Golder Associates

May 2, 2011

093-87674
Via Electronic Delivery

Mr. Cleve Holladay
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399

RECEIVED
MAY 04 2011
BUREAU OF AIR REGULATION

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:

Golder Associates, Inc. (Golder) received an e-mail from you on February 1, 2011, where you had forwarded comments from the Environmental Protection Agency (EPA) regarding the revised modeling analysis for the Medley Landfill Gas-to-Energy (LFGTE) project (FDEP project No. 0250615-012-AC/PSD-FL-414) submitted to the Florida Department of Environmental Protection (FDEP) in January 2011. Golder is providing additional information below in response to EPA's comments. Each of EPA's comments are presented below, followed by a response.

Comment 1. Urban Option – The AERMOD Implementation Guide state that the land use characteristics across the full modeling domain should be considered not those within 3 km of the proposed source. The urban heat island is not a localized effect but more regional in character. The use of the urban option for this application only considered land use within 3 km of the proposed project and the population used appears to be associated with Miami and not that of the modeling domain.

Response: The land use classification within 3 kilometers (km) of the proposed project site is predominantly urban. As suggested in Section 5.1 of the Aermod Implementation Guide, the full modeling domain of an approximately 50 km radius area surrounding the project site was considered for the rural versus urban land use classification. However, the Atlantic Ocean is approximately 20 km east of the site and almost all of the western half of the domain (west of State Road 821) is rural. The attached Figure 1 shows an area that may be considered as an urban complex. This area extends approximately 5 km to the northwest, north, east, and south of the project site. Except for this area, the urban area west of the Miami International Airport, the downtown City of Miami, and the City of Miami Beach, most of the Miami-Ft. Lauderdale metropolitan area within the modeling domain has single family homes, which is classified as rural. Therefore, the full modeling domain cannot be considered as an urban complex. As a result, all existing sources included in the cumulative modeling analysis were not modeled using the urban option.

However, certain existing sources are located within the urban complex identified in Figure 1. The NO_2 1-hour average NAAQS model runs were revised with these existing sources as urban, and the revised results are presented in Tables 6-11 and 6-12. As shown, the total 1-hour average NO_2 air quality impact of 180.7 $\mu g/m^3$ is the same as was reported in the modeling report. Therefore, modeling additional sources as urban had little or no effect of the reported modeling results. Figure 2 shows all facilities included in the NAAQS modeling with identification of which sources were modeled as urban.

The NAAQS modeling analysis performed for the project is based on very conservative assumptions and approaches and most likely overestimate the maximum predicted 1-hour concentrations for this project. In the recent June 29, 2010, and the March 1, 2011, guidance memos, EPA has cautioned against the use of the literal and uncritical application of very prescriptive procedures for identifying which background

Golder Associates Inc.
6026 NW 1st Place
Gainesville, FL 32607 USA
Tel: (352) 336-5600 Fax: (352) 336-6603 www.golder.com

sources should be included in the modeled emission inventory for NAAQS compliance demonstration. The use of the North Carolina Screening Approach used in the NAAQS analysis for the project is such a prescriptive procedure. This procedure, although adequate for use in long-term average analyses (e.g., annual), may be and probably is not adequate for the 1-hour average analysis. However, it was used in the original modeling analysis since no clear guidance was provided by EPA about which background sources should be considered for cumulative source modeling.

EPA indicated in the March 1, 2011 memo that more factors are needed to consider which background sources should be included in modeling on a case-by-case basis. In fact, because concentration gradients associated for a particular source will generally be largest between the source location and distance of maximum concentration from the source, concentrations beyond the maximum impact distance will generally be smaller and non-spatially uniform. According to EPA, the general "rule-of-thumb" for estimating the distance to the maximum 1-hour impact and region of significant gradient that may apply in flat terrain is approximately 10 times the source release height. However, based on other factors, such as source operating characteristics, the emphasis should focus on the area within 10 km of the project location in most cases. In fact, ambient monitoring data should be used to account for the potential impacts from sources located at large distances from the project

From these EPA guidance memos, which strongly indicate a need to understand which sources should be included in the cumulative source modeling, it is clear that the following factors used in the NAAQS analysis for the project provided a very conservative assessment of maximum impacts:

- Sources located more than 10 km from the project were included in the analysis. Based on certain sources located more than the 20 km from the project, high 1-hour NO_2 impacts were predicted near the project yet the meteorological conditions are not realistic to transport the plumes from those sources to the area around the project. For example, the Fort Lauderdale Plant and the Port Everglades Plant are located about 28 and 33 km, respectively, from the project. Based on the time periods that produced the maximum impacts from these sources near the project area, the wind speeds were generally 4 meters per second (m/s) or less. With a 4-m/s wind speed, a plume would be transported about 14 km in an hour. With lower wind speeds, the plume would be transported at even shorter distances. Given the distance that these sources are located from the project, it is highly unlikely that these source's plumes would be transported to the critical areas around the project.
- Ambient NO_2 monitoring data were added to the modeled concentration to account for non-modeled background concentrations yet the monitoring data account for impacts from sources that were modeled in the analysis ("double counting" impacts as stated by EPA). In fact, the primary NO_2 monitoring station (Metro Annex #864002) is located only about 500 meters from a major highway (U.S. Interstate 95). Given the traffic is much greater at that site than near the project, the measurements are expected to be higher than what would be experienced near the project.

The population used in the NO_2 NAAQS analysis is based on the population of the City of Miami, not the population of the metropolitan area. A modeling analysis was conducted to estimate the sensitivity of the population value input to AERMOD on the maximum predicted concentrations due to the proposed project. Impacts were predicted for input populations of 100,000; 150,000; 300,000; 500,000 and 700,000. The results of the analysis indicated that the maximum predicted impacts were not sensitive to changes in the input populations. See the modeling files in the attached CD.

Comment 2. **Appropriate Meteorological Data Record – Table 6-9 which provides the SIL modeling results show the meteorological data record processed with the airport land use characteristics (MIA) produce the maximum annual concentrations for all pollutants while the meteorological record processes with the site land use characteristics produce the maximum short-term concentrations for all pollutants. Confirmation is needed that the MIA processed meteorological data were used for all subsequent annual modeling and the site processed meteorological data were used for all short-term standard modeling in this revised modeling analyses. [Note: Even with the increased PM emissions, all revised SIL concentrations are less than those reported in the initial PSD permit application.]**

Response: The procedure for selecting the most conservative meteorological data records to use for model predictions is illustrated in Table 1. To date, this determination has been performed from general inspection of the various pollutant impacts relative to the criteria that are most critical to a specific project. In this regard, as shown in the table, the predicted concentration differences between the two meteorological records are clearly more significant for short-term pollutant averaging times than for the annual averaging times relative to the SIL and NAAQS area with higher impacts predicted for the site processed meteorological data. The project-only concentration differences between the two meteorological records are not as large for the annual averaging time with slightly higher impacts predicted for the MIA processed meteorological data and the annual cumulative source modeling results are seldom if ever as critical for NAAQS compliance as are the short-term averaging times. As a result, the site processed meteorological data were used for all averaging standard modeling.

With no formal written guidance for how to quantify the differences in the meteorological patterns between a measurement site (airport) and an application site (project) and determine what is and is not acceptable, the procedures expected by different states to address this issue have become increasingly varied over the years. Presently, many states have adopted the policy of creating a second meteorological record with measured land use parameters at the project site and comparing the predicted impacts to those predicted with the airport land use record. One state agency in reviewing a PSD permit application even suggested that small changes in the measured Bowen Ratio were also important and requested that three meteorological records consisting of 15 years of data be developed and compared to SIL. Such policies tend to promote the idea that 5 years (43,824 hours) of predicted concentrations are not sufficient to determine whether or not a facility meets all applicable air standards and that another 43,824 or 87,648 predictions are needed. Mixing and matching meteorological records by specific pollutant or averaging times would add considerable effort to the preparation of an application and, more importantly, further complicate the regulatory review process.

EPA's March 1, 2011 memorandum provides clarification and additional guidance for modeling procedures for the 1-hour NO_2 (and SO_2) compliance modeling that will result in a simplification of the required effort to conduct detailed cumulative source modeling analyses. Based on lack of specific guidance regarding the issues of meteorological representation, additional simplification and/or guidance is needed in that area as well.

Please note that the stack height increase for the project sources is the cause of the reduction in the revised PM SIL concentrations that are less than those reported in the initial PSD permit application.

Comment 3. **Justification for Use of Tier 3 OLM Procedure – As indicated in the 28 June 2010 Tyler Fox memorandum and in Appendix W, the use of the Tier 3 non-regulatory modeling techniques requires EPA Regional Office approval. Responses to the following comments and requested information are needed to complete the evaluation of the justification provided for the use of the non-regulatory Tier 3 OLM modeling technique to assess NO_2 NAAQS compliance.**

- The demonstration that the OLM modeling technique is appropriate for this application (2^{nd} Criterion) has not been completely addressed. The issue of photosynthesis' contribution to the NO to NO_2 formation is only addressed

generically and not its importance at the project's location. The reason it is "reasonable to assume that the ozone titration mechanism in OLM" is appropriate for use at the project location was not addressed. A possible compensative procedure for any possible photosynthesis formation of NO_2 at the project site would be, for example, the use of conservative, rather than just representative, ozone concentrations in the OLM procedure.

Response: A compensative procedure for any possible photosynthesis formation of NO_2 is photodissociation, which has already been described in the modeling methodology. If photosynthesis formation is to be considered, it would not be reasonable to consider photodissociation. Please note that the ozone titration mechanism of the OLM modeling technique is already conservative because it assumes that all of the ground-level ozone concentration from monitoring data is available to the plume for conversion of NO to NO_2. In reality, only the ozone available within the plume should be available for the conversion mechanism.

Since the modeling analysis was submitted in December 2010, EPA published a Guidance Memorandum on March 1, 2011, where EPA has accepted the use of PVMRM and OLM modeling options in AERMOD for estimating hourly NO_2 concentrations provided reasonable demonstrations can be made of the appropriateness of the key inputs for these options, the in-stack NO_2/NO_X ratio, and the background ozone concentration.

Please also note that the OLM modeling technique is an EPA Reglan X-approved method in the state of Alaska. Recently, states like New Mexico have approved the use of OLM. It is also a modeling technique approved internationally in many countries.

- The information on the availability and adequacy of the databases (3rd Criterion) needed for this technique was not completely given. Three databases are needed: ambient ozone measurements, ambient background NO_2 measurements, and appropriate NO_2/NO_X in-stack ratios.

Hourly Ozone – The appropriate ozone monitoring data base to represent the project location should consider not only the proximity of the monitor but also the characteristics of the measurements. Summaries of the measurements from the three available monitors (e.g., annual 1-hour maximums, monthly 1-hour maximum, annual averages, 98th percentile, etc.) would allow evaluation of the range tends, etc, that are important in determining which would be representative or conservative for application at the project location. The summaries would also be valuable in determining the appropriate measurements to be used for missing values from the primary record.

Response: The hourly ozone monitoring data used in the analysis were described in pages 7 and 8 of the modeling report along with summary tables, which provided the completeness of the annual data sets and total number of missing data that were replaced in each year. A total of three monitoring stations located within 30 km of the Medley Landfill were used and 5-year data for each were analyzed. The nearest monitor at Krome Avenue (#860021) was used as the primary station and any missing data were replaced with data from the 2^{nd} nearest monitor. If data were also missing from this monitor, then data from the 3^{rd} nearest monitor were used. As a result, the hourly ozone data used in the modeling analysis are a combination of data from three monitoring sites.

The attached Table 2 summarizes the hourly ozone monitoring data from the three monitoring sites and shows the overall maximum 1-hour, the 98^{th} percentile of the daily maximum 1-hour, and seasonal maximum 1-hour average concentrations. As shown, there is little variability in the 5-year 98^{th} percentile daily maximum 1-hour data from all three stations.

Hourly NO_2 Background – Similar to the ozone databases above, the available hourly NO_2 measurements for application to this assessment should be provided along with summaries of the measurements. Proximity of the measurements along with the characteristics of the measurements should be used to evaluate and determine the appropriate data records to use in developing the needed background NO_2 measurements for this procedure.

Response: The hourly NO_2 monitoring data used in the analysis were described in pages 10 and 11 of the modeling report along with summary tables, which provided the completeness of the annual data sets and total number of missing data that were replaced in each year. Similar to the hourly ozone data, three monitoring stations located within 30 km of the Medley Landfill were used and 5-year data for each were analyzed. The nearest monitor at Metro Annex (#864002) was used as the primary station and any missing data were replaced with data from the 2^{nd} nearest monitor. If data were also missing from this monitor, then data from the 3^{rd} nearest monitor were used. As a result, the hourly NO_2 data used in the modeling analysis are a combination of data from three monitoring sites.

The attached Table 3 summarizes the hourly NO_2 monitoring data from the three monitoring sites and shows the overall maximum 1-hour, the 98^{th} percentile of the daily maximum 1-hour, and seasonal maximum 1-hour average concentrations. As shown, there is little variability in the 5-year 98^{th} percentile daily maximum 1-hour data from all three stations.

NO_2/NO_X Ratios – The proposed NO_2/NO_X ratios for combustion turbine and boiler sources in both the Medley emission units and those in the inventory of other sources are not based on specific project stack tests. It has been assumed the boiler NO_2/NO_X ratios from two stack tests for power plants in Georgia are applicable to the Medley and other boilers emissions. Because the references for in-stack ratios have not been shown to be specifically applicable to the boilers and turbines in the Medley impact modeling, the largest of the reported ratios should be used to ensure the concentrations are not underestimated. This would result in 0.2 for boilers and 0.3 for turbines. All emission units using NO_2/NO_X ratios other than 1.0 should be identified in the emission inventories.

Response: The reference stack tests from Georgia are provided in Tables 4 and 5. Tests were conducted on simple-cycle CTs at two plants. The NO_2/NO_X ratio was found in the range from approximately 0.03 to 0.17. As a conservative approach, the NO_2/NO_X ratio for existing combustion turbine sources included in the cumulative source modeling for the project was used as 0.2.

Among the NO_2/NO_X ratios for boilers in Alaska, New Mexico, Texas, and California that were presented in the modeling report, there are no references of a ratio of 0.2. The MACTEC study used a representative ratio of 0.05 for boilers. Hanrahan used an in-stack ratio of 0.1 for boilers in the initial design of the PVMRM algorithm. The Air Pollution Control Technology Handbook (By Karl B. Schnelle, Charles Arnold Brown) states that the typical NO to NO_2 ratio in boiler emissions is 10:1 to 20:1, which is equivalent to a NO_2/NO_X ratio from approximately 0.09 to 0.05.

Please note that for most sources included in modeling, the NO_2/NO_X ratio used is 1.0, which means that the NO_2 impacts from these sources are based on full conversion and no credit was taken for OLM. The revised Table D-1 shows the in-stack NO_2/NO_X ratios used for each stack.

- The following comments are associated with the protocol of methods and procedures proposed to be used (5th Criterion).

Off Season Observations – Confirm that the Rosenstiel School and Perdue Medical Center ozone stations include measurements including the non-ozone season.

Response: Data from both the Rosenstiel School and Perdue Medical Center stations include non-ozone season measurements. Based on data completeness summary presented in Page 8 of the modeling report, except for 2001 when data from Rosenstiel School were 89.7% complete, the rest of the yearly data for both stations are more than 90% complete.

Annual NO_2 Concentrations – From the discussion in Section 3.2.2 and the results provided in Section 3.6 it appears that the OLM technique was not used in estimating the annual concentrations. This method is appropriate for estimates of annual concentrations. Table 6-11 provides annual NO_2 concentrations using the Tier 3 OLM procedure. Because the Tier 3 OLM produced annual concentrations are larger than the Tier 1 values, the OLM resultant annual NO_2 values should be the reported concentrations or the reason for not using the OLM for annual NAAQS concentrations should be provided.

Response: The annual average NO_2 concentrations modeled in the NAAQS analysis and provided in the revised Table 6-11 of the modeling report are based on both the Tier 1 procedure (actually Tier 2) and Tier 3 OLM procedure. It should be noted that the reported Tier 1 values used the NO_2/NO_x ratio of 0.75, assuming that 75 percent of the NO_x emissions were converted to NO_2 (this is actually a Tier 2 approach). If 100% of the NO_x emissions were assumed to be converted to NO_2 as a Tier 1 approach, the OLM resultant annual NO_2 values would be lower. In both cases, maximum predicted impacts were well below the NAAQS.

Comment 4. Emission Inventory Other Sources – All maximum impacts (i.e., NO_2, CO, PM_{10}, and $PM_{2.5}$) from project emissions are greater than the SILs. Therefore, cumulative NAAQS/PSD compliance modeling is needed. The following comments are associated with the inventories of other sources used in the cumulative modeling.

<u>NO_2 Inventory</u>

- The 20D procedure is a screening procedure to identify sources that can be considered for elimination from the cumulative modeling. The North District Wastewater Treatment Plant (0250600) in the NO_2 inventory (Table 6-5) is 0.5 TPY less than the 20D value. This source should have been included in the NAAQS compliance modeling.

Response: Table 6-5 uses a North Carolina screening technique approach based on 20 x (D-SID) where SID is the maximum significant impact distance of the proposed project. The North Carolina Screening Technique recommends using a 20 x (D-SID) approach for the annual averaging time and a 20 x D approach for short-term averaging times. Use of the 20 x (D-SID) approach is extremely conservative for selecting background sources to be included for a 1-hour averaging time modeling analysis. For the North District Wastewater Treatment Plant, for example, use of a 20 x D approach, instead of the 20 x (D-SID) approach, would result in an emission threshold (i.e., Q value in Table 6-5) of nearly 400 TPY instead of the 229 TPY shown in the table. Therefore, considering the conservative approach taken, background sources such as North District Wastewater Treatment Plant that are marginally below the emission threshold need not be included in the modeling analysis.

- The sources of the hourly NO_2 emission rates, in order of priority, were 1) FDEP's data query report, 2) Potential emission limits from facility operating permits, if any, or 3) Emission factors from EPA's AP-42 or similar document along with operating capacity. Given only a previous annual NO_2 ambient standard, it appears that most of these sources of hourly emission rates would be based on the annual allowable/permitted TPY and not the maximum hourly rate. The NO_2 hourly emission rates that are known to be reflective of the maximum potential or allowable hourly rate should be identified in the inventory of NO_2 emission units (Table D-1).

- For emission rates that are not reflective of maximum hourly values, Attachment A to the 28 June 2010 Tyler Fox memorandum provides suggested technique to develop the appropriate values.

Response: Table D-1 has been updated to include a more detailed description of emission sources as well as a column to show whether or not the emissions are based on hourly averaging times. As shown in Table D-1, the majority of the emission rates used in the 1-hour NO_2 modeling analysis was based on hourly average emission rates.

For several emissions sources, an annual permitted emission limit was used instead of the available potential hourly emissions rate provided in FDEP's data query report. This was done only when the emission rate, calculated in lb/hr based on the permitted annual average emission rate in TPY, was greater than the potential hourly rate provided in lb/hr in FDEP's data query report. As an example, for General Asphalt – Plant No. 1 (Facility ID No. 0250020), the potential hourly emission rate provided in FDEP's data query report are 9.58 lb/hr. However, permit ID no. 0250005-007-AO has a facility-wide emission limit of 100 TPY for NO_2. At the permitted operating hours of 8,760 hr/yr, the calculated hourly rate from 100 TPY is 22.83 lb/hr. This value is higher and, therefore, conservative when compared to the hourly rate provided in FDEP's data query report.

It should also be noted that the sources included in the 1-hour NO_2 analysis extend out to 50 km and beyond from the project site. At the time of the original analysis, there was some uncertainty about screening procedures for background sources for the 1-hour averaging time. As stated in Response to Comment 1, EPA recently has provided some clarification for these procedures in the March 1, 2011 Tyler Fox memo. As stated on page 16 of the memo:

"...these considerations suggest that the emphasis on determining which nearby sources to include in the modeling analysis should focus on the area within 10 kilometers of the project location in most cases. The routine inclusion of all sources within 50 kilometers of the project location, the nominal distance for which AERMOD is applicable, is likely to produce an overly conservative result in most cases."

Based on the above statement, is reasonable to assume that the number of background sources included 1-hour NO_2 analysis is conservative. In addition, the highest 1-hour emissions rates were used as available.

- The reason for the correction to the emission rates for units EU003 and EU015 at the Fort Lauderdale Plant should be provided.

Response: The correction was made to correct a calculation error. Emission units EU003 and EU015 include a bank of 12 combustion turbines each. The initial modeling analysis used the emission rate from only one turbine for each bank. In the revised modeling, the initial modeling emission rates for EU003 and EU015 were each multiplied by 12 to account for the emission rate from all 12 turbines. The revised emission rate for each of EU003 and EU015 is 7,572 lb/hr, corrected from 631 lb/hr.

- The basis (e.g., minor source baseline date) for removing emission units from the NAAQS inventory of other sources to develop the PSD increment inventory should be provided.

Response: All emission units modeled in the NAAQS analysis for NOx were also modeled in the PSD increment analysis. Several corrections were made to Table D-1 to reflect the modeling analysis.

Two emission units, Units 1 and 4 at Sugar Cane Growers Co-op, ID No. 0990026, were shown in Table D-1 as not modeled in the PSD Increment Analysis. These sources were modeled in the PSD increment analysis, and Table D-1 has been corrected to show this.

In addition, the South District Wastewater Treatment Plant was shown in Table D-1 of the December 2010 modeling report as being modeled in the NAAQS analysis but not the PSD Increment analysis. Upon further review, it determined that total emissions for this facility shown in Table 6-5 were incorrect and this facility was not screened out of the analysis. Table 6-5 has now been updated to show the correct emissions, which are lower than previous emissions. Table D-1 has been updated to exclude this facility from the detailed inventory based on the updated emissions.

$PM_{2.5}$ Inventory

- The report indicates the inventory of PM_{10} emission sources was used for $PM_{2.5}$ NAAQS compliance modeling. The PM_{10} emission rates were assumed to be the $PM_{2.5}$ rates.

Response: Without available data, most $PM_{2.5}$ emission rates were assumed to be equal to PM_{10} emission rates, which is a conservative assumption because, for certain type of emission sources, $PM_{2.5}$ emission rate can be a small fraction of the PM_{10} emission rate.

- The sources of the maximum $PM_{2.5}$ emission rate was the same as indicated for the NO_2 inventory. Because PM_{10} had a 24-hour NAAQS, it would appear that the hourly emission rates provided in FDEP records would be associated with this period (i.e., hourly rate developed from maximum emissions over 24-hours).

Response: The hourly emission rates developed for the $PM_{2.5}$ emission rates were based on the same approach used to develop the NO_2 inventory (see response to Comment 4).

- Actual emission rates for PSD increment assessment were not available so NAAQS emission rates were used for the PM_{10} PSD increment assessment.

Response: NAAQS emission rates are based on either allowable or potential emission rates, which are higher than the actual emission rates. Therefore, the PM_{10} increment assessment for the proposed project, which is based on NAAQS emission rates, provides a conservative (higher-than-expected) estimate of PSD increment consumption.

- The basis for the use of 30 percent of the PM_{10} emission as $PM_{2.5}$ for baghouse emission units at the Miami Dade Resource Recovery facility should be explained. The 0.01 grain per dry standard cubic foot emission limit used in the calculation should be a permit limit. In addition, the largest baghouse emissions appear to be associated with Units 6 and 7 which do not appear to be material handling, the category used for the particle size information. Confirmation is needed that the PM_{10} emission rates were used for the PM_{10} NAAQS and PSD increment compliance modeling.

Response: The 30-percent factor is based on Category 4 of Table B.2.2 in Appendix B.2 of AP-42, which provides generalized particle size distribution for particulate matter emissions from material handling and processing of processed ores and nonmetallic minerals. This category is similar to Category 3, which covers processing of aggregate and unprocessed ore. These categories include such processes as milling, grinding, crushing, screening, conveying, cooling, and drying. Emissions are generated through either the movement of the material or the interaction of the material with mechanical devices.

Emission Unit 6 at the Miami Dade Resource Recovery Facility (MDCRRF) is a processing activity of receiving, handling and converting of municipal solid waste into refuge derived fuel. Emission Unit 7 at the MDCRRF is a bulky waste processing system, which is designed to process bulky waste into biomass. PM emissions from both units are controlled by baghouses. PM emission from Unit 7 is limited to 0.01 gr/dscf. PM emission from Unit 6 is assumed to have the same grain loading.

PM emissions were used in PM_{10} NAAQS analysis. In reality, on Category 4 of Table B.2.2 in Appendix B.2 of AP-42, PM_{10} is 85-percent of PM.

- The basis (e.g., minor source baseline date) for removing emission units from the NAAQS inventory of other sources to develop the PSD increment inventory should be provided.

Response: For this project, the PSD increment inventory of background sources was the same as the NAAQS background source inventory with a few exceptions for some sources that are well beyond 50-km from the proposed site .

- The PSD increment expanding Units 4 & 5 at FP&L Fort Lauderdale facility should be modeled using the actual emissions, not allowable, just prior to their shut down.

Response: PSD increment expanding sources were not included in the PSD increment analyses for this project.

Comment 7. Receptor Grids – The following comments are associated with the modeled receptor grids.

- Receptor grids of 250-m resolution from 2 km to 4 km and 500-m resolution from 4 km to 7 km appear too coarse to allow the identification of concentrations needing refined 100-m resolution modeling

Response: The receptor where the maximum 1-hour NO2 NAAQS concentration is predicted is on the northernmost row of the receptor grid that was developed based on a maximum significant impact distance of 8.5 km. Similarly, the receptor where the maximum 24-hour $PM_{2.5}$ NAAQS concentration is located approximately 3.6 km west-northwest of the proposed project site. The proposed project's maximum impact is well below the significant impact level at both of these locations and the predicted concentrations are mostly due to the influence of background sources.

Recent NO_2 modeling guidance published by EPA on March 1, 2011, suggests that a reasonable approach to cumulative source modeling is to consider only those receptors where a project has a significant impact. Use of such an approach on future cumulative source modeling applications would largely eliminate the need to consider additional refinements for receptors where the predicted impacts are mainly due to the influence of background source emissions.

- To ensure the appropriate controlling concentrations are identified, the maximum modeled concentrations and all concentrations challenging the maximum concentrations (e.g., within 10%) should be modeled to 100-m resolution.

Response: The controlling maximum concentrations are predicted on the edge of the outside receptors of the receptor grid and are exclusively due to emissions from background sources located beyond 25 km from the project site. As a result, no refinements were performed for those locations. There are no other isolated concentration hotspots within 10 percent of the magnitude of the controlling concentrations. The inclusion of numerous background sources that are located well beyond 10 km from the proposed site was based on the modeling guidance that prevailed at that time of the original modeling.

Comment 8. **Post-processing Programs – To provide an opportunity to evaluate the proper operation of the Golder post-processing software used to pair modeling and monitored values and to obtain the form of the NAAQS, the post-processing software should be provided along with the input and output files. Any documentation and associated testing files used in Golder's verification analyses for the post-processor programs should also be provided with the revised modeling report.**

Response: A sample test, in two parts, is being provided to demonstrate that Golder's preprocessor program correctly computes the maximum 5-year average 8th highest daily maximum 1-hour concentration. In the first part of the test (in folder Test 1), a sample 1-hour NO2 analysis is run with AERMOD version 09292 separately for 5 years of data. For each year, a 1-hour post files is output. Golder's postprocessor program reads the output post files for each year and outputs a comma delineated (csv) file for each year showing the highest daily 1 hour maximum concentration for each receptor. The program then creates a sixth csv file that averages data from the 5 yearly csv files and determines the highest 5-year average 8th highest 1-hour concentration. For the example presented, that concentration is 434.36877.

In the second part of the test (folder Test 2), the same input file is run using AERMOD version 11103 with a concatenated 5-year meteorological record. An 8th highest value is requested on the RECTABLE card. The AERMOD output summary shows an 8th concentration of 434.36877.

Comment 9. **PSD Class I Area Assessment – Although the SIL for the nearest PSD Class I area revealed impacts less than the SIL, the report does not address any expected changes in the project's impact on AQRV.**

Response: The AQRV analyses have been updated and the revised AQRV results are presented in the attached revised Tables 7-5 and 7-6. The results are slightly higher than those previously reported but are still below the criteria.

Thank you for your 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, P.E.
Principal Engineer

Salahuddin K. Mohammad
Senior Project Engineer

cc: D. Thorley, WMI

Enclosures

SKM/nav

Golder Associates

TABLE 1
PREDICTED CONCENTRATION DIFFERENCES FROM LAND USE PARAMETERS RELATIVE TO THE SIL AND NAAQS

Pollutant	Concentrations (μg/m³) Using Land Use Parameters from Site	Concentrations (μg/m³) Using Land Use Parameters from MIA	Conc. Difference (Diff) (Site - MIA) (μg/m³)	EPA SIL (μg/m³)	Fraction Diff/SIL	NAAQS (μg/m³)	Fraction Diff/NAAQS
Short-Term Averaging Times[a]							
PM_{10}	15.8	13.1	2.7	5	**0.54**	150	**0.018**
$PM_{2.5}$	15.8	13.1	2.7	1.2	**2.25**	35	**0.077**
NO_2 Tier 1	105.1	94.1	11	7.52	**1.46**	188.1	**0.058**
Annual Averaging Time							
PM_{10}	1.5	1.9	-0.4	1	**-0.40**	50.0	**-0.008**
$PM_{2.5}$	1.5	1.9	-0.4	0.3	**-1.33**	15.0	**-0.027**
NO_2 Tier 2	3	3.7	-0.7	1	**-0.70**	100.0	**-0.007**

[a] Short-term averaging time is 24-hours for PM_{10} and $PM_{2.5}$ and 1-hour for NO_2.

SIL = Significant Impact Level

NAAQS = National ambient air quality standard

TABLE 2
HOURLY AMBIENT OZONE MONITORING DATA SUMMARY
AIR QUALITY ANALYSIS FOR MEDLEY PSD APPLICATION

Monitoring Station and ID	1-Hour Average O_3 Concentration (ppm)				
	2001	2002	2003	2004	2005
Maximum 1-Hour Average					
# 860021 (Krome Ave)	0.107	0.095	0.090	--	--
# 860027 (Rosenstiel School)	0.119	0.084	0.094	0.094	0.092
# 860029 (Perdue Med Center)	0.119	0.091	0.102	0.090	0.088
98th Percentile of Daily Maximum 1-Hour Average					
# 860021 (Krome Ave)	0.077	0.071	0.073	--	--
# 860027 (Rosenstiel School)	0.071	0.071	0.075	0.077	0.077
# 860029 (Perdue Med Center)	0.075	0.073	0.069	0.071	0.071
Maximum 1-Hour Average - Winter					
# 860021 (Krome Ave)	0.063	0.071	0.074	--	--
# 860027 (Rosenstiel School)	0.071	0.072	0.084	0.066	0.062
# 860029 (Perdue Med Center)	0.074	0.068	0.076	0.069	0.062
Maximum 1-Hour Average - Spring					
# 860021 (Krome Ave)	0.107	0.095	0.090	--	--
# 860027 (Rosenstiel School)	0.119	0.083	0.094	0.094	0.086
# 860029 (Perdue Med Center)	0.119	0.091	0.102	0.090	0.077
Maximum 1-Hour Average - Summer					
# 860021 (Krome Ave)	0.092	0.094	--	--	--
# 860027 (Rosenstiel School)	0.056	0.084	0.059	0.067	0.084
# 860029 (Perdue Med Center)	0.101	0.086	0.057	0.053	0.077
Maximum 1-Hour Average - Fall					
# 860021 (Krome Ave)	0.080	0.066	--	--	--
# 860027 (Rosenstiel School)	0.079	0.067	0.071	0.071	0.092
# 860029 (Perdue Med Center)	0.076	0.066	0.070	0.062	0.088

TABLE 3
HOURLY AMBIENT NO2 MONITORING DATA SUMMARY
AIR QUALITY ANALYSIS FOR MEDLEY PSD APPLICATION

Monitoring Station and ID	1-Hour Average NO_2 Concentration (ppm)				
	2001	2002	2003	2004	2005
Maximum 1-Hour Average					
# 864002 (Metro Annex)	0.076	0.059	0.085	0.417	0.063
# 860027 (Rosenstiel School)	0.055	0.050	0.058	0.066	0.058
# 118002 (Dania, Broward County)	0.086	0.080	0.068	0.070	0.094
98th Percentile of Daily Maximum 1-Hour Average					
# 864002 (Metro Annex)	0.058	0.052	0.051	0.058	0.056
# 860027 (Rosenstiel School)	0.050	0.044	0.045	0.047	0.053
# 118002 (Dania, Broward County)	0.061	0.047	0.052	0.057	0.051
Maximum 1-Hour Average - Winter					
# 864002 (Metro Annex)	0.076	0.059	0.085	0.065	0.062
# 860027 (Rosenstiel School)	0.055	0.049	0.058	0.066	0.058
# 118002 (Dania, Broward County)	0.084	0.080	0.068	0.064	0.067
Maximum 1-Hour Average - Spring					
# 864002 (Metro Annex)	0.074	0.044	0.051	0.417	0.063
# 860027 (Rosenstiel School)	0.051	0.040	0.038	0.043	0.058
# 118002 (Dania, Broward County)	0.086	0.052	0.06	0.07	0.094
Maximum 1-Hour Average - Summer					
# 864002 (Metro Annex)	0.049	0.043	0.037	0.046	0.051
# 860027 (Rosenstiel School)	0.041	0.039	0.043	0.045	0.049
# 118002 (Dania, Broward County)	0.050	0.044	0.042	0.047	0.046
Maximum 1-Hour Average - Fall					
# 864002 (Metro Annex)	0.055	0.048	0.037	0.046	0.056
# 860027 (Rosenstiel School)	0.047	0.050	0.040	0.044	0.047
# 118002 (Dania, Broward County)	0.062	0.048	0.058	0.042	0.050

TABLE 4
WASHINGTON COUNTY POWER, LLC
NO - NO_2 Data

Stationary Source	Unit Description	Manufacture or Vendor	Emission Unit Number	Size	Fuel Type	Combustor Equipment	Control Equipment	Data Source (CEM, Source	Test Run	If Source Test, Load Level	Source or Test Year	NO2 PPMv	NO PPMv	NOx PPMv	NO2/NOx Ratio	$\%CO_2$	Provided by (test firm, site contact)	Submitted by
Washington T1	CT	General Electric	T1	169	PNG	Can Annular	DLN	Source Test	1	158	6/29/2010	0.7	9.1	9.8	0.07	4.2	C.E.M. Solutions	Joe Conti
Washington T1	CT	General Electric	T1	169	PNG	Can Annular	DLN	Source Test	2	157	6/29/2010	0.6	9.1	9.7	0.06	4.2	C.E.M. Solutions	Joe Conti
Washington T1	CT	General Electric	T1	169	PNG	Can Annular	DLN	Source Test	3	157	6/29/2010	0.6	9.1	9.7	0.06	4.2	C.E.M. Solutions	Joe Conti
Washington T1	CT	General Electric	T1	169	PNG	Can Annular	DLN	Source Test	4	157	6/29/2010	0.6	9.0	9.6	0.06	4.2	C.E.M. Solutions	Joe Conti
Washington T1	CT	General Electric	T1	169	PNG	Can Annular	DLN	Source Test	5	158	6/29/2010	0.6	9.0	9.6	0.06	4.1	C.E.M. Solutions	Joe Conti
Washington T1	CT	General Electric	T1	169	PNG	Can Annular	DLN	Source Test	6	158	6/29/2010	0.8	8.9	9.7	0.08	4.1	C.E.M. Solutions	Joe Conti
Washington T1	CT	General Electric	T1	169	PNG	Can Annular	DLN	Source Test	7	158	6/29/2010	0.7	9.0	9.7	0.07	4.2	C.E.M. Solutions	Joe Conti
Washington T1	CT	General Electric	T1	169	PNG	Can Annular	DLN	Source Test	8	158	6/29/2010	0.6	8.4	9.0	0.07	4.1	C.E.M. Solutions	Joe Conti
Washington T1	CT	General Electric	T1	169	PNG	Can Annular	DLN	Source Test	9	157	6/29/2010	0.6	6.9	7.5	0.08	4.1	C.E.M. Solutions	Joe Conti
Washington T2	CT	General Electric	T2	169	PNG	Can Annular	DLN	Source Test	1	159	6/29/2010	0.8	9.7	10.5	0.08	4.1	C.E.M. Solutions	Joe Conti
Washington T2	CT	General Electric	T2	169	PNG	Can Annular	DLN	Source Test	3	158	6/29/2010	0.6	9.8	10.4	0.06	4.2	C.E.M. Solutions	Joe Conti
Washington T2	CT	General Electric	T2	169	PNG	Can Annular	DLN	Source Test	4	158	6/29/2010	0.8	9.8	10.6	0.08	4.2	C.E.M. Solutions	Joe Conti
Washington T2	CT	General Electric	T2	169	PNG	Can Annular	DLN	Source Test	5	158	6/29/2010	0.8	9.8	10.6	0.08	4.2	C.E.M. Solutions	Joe Conti
Washington T2	CT	General Electric	T2	169	PNG	Can Annular	DLN	Source Test	6	157	6/29/2010	0.8	9.8	10.6	0.08	4.2	C.E.M. Solutions	Joe Conti
Washington T2	CT	General Electric	T2	169	PNG	Can Annular	DLN	Source Test	7	157	6/29/2010	0.8	9.8	10.6	0.08	4.2	C.E.M. Solutions	Joe Conti
Washington T2	CT	General Electric	T2	169	PNG	Can Annular	DLN	Source Test	8	157	6/29/2010	0.8	9.9	10.7	0.07	4.1	C.E.M. Solutions	Joe Conti
Washington T2	CT	General Electric	T2	169	PNG	Can Annular	DLN	Source Test	9	157	6/29/2010	0.8	9.8	10.6	0.08	4.2	C.E.M. Solutions	Joe Conti
Washington T2	CT	General Electric	T2	169	PNG	Can Annular	DLN	Source Test	10	156	6/29/2010	0.8	9.7	10.5	0.08	4.2	C.E.M. Solutions	Joe Conti
Washington T3	CT	General Electric	T3	169	PNG	Can Annular	DLN	Source Test	1	164	6/30/2010	0.5	9.4	9.9	0.05	4.2	C.E.M. Solutions	Joe Conti
Washington T3	CT	General Electric	T3	169	PNG	Can Annular	DLN	Source Test	2	162	6/30/2010	0.4	8.7	9.1	0.04	4.2	C.E.M. Solutions	Joe Conti
Washington T3	CT	General Electric	T3	169	PNG	Can Annular	DLN	Source Test	3	161	6/30/2010	0.3	8.6	8.9	0.03	4.2	C.E.M. Solutions	Joe Conti
Washington T3	CT	General Electric	T3	169	PNG	Can Annular	DLN	Source Test	4	161	6/30/2010	0.4	8.5	8.9	0.04	4.2	C.E.M. Solutions	Joe Conti
Washington T3	CT	General Electric	T3	169	PNG	Can Annular	DLN	Source Test	5	161	6/30/2010	0.4	8.5	8.9	0.04	4.2	C.E.M. Solutions	Joe Conti
Washington T3	CT	General Electric	T3	169	PNG	Can Annular	DLN	Source Test	6	166	6/30/2010	0.4	8.5	8.9	0.04	4.2	C.E.M. Solutions	Joe Conti
Washington T3	CT	General Electric	T3	169	PNG	Can Annular	DLN	Source Test	7	166	6/30/2010	0.5	8.4	8.9	0.06	4.2	C.E.M. Solutions	Joe Conti
Washington T3	CT	General Electric	T3	169	PNG	Can Annular	DLN	Source Test	8	166	6/30/2010	0.5	8.3	8.8	0.06	4.2	C.E.M. Solutions	Joe Conti
Washington T3	CT	General Electric	T3	169	PNG	Can Annular	DLN	Source Test	9	165	6/30/2010	0.5	8.3	8.8	0.06	4.2	C.E.M. Solutions	Joe Conti
Washington T4	CT	General Electric	T4	169	PNG	Can Annular	DLN	Source Test	1	159	6/30/2010	0.6	7.1	7.7	0.08	4.0	C.E.M. Solutions	Joe Conti
Washington T4	CT	General Electric	T4	169	PNG	Can Annular	DLN	Source Test	2	159	6/30/2010	0.6	6.9	7.5	0.08	4.0	C.E.M. Solutions	Joe Conti
Washington T4	CT	General Electric	T4	169	PNG	Can Annular	DLN	Source Test	3	159	6/30/2010	0.6	7.1	7.7	0.08	4.1	C.E.M. Solutions	Joe Conti
Washington T4	CT	General Electric	T4	169	PNG	Can Annular	DLN	Source Test	4	159	6/30/2010	0.6	6.9	7.5	0.08	4.1	C.E.M. Solutions	Joe Conti
Washington T4	CT	General Electric	T4	169	PNG	Can Annular	DLN	Source Test	5	159	6/30/2010	0.6	6.8	7.4	0.08	4.1	C.E.M. Solutions	Joe Conti
Washington T4	CT	General Electric	T4	169	PNG	Can Annular	DLN	Source Test	6	159	6/30/2010	0.6	6.8	7.4	0.08	4.1	C.E.M. Solutions	Joe Conti
Washington T4	CT	General Electric	T4	169	PNG	Can Annular	DLN	Source Test	7	159	6/30/2010	0.6	6.8	7.4	0.08	4.1	C.E.M. Solutions	Joe Conti
Washington T4	CT	General Electric	T4	169	PNG	Can Annular	DLN	Source Test	8	159	6/30/2010	0.6	6.8	7.4	0.08	4.1	C.E.M. Solutions	Joe Conti
Washington T4	CT	General Electric	T4	169	PNG	Can Annular	DLN	Source Test	9	159	6/30/2010	0.6	6.7	7.3	0.08	4.0	C.E.M. Solutions	Joe Conti

TABLE 5
WALTON COUNTY POWER, LLC
NO - NO_2 Data

Stationary Source	Unit Description	Manufacture or Vendor	Emission Unit Number	Size	Fuel Type	Combustor Equipment	Control Equipment	Data Source (CEM, Source Test)	Test Run	If Source Test, Load Level	Source or Test Year	NO2 PPMv	NO PPMv	NOx PPMv	NO2/NOx Ratio	$\%O_2$	Provided by (test firm, site contact)	Submitted by
Walton T1	CT	Siemens	T1	162	PNG	Annular	DLN	Source Test	1	153	6/23/2010	1.8	10.5	12.3	0.15	14.6	C.E.M. Solutions	Joe Conti
Walton T1	CT	Siemens	T1	162	PNG	Annular	DLN	Source Test	2	153	6/23/2010	1.6	10.8	12.4	0.13	14.5	C.E.M. Solutions	Joe Conti
Walton T1	CT	Siemens	T1	162	PNG	Annular	DLN	Source Test	3	154	6/23/2010	1.9	10.7	12.6	0.15	14.5	C.E.M. Solutions	Joe Conti
Walton T1	CT	Siemens	T1	162	PNG	Annular	DLN	Source Test	4	153	6/23/2010	1.9	10.7	12.6	0.15	14.6	C.E.M. Solutions	Joe Conti
Walton T1	CT	Siemens	T1	162	PNG	Annular	DLN	Source Test	5	153	6/23/2010	1.8	10.9	12.7	0.14	14.6	C.E.M. Solutions	Joe Conti
Walton T1	CT	Siemens	T1	162	PNG	Annular	DLN	Source Test	6	154	6/23/2010	1.8	10.8	12.6	0.14	14.6	C.E.M. Solutions	Joe Conti
Walton T1	CT	Siemens	T1	162	PNG	Annular	DLN	Source Test	7	154	6/23/2010	1.7	11.0	12.7	0.13	14.5	C.E.M. Solutions	Joe Conti
Walton T1	CT	Siemens	T1	162	PNG	Annular	DLN	Source Test	8	154	6/23/2010	1.7	10.8	12.5	0.14	14.5	C.E.M. Solutions	Joe Conti
Walton T1	CT	Siemens	T1	162	PNG	Annular	DLN	Source Test	9	154	6/23/2010	1.7	10.9	12.6	0.13	14.5	C.E.M. Solutions	Joe Conti
Walton T2	CT	Siemens	T2	162	PNG	Annular	DLN	Source Test	1	152	6/22/2010	2.3	12.7	15.0	0.15	14.3	C.E.M. Solutions	Joe Conti
Walton T2	CT	Siemens	T2	162	PNG	Annular	DLN	Source Test	3	154	6/22/2010	2.3	13.4	15.7	0.15	14.3	C.E.M. Solutions	Joe Conti
Walton T2	CT	Siemens	T2	162	PNG	Annular	DLN	Source Test	4	154	6/22/2010	2.5	13.2	15.7	0.16	14.3	C.E.M. Solutions	Joe Conti
Walton T2	CT	Siemens	T2	162	PNG	Annular	DLN	Source Test	5	154	6/22/2010	2.6	13.6	16.2	0.16	14.3	C.E.M. Solutions	Joe Conti
Walton T2	CT	Siemens	T2	162	PNG	Annular	DLN	Source Test	6	154	6/22/2010	2.7	13.5	16.2	0.17	14.3	C.E.M. Solutions	Joe Conti
Walton T2	CT	Siemens	T2	162	PNG	Annular	DLN	Source Test	7	154	6/22/2010	2.6	13.5	16.1	0.16	14.3	C.E.M. Solutions	Joe Conti
Walton T2	CT	Siemens	T2	162	PNG	Annular	DLN	Source Test	8	154	6/22/2010	2.6	13.5	16.1	0.16	14.3	C.E.M. Solutions	Joe Conti
Walton T2	CT	Siemens	T2	162	PNG	Annular	DLN	Source Test	9	154	6/22/2010	2.6	13.5	16.1	0.16	14.3	C.E.M. Solutions	Joe Conti
Walton T2	CT	Siemens	T2	162	PNG	Annular	DLN	Source Test	10	154	6/22/2010	2.6	12.6	15.2	0.17	14.6	C.E.M. Solutions	Joe Conti
Walton T3	CT	Siemens	T3	162	PNG	Annular	DLN	Source Test	1	156	6/22/2010	1.9	10.0	11.9	0.16	14.2	C.E.M. Solutions	Joe Conti
Walton T3	CT	Siemens	T3	162	PNG	Annular	DLN	Source Test	2	157	6/22/2010	1.8	10.9	12.7	0.14	14.3	C.E.M. Solutions	Joe Conti
Walton T3	CT	Siemens	T3	162	PNG	Annular	DLN	Source Test	3	157	6/22/2010	1.8	10.9	12.7	0.14	14.3	C.E.M. Solutions	Joe Conti
Walton T3	CT	Siemens	T3	162	PNG	Annular	DLN	Source Test	4	157	6/22/2010	1.9	10.8	12.7	0.15	14.3	C.E.M. Solutions	Joe Conti
Walton T3	CT	Siemens	T3	162	PNG	Annular	DLN	Source Test	5	158	6/22/2010	1.9	11.1	13.0	0.15	14.4	C.E.M. Solutions	Joe Conti
Walton T3	CT	Siemens	T3	162	PNG	Annular	DLN	Source Test	6	157	6/22/2010	1.9	11.0	12.9	0.15	14.4	C.E.M. Solutions	Joe Conti
Walton T3	CT	Siemens	T3	162	PNG	Annular	DLN	Source Test	7	157	6/22/2010	1.9	10.9	12.8	0.15	14.4	C.E.M. Solutions	Joe Conti
Walton T3	CT	Siemens	T3	162	PNG	Annular	DLN	Source Test	8	157	6/22/2010	1.9	10.9	12.8	0.15	14.3	C.E.M. Solutions	Joe Conti
Walton T3	CT	Siemens	T3	162	PNG	Annular	DLN	Source Test	9	157	6/22/2010	1.9	10.9	12.8	0.15	14.3	C.E.M. Solutions	Joe Conti

TABLE 6-5 (Revised 4/29/11)
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 Short-Term 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	342.2	516.3	NO
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
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

TABLE 6-5 (Revised 4/29/11)
SUMMARY OF THE NO_x FACILITIES CONSIDERED FOR INCLUSION IN THE AAQS AND PSD CLASS II AIR MODELING ANALYSES

			UTM Coordinates		Relative to Medley Landfill [a]				Maximum NO_x	Q, (TPY) Emission	Include in
AIRS Number	Facility	County	East (km)	North (km)	X (km)	Y (km)	Distance (km)	Direction (deg)	Emissions (TPY)	Short-Term Threshold [b,c] (Dist - SID) x 20	Modeling Analysis ?
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 6-11 (Revised 04/29/11)
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 (Tier 2 with Conversion Factor)							
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 predicted are based on 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 (average total (modeled and nonmodeled background).
[d] Highest predicted 24-hour average concentrations.

TABLE 6-12 (Revised 04/29/11)
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	Non-Modeled 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 the annual distribution of daily maximum 1-hour total (modeled + non-modeled background) concentrations.
[c] Maximum 5-year average among all receptors.
[d] 98th percentile of annual distribution of daily 24-hour average total (modeled + non-modeled background) concentrations.

TABLE 7-5 (Revised 4/29/11)
MAXIMUM 24-HOUR VISIBILITY IMPAIRMENT PREDICTED FOR THE PROPOSED PROJECT AT THE EVERGLADES NP PSD CLASS I AREA

Background Extinction Calculations	Visibility Impairment (%) [a]			Visibility Impairment Criteria (%)
	2001	2002	2003	
Method 2 with RHMAX = 95 Percent	0.67	0.73	0.85	5.0

[a] Concentrations are highest predicted using CALPUFF V5.8 with CALMET V5.8 4-km Domains, 2001 to 2003. Background extinctions calculated using FLAG Document (December 2000) and stated method.

TABLE 7-6 (Revised 4/29/11)
MAXIMUM ANNUAL NITROGEN DEPOSITION PREDICTED FOR THE PROPOSED PROJECT AT THE PSD CLASS I AREAS

Species	Total Deposition (Wet & Dry) ($g/m^2/s$)	Total Deposition (Wet & Dry) (kg/ha/yr)[a]	Year	Deposition Analysis Threshold[b] (kg/ha/yr)
Nitrogen (N) Deposition	9.872E-13	0.0003	2001	0.01
	1.278E-12	0.0004	2002	0.01
	1.19E-12	0.0004	2003	0.01

[a] Conversion factor is used to convert $g/m^2/s$ to kg/hectare (ha)/yr with the following units:

$g/m^2/s$ x 0.001 kg/g
x 10,000 m^2/hectare
x 3,600 sec/hr
x 8,760 hr/yr = kg/ha/yr
or
$g/m^2/s$ x 3.154E+08 = kg/ha/yr

[b] Deposition analysis thresholds (DAT) for nitrogen deposition provided by the U.S. Fish and Wildlife Service, January 2002. A DAT is the additional amount of N or S deposition within a Class I area, below which estimated impacts from a proposed new or modified source are considered insignificant.

TABLE D-1 (Revised 4/29/11)
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)	NO_2/NOx Ratio	Emissions Data Source	Hourly Data?	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 [a]	5.0	1.52 [a]	800.0	699.8 [a]	50.0	15.24 [a]	FDEP Data 5/10/10, See Footnote	10.7	1.35	1.0	FDEP Data 5/10/10 - 47 TPY, 8,760 hr/yr per 0251196-002-AC	No	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 - Potential hourly rate	Yes	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 annual rate, and 8,760 hr/yr	No	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	1.0			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 [a]	50.0	15.24 [a]	FDEP Data 5/10/10, See Footnote	0.50	0.064		0250640-021-AV, 5.15 MMBtu/hr (1.6 MMBtu/hr for each of 3 NG ovens, plus 0.35 MMBtu/hr for one NG oven). AP-42 Table 1.4-1	Yes	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	0.35	0.044		0250488-008-AV - 3.6 MMBtu/hr, AP-42 Table 1.4-1	Yes	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	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	1.0			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	0.59	0.074	1.0	0250488-008-AV - 3.0 MMBtu/hr each (2), AP-42 Table 1.4-1	Yes	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	0.70	0.088	1.0	0250488-008-AV - 3.58 MMBtu/hr each (2), AP-42 Table 1.4-1	Yes	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 [a]	50.0	15.24 [a]	FDEP Data 5/10/10, See Footnote	0.90	0.11	1.0	0251194-002-AO - 9.14 MMBtu/hr total EU 001, AP-42 Table 1.4-1	Yes	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 [a]	FDEP Data 5/10/10, See Footnote	0.49	0.062	1.0	FDEP Data 5/10/10 - Potential	Yes	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	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	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	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	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	1.0			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	1.0	0250020-021-AV, Emission limit of 720 lb/hr	Yes	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	1.0	0250005-007-AO - facility wide limit of 100 TPY and 8,760 hr/yr	No	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	1.0	0250281-010-AV, limit of 0.5 lb/MMBtu and 50 MMBtu/hr	Yes	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 [a]	50.0	15.24 [a]	FDEP Data 5/10/10, See Footnote	22.83	2.88	1.0	0251186-001-AO - facility wide limit of 100 TPY, and 8,760 lb/yr	No	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	1.0	0250624-007-AO - facility wide limit of 100 TPY, and 8,760 lb/yr	No	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	1.0	FDEP Data 5/10/10 - 2008 AOR annual rate and 8,760 hr/yr	No	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	1.0	0250014-028-AV, hourly limit	Yes	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	1.0	FDEP Data 5/10/10 - Potential hourly rate	Yes	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	1.0	FDEP Data 5/10/10 - Potential hourly	Yes	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 annual rate and 8,760 hr/yr	No	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 hourly rate	Yes	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, hourly limit	Yes	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	1.0			Yes	Yes
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 - hourly rate - Built in 1954	Yes	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 - hourly rate - Built in 1955	Yes	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	0.1			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 - hourly rate	Yes	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 - hourly rate	Yes	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 - hourly rate	Yes	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	1.0			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	0.1	0110037-005-AV - 422 lb/hr/unit - 4 units	Yes	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	0.2	0110037-005-AV, each gas turbine limited to 631 lb/hr (12 turbines)	Yes	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	0.2	0110037-005-AV, each gas turbine limited to 631 lb/hr (12 turbines)	Yes	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	0.1	0110036-009-AV, each unit limited to 828 lb/hr, 2 units	Yes	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	0.1	0110036-009-AV, each unit limited to 2,120 lb/hr, 2 units	Yes	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	0.2	0110036-009-AV, limit of 7,581.6 lb/hr	Yes	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, hourly limit for fuel oil	Yes	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, hourly limit for fuel oil	Yes	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	0.1			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, hourly limit	Yes	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, hourly limit	Yes	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, hourly limit	Yes	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, hourly limit	Yes	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	1:0			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, hourly rate	Yes	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, hourly rate	Yes	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, hourly rate	Yes	Yes	Yes

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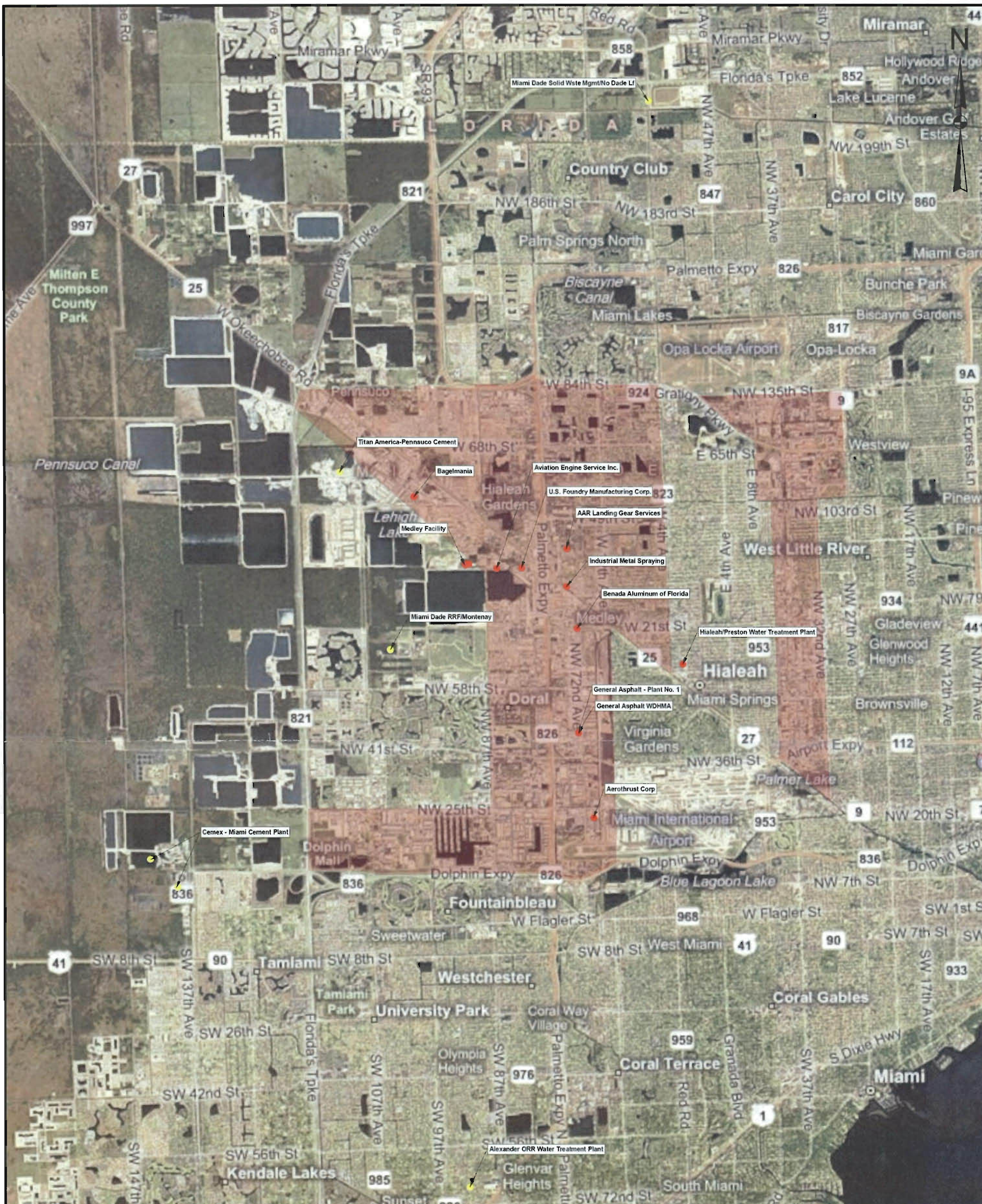
TABLE D-1 (Revised 4/29/11)
SUMMARY OF NO_x SOURCES INCLUDED IN THE AAQS AND PSD CLASS II MODELING ANALYSES

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)	NO_2/NOx Ratio	Emissions Data Source	Hourly Data?	Modeled In AAQS	PSD Class II
	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	1.0			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	1.0	0990045-005-AV Appl. (Golder 07389508)	Yes	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	1.0	0990045-005-AV Appl. (Golder 07389508)	Yes	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	1.0	0990045-005-AV Appl. (Golder 07389508)	Yes	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	1.0	0990045-005-AV Appl. (Golder 07389508)	Yes	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	1.0	From Southeast Renewable Fuels (Golder 0938-7660)	Yes	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	1.0	From Southeast Renewable Fuels (Golder 0938-7660)	Yes	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	1.0	From Southeast Renewable Fuels (Golder 0938-7660)	Yes	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	1.0	From Southeast Renewable Fuels (Golder 0938-7660)	Yes	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	1.0	From Southeast Renewable Fuels (Golder 0938-7660)	Yes	Yes	Yes
	Unit 8	008	SCBLR6N	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	1.0	From Southeast Renewable Fuels (Golder 0938-7660)	Yes	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	1.0	From Southeast Renewable Fuels (Golder 0938-7660)	Yes	Yes	Yes
	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	1.0	From Southeast Renewable Fuels (Golder 0938-7660)	Yes	Yes	Yes

[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.



LEGEND

Approximate Extent of Urban Complex

NOx Sources

- Rural
- Urban

REFERENCES

1. NOx Sources, Urban Boundary, Golder Associates Inc., 2011.

0 2,500 Meters

1 INCH = 2,500 METERS WHEN PRODUCED AT SIZE 11X17IN

PROJECT No	093-87674
FILE No.	09387674_C002
REV 0	SCALE AS SHOWN
DESIGN	SKM 4/21/2011
GIS	NRL 4/25/2011
CHECK	SKM 4/28/2011
REVIEW	SKM 4/29/2011

TITLE

BACKGROUND NOx SOURCES MODELED WITH URBAN CLASSIFICATION

PROJECT

MEDLEY LANDFILL LFGTE PROJECT WASTE MANAGEMENT INC. OF FLORIDA

Golder Associates

FIGURE 1

LEGEND

NOx Sources

- Rual
- Urban

REFERENCES

1. NOx Sources, Golder Associates Inc., 2011.

0 12,000 Meters

1 INCH = 1,2000 METERS WHEN PRODUCED AT SIZE 11X17IN

PROJECT No	093-87674
FILE No.	0938767_C001
REV 0	SCALE: AS SHOWN
DESIGN	SKM 4/21/2011
GIS	NRL 4/29/2011
CHECK	SKM 4/29/2011
REVIEW	SKM 4/29/2011

FIGURE 2

TITLE

BACKGROUND NOx SOURCES USED IN MODELING ANALYSIS

PROJECT

MEDLEY LANDFILL LFGTE PROJECT
WASTE MANAGEMENT INC.
OF FLORIDA

Golder Associates

WASTE MANAGEMENT, INC. OF FLORIDA, AIR PERMIT NO. 0250615-012-AC (PSD-FL-414) REQUEST FOR ADDITIONAL MODELING INFORMATION

(Modeling Files)

Golder Associates

Golder Associates Inc.
6026 NW 1st Place
Gainesville, FL 32607
USA
Tel (352) 336-5600
Fax (352) 336-6603

Project No. 093-87674

May 2011

Waste Management, Inc. of Florida
2700 NW 48th Street
Pompano Beach, FL 33037