report.

Comment 1. **Based on information provided in the application, the representativeness of the background concentrations used in the particulate matter less than 2.5 microns ($PM_{2.5}$) and 1-hour average nitrogen dioxide (NO_2) modeling analyses were not given. Please give detailed information on the representativeness of these data. Also provide a copy of the monitoring background data used for the $PM_{2.5}$ and NO_2 analyses.**

Response: The revised air quality analysis for 1-hour average NO_2 impacts used available hourly ambient background concentration data. A discussion of the monitoring sites and the available data are presented in Section 3.2 of the revised modeling report.

Comment 2. **Section 6.5 of the application gives the rationale for using the urban option in the American Meteorological Society and Environmental Protection Agency Regulatory Model (AERMOD). The heat island effect was not mentioned as a concern. Consult the AERMOD Implementation Guide, dated March 19, 2009, and**

address whether the heat island effect is of concern. What population value was used as a surrogate? Provide further clarification on the use of the urban mode instead of the rural mode.

Response: As presented in the PSD application submitted in August, 2010, 68 percent of the land use within 3 kilometers of the project site is comprised of urbanized land uses, such as commercial, industrial, and compact residential units. Such urbanized land promotes the occurrence of a heat island, as such land is comprised mainly of solid structures that retain the sun's heat long after sunset. The 68-percent figure excludes several drainage ponds that exist in the vicinity of the project site. While the ponds are not considered urbanized land, they are very shallow and also retain considerable heat. Additional warmed air is transported towards the project site by the prevailing east to east-southeast winds for this area. The prevailing winds transport heat from the center of the Miami urbanized area in the direction of the Medley site. The urban mode option within the AERMOD model was selected for the proposed project sources as this mode more realistically accounts for the urbanized influences occurring at and in the vicinity of the site. To characterize the urbanized influences in the vicinity of the project site, a population value of 352,064 was used in AERMOD. This value represents the Miami city population in 2006 and was obtained from the www.muniguide.com website.

Comment 3. **Table 6-11 in the application gives a value for the monitored background 1-hour NO_2 concentration to be added to the modeled sources results. However, the monitored background concentration for determining Tier 1 or Tier 2 one hour NO_2 impacts for comparison with the ambient air quality standard should be based on the concentration recommended on page 18, first paragraph of Anna Marie Wood's (OAQPS) memorandum, dated June 28, 2010, "General Guidance for Implementing the 1-hour NO_2 National Ambient Air Quality Standard in Prevention of Significant Deterioration Permits, Including an Interim 1-hour NO_2 Significant Impact Level." This memorandum is embedded in Stephen Page's (OAQPS) memorandum, dated June 29, 2010, "Guidance Concerning the Implementation of the 1-hour NO_2 NAAQS for the Prevention of Significant Deterioration Program." Also update the NO_2 background table on page 51 of the application.**

Response: A revised Table 6-11 is presented in the revised air quality analysis in Attachment A. For the maximum 1-hour background concentration approach, the revised 1-hour average background concentration is based on the EPA guidance memorandum dated June 28, 2010. Revised Table 6-12 shows the results based on temporal pairing. A discussion on the monitored background concentrations used in the temporal pairing is presented in Section 3.2.

Comment 4. ***Tables D-1 and D-3 in the application provide a summary of NO_2 and CO sources and their respective emission rates for the cumulative source inventory to be used in the multi-source analysis required for these pollutants. These pollutants have short term air quality standards. Verify that these emission rates are for the respective time periods, or create approximate values, if necessary, for these short term emission rates to be used in any updated modeling analysis.***

Response: *Emission rates presented in Tables D-1 and D-3 are short-term (hourly) emission rates.* The source of the emission rates are also presented in the tables. The primary source of the short-term emission rates is the FDEP query report. If the hourly rates were not available in the query report, potential hourly emissions were calculated using the emission source operating capacity and permitted emission limits, if any, obtained from the facility operating permits. If permitted emission limits were not available, emission factors from EPA's AP-42 or other available sources were used with the operating capacity to calculate the hourly emission rate potential. A revised Table D-1 is provided, which shows *some corrected emission rates, as described in Section 3.3 of the revised air quality analysis report.*

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

Salahuddin Mohammad
Senior Project Engineer

cc: D. Thorley, WM
J. Kiesel, WM

Attachments

DB/SKM/tlc

ATTACHMENT A

REVISED MODELING ANALYSIS

REVISED MODELING ANALYSIS FOR PSD PERMIT APPLICATION

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1.0 INTRODUCTION

The air quality modeling analysis submitted to the Florida Department of Environmental Protection (FDEP) in August 2010 as part of the Prevention of Significant Deterioration (PSD) application for the Medley Landfill landfill gas-to-energy (LFGTE) project has been revised for the following reasons:

- The particulate matter (PM) emission rate of the Caterpillar (CAT) 3520 engines has been revised from 0.173 gram per brake horsepower per hour (g/bhp-hr) to 0.24 g/bhp-hr (see response letter dated October 17, 2010, to FDEP's request for additional information dated September 15, 2010)
- The proposed stack heights of the CAT engines have been increased from 33 feet (ft) to 50 ft
- The 1-hour average nitrogen dioxide (NO_2) monitored background concentration used in the original modeling analysis has been modified based on FDEP's request dated September 30, 2010
- The significant impact level (SIL) of 1-hour average NO_2 has been revised from 5 percent of the national ambient air quality standard (NAAQS) to 4 percent of the NAAQS

Due to the change in PM emission rate and increase in stack heights, the significant impact analysis was revised for all pollutants subject to PSD review and modeling, which include nitrogen oxides (NO_x), PM with an aerodynamic diameter of 10 microns or less (PM_{10}), PM with an aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$), and carbon monoxide (CO).

There were no changes to the selected models, meteorological data, or the receptor grid from those used in the PSD application submitted in August 2010. Some revisions were made to the cumulative source modeling inventories for PM_{10}/$PM_{2.5}$ and NO_x and the post-processing procedures to determine compliance with the NAAQS for these pollutants. However, more refined modeling techniques were made to the modeling approach for the compliance demonstration of the 1-hour NO_2 NAAQS.

This report presents the revised modeling results and describes the revisions to the modeling approach and source inventory data. The report is organized in the following sections:

- Section 1.0 – Introduction
- Section 2.0 – Significant impact analysis
- Section 3.0 – Cumulative impact analysis for NO_2
- Section 4.0 – Cumulative impact analysis for $PM_{2.5}$
- Section 5.0 – Cumulative impact analysis for PM_{10}
- Section 6.0 – Visibility impacts
- Section 7.0 – Conclusion

2.0 SIGNIFICANT IMPACT ANALYSIS

A revised significant impact analysis was performed using the revised PM emission rates and increased stack heights for NO_x, PM_{10}, $PM_{2.5}$, and CO to address impacts in the PSD Class II and Class I areas.

For the PSD Class II area, the original modeling analysis for the 1-hour average NO_2 concentration was based on a SIL of 9.4 micrograms per cubic meter ($\mu g/m^3$), which is 5 percent of the NAAQS of 188 $\mu g/m^3$. The revised analysis assumed a SIL of 7.5 $\mu g/m^3$, which is based on 4 percent of the NAAQS as recommended in the U.S. Environmental Protection Agency's (EPA's) June 28, 2010, Guidance Memorandum.

The revised significant impact analysis results are presented in revised Table 6-9. As shown, the maximum impacts for the proposed project are predicted to be greater than the SIL for the following pollutants and averaging times:

- NO_2 – annual and 1-hour
- PM_{10}, $PM_{2.5}$ – annual and 24-hour

Therefore, cumulative source impact analyses are required to determine compliance with the AAQS for:

- NO_2 – annual and 1-hour
- PM_{10} – annual and 24-hour
- $PM_{2.5}$ – annual and 24-hour

Cumulative source impact analyses are also required to determine compliance with the PSD Class II increments for:

- NO_2 – annual
- PM_{10} – annual and 24-hour

Because EPA has not established a PSD Class II increment for 1-hour NO_2 concentrations, no assessment was performed. For $PM_{2.5}$, EPA finalized the PSD Class II increment levels on October 20, 2010, effective December 20, 2010. However, sources subject to the PSD program for $PM_{2.5}$ will not be required to submit a $PM_{2.5}$ increment analysis unless the application is submitted on or after October 20, 2011. Therefore, a $PM_{2.5}$ increment analysis was not performed for the proposed project.

The significant impact area (SIA) for each modeled pollutant and averaging time was determined based on the maximum distance up to which each pollutant had a predicted significant impact. The maximum radius of impact was used as the basis for determining the inventory of background sources to be included in the cumulative air impact analyses. The project's SIAs for NO_2, $PM_{2.5}$, and PM_{10} are predicted to be as follows:

- NO_2 – 0.8 kilometers (km) (annual), 8.5 km (1-hour)
- $PM_{2.5}$ – 1.7 km (annual), 3.7 km (24-hour)
- PM_{10} – 0.4 km (annual), 0.7 km (24-hour)

These distances are from the center of the modeling domain (approximate center of the CAT engine plant) and the farthest distance for each pollutant was used as the significant impact distance in modeling for both the short- and long-term averaging periods.

For the PSD Class I area of the Everglades National Park (ENP), the maximum annual and 24-hour average PM_{10} and annual average NO_2 concentrations predicted for the proposed project are summarized in revised Table 6-10. As shown, the maximum project-only impacts are predicted to be less than EPA's proposed Class I SIL for these pollutants and averaging times. Because the proposed project is not predicted to have a significant impact at the ENP, additional cumulative source modeling is not required.

Because EPA has not established a PSD Class I increment or SIL for 1-hour NO_2 concentrations, no assessment was performed.

Similar to the PSD Class II increment analysis, although EPA finalized PSD Class I SILs for the annual and 24-hour average $PM_{2.5}$ concentrations in October 2010, a PSD Class I area increment analysis for $PM_{2.5}$ is not required for permit applications submitted before October 20, 2011. Therefore, a $PM_{2.5}$ PSD Class I increment analysis was not performed for the proposed project.

3.0 CUMULATIVE SOURCE IMPACT ANALYSES FOR NO_2

A revised cumulative source impact analysis was conducted to determine compliance with the NAAQS for annual and 1-hour average NO_2 and the PSD Class II increments for annual average NO_2. A PSD Class II increment analysis for 1-hour average NO_2 is currently not required.

3.1 General Modeling Approach

EPA's Guideline on Air Quality Models (GAQM) [Title 40, Part 51 of the Code of Federal Regulations (40 CFR 51), Appendix W, July 2009] recommends the use of a multi-tiered approach to estimate NO_2 concentrations, where:

- Tier 1 assumes full conversion of nitrogen oxides (NO_x) to NO_2
- Tier 2 assumes a 75-percent ambient equilibrium ratio of NO_2 to NO_x
- Tier 3 allows detailed screening techniques on a case-by-case basis

In general, maximum NO_2 concentrations estimated using Tier 1 (total conversion) or Tier 2 (default equilibrium NO_2/NO_x ratio of 0.75) provide conservative estimates of NO_2 concentrations when assessing compliance with the annual NAAQS of 100 $\mu g/m^3$. For stationary sources with NO_x emission controls, such as the current project, the NO_2 impacts are predicted to be well below the annual NAAQS and, in many cases, less than the annual SIL. However, for the 1-hour average concentrations, which are greatly affected by the widely varying meteorological conditions, modeling of the emission sources, such as those for this project, can show 1-hour average NO_2 concentrations to be high relative to the 1-hour AAQS of 188 $\mu g/m^3$ using the Tier 1 or the Tier 2 approach.

EPA has published three guidance memoranda in June 2010 to clarify the applicability of the current guidance in Appendix W for the new 1-hour standard and to provide general guidance for implementing the new standard. The guidance memoranda are:

- Tyler Fox, June 28, 2010; *Applicability of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard* (the Fox Memo)
- Stephen D. Page, June 29, 2010; *Guidance Concerning the Implementation of the 1-hour NO_2 NAAQS for the Prevention of Significant Deterioration Program* (the Page Memo)
- Anna Marie Wood, June 28, 2010; *General Guidance for Implementing the 1-hour NO_2 Ambient Air Quality Standard in Prevention of Significant Deterioration Permits, Including an Interim 1-Hour NO_2 Significant Impact Level* (the Wood Memo)

The Fox Memo clarifies that the Appendix W recommendations regarding the annual NO_2 NAAQS, such as the 3-tiered screening approach, are also applicable to the new 1-hour NO_2 NAAQS with additional source information. The Tier 1 screening method needs no additional justification. However, for the 1-hour average, EPA indicates that additional justification is needed for the use of the Tier 2 Ambient Ratio Method, or the Tier 3 detailed screening methods – the Ozone Limiting Method (OLM) and the Plume Volume Molar Ratio Method (PVMRM).

The Tier 1 method, which assumes 100-percent conversion of NO_x into NO_2, is very conservative. The 1-hour average NAAQS of 188 μg/m^3 is 1.9 times the annual NAAQS. Based on EPA's time scaling factors, the 1-hour average concentrations can be 12.5 times the annual average concentration or about 6 times higher than the ratio of 1-hour standard to annual standard. As a result, there is a clear need for the use of more scientific methods like OLM and PVMRM, which can predict more realistic NO_2 concentrations by taking into account the chemical formation of NO_2 into the atmosphere and also the speciation of NO_x emissions.

Both OLM and PVMRM are available as non-regulatory default options in the EPA-preferred AERMOD model and have received performance evaluations in the following studies:

- The Plume Volume Molar Ratio Method for Determining NO_2/NO_x Ratios in Modeling – Part I: Methodology, and Part II: Evaluation Studies by Patrick L. Hanrahan, November 1999
- Sensitivity Analysis of PVMRM and OLM in AERMOD, prepared by MACTEC for Alaska Department of Environmental Conservation (DEC), September 2004
- Evaluation of Bias in AERMOD-PVMRM, prepared by MACTEC for Alaska DEC, June 2005

It should be noted that PVMRM has been approved for use by EPA Region X in the state of Alaska since 2006.

The Wood Memo recognizes the concerns of high 1-hour average modeled concentrations and provides guidance to explain and clarify procedures that may be followed to demonstrate compliance with the NO_2 1-hour average NAAQS. However, the recommended procedures, such as increasing stack heights up to the good engineering practice (GEP) stack height of at least 65 meters and proper scheduling or limiting testing of emergency equipment, are not always practical. In addition, more realistic estimates of the rate of conversion of NO_x emissions to ambient NO_2 concentrations can be included in the modeling analysis. Therefore, scientific methods like the OLM and the PVMRM are appropriate methods that have and can predict realistic NO_2 concentrations.

3.2 Project NAAQS Modeling Approach Summary

The following summarizes the methods used in this revised air quality impact analysis for the annual and 1-hour average NO_2 AAQS analysis:

- One-hour AAQS analyses
  - Five-year meteorological data for the period 2001 to 2005 were used to estimate project-only annual and 1-hour average NO_2 impacts with the Tier 1 method.
  - Maximum significant impact distance for 1-hour average impact was determined using a SIL of 4 percent of NAAQS, equivalent to 7.5 μg/m^3. A SIL of 1.0 μg/m^3 was used for annual average impacts.

- For NAAQS compliance demonstration, cumulative modeling analysis was performed using AERMOD with the OLM, a Tier 3 detailed screening method.
- For OLM, an in-stack ratio of 0.1 was used for the large fossil fuel-fired boilers and an in-stack ratio of 0.2 was used for the turbines at the power plant sources included in the cumulative source inventory. In-stack ratios of all other sources were set at 1.0, which means that 100 percent of NO_x emissions from these sources were considered as NO_2 emissions and as a result, impacts from these sources were actually based on Tier 1 (full conversion) and were not subject to the ozone titration mechanism.
- Hourly ozone data for the same meteorological period were used in the 1-hour average modeling analysis using the OLM method. Data from three monitoring sites in Miami-Dade County were used to create a combined hourly ozone database.
- Hourly modeled concentrations were paired with monitored concentration for the same hour. Hourly NO_2 monitored concentrations from two monitoring sites in Miami-Dade County and one site in Broward County were used to create a combined hourly NO_2 database.
- A 5-year average of the 98th percentile of the daily maximum 1-hour average total concentrations (modeled plus monitored concentrations) at each receptor was determined.
- The maximum 5-year average of the 98th percentile total 1-hour average concentrations was compared to the 1-hour average NAAQS.

■ Annual AAQS analysis

- Annual average background NO_2 concentration was based on the highest measured concentration at the nearest monitor for the most recent 3-year (2007 – 2009) period.
- The maximum annual modeled concentration for each year was added to the annual average monitored concentration, and the total was compared to the annual average NAAQS.

3.2.1 1-Hour NAAQS Modeling Approach

The justification of the use of the Tier 3 screening method, OLM as an alternative modeling technique in accordance with the GAQM (40 CFR 51, Appendix W) are presented in the following section.

<u>Justification for Use of Tier 3 Screening Methods</u>

The OLM and PVMRM are currently available as non-regulatory default options in AERMOD. Despite being available for more than 10 years [based on the Hanrahan paper published in the Air and Waste Management Association (AWMA) Journal in 1999] and approved for use in the State of Alaska, EPA has not approved the general use of these methods for the rest of the U.S.

The Fox Memo, however, describes how the use of OLM and PVMRM options within AERMOD for use in compliance demonstration should be justified in accordance with Section 3.2.2 of Appendix W, which lists the five key criteria:

1. OLM or PVMRM have received scientific peer review
2. OLM or PVMRM can be demonstrated to be applicable to the problem on a theoretical basis
3. The databases that are necessary to perform the analysis are available and adequate

4. Appropriate performance evaluations of the methods have shown that the methods are not biased toward underestimates
5. A protocol on methods and procedures to be followed has been established

The Fox Memo states that the focus of the alternative method demonstration is on the treatment of NO_x chemistry and that the 1st and the 4th criteria can be fulfilled based on existing documentation (Hanrahan and MACTEC studies).

Regarding the 2nd criterion, the Fox Memo states that it is a case-by-case determination based on an assessment of the adequacy of the ozone titration mechanism utilized by these methods. The Fox Memo also states that while the titration mechanism used by OLM or PVMRM may capture the most important aspects of nitric oxide (NO)-to-NO_2 conversion in many applications, it may be limited in situations where other mechanisms, such as photosynthesis, contribute significantly to the overall process of chemical transformation. Sources located in areas with high levels of volatile organic compound (VOC) emissions may be subject to these limitations. However, the Memo states that titration is generally a much faster mechanism for converting NO to NO_2 than photosynthesis, and as such is likely to be appropriate for characterizing peak 1-hour NO_2 impacts in many cases. The memo, however, does not state that the methods ignore the photodissociation reaction of NO_2 back to NO. NO_2 is very reactive and absorbs light throughout the ultraviolet and visible spectrum penetrating the troposphere. Thus, during the daylight hours, some NO_2 converts back to nitric oxide (NO). NO_2 can also react with ozone to form a very reactive nitrate (NO_3) radical that reacts with water to form nitric acid (HNO_3). Nitric acid is not only a major contributor to acid rain but is also the main way in which nitrogen oxides are removed from the air, either by dry deposition of the acid directly or by removal in rain. Therefore, there are other reactions in the atmosphere ignored by the OLM and PVMRM methods that are counter-balancing to the photosynthesis reaction of NO to NO_2 ignored by the methods. It is therefore reasonable to assume that the ozone titration mechanism in OLM and PVMRM is appropriate for use in this 1-hour average NO_2 modeling for the project.

Regarding the 3rd criterion, the Fox Memo states that the adequacy of available databases needed for the application of OLM and PVMRM, including the in-stack NO_2/NO_x ratios and background ozone concentrations, is a critical aspect of the alternative method demonstration. The Fox Memo states that the hourly monitored ozone concentrations used with the OLM and PVMRM must be concurrent with the meteorological data period used in the modeling analysis.

Regarding the 5th criterion, the methods and procedures that were followed for the application of OLM method are presented in the following section.

<u>Methods and Procedures for OLM</u>

The meteorological data period used in the modeling analysis for the proposed project is 2001 to 2005. There are three ozone monitoring sites in Miami-Dade County that are near the Medley landfill and operated during the period 2001 to 2005. The nearest site at Krome Avenue (ID #860021) is located approximately 11 km to the northwest of the proposed project. However, this site only operated through May 2003. Two other sites, the Rosenstiel School site (ID #860027) located approximately 23 km to the southeast of the project and the Perdue Medical Center site (ID #860029) located approximately 30 km to the south of the project, operated for the entire period.

Data from these three monitoring sites were combined to create an hourly ozone data set for the period 2001 to 2005, which was used in AERMOD with the OLM option. Hourly data availability from these sites is as follows:

Monitoring Site	Availability (%) of 1-Hour Ozone Concentrations				
	2001	2002	2003	2004	2005
Krome Avenue (ID #860021)	97.8	96.5	35.4	--	--
Rosenstiel School (ID #860027)	89.7	94.6	94.2	90.8	92.5
Perdue Medical Center (ID #860029)	98.3	98.5	98.5	95.2	94.1

The Krome Avenue site was used as the primary data source. Missing data at the Krome Avenue site were first replaced with data from the Rosenstiel School site. If data were also missing at the Rosenstiel School site, then data from the Perdue site were used. If data were missing from all three stations, the following scheme was used to replace the missing data:

- For a single hour of missing data, an average of the values before and after the hour of missing data was used.
- For 2 to 9 hours of missing data, the higher value for the hour before or after the period of missing data was used.
- For 10 hours or more of missing data, data for the same hours from the previous day were used to replace the period of missing data. If the same period from the previous day was missing, data for the same period for the following day were used.

The following table shows total number of hours replaced for hours of missing data following the above scheme:

Total Number of Hours Replaced (% of Total Available Hours)				
2001	2002	2003	2004	2005
12 (0.14%)	2 (0.02%)	21 (0.2%)	32 (0.4%)	96 (1.1%)

Both OLM and PVMRM need the key input of in-stack NO_2/NO_x ratio, which may be more important for PVMRM than for OLM in some cases, due to the difference between the two methods. Based on the Fox Memo, selection of in-stack ratios is a critical step of alternative modeling method demonstration. The PVMRM method also needs an equilibrium NO_2/NO_x ratio.

Exhaust from most combustion sources contains NO_x that is primarily NO. Depending on the combustion sources, NO_2 can be significant but usually less than NO. Unfortunately, not much information is readily available on the in-stack ratios for different types of sources. Hanrahan used an in-stack ratio of 0.10 or 10 percent in the initial design of the PVMRM algorithm. The MACTEC study on the Evaluation of Bias in AERMOD-PVMRM discusses in-stack NO_2/NO_x ratio for power plant boiler plumes. The study mentions EPA's emission factor document, AP-42, and several studies of power plant plumes by Arrelano (1990), Bange (1991), and Bofinger *et al.* (1986), and used a representative in-stack NO_2/NO_x ratio of 0.05 or 5 percent.

Several states have recommended in-stack ratios:

- Alaska – EPA has approved the use of PVMRM in the state of Alaska. The Alaska DEC, in their review of the Nakaitchuq Development Project (DEC File # AQ0923MSS04, dated January 5, 2010), commented that NO_2/NO_x ratios of 0.1 for reciprocating internal combustion engines, boilers, heaters, and the incinerator, and 0.3 for turbines, are reasonable assumptions.
- New Mexico – The New Mexico Environment Department recommends site-specific data if available. Surrounding sources may be modeled with a default ratio of 0.3.
- Texas – The Texas Natural Resource Conservation Commission recommends in-stack NO_2/NO_x ratios of 0.25 for turbines, 0.2 to 0.4 depending on uncontrolled emission rates for IC Engines, and 0.85 for IC Engines with catalytic converter.
- California – The South Coast Air Quality Management District recommends an in-stack NO_2/NO_x ratio of 0.1 in the Modeling Guidance for AERMOD.

Golder recently obtained actual stack test data measuring NO_2/NO_x ratios from combustion turbines at two power plants in Georgia, which shows in-stack ratios in the range between 0.03 and 0.17.

The cumulative NO_x emissions inventory used in the NAAQS analysis contains several power plants that have boilers and combustion turbines. Based on the available information on in-stack NO_2/NO_x ratios presented above, the in-stack ratio of the power plant boilers was set at 0.1 and the in-stack ratio of the power plant combustion turbines was set at 0.2. For all other source types including the LFG-fired proposed CAT engines, the in-stack NO_2/NO_x ratio was set at 1.0.

It should be noted that the PVMRM method, which is also a Tier 3 screening method, has a disadvantage over the OLM method with respect to impacts from multiple sources at long distances. The OLM method allows grouping of all sources, which makes the ambient ozone concentration available to the total NO from all overlapping plumes. In the Fox Memo, EPA has recommended using the OLMGROUP function in AERMOD. The PVMRM method does not allow source grouping. For the proposed project's cumulative analysis, there are several large background sources located 20 to 30 km away whose plumes could potentially overlap to impact the modeling area. Thus, if PVMRM is used, without the OLMGROUP option, the cumulative impact from these sources may not be ozone-limited. Therefore, the OLM method was used, which has the OLMGROUP option.

3.2.2 *Annual NAAQS Modeling Approach*

The modeling approach used to estimate annual average total NO_2 concentrations was the same as that used in the PSD application submitted in August 2010. The maximum annual concentrations predicted for the modeled sources were added to the annual average background concentrations developed from monitoring data to produce a total annual average concentration.

3.3 NO_2 Monitoring Data Used for Background

There are several NO_2 monitoring sites in Miami-Dade and Broward Counties that are close to the Medley Landfill. The nearest NO_2 monitoring site is the Metro Annex site (ID #864002) located approximately 15 km to the southeast of the Medley Landfill. This site is located about 0.5 km to the west of Interstate 95 and about 1 km to the north of Highway 836 (Dolphin Expressway). Because of its location, this site is significantly influenced by NO_x emissions from traffic on these major thoroughfares. However, this is the nearest monitoring site to the project that has operated for the entire period of 2001 to 2005. Thus, data from this site were used as the primary data source for 1-hour average background NO_2 concentrations.

Monitoring data from the Rosenstiel School (ID #860027) and Dania (ID #118002) monitoring sites were used to replace missing monitoring data for the Metro Annex site data. The Rosenstiel School site is located approximately 23 km to the southeast of the Medley Landfill project and the Dania site in Broward County is located approximately 34 km to the northeast of the Landfill, and both operated for the entire meteorological data period.

A combined 1-hour average NO_2 monitoring dataset was created for the period 2001 to 2005, which was used to estimate total air quality impacts by pairing the monitored concentrations with the modeled concentrations.

Hourly data availability from these sites is as follows:

Monitoring Site	Availability (%) of 1-Hour NO_2 Concentrations				
	2001	2002	2003	2004	2005
Metro Annex (ID #864002)	96.9	94.7	78.7	97.3	96.5
Rosenstiel School (ID #860027)	89.1	95.9	86.9	96.6	96.5
Dania (ID #118002)	98.1	97.5	97.9	96.5	94.4

Missing data at the Metro Annex site were first replaced with data from the Rosenstiel School site. If data were also missing at the Rosenstiel School site, then data from the Dania site were used. If data were missing from all three stations, the following scheme was used to replace the missing data:

- For a single hour of missing data, an average of the values before and after the hour of missing data was used.
- For 2 to 9 hours of missing data, the higher value for the hour before or after the period of missing data was used.

- For 10 hours or more of missing data, data for the same hours from the previous day were used to replace the period of missing data. If the same period from the previous day was missing, data for the same period for the following day were used.

The following table shows total number of hours replaced for hours of missing data following the above scheme:

Total Number of Hours Replaced (% of Total Available Hours)				
2001	2002	2003	2004	2005
5 (0.06%)	0 (0.00%)	7 (0.08%)	6 (0.07%)	1 (0.01%)

The annual average background concentration used in the original modeling analysis was also used for this analysis and is based on the highest annual average measured concentration at the Metro Annex monitor for the most recent 3-year period of available data (2007 to 2009). The highest annual and highest and 2nd-highest 1-hour monitored concentrations at the Metro Annex site for that 3-year period are presented below:

Monitor Site	Year	NO_2 Concentrations (µg/m^3)		
		Annual Average	Highest 1-Hour	2nd-Highest 1-Hour
Metro Annex (ID #864002)	2009	17.7	80.9	80.9
	2008	15.0	94.1	88.4
	2007	20.7	169.3*	112.9

*Considered to be an outlier as the 2nd-highest concentration on the same day is only 47 µg/m^3.

As seen, the recent 3 years of data at the Metro Annex site show compliance with the NO_2 NAAQS.

3.4 Cumulative Modeling Source Inventory

Listings of NO_x emission sources that were used in the cumulative modeling analyses and their locations relative to the project site were provided in Table 6-5 of the PSD Report. Revised Table 6-5 shows the revised significant impact distances for annual and 1-hour average NO_2 impacts.

A summary of the detailed hourly emissions and release parameters was presented in Table D-1 of Appendix D. The source of emission data was also provided in Table D-1. Hourly emission rates from FDEP's source data query report were used when available. If hourly emission data were not available in the query report, potential hourly emissions were calculated using the emission source operating capacity and permitted emission limits, if any, obtained from the facility operating permits. If permitted emission limits were not available, emission factors from EPA's AP-42 or similar documents were used with the operating capacity to calculate the hourly emission rate potential.

For example, the Florida Power & Light (FPL) Port Everglades Power Plant (Facility ID 0110036) has a bank of 12 combustion turbines (EU005), which is limited to maximum heat input rate of 8,424 million British thermal units per hour (MMBtu/hr) and a maximum NO_x emission rate of 0.90 pound per million British thermal units (lb/MMBtu). The hourly emission rate for this unit was calculated to be 7,581.6 pounds per hour (lb/hr) (8,424 MMBtu/hr x 0.90 lb/MMBtu) based on the heat input rate and the NO_x emission limit. For several sources, permit application information were used based on Golder's previous or ongoing work experience on these facilities.

Upon review of Table D-1 submitted with the PSD Report, a correction was made to the hourly NO_x emission rates for two emission units at the FPL Ft. Lauderdale Plant (EU003 and EU015 of Facility ID 0110037). A revised Table D-1 is attached in Appendix A.

It should be noted that the hourly average emission rates were also used to predict annual average impacts. Also, as a conservative estimate of PSD increment consumption, most of the sources that were modeled for NAAQS analysis were also modeled in the PSD increment analysis, even though certain sources are not PSD sources.

3.5 PSD Class II Increment Modeling Approach

The annual average NO_2 PSD Class II increment analysis was performed following the same approach as the annual average NO_2 AAQS analysis. The background source inventory used in the increment analysis was based on PSD increment-consuming sources. No increment expanding sources (i.e., those with negative emission rates) were considered.

3.6 Air Quality Analysis Results

A summary of the revised annual average NO_2 AAQS analyses is presented in Table 6-11. The maximum predicted total annual average NO_2 concentration of 27.3 μg/m^3, based on the modeled sources' impact of 6.6 μg/m^3 added to the background concentration of 20.7 μg/m^3, is less than the annual average NO_2 NAAQS of 100 μg/m^3.

The revised 1-hour average NO_2 NAAQS analysis results are presented in Tables 6-11 and 6-12. As shown in Table 6-11 using the maximum 1-hour background concentration approach, the maximum predicted total 1-hour average NO_2 concentration is 261.2 μg/m^3, based the modeled 5-year average of the 98th percentile of daily maximum 1-hour average concentrations of 148.3 μg/m^3 added to a maximum 1-hour average background concentration of 112.9 μg/m^3.

The 1-hour average NO_2 NAAQS analysis results based on temporal pairing of the modeled impacts with monitoring data are shown in Table 6-12. In temporal pairing, the modeled concentration for each hour was added to the monitored concentration for that hour and a maximum 1-hour average total concentration was determined for each day. The annual distribution of the daily maximum 1-hour total concentrations was then sorted to determine the 98th percentile (8th highest) value for each year. Finally, the 5-year average of the 98th percentile total concentrations was compared to the NAAQS. As shown, the 5-year average of the 98th percentile of daily maximum total 1-hour concentrations is 180.7 μg/m^3, which is below the NAAQS of 188 μg/m^3.

A summary of the revised annual average NO_2 PSD Class II increment analyses is presented in revised Table 6-13. The maximum predicted annual average NO_2 increment is 6.0 μg/m^3, which is less than the allowable PSD Class II increment of 25 μg/m^3.

4.0 CUMULATIVE SOURCE IMPACT ANALYSES FOR $PM_{2.5}$

A revised cumulative source impact analysis was conducted to determine compliance with the NAAQS for the annual and 24-hour average $PM_{2.5}$.

4.1 NAAQS Modeling Approach

The modeling approach for the annual and 24-hour average $PM_{2.5}$ is the same as the original modeling analysis, except for the post-processing steps to determine the 24-hour $PM_{2.5}$ total concentrations based on temporal pairing of modeled and monitored concentrations. The revised post-processing steps are as follows:

- Maximum daily impacts at each receptor were output by AERMOD using the Postfile output option.
- Using post-processing software developed by Golder, concentrations from the Postfile output were added to the monitored $PM_{2.5}$ concentration from the same day that was input from a text file containing 1 year of daily monitored $PM_{2.5}$ concentrations. The program then outputs the sum of the daily modeled and monitored concentrations to a new Postfile. The program is run for each year. A second post-processing program developed by Golder reads each of the five newly created Postfile outputs and calculates the 98th percentile (or 8th highest daily) total concentration (modeled plus monitored) for each receptor.
- The 5-year average of the 98th percentile total concentration was determined for each receptor and the maximum 5-year average value is compared to the 24-hour $PM_{2.5}$ AAQS.

Compliance with the 24-hour average $PM_{2.5}$ AAQS is achieved if the 98th percentile of the total daily concentration for each year is below the standard of 35 $\mu g/m^3$. Comparing the 98th percentile of total daily concentrations for each year to the AAQS is more conservative than comparing the average values over the modeling years.

For the annual average $PM_{2.5}$ AAQS compliance, the 5-year average of the highest annual concentration is added to the annual average monitored background. Compliance is achieved if the total (modeled plus monitored) is below the standard of 15 $\mu g/m^3$.

4.2 $PM_{2.5}$ Monitoring Data Used for Background

The same monitored background concentrations used in the original modeling analysis were also used in the revised analysis. The 3-year average annual and 98th percentile 24-hour average $PM_{2.5}$ concentrations of 7.3 $\mu g/m^3$ and 21.5 $\mu g/m^3$, respectively, recorded at the nearest monitor located at 7700 NW 186th Street (ID #860033) in Miami-Dade County for the period 2007 to 2009 were selected as background concentrations (see Table 4-2 of the PSD Report).

For the analysis using temporal pairing of daily monitored and modeled concentrations, daily monitored concentrations from the 7700 NW 186th Street monitor were used.

4.3 Cumulative Modeling Source Inventory

Listings of $PM_{10}/PM_{2.5}$ emission sources that were used in the cumulative modeling analyses and their locations relative to the project site were provided in Table 6-6 of the PSD Report. Revised Table 6-6 shows the revised significant impact distances for annual and 24-hour average $PM_{2.5}$ impacts.

A summary of the detailed hourly emissions and release parameters were presented in Table D-2 of Appendix D. The source of emission data was also provided in Table D-2. Hourly emission rates from FDEP's source data query report were used when available. If hourly emission data were not available in the query report, potential hourly emissions were calculated using the emission source operating capacity and permitted emission limits, if any, obtained from the facility operating permits. If permitted emission limits were not available, emission factors from EPA's AP-42 or similar documents were used with the operating capacity to calculate the hourly emission rate potential. For several sources, various permit application documents were used based on Golder's previous or on-going work experience on these facilities.

As mentioned in the original modeling report, the background source inventory emissions are based on PM_{10} emissions, a conservative approach for predicting $PM_{2.5}$ impacts. The annual average impacts were also modeled based on hourly emissions rates, a conservative approach for predicting annual average impacts.

Upon review of Table 6-6 submitted with the PSD Report, a correction was made for the location of the Miami Dade Resource Recovery facility (Facility ID 0250348). The facility is approximately 2.6 km from the project site and has nine $PM_{10}/PM_{2.5}$ emission sources, of which four are boilers and five are material handling operations with baghouses. Because of the close proximity of the facility, locations for each of the emission units were used in the revised air quality analysis. The short-term potential $PM_{2.5}$ emission rates from the sources with baghouses were calculated based on a 0.01 grain per dry standard cubic foot (gr/dscf) PM emission permit limit, the design exhaust flow rate of the baghouses, and the assumption that 30 percent of PM emissions are in the $PM_{2.5}$ size category. The particle size information is based on generalized particle size information for mechanically generated processes involving material handling and processing of aggregate or processed or unprocessed ore, provided in Appendix B.2 of AP-42. A revised Table D-2 is presented in Appendix A.

As a cumulative estimate of PSD increment consumption, most of the sources that were modeled for NAAQS analysis were also modeled in the PSD increment analysis, even though certain sources are not PSD sources.

4.4 Air Quality Analysis Results

The summary of the revised annual average $PM_{2.5}$ AAQS analyses is presented in Table 6-11. The total annual $PM_{2.5}$ concentration of 10.5 µg/m^3, based on the 5-year average of the predicted annual average concentrations of 2.6 μg/m^3 added to a non-modeled background concentration of 7.9 μg/m^3, is less than the NAAQS of 15 μg/m^3.

The revised 24-hour average $PM_{2.5}$ NAAQS analysis results are presented in Tables 6-11 and 6-12. In Table 6-11, using the maximum 24-hour background concentration approach, the modeled 5-year average of the 98th percentile of the daily average concentrations was added to a 24-hour average background concentration of 21.5 μg/m^3, for a total concentration of 41.4 μg/m^3.

Table 6-12 shows the 24-hour average $PM_{2.5}$ AAQS analysis results based on temporal pairing. In temporal pairing, the modeled concentration for each day (24-hour average) was added to the monitored concentration for that day and a total concentration was determined for each day. The annual distribution of the daily total concentrations was then sorted to determine the 98th percentile (8th highest) value for each year. Finally, the 5-year average of the 98th percentile total concentrations was determined for each receptor and the maximum value was compared to the AAQS. As shown, the 5-year average of the 98th percentile of daily average total concentrations is 28.6 μg/m^3, which is below the AAQS of 35 μg/m^3.

5.0 CUMULATIVE SOURCE IMPACT ANALYSIS FOR PM_{10}

A revised cumulative source impact analysis was conducted to determine compliance with the NAAQS and PSD Class II increments for annual and 24-hour average PM_{10} impacts.

5.1 NAAQS Modeling Approach

The same modeling approach used in the original modeling analysis was used for the revised modeling.

For compliance with the 24-hour average PM_{10} NAAQS, the highest 6th-highest 24-hour average concentration over a period of 5 years is added to a 24-hour average monitored background concentration. Compliance is achieved if the total concentration is below the standard of 150 $\mu g/m^3$.

For the annual average $PM_{2.5}$ NAAQS compliance, the highest annual concentration is added to an annual average monitored background concentration. Compliance is achieved if the total concentration (modeled plus monitored) is below the standard of 50 $\mu g/m^3$.

5.2 Background Monitoring Data

The same monitored background concentrations used in the original modeling analysis were also used in the revised analysis. The highest annual and the highest second-highest 24-hour average PM_{10} concentrations of 27 $\mu g/m^3$ and 65 $\mu g/m^3$, respectively, recorded at the NW 20 Street and 12 Avenue Fire Station monitor (ID #861016) in Miami-Dade County over a period of 3 years (2007 – 2009) were selected as background concentrations (see Table 4-2 of the PSD Report).

5.3 Cumulative Modeling Source Inventory

As described in Section 4.1.3, the same cumulative source inventory was used for both $PM_{2.5}$ and PM_{10} modeling. A listing of PM_{10}/$PM_{2.5}$ emission sources that were used in the cumulative modeling analyses and their locations relative to the project site was provided in Table 6-5 of the PSD Report. Revised Tables 6-6 and D-2, which show the revised significant impact distances and the detailed emissions and source parameters respectively, are included with this report.

5.4 PSD Class II Increment Modeling

The annual and 24-hour average PM_{10} PSD Class II increment analysis was revised. The background source inventory used in the increment analysis was different than the inventory used in the NAAQS analysis, as only the increment consuming sources were included in the increment analysis. Table D-2 shows the increment consuming sources. One increment expanding (negative emission rate) source from the FPL Ft. Lauderdale Plant (Facility ID 0110037) was included in the modeling. Information about the increment expanding source was obtained from air construction permit applications submitted to FDEP by Golder for other projects in the area. The cumulative highest annual and 24-hour average impacts for each year were compared to the respective allowable PSD increment.

5.5 Air Quality Analysis Results

The revised annual and 24-hour average PM_{10} NAAQS analysis results are presented in revised Table 6-11. The maximum predicted total annual average PM_{10} concentration of 29.2 μg/m^3, based on a modeled 2.2 μg/m^3 added to the background concentration of 27 μg/m^3, is less than the annual average PM_{10} NAAQS of 50 μg/m^3. The predicted highest 6th-highest total 24-hour PM_{10} concentration of 75.1 μg/m^3, based on a modeled concentration of 10.1 μg/m^3 added to the background concentration of 65.0 μg/m^3, is less than the 24-hour average PM_{10} AAQS of 150 μg/m^3.

A summary of the revised PM_{10} PSD Class II increment analyses is presented in revised Table 6-13. The predicted highest annual average and highest-second highest 24-hour PM_{10} concentrations are 2.2 and 13.4 μg/m^3, respectively, which are less than the allowable PSD Class II increments of 17 and 30 μg/m^3, respectively.

6.0 IMPACTS UPON VISIBILITY AT THE ENP

In the original modeling analysis, the visibility impairment assessment due to the project at the ENP was conducted in two parts: impacts occurring within 50 km of the Medley landfill and impacts occurring more than 50 km from the landfill. Impacts occurring within 50 km of the landfill were determined using the VISCREEN model. The VISCREEN modeling was revised with the revised particulate matter emission rates and the results are presented in Appendix B.

As shown, the Project's emissions are calculated to be below the Level 1 visibility screening criteria for non-terrain background at the Class I area. Because results from the Level 1 screening analysis are below the visibility criteria, a Level 2 screening analysis was not required.

Impacts occurring beyond 50 km of the landfill were predicted using the CALPUFF model and the results were presented in Table 7-5 of the PSD Report. The maximum 24-hour average visibility impairment was shown to be 0.8 percent compared to the significant visibility impairment criterion of 5 percent. Considering the insignificant nature of the visibility impairment, no revision was made to the CALPUFF analysis to predict visibility impairment beyond 50 km of the landfill.

7.0 CONCLUSION

Based on the revised air impact analyses conducted in support of the PSD construction application for the LFGTE project at the Medley Landfill, the maximum pollutant concentrations due to the project only are predicted to be greater than the PSD Class II SILs for NO_2, PM_{10}, and $PM_{2.5}$. Therefore, additional modeling analyses with background sources were performed to determine compliance with the AAQS for these pollutants. Based on the analyses, the project is expected to comply with the AAQS. The analyses also predicted that the maximum pollutant concentrations due to the project only will comply with the annual average NO_2 and annual and 24-hour average PM_{10} allowable PSD Class II increments.

Based on the PSD Class I significant impact analysis, the maximum pollutant concentrations due to the project are predicted to be less than the PSD Class I SILs for all pollutants for which Class I increment analysis is currently required. Therefore, further modeling to demonstrate compliance with Class I increments was not required.

The results of the air modeling analyses demonstrate that the project will comply with all applicable AAQS and will not have a significant adverse effect on human health and welfare.

REVISED TABLES 6-5, 6-6, AND 6-9 THROUGH 6-13

TABLE 6-5 (Revised 12/29/10)

SUMMARY OF THE NO_x FACILITIES CONSIDERED FOR INCLUSION IN THE AAQS AND PSD CLASS II AIR MODELING ANALYSES

AIRS Number	Facility	County	UTM Coordinates East (km)	UTM Coordinates North (km)	Relative to Medley Landfill [a] X (km)	Relative to Medley Landfill [a] Y (km)	Relative to Medley Landfill [a] Distance (km)	Relative to Medley Landfill [a] Direction (deg)	Maximum NO_x Emissions (TPY)	Q, (TPY) Emission Threshold [b,c] (Dist - SID) x 20	Include in Modeling Analysis ?
Modeling Area [d]											
0250615	Waste Management - Medley Landfill	Miami-Dade	565.9	2,859.9	0.0	0.0	0.00	0	40.2	SIA	YES
0251196	Aviation Engine Service Inc.	Miami-Dade	566.6	2,859.6	0.7	-0.3	0.79	110	47.0	SIA	YES
0250022	U.S. Foundry Manufacturing Corp.	Miami-Dade	567.3	2,859.8	1.4	-0.1	1.40	94	11.1	SIA	YES
0250640	AAR Landing Gear Services	Miami-Dade	564.6	2,860.6	-1.3	0.7	1.52	298	7.4	SIA	YES
0250488	Benada Aluminum of Florida	Miami-Dade	567.4	2,859.4	1.5	-0.5	1.58	108	0.7	SIA	YES
0251194	Hometown Bagel - Bagelmania	Miami-Dade	564.5	2,861.7	-1.4	1.8	2.27	320	0.004	SIA	YES
0250492	Industrial Metal Spraying	Miami-Dade	568.4	2,859.2	2.5	-0.7	2.60	106	0.5	SIA	YES
0250348	Miami Dade RRF/Montenay	Miami-Dade	563.8	2,857.6	-2.1	-2.3	3.08	222	2,459.6	SIA	YES
0250020	Titan America-Pennsuco Cement	Miami-Dade	562.3	2,861.7	-3.6	1.8	4.05	296	1,228.6	SIA	YES
0250005	General Asphalt - Plant No. 1	Miami-Dade	568.8	2,855.4	2.9	-4.5	5.35	147	100.0	SIA	YES
0250378	Quikrete Miami	Miami-Dade	562.0	2,863.9	-3.9	4.0	5.59	316	1.0	SIA	YES
0250281	Hialeah/Preston Water Treatment Plant	Miami-Dade	571.2	2,856.8	5.3	-3.1	6.12	120	11.0	SIA	YES
0251186	Aerothrust Corp	Miami-Dade	569.2	2,853.1	3.3	-6.8	7.54	154	100.0	SIA	YES
0251286	Quality Technology Services - Miami	Miami-Dade	562.5	2,853.1	-3.4	-6.8	7.62	207	15.2	SIA	YES
0250608	H & R Paving	Miami-Dade	563.8	2,852.1	-2.1	-7.8	8.04	195	5.0	SIA	YES
0250393	Miami International Airport	Miami-Dade	570.6	2,853.4	4.7	-6.5	8.04	144	48.2	SIA	YES
Screening Area [d]											
0250624	General Asphalt Plant Wdhma	Miami-Dade	569.7	2,868.3	3.8	8.4	9.23	24	81.3	14.6	YES
0250665	H & J Asphalt Plant	Miami-Dade	575.1	2,855.0	9.2	-4.9	10.42	118	6.6	38.5	NO
0250945	Taallowmasters	Miami-Dade	558.7	2,852.3	-7.3	-7.6	10.47	224	6.7	39.5	NO
0250014	Miami Cement Plant	Miami-Dade	557.8	2,851.7	-8.1	-8.2	11.51	224	2,600.3	60.2	YES
7775221	Ranger Construction, South - Miami No. 2.	Miami-Dade	558.1	2,868.9	-7.8	9.0	11.93	319	8.0	68.6	NO
0250252	Miami Plant	Miami-Dade	557.0	2,869.3	-8.9	9.4	12.94	317	12.8	88.9	NO
0250603	Miami Dade Solid Wste Mgmt/No Dade Lf	Miami-Dade	570.7	2,872.1	4.8	12.2	13.14	21	259.6	92.7	YES
0250232	Jackson Memorial Hospital	Miami-Dade	578.0	2,852.7	12.1	-7.2	14.09	121	18.5	111.7	NO
0250157	VA Medical Center	Miami-Dade	578.6	2,852.6	12.7	-7.3	14.65	120	68.7	123.0	NO
0250664	Flowers Baking Company of Miami	Miami-Dade	579.2	2,868.9	13.3	9.0	16.02	56	2.0	150.3	NO
0250314	Alexander ORR Water Treatment Plant	Miami-Dade	567.5	2,843.4	1.6	-16.5	16.62	175	436.0	162.4	YES
0250600	North District Wastewater Treatment Plant	Miami-Dade	584.6	2,866.9	18.7	7.0	19.99	69	229.4	229.8	NO
0112370	Broward County Interim Contingency Lf	Broward	557.6	2,880.1	-8.3	20.2	21.89	338	6.7	267.8	NO
0250476	Central District Wastewater Treatment Plant	Miami-Dade	584.6	2,847.8	18.7	-12.1	22.31	123	151.4	276.1	NO
7775212	Weekley Asphalt Paving, Inc., Plant No 1	Broward	557.3	2,880.6	-8.6	20.7	22.41	337	5.5	278.2	NO
0250257	Krome Quarry	Miami-Dade	550.2	2,842.4	-15.7	-17.5	23.53	222	30.9	300.6	NO
0110002	Memorial Regio Hosp./So. Broward Hosp. Dist.	Broward	581.2	2,877.9	15.3	18.0	23.62	40	7.1	302.4	NO
0112410	Sfwmd Pump Station S-9/S-9a	Broward	555.5	2,882.3	-10.4	22.4	24.73	335	243.0	324.6	NO
0250001	FP&L -Cutler Power Plant	Miami-Dade	569.9	2,835.0	4.0	-24.9	25.24	171	2,242.6	334.8	YES
0111014	Angstrom Graphics	Broward	585.3	2,878.6	19.4	18.7	26.95	46	1.2	368.9	NO
0112119	Wheelabrator South Broward	Broward	579.5	2,883.3	13.6	23.4	27.12	30	1,497.0	372.4	YES
0110037	Ft. Lauderdale Power Plant	Broward	580.1	2,883.6	14.2	23.7	27.61	31	10,395.6	382.2	YES
0110050	Motiva Enterprises - South	Broward	586.8	2,884.6	20.9	24.7	32.36	40	10.0	477.1	NO
0112688	Vencenergy Logistics Port Everglades Term	Broward	587.0	2,885.2	21.1	25.3	32.96	40	17.7	489.2	NO
0110054	Citgo - Port Everglades Terminal	Broward	586.9	2,885.7	21.0	25.8	33.27	39	7.9	495.3	NO
0110036	FP&L - Port Everglades Power Plant	Broward	587.4	2,885.3	21.5	25.4	33.28	40	59,031.9	495.6	YES
0110053	Transmontaige Port Everglades (South)	Broward	587.1	2,885.6	21.2	25.7	33.32	40	11.8	496.3	NO
0110069	Transmontaigne - North Terminal	Broward	586.4	2,886.3	20.5	26.4	33.39	38	3.5	497.9	NO
0110034	High Sierra Terminaling, LLC	Broward	586.5	2,886.5	20.6	26.6	33.63	38	9.3	502.6	NO
0250520	South District Wastewater Treatment Plant	Miami-Dade	565.8	2,825.6	-0.1	-34.3	34.32	180	526.5	516.3	YES
0250623	Miami Dade Solid Waste Mgmt. / South Dade LF	Miami-Dade	565.5	2,825.1	-0.4	-34.8	34.79	181	33.6	525.8	NO

TABLE 6-5 (Revised 12/29/10)
SUMMARY OF THE NO_x FACILITIES CONSIDERED FOR INCLUSION IN THE AAQS AND PSD CLASS II AIR MODELING ANALYSES

AIRS Number	Facility	County	UTM Coordinates East (km)	UTM Coordinates North (km)	Relative to Medley Landfill [a] X (km)	Relative to Medley Landfill [a] Y (km)	Relative to Medley Landfill [a] Distance (km)	Relative to Medley Landfill [a] Direction (deg)	Maximum NO_x Emissions (TPY)	Q, (TPY) Emission Threshold [b,c] (Dist - SID) x 20	Include in Modeling Analysis ?
0250553	Homestead Air Reserve Base	Miami-Dade	559.9	2,820.1	-6.0	-39.8	40.25	189	2.7	635.0	NO
0112152	Gold Coast Crematory	Broward	584.7	2,897.8	18.8	37.9	42.29	26	10.2	675.8	NO
0111019	Holy Cross Hospital	Broward	587.1	2,896.5	21.2	36.6	42.31	30	10.9	676.2	NO
0250013	Gordon W. Ivey Power Plant	Miami-Dade	552.8	2,817.5	-13.2	-42.4	44.37	197	435.7	717.5	NO
0250003	Turkey Point Power Plant	Miami-Dade	566.8	2,813.2	0.9	-46.7	46.67	179	18,967.2	763.3	YES
0110003	W R Grace & Co	Broward	585.7	2,902.8	19.8	42.9	47.27	25	1.2	775.4	NO
0112357	Broward County/North Regional Wwtf	Broward	583.5	2,905.0	17.6	45.1	48.42	21	88.3	798.4	NO
0110038	Bonsal American	Broward	586.2	2,904.6	20.3	44.7	49.09	24	22.1	811.9	NO
0112702	Neptune Society Pompano Beach	Broward	584.8	2,907.0	18.9	47.1	50.71	22	1.3	844.2	NO
0112120	Wheelabrator North Broward	Broward	583.9	2,907.6	18.0	47.7	50.98	21	1,399.2	849.7	YES
0112094	Central Disposal	Broward	583.2	2,908.0	17.3	48.1	51.12	20	74.8	852.3	NO
0110005	Pavex Deerfield Plant	Broward	584.3	2,908.0	18.4	48.1	51.50	21	5.0	860.0	NO
0110045	Hardrives / Deerfield Plant	Broward	583.8	2,909.1	17.9	49.2	52.38	20	10.8	877.6	NO
0250587	Asphalt Group, Inc.	Miami-Dade	563.5	2,806.9	-2.4	-53.0	53.05	183	19.4	891.1	NO
0990354	SFWMD - Pump Station S-7	Palm Beach	545.8	2,912.8	-20.1	52.9	56.56	339	235.5	961.3	NO
0210031	Raccoon Point	Collier	509.6	2,873.2	-56.3	13.3	57.85	283	543.7	987.0	NO
Beyond Screening Area out to 100 km [d]											
0990015	Boca Raton Resort And Club	Palm Beach	592.0	2,913.7	26.1	53.8	59.84	26	12.4	1,026.7	NO
0990119	Boca Raton Community Hospital	Palm Beach	589.5	2,915.7	23.6	55.8	60.56	23	12.3	1,041.2	NO
0990550	SFWMD - Pump Station G-335	Palm Beach	552.6	2,922.0	-13.3	62.1	63.50	348	60.7	1,100.0	NO
0990614	SFWMD - Pump Station G-370	Palm Beach	540.5	2,919.5	-25.4	59.6	64.79	337	248.5	1,125.8	NO
0110351	SFWMD Pump Station S-8 & G-404	Broward	522.3	2,912.2	-43.6	52.3	68.09	320	771.2	1,191.8	NO
0990350	Sfwmd / Pump Station S-6	Palm Beach	596.2	2,927.8	30.3	67.9	74.36	24	494.6	1,317.2	NO
0990095	Bethesda Memorial Hospital	Palm Beach	592.6	2,931.9	26.7	72.0	76.81	20	34.2	1,366.3	NO
0990615	SFWMD - Pump Station G-372	Palm Beach	519.3	2,923.6	-46.6	63.7	78.91	324	245.4	1,408.2	NO
0990549	SFWMD - Pump Station G-310	Palm Beach	554.2	2,940.5	-11.7	80.5	81.40	352	498.0	1,457.9	NO
0990621	SFWMD - Pump Station S-362	Palm Beach	567.2	2,945.0	1.3	85.1	85.09	1	249.2	1,531.8	NO
0990016	Atlantic Sugar Mill	Palm Beach	553.0	2,945.4	-12.9	85.5	86.46	351	1,110.6	1,559.1	NO
0990045	L.W. Utilities / Tom G. Smith Pwr Plant	Palm Beach	592.8	2,943.7	26.9	83.8	88.01	18	5,863.6	1,590.2	YES
0990005	Okeelanta Sugar Refinery	Palm Beach	524.9	2,940.1	-41.0	80.2	90.07	333	84.4	1,631.4	NO
0990332	Okeelanta Cogeneration Plant - New Hope Power Co.	Palm Beach	524.4	2,940.0	-41.5	80.1	90.27	333	1,498.0	1,635.3	NO
0990620	SFWMD - Pump Station S-319	Palm Beach	566.3	2,951.2	0.4	91.3	91.32	0	241.4	1,656.4	NO
0990349	SFWMD - Pump Station S-5a	Palm Beach	562.6	2,951.3	-3.3	91.4	91.46	358	249.4	1,659.2	NO
0990530	Hubbard / East Coast Paving (Wpb)	Palm Beach	562.8	2,952.0	-3.1	92.1	92.12	358	29.4	1,672.5	NO
0990310	Community Asphalt / Wpb Plant	Palm Beach	582.3	2,950.9	16.4	91.0	92.47	10	33.9	1,679.3	NO
0990087	Ranger Construction / (Royal Palm Beach)	Palm Beach	579.9	2,951.7	14.0	91.8	92.86	9	24.8	1,687.2	NO
0990646	FP&L / West County Energy Center	Palm Beach	562.2	2,952.9	-3.7	93.0	93.08	358	665.6	1,691.6	NO
0990333	Compressor Station No. 21	Palm Beach	584.3	2,952.8	18.4	92.9	94.74	11	156.2	1,724.8	NO
0990566	Indian Trail Improvement District - Aci	Palm Beach	565.7	2,956.4	-0.2	96.5	96.49	360	22.1	1,759.8	NO
0990026	Sugar Cane Growers Co-Op	Palm Beach	534.9	2,953.9	-31.0	94.0	98.95	342	3,470.7	1,809.0	YES

Note: NA = Not applicable, ND = No data, SID = Significant impact distance for the project, SIA = Significant Impact Area

[a] Medley Landfill East and North Coordinates (km) are: 565.9 2,859.9 km

[b] The significant impact distance for the project is estimated to be: 8.5 km

[c] Based on the North Carolina Screening Threshold method, a background facility is included in the modeling analysis if the facility is beyond the modeling area and its emission rate is greater than the product of (Distance-SID) x 20.

[d] "Modeling Area" is the area in which the project is predicted to have a significant impact (8.5 km). EPA recommends that all sources within this area be modeled. "Screening Area" is the significant impact distance for the Medley Landfill of 8.5 km, plus 50 km beyond the modeling area. EPA recommends that sources be modeled that are expected to have a significant impact in the modeling area. "Beyond Screening Area out to 100 km" is the distance between the facilities and out to 100 km in which large sources are included in the modeling.

TABLE 6-6 (Revised 12/29/10)
SUMMARY OF THE $PM_{10}/PM_{2.5}$ FACILITIES CONSIDERED FOR INCLUSION IN THE AIR MODELING ANALYSES

AIRS Number	Facility	County	UTM Coordinates East (km)	UTM Coordinates North (km)	Relative to Medley Landfill [a] X (km)	Y (km)	Distance (km)	Direction (deg)	Maximum PM_{10} Emissions (TPY)	Q, (TPY) Emission Threshold [b,c] (Dist - SID) x 20	Include in Modeling Analysis ?
Modeling Area [d]											
0250022	U.S. Foundry Manufacturing Corp.	Miami-Dade	567.3	2859.8	1.4	-0.1	1.40	94	63.7	SIA	YES
0250640	AAR Landing Gear Services	Miami-Dade	564.6	2860.6	-1.3	0.7	1.52	298	0.4	SIA	YES
0250488	Benada Aluminum of Florida	Miami-Dade	567.4	2859.4	1.5	-0.5	1.58	108	0.1	SIA	YES
0250348	Miami Dade RRF/Montenay	Miami-Dade	564.5	2857.8	-1.4	-2.1	2.58	214	227.6	SIA	YES
Screening Area [d]											
0250020	Titan America-Pennsuco Cement	Miami-Dade	562.3	2861.7	-3.6	1.8	4.05	296	322.3	7.0	YES
0250005	General Asphalt Co., Inc.	Miami-Dade	568.8	2855.4	2.9	-4.5	5.35	147	11.7	33.1	NO
0250281	Hialeah/Preston Water Treatment Plant	Miami-Dade	571.2	2856.8	5.3	-3.1	6.12	120	10.6	48.4	NO
0250006	Florida Rock Industries ,Inc.	Miami-Dade	561.1	2853.2	-4.8	-6.7	8.24	216	2.1	90.8	NO
0250659	Cemex Construction Materials FL, LLC	Miami-Dade	558.5	2864.6	-7.4	4.7	8.79	302	6.0	101.8	NO
0250624	General Asphalt Co., Inc. - WDHMA	Miami-Dade	569.7	2868.3	3.8	8.4	9.23	24	1.7	110.6	NO
0250530	Trademark Metals Recycling	Miami-Dade	574.5	2864.1	8.6	4.2	9.53	64	2.4	116.6	NO
0250665	H & J Asphalt, Inc.	Miami-Dade	575.1	2855.0	9.2	-4.9	10.42	118	1.5	134.5	NO
0250258	White Rock Quarries	Miami-Dade	560.0	2868.8	-5.9	8.9	10.68	326	37.2	139.6	NO
0250014	Cemex - Miami Cement Plant	Miami-Dade	557.5	2852.0	-8.4	-7.9	11.50	227	292.9	156.1	YES
0250827	Goodrich Corporation	Miami-Dade	574.5	2867.6	8.6	7.7	11.54	48	1.7	156.9	NO
0251262	Tarmac America, LLC	Miami-Dade	576.7	2855.1	10.8	-4.8	11.79	114	32.0	161.9	NO
0250603	North Dade Landfill	Miami-Dade	570.7	2872.1	4.8	12.2	13.14	21	5.0	188.7	NO
0250407	Exteria Building Products, LLC	Miami-Dade	577.5	2867.5	11.6	7.6	13.86	57	1.4	203.1	NO
0250232	Jackson Memorial Hospital	Miami-Dade	578.0	2852.7	12.1	-7.2	14.09	121	1.4	207.7	NO
0250157	Department of Veterans Affairs	Miami-Dade	578.6	2852.6	12.7	-7.3	14.65	120	4.4	219.0	NO
0250314	Miami-Dade Water and Sewer Dept.	Miami-Dade	568.7	2843.4	2.8	-16.5	16.74	170	8.6	260.9	NO
0112051	Cemex - Pembroke Pines Ready-Mix	Broward	562.5	2876.6	-3.4	16.7	17.05	348	1.0	267.0	NO
0250600	Miami-Dade Water and Sewer Dept.	Miami-Dade	584.6	2866.9	18.7	7.0	19.99	69	5.5	325.8	NO
0112370	Broward Co. Waste & Recycling Serv.	Broward	557.6	2880.1	-8.3	20.2	21.89	338	1.5	363.8	NO
0250476	Central District Water Treatment Plant	Miami-Dade	584.5	2847.8	18.6	-12.1	22.21	123	2.3	370.3	NO
0250257	Rinker Materials of Florida, Inc.	Miami-Dade	550.2	2842.4	-15.7	-17.5	23.53	222	14.3	396.6	NO
0112410	SFWMD - Pump Station No. S-9/S-9A	Broward	555.5	2882.3	-10.4	22.4	24.73	335	1.3	420.6	NO
0250001	FPL - Cutler Power Plant (PCU)	Miami-Dade	569.9	2835.0	4.0	-24.9	25.24	171	1.6	430.8	NO
0112119	Wheelabrator South Broward, Inc.	Broward	579.6	2883.3	13.7	23.4	27.12	30	103.2	468.4	NO
0110037	FPL - Fort Lauderdale Power Plant (PFL)	Broward	580.1	2883.6	14.2	23.7	27.61	31	851.4	478.1	YES
0111001	Banazak Concrete Corp.	Broward	576.5	2885.5	10.6	25.6	27.71	22	1.0	480.2	NO
0110036	FPL - Port Everglades Power Plant (PPE)	Broward	587.4	2885.3	21.5	25.4	33.28	40	6898.3	591.6	YES
0112074	Transflo Terminal Services, Inc. (TTSI)	Broward	583.0	2888.7	17.1	28.8	33.49	31	13.5	595.9	NO
0110034	High Sierra Terminaling, LLC	Broward	586.3	2886.5	20.4	26.6	33.51	38	3.0	596.2	NO
0250520	South District Water Treatment Plant	Miami-Dade	565.8	2825.6	-0.1	-34.3	34.32	180	1.7	612.3	NO
0250623	South Dade Landfill	Miami-Dade	565.5	2825.1	-0.4	-34.8	34.79	181	14.1	621.8	NO
0112127	Steel Fabricators, LLC	Broward	585.4	2896.0	19.5	36.0	40.97	28	6.8	745.3	NO
0112187	Conrad Yelvington Distributors, Inc.	Broward	584.6	2899.1	18.7	39.2	43.40	25	17.3	794.0	NO
0250003	FPL - Turkey Point Power Plant (PTF)	Miami-Dade	566.8	2813.3	0.9	-46.6	46.65	179	336.4	859.0	NO
0112120	Wheelabrator North Broward, Inc.	Broward	583.2	2903.6	17.3	43.6	46.95	22	96.8	864.9	NO
0112702	Neptune Management Corp.	Broward	584.8	2907.0	18.9	47.1	50.71	22	2.1	940.2	NO
0112094	Waste Management Inc. - Central Disposal	Broward	583.2	2908.0	17.3	48.1	51.12	20	23.0	948.3	NO

Golder Associates

TABLE 6-6 (Revised 12/29/10)
SUMMARY OF THE $PM_{10}/PM_{2.5}$ FACILITIES CONSIDERED FOR INCLUSION IN THE AIR MODELING ANALYSES

AIRS Number	Facility	County	UTM Coordinates East (km)	UTM Coordinates North (km)	Relative to Medley Landfill [a] X (km)	Y (km)	Distance (km)	Direction (deg)	Maximum PM_{10} Emissions (TPY)	Q, (TPY) Emission Threshold [b,c] (Dist - SID) x 20	Include in Modeling Analysis ?
Beyond Screening Area out to 100 km [d]											
0210031	Breitburn Florida, LLC	Collier	509.6	2873.2	-56.3	13.3	57.85	283	12.3	1083.0	NO
0990614	SFWMD - Pump Station G-370	Palm Beach	540.5	2919.5	-25.4	59.6	64.79	337	10.4	1221.8	NO
0110351	SFWMD - Pump Station S-8 & G-404	Broward	522.3	2912.2	-43.6	52.3	68.09	320	23.0	1287.8	NO
0990016	Atlantic Holding, LLC	Palm Beach	552.9	2945.3	-13.0	85.4	86.44	351	95.0	1654.7	NO
0990045	City of Lake Worth Utilities	Palm Beach	592.8	2943.7	26.9	83.8	88.01	18	329.0	1686.2	NO
0990005	Okeelanta Corp.	Palm Beach	524.7	2939.5	-41.2	79.6	89.65	333	30.3	1719.1	NO
0990332	New Hope Power Company	Palm Beach	524.6	2939.9	-41.3	80.0	90.07	333	267.5	1727.4	NO
0990348	Palm Beach Aggregates, LLC	Palm Beach	562.4	2952.2	-3.5	92.3	92.38	358	114.3	1773.5	NO
0990310	Community Asphalt Corp.	Palm Beach	582.3	2950.9	16.4	91.0	92.47	10	95.0	1775.3	NO
0990087	Ranger Construction Industries, Inc.	Palm Beach	579.9	2951.7	14.0	91.8	92.86	9	19.4	1783.2	NO
0990646	FPL - West County Energy Center	Palm Beach	562.2	2952.9	-3.7	93.0	93.03	358	132.3	1786.7	NO
0990566	Indian Trail Improvement District	Palm Beach	565.7	2956.4	-0.2	96.5	96.49	360	22.1	1855.8	NO
0990026	Sugar Cane Growers Co-op	Palm Beach	534.9	2953.9	-31.0	94.0	98.95	342	257.0	1905.0	NO

Note:
NA = Not applicable, ND = No data, SID = Significant impact distance for the project, SIA = Significant Impact Area

[a] Medley Landfill East and North Coordinates (km) are: 565.9 2859.90 km
[b] The significant impact distance for the project is estimated to be: 3.7 km
[c] Based on the North Carolina Screening Threshold method, a background facility is included in the modeling analysis if the facility is beyond the modeling area and its emission rate is greater than the product of (Distance-SID) x 20.
[d] "Modeling Area" is the area in which the project is predicted to have a significant impact (3.7 km). EPA recommends that all sources within this area be modeled.
"Screening Area" is the significant impact distance for the Medley Landfill Facility of 3.7 km, plus 50 km beyond the modeling area. EPA recommends that sources be modeled that are expected to have a significant impact in the modeling area. "Beyond Screening Area out to 100 km" is the distance between the facilities and out to 100 km in which large sources are included in the modeling.

TABLE 6-9 (Revised 12/29/10)
LAND USE COMPARISON AND SUMMARY OF MAXIMUM CONCENTRATIONS PREDICTED FOR PROPOSED PROJECT COMPARED TO EPA CLASS II SIGNIFICANT IMPACT LEVELS

Pollutant	Averaging Time	Maximum Concentration ($\mu g/m^3$) [a]	EPA Class II Significant Impact Levels (ug/m^3)
MIA Land Use			
PM_{10}	Annual	1.9	1
	24-Hour	13.1	5
$PM_{2.5}$ [b]	Annual	1.9	0.3
	24-Hour	13.1	1.2
NO_2 (Tier 1) [c]	Annual	5.0	1
	1-Hour	94.1	7.5
NO_2 (Tier 2) [d]	Annual	3.7	1
CO	8-Hour	352.8	500
	1-Hour	549.2	2,000
Site Land Use			
PM_{10}	Annual	1.5	1
	24-Hour	15.8	5
$PM_{2.5}$ [b]	Annual	1.5	0.3
	24-Hour	15.8	1.2
NO_2 (Tier 1) [c]	Annual	3.9	1
	1-Hour	105.1	7.5
NO_2 (Tier 2) [d]	Annual	3.0	1
CO	8-Hour	381.8	500
	1-Hour	613.3	2,000

[a] Concentrations are based on highest predicted concentrations from AERMOD using five years of meteorological data for 2001 to 2005 consisting of surface and upper air data from the National Weather Service stations at Miami International Airport and Florida International University, respectively. All concentrations predicted based on Scenario 2 emission configuration.
[b] As promulated by EPA in October 20, 2010 Federal Register.
[c] Proposed 1-hour SIL equivalent to 4% of NAAQS.
[d] Based on Tier 1 results and annual default NO_2 to NO_x ratio of 0.75.

TABLE 6-10 (Revised 12/29/10)
SUMMARY OF MAXIMUM CONCENTRATIONS PREDICTED FOR PROPOSED PROJECT AT THE ENP COMPARED TO EPA PROPOSED PSD CLASS I SIGNIFICANT IMPACT LEVELS

Pollutant	Averaging Time	Maximum Concentration ($\mu g/m^3$) [a, b]	EPA Class I Significant Impact Levels (ug/m^3)
PM_{10}	Annual	0.0084	0.2
	24-Hour	0.111	0.3
$PM_{2.5}$	Annual	0.0084	0.06[c]
	24-Hour	0.111	0.07[c]
NO_2 (Tier 1)	Annual	0.024	0.1
NO_2 (Tier 2)[d]	Annual	0.018	0.1

[a] Based on highest predicted concentrations from AERMOD using five years of meteorological data for 2001 to 2005 consisting of surface and upper air data from the National Weather Service stations at Miami International Airport and Florida International University, respectively.
[b] Based on the worst case emissions, Scenario 2.
[c] On October 20, 2010 EPA finalized significant impact levels for $PM_{2.5}$. However, a Class I area increment analysis for $PM_{2.5}$ is not required for permit applications submitted before October 20, 2011.
[d] Based on Tier 1 results and annual default NO_2 to NO_X ratio of 0.75.

TABLE 6-11 (Revised 12/30/10)
MAXIMUM PREDICTED PM_{10}, $PM_{2.5}$, AND NO_2 IMPACTS COMPARED TO THE AAQS

Averaging Time and Rank	Maximum Concentration (µg/m³)[a] Total	Modeled Sources	Background	Receptor Location UTM- East (m)	UTM- North (m)	Time Period (YYMMDDHH)	AAQS (µg/m³)
NO_2 Tier 1							
Annual, Highest[b]	26.7	6.0	20.7	562900	2858150	01123124	100
	27.6	6.9	20.7	563150	2858150	02123124	
	27.3	6.6	20.7	563150	2858150	03123124	
	27.1	6.4	20.7	563150	2857900	04123124	
	27.1	6.4	20.7	562900	2857900	05123124	
1-Hour, 98th Percentile of Daily Max Modeled[c]	–	236.1	–	571900	2868400	–	188
	–	255.2	–	571900	2868400	–	
	–	251.6	–	571900	2868400	–	
	–	240.9	–	571900	2868400	–	
	–	238.5	–	571900	2868400	–	
5-Year Average	**357.4**	**244.5**	**112.9**				
NO_2 Tier 3 with OLM							
Annual, Highest	28.2	7.5	20.7	565,754	2,860,013	01123124	100
	29.5	8.8	20.7	565,754	2,860,013	02123124	
	29.1	8.4	20.7	565,754	2,860,013	03123124	
	29.1	8.4	20.7	565,707	2,860,013	04123124	
	28.9	8.2	20.7	565,754	2,860,013	05123124	
1-Hour, 98th Percentile of Daily Max Modeled[c]	–	133.4	–	567,900	2,868,400	–	188
	–	133.0	–	567,900	2,868,400	–	
	–	157.3	–	567,900	2,868,400	–	
	–	161.0	–	567,900	2,868,400	–	
	–	156.5	–	567,900	2,868,400	–	
5-Year Average	**261.2**	**148.3**	**112.9**				
PM_{10}							
Annual, Highest	29.0	2.0	27.0	565,707	2,860,013	01123124	50
	29.2	2.2	27.0	565,707	2,860,013	02123124	
	28.9	1.9	27.0	565,707	2,860,013	03123124	
	28.9	1.9	27.0	565,612	2,859,924	04123124	
	28.9	1.9	27.0	565,707	2,860,013	05123124	
24-Hour, H6H	75.1	10.1	65.0	565,754	2,860,013	05032224	150
$PM_{2.5}$							
Annual, Highest	–	2.4	–	563,937	2,857,693	01123124	15
	–	2.6	–	563,937	2,857,693	02123124	
	–	2.6	–	562,443	2,861,370	03123124	
	–	2.6	–	562,443	2,861,370	04123124	
	–	2.8	–	562,443	2,861,370	05123124	
5-Year Average	**10.5**	**2.6**	**7.9**				
24-Hour, highest[d]	–	20.4	–	562,443	2,861,370	–	35
	–	19.8	–	562,443	2,861,370	–	
	–	17.8	–	562,443	2,861,370	–	
	–	18.7	–	562,443	2,861,370	–	
	–	22.7	–	562,443	2,861,370	–	
5-Year Average	**41.4**	**19.9**	**21.5**				

Note:
YYMMDDHH = Year, Month, Day, Hour Ending
H6H = Highest, sixth-highest

[a] Concentrations are based on concentrations predicted using 5 years of meteorological data from 2001 to 2005 of surface and upper air data from the National Weather Service stations at Miami International Airport and Florida International University, respectively.
[b] A NO_x to NO_2 conversion factor of 75% applied to annual average concentrations based on EPA's Guideline on Air Quality Models.
[c] 98th percentile of the annual distribution of the daily maximum 1-hour concentrations
[d] Highest predicted 24-hour average concentrations.

TABLE 6-12 (Revised 12/29/10)
AAQS RESULTS BASED ON TEMPORAL PAIRING FOR
1-HOUR AVERAGE NO_2 AND 24-HOUR AVERAGE $PM_{2.5}$

Averaging Time and Rank	Maximum Concentration (µg/m³) [a] Total	Modeled Sources	Background	Receptor Location UTM- East (m)	UTM- North (m)	Time Period (YYMMDDHH)	AAQS (µg/m³)
NO_2							
1-Hour, 98th Percentile of Daily Max Total [b]	170.1	141.9	28.2	567,900	2,868,400	01031805	188
	174.1	98.9	75.2	567,900	2,868,400	02060722	
	184.9	168.0	16.9	567,900	2,868,400	03120220	
	192.1	167.6	24.5	567,900	2,868,400	04032306	
	182.2	155.9	26.3	567,900	2,868,400	05012811	
Maximum 5-Year Average[c]	**180.7**						
$PM_{2.5}$							
24-Hour, 98th Percentile of Daily Max Total [d]	28.6	20.4	8.2	562,443	2,861,370	01122624	35
	28.1	3.1	25.0	562,443	2,861,370	02070524	
	28.8	0.4	28.4	562,443	2,861,370	03102424	
	30.9	11.1	19.8	562,443	2,861,370	04021724	
	26.8	17.6	9.2	562,443	2,861,370	05122024	
Maximum 5-Year Average[c]	**28.6**						

Note:
YYMMDDHH = Year, Month, Day, Hour Ending

[a] Concentrations are based on concentrations predicted using 5 years of meteorological data from 2001 to 2005 of surface and upper air data from the National Weather Service stations at Miami International Airport and Florida International University, respectively.
[b] 98th percentile of annual distribution of daily maximum 1-hour total (modeled + monitored) concentrations.
[c] Maximum 5-year average among all receptors.
[d] 98th percentile of annual distribution of daily (24-hr average) total (modeled + monitored) concentrations.

TABLE 6-13 (Revised 12/29/10)
MAXIMUM PREDICTED PM_{10} AND NO_2 IMPACTS FROM ALL SOURCES, COMPARED TO THE ALLOWABLE PSD CLASS II INCREMENTS

Averaging Time and Rank	Maximum Concentration [a] (µg/m³)	Receptor Location UTM- East (m)	Receptor Location UTM- North (m)	Time Period (YYMMDDHH)	PSD Class II Increment (µg/m³)
PM_{10}					
Annual, Highest	2.0	565,707	2,860,013	01123124	17
	2.2	565,707	2,860,013	02123124	
	1.9	565,707	2,860,013	03123124	
	1.9	565,612	2,859,924	04123124	
	1.9	565,707	2,860,013	05123124	
24-Hour, HSH	12.5	566,011	2,859,752	01030624	30
	11.6	565,801	2,860,014	02123124	
	9.1	566,700	2,860,900	03101324	
	10.0	566,000	2,858,900	04080724	
	13.4	565,754	2,860,013	05070924	
NO_2 [b]					
Annual, Highest	5.3	565,659	2,860,012	01123124	25
	6.0	565,707	2,860,013	02123124	
	6.0	565,707	2,860,013	03123124	
	5.4	565,612	2,859,924	04123124	
	5.9	565,707	2,860,013	05123124	

Note:
YYMMDDHH = Year, Month, Day, Hour Ending
HSH = Highest, second-highest

[a] Concentrations are based on concentrations predicted using 5 years of meteorological data from 2001 to 2005 of surface and upper air data from the National Weather Service stations at Miami International Airport .

[b] As a conservative estimate of PSD increment consumption, most of the sources modeled for NAAQS analysis were also modeled for PSD increment analysis, even though certain sources are not PSD sources.

APPENDIX A

REVISED TABLES D-1 AND D-2

TABLE D-1 (Revised 12/29/10)
SUMMARY OF NO_x SOURCES INCLUDED IN THE AAQS AND PSD CLASS II MODELING ANALYSES

Facility ID	Facility Name / Emission Unit Description	EU ID	Modeling ID Name	UTM Location X (m)	UTM Location Y (m)	Height ft	Height m	Diameter ft	Diameter m	Temperature °F	Temperature K	Velocity ft/s	Velocity m/s	Stack Parameter Data Source	NO_x Emission Rate 1-Hour (lb/hr)	NO_x Emission Rate 1-Hour (g/sec)	Emissions Data Source	Modeled In AAQS	PSD Class II
0251196	Aviation Engine Service Inc.																		
	Jet Engine Test Cell	002	AVJET	566,640	2,859,630	30.0	9.14 *	5.0	1.52 *	800.0	699.8 *	50.0	15.24 *	FDEP Data 5/10/10, See Footnote	10.7	1.35	FDEP Data 5/10/10	Yes	Yes
0250022	U.S. Foundry Manufacturing Corp.																		
	Gray Iron Foundry Cupola	003		567,300	2,859,800	50.0	15.24	2.5	0.76	480.0	522.0	143.6	43.8	FDEP Data 5/10/10, 0250022-011-AV	2.54	0.32	FDEP Data 5/10/10	Yes	Yes
	Molding Line Loop 4	004		567,300	2,859,800	–	–	–	–	–	–	–	–	No data, Grouped with EU 003	0.015	0.0018	FDEP Data 5/10/10 - AOR 2009	Yes	Yes
	U.S. Foundry Emission Units		USFNDRY	567,300	2,859,800	50.0	15.24	2.5	0.76	480.0	522.0	143.6	43.77		2.55	0.32		Yes	Yes
0250640	AAR Landing Gear Services																		
	Natural Gas Ovens	005	AAROVEN	564,560	2,860,610	35.0	10.67	2.0	0.61	500.0	533.2 *	50.0	15.24 *	FDEP Data 5/10/10, See Footnote	0.50	0.064	0250640-021-AV, 5.15 MMBtu/hr, AP-42 Table 1.4-1	Yes	Yes
0250488	Benada Aluminum of Florida																		
	Heat Treat Oven	002		567,400	2,859,400	5.0	1.52	1.0	0.30	500.0	533.2 *	50.0	15.24 *	FDEP Data 5/10/10, See Footnote	0.35	0.044	0250488-008-AV - 3.6 MMBtu/hr, AP-42 Table 1.4-1	Yes	Yes
	Two Fire Tubes	004		567,400	2,859,400	–	–	–	–	–	–	–	–	No data, grouped with EU 002 parameters	0.26	0.033	0250488-008-AV - 2.7 + 0.0012 MMBtu/hr, AP-42 Table 1.4-1	Yes	Yes
	Heat Treat Oven and Two Fire Tubes		BAFHTOFT	567,400	2,859,400	5.0	1.52	1.0	0.30	500.0	533.15	50.0	15.24		0.62	0.078		Yes	Yes
	Paint Bake Oven	003	BAFPBO	567,400	2,859,400	12.0	3.66	1.0	0.30	500.0	533.2 *	50.0	15.24 *	FDEP Data 5/10/10, See Footnote	0.59	0.074	0250488-008-AV - 3.0 MMBtu/hr each (2), AP-42 Table 1.4-1	Yes	Yes
	Paint Hook Cleaning Oven	005	BAFPHO	567,400	2,859,400	35.0	10.67	3.0	0.91	500.0	533.2 *	50.0	15.24 *	FDEP Data 5/10/10, See Footnote	0.70	0.088	0250488-008-AV - 3.58 MMBtu/hr each (2), AP-42 Table 1.4-1	Yes	Yes
0251194	Bagelmania																		
	Baking of bread,bagels and rolls	001	BAGEL	564,450	2,861,650	45.0	13.72	2.0	0.61	500.0	533.2 *	50.0	15.24 *	FDEP Data 5/10/10, See Footnote	0.90	0.11	0251194-002-AO - 9.14 MMBtu/hr total EU 001, AP-42 Table 1.4-1	Yes	Yes
0250492	Industrial Metal Spraying																		
	Spray Booths	001	IMSBOOTH	568,400	2,859,200	20.0	6.10	2.8	0.85	77	298.2	50.0	15.24 *	FDEP Data 5/10/10, See Footnote	0.49	0.062	FDEP Data 5/10/10 - Potential	Yes	Yes
0250348	Miami Dade RRF/Montenay																		
	RDF Spreader Stoker Unit No. 1	001		563,830	2,857,620	250.0	76.20	8.4	2.57	300.0	422.0	67.6	20.61	0250348-009-AV	143.7	18.11	Golder (0037532Y/F2) App. for 0250348-004-AV	Yes	Yes
	RDF Spreader Stoker Unit No. 2	002		563,830	2,857,620	250.0	76.20	8.4	2.57	300.0	422.0	67.6	20.61	0250348-009-AV	143.7	18.11	Golder (0037532Y/F2) App. for 0250348-004-AV	Yes	Yes
	RDF Spreader Stoker Unit No. 3	003		563,830	2,857,620	250.0	76.20	8.4	2.57	300.0	422.0	67.6	20.61	0250348-009-AV	143.7	18.11	Golder (0037532Y/F2) App. for 0250348-004-AV	Yes	Yes
	RDF Spreader Stoker Unit No. 4	004		563,830	2,857,620	250.0	76.20	8.4	2.57	300.0	422.0	67.6	20.61	0250348-009-AV	143.7	18.11	Golder (0037532Y/F2) App. for 0250348-004-AV	Yes	Yes
	RDF Spreader Stoker Unit Nos. 1-4		RRFU14	563,830	2,857,620	250.0	76.20	8.4	2.57	300.0	422.0	67.6	20.61		574.8	72.4		Yes	Yes
0250020	Titan America-Pennsuco Cement																		
	Raw Mill & Pyroprocessing System	028	TARAWML	562,270	2,861,700	410.0	124.97	14.0	4.27	200.0	366.5	55.8	17.00	Golder (0537642) - 515,000 acfm	720.00	90.72	0250020-021-AV	Yes	Yes
0250005	General Asphalt - Plant No. 1																		
	Asphalt Batch Plant	001	GENASPH	568,800	2,855,400	25	7.62	3.8	1.16	164.0	346.5	101.0	30.78	FDEP Data 5/10/10	22.83	2.88	0250005-007-AO - facility wide limit of 100 TPY	Yes	Yes
0250281	Hialeah/Preston Water Treatment Plant																		
	Lime Recalc. Kiln	001	HPWTPLM	570,700	2,856,760	75.0	22.86	3.0	0.91	105.0	313.7	2.4	0.73	FDEP Data 5/10/10	2.50	0.32	0250281-010-AV	Yes	Yes
0251186	Aerothrust Corp																		
	One (1) Test Cell - Jet Engines	001	AERJETST	569,200	2,853,120	40.0	12.19	17.5	5.33	500.0	533.2 *	50.0	15.24 *	FDEP Data 5/10/10, See Footnote	22.83	2.88	0251186-001-AO - facility wide limit of 100 TPY	Yes	Yes
0250624	General Asphalt WDHMA																		
	Counter Flow Drum Mix Asphalt Plant	001	GNASWDH	568,800	2,855,400	30	9.14	4.6	1.40	277.0	409.3	62.0	18.90	FDEP Data 5/10/10	22.83	2.88	0250624-007-AO - facility wide limit of 100 TPY	Yes	Yes
0250014	Cemex - Miami Cement Plant																		
	Stone Dryer & Soil Thermal Treatment Fac.	014	CEMSTONE	558,200	2,851,300	80.0	24.38	4.5	1.37	800.0	699.8	38.0	11.58	0250014-028-AV	0.079	0.010	FDEP Data 5/10/10 - 2008 AOR	Yes	Yes
	In Line Kiln/Raw Mill/Clinker Cooler	018	CEMKLN	557,490	2,852,050	359.0	109.42	8.0	2.44	464.0	513.2	160.9	49.04	FDEP Data 5/10/10	648.00	81.65	0250014-028-AV	Yes	Yes
0250603	Miami Dade Solid Wste Mgmt/No Dade Lf																		
	Enclosed Flare Model GF-1000	002	NDLFLR	570,670	2,872,140	30.0	9.14	6.9	2.10	999.0	810.4	35.6	10.85	FDEP Data 5/10/10	1.67	0.21	FDEP Data 5/10/10 - Potential	Yes	Yes
	18 Detroit Diesel Dual Fuel Generator Engines	003	NDLGEN	570,670	2,872,140	33.0	10.06	1.3	0.41	850.0	727.6	156.0	47.55	FDEP Data 5/10/10	141.00	17.77	FDEP Data 5/10/10 - Potential	Yes	Yes
0250314	Alexander ORR Water Treatment Plant																		
	Engine No. 5	005		565,920	2,843,330	–	–	–	–	77.0	298.2	–	–	FDEP Data 5/10/10	15.52	1.96	FDEP Data 5/10/10 - 2008 AOR	Yes	Yes
	Engine No. 6	006		565,920	2,843,330	28.0	8.53	1.2	0.37	250.0	394.3	–	–	FDEP Data 5/10/10	65.23	8.22	FDEP Data 5/10/10 - Potential	Yes	Yes
	Rotary Lime Recalcining Kiln	007		565,920	2,843,330	–	–	3.0	0.91	170.0	349.8	166.0	50.60	FDEP Data 5/10/10	18.80	2.37	0250314-015-AV	Yes	Yes
	Engines and Rotary Kiln[c]		AORREGRK	565,920	2,843,330	28.0	8.53	3.0	0.91	170.0	349.8	166.0	50.60		99.55	12.54		Yes	Yes

TABLE D-1 (Revised 12/29/10)
SUMMARY OF NO_x SOURCES INCLUDED IN THE AAQS AND PSD CLASS II MODELING ANALYSES

Facility ID	Facility Name / Emission Unit Description	EU ID	Modeling ID Name	UTM Location X (m)	UTM Location Y (m)	Stack Parameters Height ft	Height m	Diameter ft	Diameter m	Temperature °F	Temperature K	Velocity ft/s	Velocity m/s	Stack Parameter Data Source	NO_x Emission Rate 1-Hour (lb/hr)	1-Hour (g/sec)	Emissions Data Source	Modeled in AAQS	Modeled in PSD Class II
0250001	FP&L -Cutler Power Plant																		
	FFFSG - Unit No. 5	003		569,870	2,834,975	150.0	45.72	14.0	4.27	285.0	413.7	50.7	15.44	0250001-003-AV and Application - 467,837 acfm	188.0	23.69	0250001-003-AV - Built in 1954	Yes	Yes
	FFFSG - Unit No. 6	004		569,870	2,834,975	150.0	45.72	14.0	4.27	285.0	413.7	60.7	18.50	0250001-003-AV and Application - 560,464 acfm	324.0	40.82	0250001-003-AV - Built in 1955	Yes	Yes
	FFFSG - Unit Nos. 5 & 6		FPLCUTLR	569,870	2,834,975	150.0	45.72	14.0	4.27	285.0	413.7	50.7	15.44	Gouped based on Unit 5 parameters	512.0	64.51		Yes	Yes
0112119	Wheelabrator South Broward																		
	MSW Combustor & Auxiliary Burners- Unit 1	001		579,540	2,883,340	195.0	59.44	7.5	2.29	300.0	422.0	63.8	19.43	0112119-014-AV - 169,000 acfm	114.0	14.36	0112119-014-AV	Yes	Yes
	MSW Combustor & Auxiliary Burners- Unit 2	002		579,540	2,883,340	195.0	59.44	7.5	2.29	300.0	422.0	63.8	19.43	0112119-014-AV - 169,000 acfm	114.0	14.36	0112119-014-AV	Yes	Yes
	MSW Combustor & Auxiliary Burners- Unit 3	003		579,540	2,883,340	195.0	59.44	7.5	2.29	300.0	422.0	63.8	19.43	0112119-014-AV - 169,000 acfm	114.0	14.36	0112119-014-AV	Yes	Yes
	MSW Combustor & Auxiliary Burners- Unit Nos. 1-3		WHLSU13	579,540	2,883,340	195.0	59.44	7.5	2.29	300.0	422.0	63.8	19.43		342.0	43.1		Yes	Yes
0110037	Florida Power & Light (PFL) - Fort Lauderdale																		
	CTs 1-4 PSD	035-038	LAUDU45	580,200	2,883,500	150	45.7	18.0	5.5	330.0	438.7	158.7	48.37	FDEP Data 5/10/10	1688.00	212.7	0110037-005-AV - 4,868 TPY TOTAL	Yes	Yes
	GT 1-12 (0.5% fuel oil)	003	LDGT1_12	580,320	2,884,050	45	13.7	15.6	4.8	860.0	733.2	93.3	28.44	FDEP Data 5/10/10	7572.00	954.1	0110037-005-AV	Yes	Yes
	GT 13-24 (0.5% fuel oil)	015	LDGT1324	580,290	2,883,640	45	13.7	15.6	4.8	860.0	733.2	93.3	28.44	FDEP Data 5/10/10	7572.00	954.1	0110037-005-AV	Yes	Yes
0110036	FPL - Port Everglades Plant																		
	Units 1&2 at 2.5%s fuel oil	–	PTEVU12	587,400	2,885,300	343.0	104.5	14.0	4.27	289.0	415.9	88.1	26.72	0110036-009-AV	1,656.0	208.7	0110036-009-AV	Yes	Yes
	Units 3&4 at 2.5%s fuel oil	–	PTEVU34	587,400	2,885,300	343.0	104.5	18.1	5.52	287.0	414.8	81.8	23.88	0110036-009-AV	4,240.0	534.2	0110036-009-AV	Yes	Yes
	GT 1-12 (0.5% fuel oil)	–	PTEVGTS	587,300	2,885,600	45.0	13.4	15.6	4.75	860.0	733.2	93.3	28.43	0110036-009-AV	7,581.6	955.3	0110036-009-AV	Yes	Yes
0250003	Turkey Point Power Plant																		
	Boiler- Unit 1	001		567,200	2,813,200	400.0	121.9	18.1	5.5	275.0	408.2	77.0	23.46	0250003-011-AV	2041.0	257.2	0250003-011-AV	Yes	Yes
	Boiler- Unit 2	002		567,200	2,813,200	400.0	121.9	18.1	5.5	275.0	408.2	77.0	23.46	0250003-011-AV	2041.0	257.2	0250003-011-AV	Yes	Yes
	Boilers - Units 1 and 2		TPU12	567,200	2,813,200	400.0	121.9	18.1	5.5	275.0	408.2	77.0	23.46		4082.0	514.3		Yes	Yes
	Unit 5A CT with HRSG	009		566,590	2,813,210	131.0	39.9	19.0	5.8	202.0	367.6	59.0	17.98	FDEP Data 5/10/10	62.1	7.8	0250003-011-AV	Yes	Yes
	Unit 5B CT with HRSG	010		566,590	2,813,210	131.0	39.9	19.0	5.8					FDEP Data 5/10/10	62.1	7.8	0250003-011-AV	Yes	Yes
	Unit 5C CT with HRSG	011		566,590	2,813,210	131.0	39.9	19.0	5.8	202.0	367.6	59.0	17.98	FDEP Data 5/10/10	62.1	7.8	0250003-011-AV	Yes	Yes
	Unit 5D CT with HRSG	012		566,590	2,813,210	131.0	39.9	19.0	5.8	202.0	367.6	59.0	17.98	FDEP Data 5/10/10	62.1	7.8	0250003-011-AV	Yes	Yes
	Unit 5		TPU5AD	566,590	2,813,210	131.00	39.93	19.00	5.79	202.00	367.59	59.00	17.98		248.4	31.3		Yes	Yes
0112120	Wheelabrator North Broward																		
	MSW Combustor & Auxiliary Burners- Unit 1	001		579,540	2,883,340	195.0	59.44	7.5	2.29	300.0	422.0	63.8	19.43	0112120-009-AV - 169,000 acfm	106.5	13.42	0112119-014-AV	Yes	Yes
	MSW Combustor & Auxiliary Burners- Unit 2	002		579,540	2,883,340	195.0	59.44	7.5	2.29	300.0	422.0	63.8	19.43	0112120-009-AV - 169,000 acfm	106.5	13.42	0112119-014-AV	Yes	Yes
	MSW Combustor & Auxiliary Burners- Unit 3	003		579,540	2,883,340	195.0	59.44	7.5	2.29	300.0	422.0	63.8	19.43	0112120-009-AV - 169,000 acfm	106.5	13.42	0112119-014-AV	Yes	Yes
	MSW Combustor & Auxiliary Burners- Unit Nos. 1-3		WHLNU13	579,540	2,883,340	195.0	59.44	7.5	2.29	300.0	422.0	63.8	19.43		319.5	40.3		Yes	Yes
0990045	City of Lake Worth Utilities																		
	Diesel Generator Units 1-5	001-005	LAKWTHDG	592,800	2,943,700	16.5	5.0	1.83	0.6	667.0	625.9	121.7	37.10	0990045-005-AV Appl. (Golder 07389508) - 12,208 acfm	499.0	62.87	0990045-005-AV Appl. (Golder 07389508)	Yes	Yes
	Gas Turbine No.1	006	LAKWTHGT	592,800	2,943,700	46.0	14.0	16.0	4.9	837.0	720.4	81.5	24.85	0990045-005-AV Appl. (Golder 07389508) - 983,593 acfm	391.5	49.33	0990045-005-AV Appl. (Golder 07389508)	Yes	Yes
	Unit 3, S-3	009	LAKWTHU3	592,800	2,943,700	113.0	34.4	7.0	2.1	293.0	418.2	51.4	15.67	0990045-005-AV Appl. (Golder 07389508) - 118,719 acfm	162.6	20.49	0990045-005-AV Appl. (Golder 07389508)	Yes	Yes
	Combined Cycle Unit, S-5	011	LAKWTHU5	592,800	2,943,700	75.0	22.9	10.0	3.0	404.0	479.8	87.5	26.68	0990045-005-AV Appl. (Golder 07389508) - 412,466 acfm	285.8	36.01	0990045-005-AV Appl. (Golder 07389508)	Yes	Yes
0990026	Sugar Cane Growers Co-Op																		
	On-crop season [b]																		
	Unit 1	001	SCBLR1N	534,900	2,953,300	150.0	45.72	7.0	2.13	156.0	342.0	49.6	15.12	BART for SCGCF, Golder 063-7534	159.2	20.05	From Southeast Renewable Fuels (Golder 0938-7660)	Yes	Yes
	Unit 2	002	SCBLR2N	534,900	2,953,300	150.0	45.72	7.0	2.13	156.0	342.0	51.1	15.58	BART for SCGCF, Golder 063-7534	128.6	16.20	From Southeast Renewable Fuels (Golder 0938-7660)	Yes	Yes
	Unit 3	003	SCBLR3N	534,900	2,953,300	180.0	54.86	5.3	1.62	156.0	342.0	40.3	12.28	HBCA Appl for SCGCF, Golder 063-7534	102.9	12.97	From Southeast Renewable Fuels (Golder 0938-7660)	Yes	Yes
	Unit 4	004	SCBLR4N	534,900	2,953,300	180.0	54.86	8.9	2.72	162.0	345.4	54.1	16.49	BART for SCGCF, Golder 063-7534	257.0	32.38	From Southeast Renewable Fuels (Golder 0938-7660)	Yes	Yes
	Unit 5	005	SCBLR5N	534,900	2,953,300	150.0	45.72	7.0	2.13	160.0	344.3	77.1	23.50	BART for SCGCF, Golder 063-7534	188.6	23.76	From Southeast Renewable Fuels (Golder 0938-7660)	Yes	Yes
	Unit 8	008	SCBLR8N	534,900	2,953,300	155.0	47.24	9.5	2.90	154.0	340.9	37.6	11.46	HBCA Appl for SCGCF, Golder 063-7534	123.0	15.50	From Southeast Renewable Fuels (Golder 0938-7660)	Yes	Yes
	Off-crop season [b]																		
	Unit 1	001	SCBLR1F	534,900	2,953,300	150.0	45.72	7.0	2.13	156.0	342.0	49.6	15.12	BART for SCGCF, Golder 063-7534	159.2	20.05	From Southeast Renewable Fuels (Golder 0938-7660)	No	No
	Unit 4	004	SCBLR4F	534,900	2,953,300	180.0	54.86	8.9	2.72	162.0	345.4	54.1	16.49	BART for SCGCF, Golder 063-7534	257.0	32.38	From Southeast Renewable Fuels (Golder 0938-7660)	No	No
0250520	North District Wastewater Treatment Plant																		
	Digester gas-fired cogeneration Engines #1 to #3	001-003	NDWTCO13	565,820	2,825,580	40.0	12.19	1.5	0.46	780.0	688.7	69.6	21.23	FDEP Data	29.1	3.67		Yes	No
	Diesel Engine Generator Nos. 1-5	006-010	NDWTDG15	565,820	2,825,580	21.0	6.40	2.8	0.84	650.0	616.5	62.0	18.90	FDEP Data	589.6	74.29		Yes	No
	Diesel Engine Generator No. 6	013	NDWTDG6	565,820	2,825,580	21.0	6.40	2.3	0.70	735.0	663.7	92.3	28.12	FDEP Data	129.2	16.28		Yes	No

[a] Based on engineering estimates. Actual data not available.

[b] Facilities or sources within facilities that operate only during the October 1 through April 31 crop season. *For sources identified operating during off-crop season,* the season is May through September.

TABLE D-2 (Revised 12/29/10)
SUMMARY OF $PM_{10}/PM_{2.5}$ SOURCES INCLUDED IN THE AAQS AND PSD CLASS II MODELING ANALYSES

Facility	Facility Name		Modeling	UTM Location		Stack Parameters								Stack Parameter	$PM_{10}/PM_{2.5}$ Emission Rate 24-Hour/Annual		Emissions Data	Modeled In	
				X	Y	Height		Diameter		Temperature		Velocity							
ID	Emission Unit Description	EU ID	ID Name	(m)	(m)	ft	m	ft	m	°F	K	ft/s	m/s	Data Source	(lb/hr)	(g/sec)	Source	AAQS	PSD Class II
0250022	U.S. Foundry Manufacturing Corp.																		
	Gray Iron Foundry Cupola	003		567,300	2,859,800	50.0	15.24	2.5	0.76	460.0	510.9	220.7	67.27	0250022-011-AV	2.20	0.28	0250022-011-AV - 0.1 lb/ton and 22 ton/hr	Yes	Yes
	Molding Line Loop 4[b]	004		567,300	2,859,800	–	–	–	–	–	–	–	–	No data, grouped with EU 003 parameters	9.09	1.14	0250022-011-AV - dust loading 0.01 gr/scf, 106,000 scfm	Yes	Yes
	Core Making[b]	009		567,300	2,859,800	–	–	–	–	–	–	–	–	No data, grouped with EU 003 parameters	0.0069	0.00087	FDEP Data 5/10/10 - 2009 AOR	Yes	Yes
	Finishing Area[b]	010		567,300	2,859,800	–	–	–	–	–	–	–	–	No data, grouped with EU 003 parameters	0.18	0.023	FDEP Data 5/10/10 - 2009 AOR	Yes	Yes
	Cupola, Molding Line 4, Core Making, and Finishing area		USFMIRON	567,300	2,859,800	50.0	15.2	2.5	0.8	460.0	510.9	220.7	67.3		11.47	1.45			
	DISA Cold Box Core Machine	015	USFMDISA	567,300	2,859,800	28.0	8.53	1.0	0.30	77.0	298.2	59.7	18.20	FDEP Data 5/10/10	0.0048	0.00061	0250022-011-AV - dust loading 0.2 gr/scf and 99.9% control	Yes	Yes
	Molding Loop 3A	019	USFMML3A	567,300	2,859,800	51.7	15.75	5.4	1.65	500.0	533.2 [a]	51.5	15.68	FDEP Data 5/10/10 and 0250022-011-AV	3.06	0.39	0250022-011-AV - dust loading 0.005 gr/scf, 71,150 cfm	Yes	Yes
0250640	AAR Landing Gear Services																		
	Shot Peen & Blasting Machine	004		564,560	2,860,610	–	–	–	–	–	–	–	–	No data, grouped with EU 005 parameters	3.66	0.46	0250640-021-AV - dust loading 0.01 gr/cf, 42,700 cfm	Yes	Yes
	Ovens - Natural Gas	005		564,560	2,860,610	35.0	10.67	2.0	0.61	500.0	533.2 [a]	44.0	13.42	0250640-021-AV	0.040	0.0051	0250640-021-AV - 0.0076 lb/MMBtu, 5.3 MMBtu/hr	Yes	Yes
	Shot Peen, Blasting Machine, and Ovens		AARGEAR	564,560	2,860,610	35.0	10.67	2.0	0.61	500.0	533.2	44.0	13.42		3.70	0.47		Yes	Yes
0250488	Benada Aluminum of Florida																		
	Heat Treat Oven	002		567,400	2,859,400	5.0	1.52	1.0	0.30	500.0	533.2 [a]	50.0	15.24 [a]	FDEP Data 5/10/10, See Footnote	0.027	0.0034	0250488-008-AV - 3.6 MMBtu/hr, AP-42 Table 1.4-2	Yes	Yes
	Two Fire Tubes	004		567,400	2,859,400	–	–	–	–	–	–	–	–	No data, grouped with EU 002 parameters	0.020	0.0025	0250488-008-AV - 2.7 + 0.0012 MMBtu/hr, AP-42 Table 1.4-2	Yes	Yes
	Heat Treat Oven and Two Fire Tubes		BAFHTOFT	567,400	2,859,400	5.0	1.52	1.0	0.30	500.0	533.15	50.0	15.24		0.047	0.0059		Yes	Yes
	Paint Bake Oven	003	BAFPBO	567,400	2,859,400	12.0	3.66	1.0	0.30	500.0	533.2 [a]	50.0	15.24 [a]	FDEP Data 5/10/10, See Footnote	0.045	0.0056	0250488-008-AV - 3.0 MMBtu/hr each (2), AP-42 Table 1.4-2	Yes	Yes
	Paint Hook Cleaning Oven	005	BAFPHO	567,400	2,859,400	35.0	10.67	3.0	0.91	500.0	533.2 [a]	50.0	15.24 [a]	FDEP Data 5/10/10, See Footnote	0.053	0.0067	0250488-008-AV - 3.58 MMBtu/hr each (2), AP-42 Table 1.4-2	Yes	Yes
0250348	Miami Dade RRF/Montenay																		
	RDF Spreader Stoker Unit No. 1	001		564,450	2,857,765	250.0	76.20	8.4	2.57	300.0	422.0	67.6	20.61	0250348-009-AV, Location Google Earth™	8.3	1.05	Golder (0037532Y/F2) App. for 0250348-004-AV	Yes	Yes
	RDF Spreader Stoker Unit No. 2	002		564,450	2,857,765	250.0	76.20	8.4	2.57	300.0	422.0	67.6	20.61	0250348-009-AV, Location Google Earth™	8.3	1.05	Golder (0037532Y/F2) App. for 0250348-004-AV	Yes	Yes
	RDF Spreader Stoker Unit No. 3	003		564,450	2,857,765	250.0	76.20	8.4	2.57	300.0	422.0	67.6	20.61	0250348-009-AV, Location Google Earth™	8.3	1.05	Golder (0037532Y/F2) App. for 0250348-004-AV	Yes	Yes
	RDF Spreader Stoker Unit No. 4	004		564,450	2,857,765	250.0	76.20	8.4	2.57	300.0	422.0	67.6	20.61	0250348-009-AV, Location Google Earth™	8.3	1.05	Golder (0037532Y/F2) App. for 0250348-004-AV	Yes	Yes
	RDF Spreader Stoker Unit Nos. 1-4		RRFU14	564,450	2,857,765	250.0	76.20	8.4	2.57	300.0	422.0	67.6	20.61		33.2	4.2		Yes	Yes
	MSW to RDF Processing - Unit 6	006	EU006	564,511	2,857,554	58.4	17.80	3.0	0.9	amb	amb	62.5	19.1	Stack Parameters - Miami Dade RRF, Location Google Earth™	2.73	0.3436	Golder (10387512) 2009 AOR - 0.01 gr/scf, 106,000 dscfm - $PM_{2.5}$ is assumed to be 30% of PM	Yes	Yes
	Bulky Waste to Biomass - Unit 7	007	EU007	564,580	2,857,610	49.9	15.20	3.0	0.9	amb	amb	66.6	20.3	Stack Parameters - Miami Dade RRF, Location Google Earth™	2.91	0.3663	Golder (10387512) 2009 AOR - 0.01 gr/scf, 113,000 dscfm - $PM_{2.5}$ is assumed to be 30% of PM	Yes	Yes
	Ash Building and Handling System	008	EU008	564,422	2,857,624	44.9	13.7	1.0	0.3	amb	amb	42.4	12.9	Stack Parameters - Miami Dade RRF, Location Google Earth™	0.05	0.0065	Golder (10387512) 2009 AOR - 0.01 gr/scf, 2,000 dscfm - $PM_{2.5}$ is assumed to be 30% of PM	Yes	Yes
	Two Lime Storage Silos	009	EU009	564,401	2,857,720	103.0	31.4	1.0	0.3	amb	amb	9.0	2.7	Stack Parameters - Miami Dade RRF, Location Google Earth™	0.022	0.0028	Golder (10387512) 2009 AOR - 0.01 gr/scf, 850 dscfm - $PM_{2.5}$ is assumed to be 30% of PM	Yes	Yes
	Acivated Carbon Storage Silos	010	EU010	564,413	2,857,721	27.9	8.5	1.0	0.3	amb	amb	21.2	6.5	Stack Parameters - Miami Dade RRF, Location Google Earth™	0.05	0.0065	Golder (10387512) 2009 AOR - 0.01 gr/scf, 2,000 dscfm - $PM_{2.5}$ is assumed to be 30% of PM	Yes	Yes
0250020	Titan America-Pennsuco Cement																		
	Finish Mill No. 1: Baghouse F113	–		562,270	2,861,700	106.0	32.31	1.0	0.30	110.0	316.5	250.4	76.32	Golder (0537642) - 11,800 acfm	1.01	0.13	Golder (0537642) - dust loading 0.01 gr/acf, 11,800 acfm	Yes	Yes
	Finish Mill No. 1: Baghouse F130	–		562,270	2,861,700	106.0	32.31	1.0	0.30	110.0	316.5	349.7	106.59	Golder (0537642) - 16,480 acfm	1.41	0.18	Golder (0537642) - dust loading 0.01 gr/acf, 16,480 acfm	Yes	Yes
	Finish Mill No. 1	010	TAFM1	562,270	2,861,700	106.0	32.31	1.0	0.30	110.0	316.5	250.4	76.32	All parameters grouped into Baghouse F130	2.42	0.31		Yes	Yes
	Finish Mill No. 2: Baghouse F213	–		562,270	2,861,700	106.0	32.31	1.0	0.30	110.0	316.5	250.4	76.32	Golder (0537642) - 11,800 acfm	1.01	0.13	Golder (0537642) - dust loading 0.01 gr/acf, 11,800 acfm	Yes	Yes
	Finish Mill No. 2: Baghouse F230	–		562,270	2,861,700	106.0	32.31	1.0	0.30	110.0	316.5	349.7	106.59	Golder (0537642) - 16,480 acfm	1.41	0.18	Golder (0537642) - dust loading 0.01 gr/acf, 16,480 acfm	Yes	Yes
	Finish Mill No. 2	011	TAFM2	562,270	2,861,700	106.0	32.31	1.0	0.30	110.0	316.5	250.4	76.32	All parameters grouped into Baghouse F230	2.42	0.31		Yes	Yes
	Finish Mill No. 3: Baghouse F313			562,270	2,861,700	106.0	32.31	1.5	0.46	110.0	316.5	75.5	23.00	Golder (0537642) - 8,000 acfm	0.69	0.09	Golder (0537642) - dust loading 0.01 gr/acf, 8,000 acfm	Yes	Yes
	Finish Mill No. 3: Baghouse F332			562,270	2,861,700	106.0	32.31	1.5	0.46	110.0	316.5	235.8	71.87	Golder (0537642) - 25,000 acfm	2.14	0.27	Golder (0537642) - dust loading 0.01 gr/acf, 25,000 acfm	Yes	Yes
	Finish Mill No. 3: O'Sepa Baghouse 533.BF340			562,270	2,861,700	85.0	25.91	4.5	1.37	169.0	349.3	81.5	24.85	Golder (0537642) - 77,800 acfm	5.32	0.67	Golder (0537642) - dust loading 0.0095 gr/dscf, 65,307 dscfm	Yes	Yes
	Finish Mill No. 3	012	TAFM3	562,270	2,861,700	85.0	25.9	4.5	1.4	169.0	349.3	75.5	23.0	All parameters grouped into O'Sepa Baghouse	8.15	1.03		Yes	Yes
	Finish Mill No. 4: Baghouse F432			562,270	2,861,700	106.0	32.31	2.0	0.61	110.0	316.5	79.6	24.26	Golder (0537642) - 15,000 acfm	1.29	0.16	Golder (0537642) - dust loading 0.01 gr/acf, 15,000 acfm	Yes	Yes
	Finish Mill No. 4: Baghouse F430			562,270	2,861,700	106.0	32.31	1.0	0.30	110.0	316.5	679.1	206.98	Golder (0537642) - 32,000 acfm	2.74	0.35	Golder (0537642) - dust loading 0.01 gr/acf, 32,000 acfm	Yes	Yes
	Finish Mill No. 4: O'Sepa Baghouse F730			562,270	2,861,700	–	–	–	–	169.0	349.3	–	–	Golder (0537642)	8.00	1.01	Golder (0537642) - dust loading 0.0095 gr/dscf, 98,213 dscfm	Yes	Yes
	Finish Mill No. 4	013	TAFM4	562,270	2,861,700	106.0	32.3	2.0	0.61	110.0	316.5	79.58	24.26	All parameters grouped into Baghouse F430 and F432	12.03	1.52		Yes	Yes
	Finish Mill No. 6: Baghouse 516.BF510			562,270	2,861,700	35.0	10.67	–	–	110.0	316.5	–	–	Golder (0537642)	0.15	0.02	Golder (0537642) - dust loading 0.0095 gr/dscf, 1,806 dscfm	Yes	Yes
	Finish Mill No. 6: Baghouse 536.BF500			562,270	2,861,700	110.0	33.53	2.0	0.61	175.0	352.6	137.4	41.88	Golder (0537642) - 25,900 acfm	1.75	0.22	Golder (0537642) - dust loading 0.0095 gr/dscf, 21,536 dscfm	Yes	Yes
	Finish Mill No. 6: O'Sepa Baghouse 536.BF340			562,270	2,861,700	110.0	33.53	2.0	0.61	175.0	352.6	516.2	157.34	Golder (0537642) - 97,300 acfm	6.59	0.83	Golder (0537642) - dust loading 0.0095 gr/dscf, 80,905 dscfm	Yes	Yes
	Finish Mill No. 6	030	TAFM6	562,270	2,861,700	110.0	33.5	2.0	0.6	175.0	352.6	137.4	41.9	All parameters grouped into Baghouse F430	8.49	1.07		Yes	Yes
	Cement Storage Silo Nos. 1 - 12	014	TASILO12	562,270	2,861,700	147.0	44.81	2.4	0.73	80.0	299.8	66.3	20.21	FDEP Data 5/10/10, Golder (0537642) - 18,000 acfm	3.7	0.46	Golder (0537642) - Attachment TM-EU6-F1.8	Yes	Yes
	Cement Distribution - Rail and Truck Loadouts	015	TARLTRK	562,270	2,861,700	71.0	21.64	1.4	0.43	80.0	299.8	27.1	8.25	FDEP Data 5/10/10, Golder (0537642) - 2,500 acfm	1.2	0.15	Golder (0537642) - Attachment TM-EU6-F1.8	Yes	Yes
	Cement Distribution - Packhouse	016	TAPKHS	562,270	2,861,700	40.0	12.19	2.4	0.73	80.0	299.8	55.3	16.84	FDEP Data 5/10/10, Golder (0537642) - 15,000 acfm	2.2	0.27	Golder (0537642) - Attachment TM-EU6-F1.8	Yes	Yes
	Coal Handling System: Coal Feed Bin	–		562,270	2,861,700	126.0	38.40	0.9	0.27	92.0	306.5	37.5	11.42	Golder (0537642) - 1,400 acfm	0.11	0.014	Golder (0537642) - dust loading 0.0095 gr/dscf, 1,339 dscfm	Yes	Yes
	Coal Handling System: Pet Coke Feed Bin	–		562,270	2,861,700	126.0	38.40	0.9	0.27	92.0	306.5	37.0	11.29	Golder (0537642) - 1,400 acfm	0.11	0.014	Golder (0537642) - dust loading 0.0095 gr/dscf, 1,339 dscfm	Yes	Yes
	Coal Handling System: Coal Mill Feed	–		562,270	2,861,700	75.0	22.86	14.0	4.27	92.0	306.5	0.6	0.18	Golder (0537642) - 5,550 acfm	0.48	0.060	Golder (0537642) - dust loading 0.01 gr/acf, 5,550 acfm	Yes	Yes
	Coal Handling System: Coal Mill	–		562,270	2,861,700	410.0	124.97	1.3	0.38	176.0	353.2	–	–	Golder (0537642)	–	–	Golder (0537642) - Emissions accounted for in EU 028	Yes	Yes
	Coal Handling System: Coal (Transfer) Surge Bin Feeder	–		562,270	2,861,700	67.0	20.42	0.4	0.13	178.0	354.3	35.4	10.78	Golder (0537642) - 294 acfm	0.020	0.0025	Golder (0537642) - dust loading 0.0095 gr/dscf, 243 dscfm	Yes	Yes
	Coal Handling System: Coke (Transfer) Surge Bin Feeder	–		562,270	2,861,700	67.0	20.42	0.4	0.13	178.0	354.3	35.4	10.78	Golder (0537642) - 294 acfm	0.020	0.0025	Golder (0537642) - dust loading 0.0095 gr/dscf, 243 dscfm	Yes	Yes
	Coal Handling System	026	TACHS	562,270	2,861,700	75.0	22.86	14.0	4.27	92.0	306.5	0.6	0.18	All parameters grouped into the Coal Mill Feed	0.73	0.092		Yes	Yes
	Clinker Handling & Storage: Transfer Conveyors 441.BF540	–		562,270	2,861,700	53.0	16.15	1.3	0.38	250.0	394.3	61.3	18.69	Golder (0537642) - 4,600 acfm	0.28	0.035	Golder (0537642) - dust loading 0.0095 gr/dscf, 3,421 dscfm	Yes	Yes
	Clinker Handling & Storage: Clinker Silos	–		562,270	2,861,700	185.0	56.39	1.5	0.45	250.0	394.3	116.6	35.54	Golder (0537642) - 12,000 acfm	0.73	0.092	Golder (0537642) - dust loading 0.0095 gr/dscf, 8,924 dscfm	Yes	Yes
	Clinker Handling & Storage: Off-spec Clinker Silo and Conveyors	–		562,270	2,861,700	44.0	13.41	1.3	0.38	250.0	394.3	81.3	24.79	Golder (0537642) - 6,100 acfm	0.37	0.047	Golder (0537642) - dust loading 0.0095 gr/dscf, 4,536 dscfm	Yes	Yes
	Clinker Handling & Storage: Transfer Conveyors 481.BF540	–		562,270	2,861,700	103.0	31.39	1.6	0.50	250.0	394.3	37.1	11.31	Golder (0537642) - 4,700 acfm	0.28	0.036	Golder (0537642) - dust loading 0.0095 gr/dscf, 3,495 dscfm	Yes	Yes
	Clinker Handling & Storage: Transfer Conveyors 481.BF640	–		562,270	2,861,700	42.0	12.80	1.3	0.38	250.0	394.3	62.7	19.10	Golder (0537642) - 4,700 acfm	0.28	0.036	Golder (0537642) - dust loading 0.0095 gr/dscf, 3,495 dscfm	Yes	Yes
	Clinker Handling & Storage: Clinker Silos 2, 5 18 and Clinker Transfer	–		562,270	2,861,700	113.0	34.44	2.6	0.79	250.0	394.3	59.1	18.02	Golder (0537642) - 18,700 acfm	1.13	0.14	Golder (0537642) - dust loading 0.0095 gr/dscf, 13,906 dscfm	Yes	Yes
	Clinker Handling & Storage: Clinker Silos 12, 19, 20, 23, 28 and Clinker Transfer	–		562,270	2,861,700	130.0	39.62	1.0	0.30	77.0	298.2	127.3	38.81	Golder (0537642) - 6,000 acfm	0.51	0.06	Golder (0537642) - dust loading 0.01 gr/acf, 6,000 acfm	Yes	Yes
	Clinker Handling & Storage: Clinker Silos 21, 22, 23, 26, 27, 28	–		562,270	2,861,700	113.0	34.44	2.3	0.70	77.0	298.2	60.0	18.29	Golder (0537642) - 15,000 acfm	1.20	0.15	Golder (0537642) - dust loading 0.0095 gr/dscf, 14,749 dscfm	Yes	Yes
	Clinker Handling & Storage: Clinker Silos 17 and Clinker Transfer	–		562,270	2,861,700	160.0	48.77	1.0	0.30	77.0	298.2	106.1	32.34	Golder (0537642) - 5,000 acfm	0.40	0.050	Golder (0537642) - dust loading 0.0095 gr/dscf, 4,916 dscfm	Yes	Yes
	Clinker Handling & Storage	027	TACLINK	562,270	2,861,700	113.0	34.4	2.6	0.79	250.0	394.3	59.1	18.02	Grouped - Clkr. St. Silos 2, 5, 18 and Clkr. Trns.	5.19	0.65		Yes	Yes

Golder Associates

TABLE D-2 (Revised 12/29/10)
SUMMARY OF $PM_{10}/PM_{2.5}$ SOURCES INCLUDED IN THE AAQS AND PSD CLASS II MODELING ANALYSES

Facility	Facility Name		Modeling	UTM Location		Stack Parameters								Stack Parameter	$PM_{10}/PM_{2.5}$ Emission Rate		Emissions Data	Modeled In	
				X	Y	Height		Diameter		Temperature		Velocity			24-Hour/Annual				
ID	Emission Unit Description	EU ID	ID Name	(m)	(m)	ft	m	ft	m	°F	K	ft/s	m/s	Data Source	(lb/hr)	(g/sec)	Source	AAQS	PSD Class II
	Kiln/Cooler/Raw Mild	–		562,270	2,861,700	410.0	124.97	14.0	4.27	200.0	366.5	55.8	17.00	Golder (0537642) - 515,000 acfm	22.5	2.84	Golder (0537642) - 0.053 lb/ton dry kiln feed (DKF), 425 TPH DKF	Yes	Yes
	Kiln Dust Conveyance and Storage Bin	–		562,270	2,861,700	125.0	38.10	1.3	0.38	300.0	422.0	56.7	17.27	Golder (0537642) - 4,250 acfm	0.24	0.030	Golder (0537642) - dust loading 0.0095 gr/dscf, 2,953 dscfm	Yes	Yes
	Clinker Feed (CF) Silo	–		562,270	2,861,700	241.0	73.46	1.1	0.34	178.0	354.3	63.1	19.22	Golder (0537642) - 3,760 acfm	0.25	0.032	Golder (0537642) - dust loading 0.0095 gr/dscf, 3,112 dscfm	Yes	Yes
	Raw Meal Conveyance (CF Silo)	–		562,270	2,861,700	84.0	25.60	1.1	0.34	178.0	354.3	67.1	20.45	Golder (0537642) - 4,000 acfm	0.27	0.034	Golder (0537642) - dust loading 0.0095 gr/dscf, 3,310 dscfm	Yes	Yes
	Raw Meal Conveyance (Preheat/Calciner Tower)	–		562,270	2,861,700	45.0	13.72	1.3	0.38	178.0	354.3	63.5	19.34	Golder (0537642) - 4,760 acfm	0.32	0.040	Golder (0537642) - dust loading 0.0095 gr/dscf, 3,939 dscfm	Yes	Yes
	Raw Meal Conveyance (Preheat/Calciner Tower)	–		562,270	2,861,700	353.0	107.59	1.3	0.38	175.0	352.6	54.7	16.66	Golder (0537642) - 4,100 acfm	0.28	0.035	Golder (0537642) - dust loading 0.0095 gr/dscf, 3,409 dscfm	Yes	Yes
	Kiln Dust Truck Loadout	–		562,270	2,861,700	46.0	14.02	0.8	0.25	175.0	352.6	107.8	32.86	Golder (0537642) - 3,500 acfm	0.24	0.030	Golder (0537642) - dust loading 0.0095 gr/dscf, 2,910 dscfm	Yes	Yes
	Raw Mill & Pyroprocessing System	028	TARAWML	562,270	2,861,700	410.0	125.0	14.0	4.3	200.0	366.5	55.8	17.0	Grouped - Kiln/Cooler/Raw Mill	24.10	3.04		Yes	Yes
	Raw Material Feed Bins and Conveyors 311.BF650	–		562,270	2,861,700	92.0	28.04	1.8	0.54	92.0	306.5	56.5	17.22	Golder (0537642) - 8,500 acfm	0.66	0.083	Golder (0537642) - dust loading 0.0095 gr/dscf, 8,130 dscfm	Yes	Yes
	Raw Material Conveyors (Feed Bins to Raw Mill) 311.BF750	–		562,270	2,861,700	17.0	5.18	2.1	0.63	92.0	306.5	38.3	11.67	Golder (0537642) - 7,750 acfm	0.60	0.076	Golder (0537642) - dust loading 0.0095 gr/dscf, 7,413 dscfm	Yes	Yes
	Raw Material Conveyors (Feed Bins to Raw Mill) 321.BF470	–		562,270	2,861,700	100.0	30.48	1.8	0.54	108.0	315.4	72.6	22.13	Golder (0537642) - 10,800 acfm	0.82	0.103	Golder (0537642) - dust loading 0.0095 gr/dscf, 10,039 dscfm	Yes	Yes
	Raw Material Conveyors (Feed Bins to Raw Mill) 311.BF950	–		562,270	2,861,700	68.0	20.73	2.3	0.70	108.0	315.4	46.8	14.26	Golder (0537642) - 11,700 acfm	0.89	0.112	Golder (0537642) - dust loading 0.0095 gr/dscf, 10,876 dscfm	Yes	Yes
	Raw Material Handling	029	TARAWMT	562,270	2,861,700	68.0	20.7	2.3	0.7	108.0	315.4	46.8	14.3	Grouped - Raw Material Conveyors 311.BF950	2.97	0.37		Yes	Yes
0250014	Cemex - Miami Cement Plant																		
	Finish Grinding Mill No. 1	001		557,490	2,852,050	48.0	14.63	–	–	–	–	–	–	0250014-028-AV, Not enough data, grouped with EU 012	0.16	0.020	FDEP Data 5/10/10 - 2008 AOR	Yes	Yes
	Finish Grinding Mill No. 2	002		557,490	2,852,050	48.0	14.63	–	–	–	–	–	–	0250014-028-AV, Not enough data, grouped with EU 012	0.15	0.019	FDEP Data 5/10/10 - 2008 AOR	Yes	Yes
	Finish Grinding Mill No. 3	003		557,490	2,852,050	48.0	14.63	–	–	–	–	–	–	0250014-028-AV, Not enough data, grouped with EU 012	0.10	0.012	FDEP Data 5/10/10 - 2008 AOR	Yes	Yes
	Finish Grinding Mill No. 4	012		557,490	2,852,050	41.0	12.50	2.1	0.64	190.0	360.9	65.0	19.81	FDEP Data 5/10/10	0.15	0.019	FDEP Data 5/10/10 - 2008 AOR	Yes	Yes
	Finish Mill System: Finish Mill 6	028	CEMFGM6	557,490	2,852,050	–	–	–	–	–	–	–	–	No data, grouped with EU 012	5.57	0.70	FDEP Data 5/10/10 - 2008 AOR	Yes	Yes
	Finish Grinding Mill Nox. 1 - 4		CEMFGM14	557,490	2,852,050	41.0	12.5	2.1	0.6	190.0	360.9	65.0	19.8		6.12	0.77		Yes	Yes
	Finish Grinding Mill No. 5	013	CEMFGM5	557,490	2,852,050	44.0	13.41	1.9	0.58	190.0	360.9	79.0	24.08	FDEP Data 5/10/10	0.21	0.026	FDEP Data 5/10/10 - 2008 AOR	Yes	Yes
	Cement Handling: Bulk Cement Storage Silos	004	CEMBCS	557,490	2,852,050	45.0	13.72	–	–	–	–	–	–	0250014-028-AV, Grouped with EU 017 and EU 021	1.10	0.14	FDEP Data 5/10/10 - 2008 AOR	Yes	Yes
	Cement Handling: Cement Truck Loading	015	CEMTRK	557,490	2,852,050	–	–	–	–	–	–	–	–	No data, grouped with EU 017 and EU 021	2.55	0.32	FDEP Data 5/10/10 - 2008 AOR	Yes	Yes
	Sweetwater Concrete Block & Batch plant	021	CEMCONC	557,490	2,852,050	30.0	9.14	3.0	0.91	–	–	–	–	FDEP Data 5/10/10, Grouped with EU 017	0.18	0.02	FDEP Data 5/10/10 - 2008 AOR	Yes	Yes
	Raw Materials Handling	017	CEMRMH	557,490	2,852,050	–	–	2.0	0.61	[b] 77.0	298.2	[b] 71.3	21.73	FDEP Data 5/10/10, See Footnote, Grouped with EU 021	11.52	1.45	0250014-028-AV - dust loading 0.01 gr/cf, 134,400 cfm (est. for grain loading and 11.52 lb/hr emission rate - equally distributed for 10 baghouses)	Yes	Yes
	Materials Handling		CEMRMH	557,490	2,852,050	45.0	13.72	2.0	0.61	77.0	298.2	71.3	21.73		15.35	1.93		Yes	Yes
	Stone Dryer & Soil Thermal Treatment Fac.	014	CEMSTONE	558,200	2,851,300	80.0	24.38	4.5	1.37	800.0	699.8	38.0	11.58	0250014-028-AV	3.3	0.42	0250014-028-AV	Yes	Yes
	In Line Kiln/Raw Mill/Clinker Cooler	018	CEMKLN	557,490	2,852,050	359.0	109.42	8.0	2.44	464.0	513.2	160.9	49.04	FDEP Data 5/10/10	32.3	4.07	0250014-028-AV	Yes	Yes
	Clinker Handling and Storage System	019		557,490	2,852,050	150.0	45.72	4.0	1.22	–	–	–	–	Not enough data, grouped with EU 020	10.25	1.29	FDEP Data 5/10/10	Yes	Yes
	Coal Mill System	020		557,490	2,852,050	160.0	48.77	3.0	0.91	176.0	353.2	49.5	15.09	FDEP Data 5/10/10	1.95	0.25	FDEP Data 5/10/10	Yes	Yes
	Clinker Handling / Coal Mill System		CEMCOAL	557,490	2,852,050	160.0	48.77	3.0	0.91	176.0	353.2	49.5	15.09		12.20	1.54		Yes	Yes
0110037	Florida Power & Light (PFL) - Fort Lauderdale																		
	CTs 1-4 PSD	035-038	LAUDU45	579,390	2,883,360	150	45.7	18.0	5.5	330.0	438.7	158.7	48.37	FDEP Data 5/10/10	232.00	29.2	0110037-005-AV - 424.7 TPY TOTAL	Yes	Yes
	GT 1-12 (0.5% fuel oil)	003	LDGT1_12	579,390	2,883,360	45	13.7	15.6	4.8	860.0	733.2	93.3	28.44	FDEP Data 5/10/10	65.00	8.2	FDEP Query Sep/2007	Yes	No
	GT 13-24 (0.5% fuel oil)	015	LDGT1324	579,390	2,883,360	45	13.7	15.6	4.8	860.0	733.2	93.3	28.44	FDEP Data 5/10/10	65.00	8.2	FDEP Query Sep/2007	Yes	No
	4&5 PSD Baseline	–	FTLAU45B	579,390	2,883,360	150	45.7	14.0	4.3	299.9	422.0	48.0	14.63	Golder 2004 - Southern Gardens 043-7524	-32.17	-4.1	Golder 2004 - Southern Gardens 043-7524	No	Yes
0110036	FPL - Port Everglades Plant																		
	Units 1&2 at 2.5%s fuel oil	–	PTEVU12	587,400	2,885,300	343.0	104.5	14.0	4.27	289.0	415.9	88.1	26.72	0110036-009-AV	144.0	18.1	0110036-009-AV	Yes	No
	Units 3&4 at 2.5%s fuel oil	–	PTEVU34	587,400	2,885,300	343.0	104.5	18.1	5.52	287.0	414.8	81.8	23.88	0110036-009-AV	250.8	31.6	0110036-009-AV	Yes	No
	GT 1-12 (0.5% fuel oil)	–	PTEVGTS	587,400	2,885,300	45.0	13.4	15.6	4.75	860.0	733.2	93.3	28.43	0110036-009-AV	36.2	4.6	0110036-009-AV -8,424 MMBtu/hr / AP-42, Table 3.1-2a (filterable) 0.0043 lb/MMBtu	Yes	No

[a] Engineering estimates are used when data is not available from other sources.

[b] If stack parameters are not available for sources at a facility, but are available for other modeled source, these stacks may be merged with others stacks located at the same facility to reduce modeling time. In this case, stacks may not have similar parameters.

[c] *Stack parameters and emissions information was not available for individual units (006 - 010), however, combined emissions were available from the permit application and were used to represent one combined stack.*

APPENDIX B

REVISED VISCREEN RESULTS

Visual Effects Screening Analysis for
Source: WM Medley 6 CAT Engines
Class I Area: ENP

*** Level-1 Screening ***

Input Emissions for

Particulates	7.08	LB /HR
NOx (as NO2)	18.00	LB /HR
Primary NO2	.00	LB /HR
Soot	.00	LB /HR
Primary SO4	.00	LB /HR

**** Default Particle Characteristics Assumed

Transport Scenario Specifications:

Background Ozone:	.04 ppm
Background Visual Range:	177.80 km
Source-Observer Distance:	21.20 km
Min. Source-Class I Distance:	21.20 km
Max. Source-Class I Distance:	120.00 km
Plume-Source-Observer Angle:	11.25 degrees
Stability:	6
Wind Speed:	1.00 m/s

R E S U L T S

Asterisks (*) indicate plume impacts that exceed screening criteria

Maximum Visual Impacts INSIDE Class I Area
Screening Criteria ARE Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	155.	37.7	14.	2.00	1.658	.05	.025
SKY	140.	155.	37.7	14.	2.00	.682	.05	-.016
TERRAIN	10.	84.	21.2	84.	2.00	2.622*	.05	.015
TERRAIN	140.	84.	21.2	84.	2.00	.148	.05	.002

Maximum Visual Impacts OUTSIDE Class I Area
Screening Criteria ARE Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	1.	1.0	168.	2.00	8.394*	.05	.149*
SKY	140.	1.	1.0	168.	2.00	2.391*	.05	-.076*
TERRAIN	10.	1.	1.0	168.	2.00	17.409*	.05	.163*
TERRAIN	140.	1.	1.0	168.	2.00	2.489*	.05	.048

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