**Pratt & Whitney Rocketdyne**
P.O. Box 109600
West Palm Beach, FL 33410-9600

**Pratt & Whitney**
A United Technologies Company

CERTIFIED MAIL

June 4, 2010



Florida Department of Environmental Protection
Attention: Mr. Syed Arif, P.E.
New Source Review Section
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RE: Pratt & Whitney Rocketdyne
Facility ID No. 0990021
*Projects*: 0990021-017-AV (PSD-FL-410), 0990021-013-AV, 0990021-014-AV, 0990021-015-AV & 0990021-020-AC
Response for March 9, 2010 RAI for PSD Permit Application – Modeling and Subpart PPPPP

Dear Mr. Arif:

Pratt & Whitney Rocketdyne respectfully submits our reply to your recent request for additional information on our PSD permit application. The attached response was prepared by Golder Associates, our air permitting consultant in conjunction with our staff. This response addresses your RAI dated March 9, 2010. Mr. Laxmana Tallam also enquired regarding Subpart PPPPP status and we are using this same response to address his questions.

*Your support on this project is greatly appreciated.*

If you should have any questions or comments please contact Dean Gee at (561) 796-2108.

Sincerely,

Joseph Sylvestro

Vice President,
Pratt & Whitney Rocketdyne, Operations and Supply Management

cc:
Laxmana Tallam, Palm Beach County Health Dept.
Palm Beach County Health Department
Division of Environmental Health and Engineering
Air Quality Division
800 Clematis
P.O. Box 29
West Palm Beach, Florida 33402

File 9.2.6.1.4

Golder Associates

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BUREAU OF AIR REGULATION

June 3, 2010

093-87550

Mr. Syed Arif, P.E.
New Source Review Section
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

**RE: UNITED TECHNOLOGIES CORP/PRATT & WHITNEY ROCKETDYNE, FACILITY ID 0990021**
**RESPONSE TO DEPARTMENT'S REQUEST FOR ADDITIONAL INFORMATION**
**DEP FILE NO. 0990021-017-AC (PSD-FL-410)**
**PBCHD PROJECT NOS. 0990021-013-AV, 0990021-014-AV, 0990021-015-AV, AND 0990021-020-AC**

Dear Mr. Arif,

On behalf of Pratt & Whitney Rocketdyne (PWR), Golder Associates Inc. (Golder) is providing a response to the Florida Department of Environmental Protection (FDEP) request for additional information dated March 9, 2010, regarding the facility's request to increase the operating hours of the Emission Unit EU-079, comprised of two GG4-9A combustion turbine engines, also known as RAM Test Facility. The RAM Test Facilty uses the turbine engines to power air compressors, which in turn provide high pressure intake (RAM) air to the test article jet engines.

Request No. 1
Rule 62-212.400(2), F.A.C. requires a baseline actual to projected actual emissions test to determine if major modification will occur for each PSD pollutant at the existing major stationary source. The applicant failed to provide the baseline actual emissions and considered the projected actual emissions as potential emissions. Please provide the required emissions data and determine if all three pollutants (CO, NOx and $SO_2$) are still subject to PSD review.

Response No. 1
In the submitted application, because no other emission source at the facility will be affected by the requested increase in hours of the GG4-9A turbine engines at the RAM Test Facility, the "baseline actual" was normalized to zero, so that the "baseline actual" to "projected actual" emissions analyses for each potential prevention of significant deterioration (PSD) pollutant are equivalent to the "projected actual" as provided in the application. A major modification determination for each potential PSD pollutant was therefore based on the "projected actual" emissions calculations. This determination, as provided in the application and submitted to FDEP, indicated that carbon monoxide (CO), nitrogen oxides ($NO_x$), and sulfur dioxide ($SO_2$) were subject to PSD review.

Request No. 2
Please provide a federally enforceable permit that shows that the facility is not major for HAP emissions. Additionally, explain the reasons for not complying with the requirements of 40 CFR 63 Subpart PPPPP, knowing that the rule was promulgated in 2003 and the facility was listed as major for HAP in all the permits that were issued by the Department and accepted by the applicant.

Response No. 2
The facility has recently submitted a Title V renewal permit application requesting to be designated as a minor source for hazardous air pollutants (HAPs) based on historic emissions reporting. In recent years, the facility has made changes in their operations and specifically to HAP emitting activities, to reduce

HAP emissions well below the major source threshold. Therefore, current conservative estimates of potential operations indicate that the facility does not currently emit HAP emissions above the major source threshold, and is unlikely in the near future to do so.

Regarding Title 40 Part 63 Subpart PPPPP, Pratt & Whitney engine test stands are exempt for a number of reasons as described below.

40 CFR 63.9290 (b) Existing affected sources do not have to meet the requirements of this subpart and of Subpart A of this part. Existing is defined as commenced construction or reconstruction on or before May 14, 2002. Emission Unit EU-069 (JP-8 kerosene fired jet engine test stands) was built before May 14, 2002, and is therefore exempt.

Secondly, 40 CFR 63.9290 (d)(1), exempt any portion of the affected source used exclusively for the testing of combustion turbine (CT) engines. The exemption applies to JP-8 (kerosene) fueled jet engine test stands in EU-069, because our jet engine designs include combustion turbines, although it is already exempt as an existing source. This exemption applies to the test stands in Emission Unit EU-077 used for testing natural gas-fueled combustion turbines. This exemption applies to the RAM Test Facility (EU-079) because it is used only for testing combustion turbine (jet) engines.

Section 40 CFR 63.9290(d)(2) of the regulation exempts any portion of the affected source used exclusively for testing rocket engines. This would apply to all rocket test stands at the facility, including the newly constructed methane fuel rocket test stand (EU-080).

Lastly, Section 40 CFR 63.9290(d)(1) of the regulation exempts research and development facilities, which would include all other engine test stands at the facility. Because of these facts, the facility is therefore exempt from the requirements of Subpart PPPPP and Subpart A.

Request No. 3

The Department does not concur with the applicant that a BACT visible emissions standard could not be imposed on the applicant if PM is not a PSD pollutant for the proposed project. EPA in the development of $PM_{2.5}$ rules have clearly stated that it is considering significant emissions increase levels of 40 TPY for NOx, $SO_2$ and VOCs that are considered precursors for $PM_{2.5}$ formation. EPA believes that much of the $PM_{2.5}$ emissions consist of particulates nitrates and sulfates formed through chemical reactions between gaseous precursors such as $SO_2$ and NOx from combustion sources. This project has NOx emissions of 344 TPY and $SO_2$ emissions of 64 TPY. Please evaluate a BACT visible emissions standard for this project.

Response No. 3

As indicated in the air construction permit application (DEP File No. 0990021-017-AC), the facility is willing to accept annual visible emissions (VE) testing of the RAM test stands in accordance with current state general VE standards. Specifically, the facility will comply with the requirements of Rule 62-296.320(4)(b)1, Florida Administrative Code (F.A.C.), which limits opacity to less than 20 percent. The test method for VE compliance testing will be U.S. Environmental Protection Agency (EPA) Method 9, as referenced in Rule 62-297, F.A.C.

Request No. 4

The applicant indicated that the exhaust temperature of the turbines at idle condition is nominally 540°F. The temperature window indicated in the application on page 4-7 for the oxidation catalyst to be effective is 500 to 1,100°F. This indicates that an oxidation catalyst system is feasible for the GG4-9A turbine engines. Please submit the cost effectiveness data in $ per ton of CO removed with oxidation catalyst. Additionally, indicate the temperature window for the SCR catalysts to be effective.

Response No. 4
As indicated in Section 4.4.1 of the previously submitted PSD Analysis, please note that catalytic oxidation is not a demonstrated technology for turbine engines used for test stands. Based on a search of EPA's RACT/BACT/LAER Clearinghouse (RBLC) database, the oxidation catalyst system has never been installed to control CO emissions from a gas turbine used in a test stand. An oxidation catalyst system is a viable and demonstrated CO emissions control technology for natural gas-fired combustion turbines. However, it is not a demonstrated technology for oil-fired CTs.

Several factors render volatile organic compound (VOC) catalytic oxidation not applicable for oil-fired boilers. First, the particulate loading of the flue gas stream could plug the oxidation catalyst. In addition, trace elements present in oil and the resulting combustion gases (e.g., sulfur in particular) could foul the oxidation catalyst and reduce its effectiveness. Furthermore, $SO_2$ in the flue gas stream could be oxidized to form $SO_3$, which could react with the moisture in the flue gas to form sulfuric acid and create a corrosive environment. Therefore, the oxidation catalyst system is not considered technically feasible for the GG4-9A turbines.

The oxidation catalyst system is effective within the temperature window of 500 to 1,100 degrees Fahrenheit (°F). However, the design control efficiency is achieved in the high end of the temperature range.

Based on EPA's Air Pollution Control Technology Fact Sheet on selective catalytic reduction (SCR), the optimum temperature range is 480°F to 800°F with an optimum temperature fluctuations tolerance of 200°F. The rapid load change will make the ammonia injection control difficult. The rapid and frequent load changes also reduce activity and effectiveness and increase degradation of the catalyst, which lead to more frequent catalyst replacement. The SCR system is considered to be technically infeasible for a test stand turbine engine.

Request No. 5
On January 22, 2010, EPA announced a new hourly $NO_2$ standard of 100 ppb (189 ug/m3) based on the 3-year average of the 98$^{th}$ percentile of the annual distribution of daily maximum 1-hour concentrations. The final rule for the new hourly national ambient air quality standard (NAAQS) was published in the Federal Register on February 9, 2010, and the new standard will be effective on April 12, 2010. Modeling using AERMOD to predict 1-hour $NO_2$ impacts will be required. At this time the EPA Air Quality Modeling Group (AQMG) is not considering modifying AERMOD to accommodate the form of the new 1-hour standard, but will be developing a more generic AERMOD post processor to address this requirement. EPA has indicated that this post processor will be available before April 12. A note will be posted under "Recent Additions" on the SCRAM webpage when the $NO_2$ post-processor is available.

For your information, on November 16, 2009, EPA also proposed to revise the $SO_2$ primary standard to an hourly standard between 50 and 100 ppb (130 and 260 ug/m$^3$). EPA will publish a final rule in the Federal Register by June 2, 2010, with the final rule being effective 60 days after issuance.

Response No. 5
Preliminary air modeling was performed to address the new 1-hour nitrogen dioxide ($NO_2$) ambient air quality standard (AAQS) of 100 parts per billion (ppb) [189 micrograms per cubic meter ($\mu g/m^3$)]. The 1-hour $NO_2$ AAQS is met when the 3-year average of the 98$^{th}$ percentile of the daily 1-hour maximum concentrations is less than 189 $\mu g/m^3$. To determine whether a project's emissions will not cause or contribute to a violation of an AAQS, EPA generally establishes significant impact levels (SILs) that would potentially limit the air modeling analyses required. If a project's impacts are predicted to be less than the SIL, then the project's impacts are presumed to be insignificant and no additional modeling is required to demonstrate compliance with the AAQS. If the project's impacts are predicted to be greater than the SIL, then additional analysis would be required to determine compliance.

Because EPA has not yet defined a SIL for $NO_2$ 1-hour impacts, a representative SIL of 7.6 $\mu g/m^3$ was assumed, based on 4 percent of the AAQS standard, which is a typical value for other pollutants. For the purposes of this preliminary analysis, the 98$^{th}$ percentile of an annual distribution of daily maximum 1-hour concentrations is summarized for every year modeled and compared to a presumptive SIL of 7.6 $\mu g/m^3$.

The modeling analysis followed the same procedure described in the PSD application submitted in 2009. Maximum concentrations were predicted in a receptor grid that extended out to 10 kilometers using 5 years of meteorological data with PWR site land use. Each turbine engine was modeled with a 1-hour average $NO_x$ emission rate of 299.9 pounds per hour (37.8 grams per second).

Based on EPA's Guideline on Air Quality Models, several methods are available for estimating $NO_2$ concentrations based on modeling $NO_x$ emissions. Two of these methods were used in this analysis:

- Method 1 – 75 percent conversion factor of $NO_x$ to $NO_2$
- Method 2 – Ozone Limiting Method (OLM) using one background ozone concentration

For Method 2, several background ozone concentrations were included in the modeling to determine the effect that these levels may have on the predicted $NO_2$ concentrations.

Monitoring data for ozone used in the model were obtained from the FDEP monitor located in Royal Palm Beach (No. 12-099-0009), Palm Beach County, which is the nearest ozone monitor to the facility. The maximum 1-hour average ozone concentration measured at this monitor from 2001 to 2005 was 107 ppb (209.9 $\mu g/m^3$). This maximum concentration as well as the 98$^{th}$ percentile concentration were used as constant values for all hours in the year in separate modeling analyses. Additional analyses were performed that included the measured hourly ozone concentrations with the maximum concentration of 107 ppb or 98$^{th}$ percentile concentration used when the hourly ozone value was missing.

A summary of the results of this analysis is shown in Table 1. As shown in Table 1, the maximum 1-hour $NO_2$ concentrations for the project are predicted to be above the presumptive SIL of 7.6 $\mu g/m^3$. Therefore, additional analysis is required to demonstrate compliance with the AAQS. For this analysis, total quality impacts were based on the project impacts added to a background concentration estimated from monitoring data.

Monitoring data for $NO_2$ used to estimate background concentrations were obtained from the FDEP monitor located in West Palm Beach (No. 12-099-1004)], Palm Beach County, which is the nearest $NO_2$ monitor to the facility. Because the AAQS standard for 1-hour $NO_2$ impacts is based on the 98$^{th}$ percentile of the daily 1-hour maximum concentrations, the 98$^{th}$ percentile value for 1-hour monitoring data was used. In an effort to determine a more realistic background concentration, hourly $NO_2$ concentrations that were measured for the period when the project's impacts were predicted were added to the project's impacts to estimate total air quality impacts. However, some hours may not have monitoring data available when the maximum impacts for the project were predicted. For those hours, a representative background concentration was based on the 98$^{th}$ percentile monitored value, as shown in Table 2. This representative background concentration was used in the AAQS analysis.

The results of this analysis to estimate total air quality impacts are shown in Table 3. Based on these modeling analyses with either the 75 percent conversion factor or OLM, the maximum 1-hour $NO_2$ concentrations due to the project are predicted to be less than the 1-hour $NO_2$ AAQS of 189 $\mu g/m^3$.

It should be noted that results from the above analyses are shown for the maximum total air quality impacts for each of the 5 years modeled, not the average concentration of 3 years. Therefore, these predicted concentrations when compared to the AAQS are conservative (i.e., higher-than-expected).

Comment regarding the proposed revised $SO_2$ AAQS is acknowledged.

If you have any questions or comments regarding the responses included in this letter, feel free to call Benny Susi or Brian Storey at (352) 336-5600.

Sincerely,

**GOLDER ASSOCIATES INC.**

Brian A. Storey, P.E.
Senior Project Engineer

Benny Susi, P.E.
Principal

cc: Dean Gee, Pratt & Whitney
Laxmana Tallam, Palm Beach County Health Department

Enclosures

BAS/tz



Golder Associates

## APPLICATION INFORMATION

### Professional Engineer Certification

1. Professional Engineer Name: **Brian A. Storey**
   Registration Number: **66766**
2. Professional Engineer Mailing Address...
   Organization/Firm: **Golder Associates Inc.****
   Street Address: **6026 NW 1st Place**
   City: **Gainesville** State: **FL** Zip Code: **32607**
3. Professional Engineer Telephone Numbers...
   Telephone: **(352) 336-5600** ext. **21127** Fax: **(352) 336-6603**
4. Professional Engineer E-mail Address: **bstorey@golder.com**
5. Professional Engineer Statement:

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

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

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

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

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

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

Brian A Storey #66766 — Signature

June 3, 2010 — Date

(seal)

* Attach any exception to certification statement.

**Board of Professional Engineers Certificate of Authorization #00001670.

# TABLES

**TABLE 1**
**MAXIMUM $NO_2$ CONCENTRATIONS PREDICTED FOR THE SIGNIFICANT IMPACT ANALYSIS**
**PWR SITE LAND USE**

| Pollutant | Predicted Concentrations (ug/m$^3$) [a] | Receptor Location UTM Coordinates (m) East | North | Period (YYMMDDHH) | EPA Significant Impact Level (µg/m$^3$) |
|---|---|---|---|---|---|
| Method 1 - 75% Factor of $NO_x$ | | | | | |
| $NO_2$ | 59.75 | 561,880 | 2,975,401 | 01050822 | 7.6[b] |
| | 47.08 | 563,280 | 2,975,401 | 02122113 | |
| | 59.07 | 563,780 | 2,975,401 | 03012322 | |
| | 52.70 | 561,780 | 2,975,401 | 04092219 | |
| | 51.83 | 563,080 | 2,975,401 | 05090314 | |
| Method 2 - Ozone Limiting Method (OLM), constant ozone concentration (107 ppb) | | | | | |
| $NO_2$ | 79.67 | 561,880 | 2,975,401 | 01050822 | 7.6[b] |
| | 62.78 | 563,280 | 2,975,401 | 02122113 | |
| | 78.76 | 563,780 | 2,975,401 | 03012322 | |
| | 70.27 | 561,780 | 2,975,401 | 04092219 | |
| | 69.11 | 563,080 | 2,975,401 | 05090314 | |
| Method 2 - OLM, hourly ozone concentration (107 ppb used if hourly data missing) | | | | | |
| $NO_2$ | 79.67 | 561,880 | 2,975,401 | 01050822 | 7.6[b] |
| | 62.78 | 563,280 | 2,975,401 | 02122113 | |
| | 78.76 | 563,780 | 2,975,401 | 03012322 | |
| | 70.27 | 561,780 | 2,975,401 | 04092219 | |
| | 69.11 | 563,080 | 2,975,401 | 05090314 | |
| Method 2 - OLM, constant ozone concentration (60 ppb) | | | | | |
| $NO_2$ | 79.67 | 561,880 | 2,975,401 | 01050822 | 7.6[b] |
| | 62.78 | 563,280 | 2,975,401 | 02122113 | |
| | 78.76 | 563,780 | 2,975,401 | 03012322 | |
| | 70.27 | 561,780 | 2,975,401 | 04092219 | |
| | 69.11 | 563,080 | 2,975,401 | 05090314 | |
| Method 2 - OLM, hourly ozone concentration (60 ppb used if hourly data missing) | | | | | |
| $NO_2$ | 79.67 | 561,880 | 2,975,401 | 01050822 | 7.6[b] |
| | 62.78 | 563,280 | 2,975,401 | 02122113 | |
| | 78.76 | 563,780 | 2,975,401 | 03012322 | |
| | 70.27 | 561,780 | 2,975,401 | 04092219 | |
| | 69.11 | 563,080 | 2,975,401 | 05090314 | |

Note: UTM = Universal Transverse Mercator: Zone 17.

[a] Concentrations are based on the predicted concentrations from AERMOD using 5 years of meteorological data for 2001 to 2005 consisting of surface and upper air data from the National Weather Service stations at Palm Beach International and Florida International University, respectively. Land use parameters are based on the Pratt & Whitney Site.

[b] EPA has not yet defined a significant impact level for $NO_2$ 1-hr impacts. Therefore, a level of 7.6 µg/m$^3$ was used, based on 4% of the AAQS standard (189 µg/m$^3$). The AAQS 1-hour $NO_2$ standard is met when the 3-year average of the 98th percentile of the daily 1-hour maximum values is less than 189 µg/m$^3$. For this analysis, the 98th percentile of an annual distribution of daily maximum 1-hour concentrations is summarized for every year modeled.

**TABLE 2**
**SUMMARY OF MAXIMUM MEASURED $NO_2$ CONCENTRATIONS IN THE VICINITY OF PRATT & WHITNEY, 2001 TO 2005**

| Site No. | Operator | Location | Measurement Period Year | Measurement Period Months | Concentration (µg/m³) 1-Hour Highest | 1-Hour 98th Percentile | 1-Hour Monitored Concentration for Hour of Prediction [a] | 1-Hour Representative Background |
|---|---|---|---|---|---|---|---|---|
| **Nitrogen dioxide** | | **Florida AAQS:** | | | **NA** | **189** | **NA** | **100** |
| | | | | | | | Method 1 | |
| 12-099-1004 | PBCHD | Palm Beach | 2001 | Jan-Dec | 126.0 | 50.8 | 32.0 | 32.0 |
| | | | 2002 | Jan-Dec | 101.5 | 54.5 | 30.1 | 30.1 |
| | | | 2003 | Jan-Dec | 99.6 | 56.4 | 26.3 | 26.3 |
| | | | 2004 | Jan-Dec | 95.9 | 54.5 | ND | 54.5 |
| | | | 2005 | Jan-Dec | 110.9 | 60.2 | 7.5 | 7.5 |
| | | | | | | | Method 2 | |
| | | | 2001 | Jan-Dec | 126.0 | 50.8 | 32.0 | 32.0 |
| | | | 2002 | Jan-Dec | 101.5 | 54.5 | 30.1 | 30.1 |
| | | | 2003 | Jan-Dec | 99.6 | 56.4 | 26.3 | 26.3 |
| | | | 2004 | Jan-Dec | 95.9 | 54.5 | ND | 54.5 |
| | | | 2005 | Jan-Dec | 110.9 | 60.2 | 7.5 | 7.5 |

Note: NA = not applicable.
ND = no data.
AAQS = ambient air quality standard.
PBCHD = Palm Beach County Health Department.

[a] The highest measured concentration on the hour of the predicted 98th percentile of the maximum predicted daily values for a given year. See Table 1.

Source: EPA, 2010.

## TABLE 3
## $NO_2$ CONCENTRATIONS PREDICTED FOR COMPARISON TO THE 1-HR NAAQS

| Averaging Time and Rank | Predicted Concentration ($\mu g/m^3$)[a] Modeled Sources (a) | Background (b) | Total (a+b) | AAQS ($\mu g/m^3$)[b] |
|---|---|---|---|---|
| Method 1 - 75% Factor of $NO_x$ | | | | |
| $NO_2$ | 59.8 | 32.0 | 91.7 | 189 |
| | 47.1 | 30.1 | 77.2 | 189 |
| | 59.1 | 26.3 | 85.4 | 189 |
| | 52.7 | 54.5 | 107.2 | 189 |
| | 51.8 | 7.5 | 59.4 | 189 |
| Method 2 - Ozone Limiting Method (OLM), constant ozone concentration (107 ppb) | | | | |
| $NO_2$ | 79.7 | 32.0 | 111.6 | 189 |
| | 62.8 | 30.1 | 92.9 | 189 |
| | 78.8 | 26.3 | 105.1 | 189 |
| | 70.3 | 54.5 | 124.8 | 189 |
| | 69.1 | 7.5 | 76.6 | 189 |
| Method 2 - OLM, hourly ozone concentration (107 ppb used if hourly data missing) | | | | |
| $NO_2$ | 79.7 | 32.0 | 111.6 | 189 |
| | 62.8 | 30.1 | 92.9 | 189 |
| | 78.8 | 26.3 | 105.1 | 189 |
| | 70.3 | 54.5 | 124.8 | 189 |
| | 69.1 | 7.5 | 76.6 | 189 |
| Method 2 - OLM, constant ozone concentration (60 ppb) | | | | |
| $NO_2$ | 79.7 | 32.0 | 111.6 | 189 |
| | 62.8 | 30.1 | 92.9 | 189 |
| | 78.8 | 26.3 | 105.1 | 189 |
| | 70.3 | 54.5 | 124.8 | 189 |
| | 69.1 | 7.5 | 76.6 | 189 |
| Method 2 - OLM, hourly ozone concentration (60 ppb used if hourly data missing) | | | | |
| $NO_2$ | 79.7 | 32.0 | 111.6 | 189 |
| | 62.8 | 30.1 | 92.9 | 189 |
| | 78.8 | 26.3 | 105.1 | 189 |
| | 70.3 | 54.5 | 124.8 | 189 |
| | 69.1 | 7.5 | 76.6 | 189 |

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

[a] Concentrations are based on the predicted concentrations from AERMOD using 5 years of meteorological data for 2001 to 2005 consisting of surface and upper air data from the National Weather Service stations at Palm Beach International and Florida International University, respectively. Land use parameters are based on the Pratt & Whitney Site.

[b] The AAQS 1-hour $NO_2$ standard is met when the 3-year average of the 98th percentile of the daily 1-hour maximum values is less than 189 $\mu g/m^3$.