Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

July 31, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Skip Jansen
Utility Board of the City of Key West
1001 James Street
Post Office Drawer 6100
Key West, Florida 33041

Dear Mr. Jansen:

Attached is a copy of the Technical Evaluation and Preliminary Determination, proposed permit and the Best Available Control Technology evaluation to relocate a 23.5 MW simple cycle gas turbine generator from the Key West Power Plant to the existing Stock Island Power Plant.

Submit any written comments for consideration concerning the Department's proposed action to Mr. A. A. Linero of the Bureau of Air Regulation. If you have any questions regarding this matter, please call Syed Arif at (904)488-1344.

Sincerely,

A. A. Linero, P.E. 7/31/95 for

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/sa/t

Attachments

cc: D. Knowles, SD
J. Harper, EPA
J. Bunyak, NPS
M. Henderson, RW Beck

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

In the Matter of an
Application for Permit by:

DEP File No. AC 44-245399
PSD-FL-210
Monroe County

Utility Board of the City of Key West
1001 James Street
P.O. Drawer 6100
Key West, FL 33041

_____/

INTENT TO ISSUE

The Department of Environmental Protection (Department) hereby gives notice of its intent to issue a construction permit (copy attached) for the proposed project as detailed in the application specified above for the reasons stated in the attached Technical Evaluation and Preliminary Determination.

The applicant, Key West City Electric System, applied on February 14, 1994, to the Department of Environmental Protection for a permit to relocate a 23.5 MW simple cycle combustion turbine generator from the Key West Power Plant to the existing Stock Island Power Plant near Key West, Monroe County, Florida.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-212 and 62-4, Florida Administrative Code (F.A.C.). The project is not exempt from permitting procedures. The Department has determined that a construction permit is required for the proposed work.

Pursuant to Section 403.815, F.S. and Rule 62-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit. The notice shall be published one time only within 30 days in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

The Department will issue the permit with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information;

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
(d) A statement of the material facts disputed by Petitioner, if any;
(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and,
(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this intent. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be

filed (received) within 14 days of receipt of this intent in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

A A Linero, P.E. 7/31/ for

C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this INTENT TO ISSUE and all copies were mailed by certified mail before the close of business on 7-31-95 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant to §120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk 7-31-95 Date

Copies furnished to:

cc: D. Knowles, SD
J. Harper, EPA
J. Bunyak, NPS
M. Henderson, RW Beck

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF INTENT TO ISSUE PERMIT

AC 44-245399
PSD-FL-210

The Department of Environmental Protection gives notice of its intent to issue a permit to the Utility Board of the City of Key West, 1001 James Street, P.O. Drawer 6100, Key West, FL 33041, to relocate a 23.5 MW simple cycle combustion turbine generator from the Key West Power Plant to the existing Stock Island Power Plant near Key West, Monroe County, Florida. This unit will operate at approximately one-third or less of its annual electrical generating capacity. Emissions of sulfur dioxide will be limited by use of low sulfur (0.05 percent or less) fuel oil. Nitrogen oxides emissions will be controlled through water injection. Carbon monoxide and particulate matter emissions will be minimized by good combustion practices.

The maximum predicted increases in particulate matter less than 10 microns (PM_{10}) concentrations and nitrogen dioxide (NO_2) concentrations due to the project are less than the respective PSD Class I significant impact levels, thus no PSD Class I PM_{10} or NO_2 increment consumption was calculated for this project. The maximum predicted PSD Class II PM_{10} increments to be consumed by the proposed project are the following: 0.4 ug/m^3, annual average or 2% of the available annual increment of 17 ug/m3; and 14.6 ug/m^3, 24-hour average, or 49% of the available 24-hour increment of 30 ug/m^3. The maximum predicted PSD Class II NO_2 increment to be consumed by the proposed project is 3.2 ug/m^3, annual average or 13% of the available annual increment of 25 ug/m^3.

The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes (F.S.). The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information; (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by Petitioner, if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and, (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, Florida Administrative Code.

The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Department of Environmental Protection
South District
2295 Victoria Ave., Suite 364
Fort Myers, Florida 33901

Any person may send written comments on the proposed action to Administrator, New Source Review Section at the Department of Environmental Protection, Bureau of Air Regulation, Mail Station

5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. All comments received within 30 days of the publication of this notice will be considered in the Department's final determination.

Further, a public hearing can be requested by any person(s). Such requests must be submitted within 30 days of this notice.

Technical Evaluation
and
Preliminary Determination

Key West City Electric System
Monroe County, Florida

SIMPLE CYCLE COMBUSTION TURBINE
(23.5 megawatts)

Construction Permit No. AC 44-245399
PSD-FL-210

Department of Environmental Protection
Division of Air Resources Management
Bureau of Air Regulation

July 31, 1995

SYNOPSIS OF APPLICATION

I. GENERAL INFORMATION

A. Name and address of applicant

Utility Board of the City of Key West
1001 James Street
Post Office Drawer 6100
Key West, Florida 33041

B. Reviewing and Process Schedule

Date of Receipt of Application: February 14, 1994

Application Completeness Date: May 5, 1995

C. Facility Location

This facility is located at Stock Island, 6900 Front Street, Key West, Monroe County, Florida. The UTM coordinates are Zone 17, 425 km east and 2716 km north.

Facility Identification Code (SIC)

Major Group No. 49 - Electric, Gas and Sanitary Services.

Industry Group No. 491 - Combination Electric, Gas and Other Utility Services.

Industry Group No. 4911 - Electric and Other Services Combined.

D. Project Description

The Key West City Electric System (CES) is proposing to relocate a General Electric Frame 5 combustion turbine (CT) from the Key West Power Plant, where it is currently permitted, to the existing Stock Island Power Plant. The CT has a nominal base load rating of 23.5 megawatt (MW) at 15 degrees Celsius, 60 percent relative humidity and 101.3 kilopascals pressure (ISO conditions). The CT will be fired on No. 2 low sulfur fuel oil ($\leq$ 0.05%, by weight, sulfur). Fuel oil consumption shall be limited to 7.1 million gallons per year for the CT (which corresponds to the 2888.5 hours of full-load operation per year limit in its current permit).

The Stock Island Power Plant currently consists of a nominal 37 MW steam-electric generating unit, two nominal 8.6 MW medium speed diesel-electric generating units, three nominal 2 MW high speed diesel-electric generating units. The diesel units utilize No. 2 fuel oil (0.05%, by weight, sulfur) and the steam unit utilizes No. 6 fuel oil.

E. Project Emissions

The proposed project, a simple cycle combustion turbine, will produce maximum emissions of 138 tons per year (TPY) of nitrogen oxides (NO_x); 24 TPY of sulfur dioxide (SO_2); 152 TPY of carbon monoxide (CO); 43 TPY of particulate matter (PM/PM_{10}) and 15 TPY of total unburned hydrocarbons based on an annual consumption of 7.1 million gallons of No. 2 fuel oil for the General Electric Frame 5 model PG5341 CT. The No. 2 fuel oil will be limited to a maximum of 0.05% sulfur content, by weight.

II. RULE APPLICABILITY

The proposed project, relocation of a 23.5 MW simple cycle unit (SIC 4911), in Monroe County, is subject to the preconstruction review under the provisions of Chapter 403, Florida Statutes, Chapters 62-212 and 62-4, Florida Administrative Code (F.A.C.), and 40 CFR 60 (July 1, 1993 version).

This facility is located in an area designated attainment for all criteria pollutants in accordance with F.A.C. Rule 62-275.400.

The proposed project was reviewed under Rule 62-212.400(5), F.A.C., New Source Review (NSR) for Prevention of Significant Deterioration (PSD), because it will be a major stationary source. This review consisted of a determination of Best Available Control Technology (BACT) and, unless otherwise exempted, an analysis of the air quality impact of the increased emissions. The review also includes an analysis of the project's impacts on soils, vegetation and visibility, along with air quality impacts resulting from associated commercial, residential and industrial growth.

The proposed facility shall be in compliance with all applicable provisions of Chapters 62-212 and 62-4, F.A.C., and 40 CFR 60 (July 1, 1993 version). The proposed source shall be in compliance with all applicable provisions of Rule 62-210.650, F.A.C.: Circumvention; Rule 62-210.700, F.A.C.: Excess Emissions; Rule 62-296.800, F.A.C.: Standards of Performance for New Stationary Sources (NSPS); Chapter 62-296, F.A.C.: Stationary Point Source Emission Test Procedures; and, Rule 62-4.130, F.A.C.: Plant Operation-Problems.

The proposed facility shall be in compliance with the New Source Performance Standards (NSPS) for Gas Turbines, Subpart GG, which is contained in 40 CFR 60, Appendix A, and is adopted by reference in Rule 62-296.800, F.A.C.

III. TECHNICAL EVALUATION

The applicant proposes to relocate a simple cycle combustion turbine generator from the Key West Power Plant approximately four

miles to the Stock Island Power Plant. This relocation will move an existing source from an area of higher population density to an area of lower population density. The proposed project does not trigger emissions offset because the two facilities are not contiguous, even though both facilities belong to the same owner. PSD is triggered because the existing Stock Island Power Plant is a major facility, and the emissions of CO, NO_X and PM from the relocated CT exceeds their respective significance levels.

The CT is a General Electric Frame 5 model PG5341 with a nominal base load rating of 23.5 MW at ISO conditions. The Stock Island Power Plant comprises roughly 50 acres and is located approximately one mile east of the City of Key West, Monroe County, Florida. The existing units at Stock Island Power Plant consists of a nominal 37 MW steam-electric generating unit, two nominal 8.6 MW medium speed diesel-electric generating units, three nominal 2 MW high speed diesel-electric generating units, fuel storage tanks, and other electrical generating support equipment.

The primary fuel to the CT will be No. 2 fuel oil, with a maximum sulfur content of 0.05%, by weight, and a fuel oil consumption will be limited to 7.1 million gallons per year. The emissions of NO_X and CO represent the most significant portions of the total emissions generated by this project. The BACT for NO_X, as determined by the Department, will be met by using water injection to limit emissions to 75 ppmvd, corrected to 15% O_2, when burning No. 2 fuel oil. The actual water injection ratio shall be determined during initial compliance test, and a system shall be operated to continuously monitor and record the fuel consumption and the ratio of water to fuel injected into the CT. The facility is subject to PSD and BACT for NO_X emissions because the proposed increase in annual NO_X emissions exceeds the significant emission rate. Compliance with the NO_X emission standards will be determined by stack tests and water to fuel injection ratio shall be monitored continuously.

CO emissions will be minimized by combustion control to assure proper fuel mixing and variable water injection, and will be limited to 20 ppmvd, corrected to 15% O_2, with the exception that the emissions may increase to 136 ppmvd, corrected to 15% O_2 during reduced load operation. The facility is subject to PSD and BACT for CO because the proposed increase in annual CO exceeds the significant emission rate. Compliance with the emission standards for CO will be determined by periodic compliance tests.

Particulate matter (PM/PM_{10}) emissions from the simple cycle combustion turbine will be minimized by combustion control and the

use of clean fuels. The limit of sulfur to 0.05%, by weight, is the requirement that assures good quality fuel. The proposed facility is subject to PSD and BACT for PM/PM_{10} emissions because the proposed increase in annual PM/PM_{10} emissions exceeds the significant emission rate. Compliance will be determined by periodic stack tests.

SO_2 emissions will be controlled by the use of low sulfur fuel. The No. 2 fuel oil, which will be used as a primary fuel will be limited to a maximum of 7.1 million gal/yr, and to a maximum sulfur content of 0.05%, by weight. The proposed facility is not subject to PSD and BACT for SO_2 emissions because the proposed increase in annual SO_2 emissions does not exceed the significant emission rate.

The following table summarizes the emissions of air pollutants subject to PSD review:

Pollutant	Emissions (TPY)	PSD Significant Emission Rate (TPY)
NO_x*	138	40
PM/PM_{10}**	43	15
CO**	152	100

* Based on firing No. 2 fuel oil (0.05% sulfur by weight) at a maximum of 7.1 million gals/yr at full load.

** Based on firing No. 2 fuel oil (0.05% sulfur by weight) at a maximum of 7.1 million gals/yr at 50% load.

IV. AIR QUALITY IMPACT ANALYSIS

A. Introduction

The proposed project will emit three pollutants at levels in excess of PSD significant amounts as shown in Table 1. These pollutants are PM/PM_{10}, NO_x, and CO.

The air quality impact analyses required by the PSD regulations for these pollutants include:

* An analysis of existing air quality;
* A PSD increment analysis (PM_{10} and NO_2);
* An Ambient Air Quality Standards (AAQS) analysis;
* An analysis of impacts on soils, vegetation, and visibility and of growth-related air quality modeling impacts; and,
* A "Good Engineering Practice" (GEP) stack height determination.

The analysis of existing air quality generally relies on preconstruction monitoring data collected with EPA-approved methods. The PSD increment and AAQS analyses depend on air quality dispersion modeling carried out in accordance with EPA guidelines.

Based on the required analyses, the Department has reasonable assurance that the proposed project, as described in this report and subject to the conditions of approval proposed herein, will not cause or contribute to a violation of any AAQS or PSD increment. However, the following EPA-directed stack height language is included: "In approving this permit, the Department has determined that the application complies with the applicable provisions of the stack height regulations as revised by EPA on July 8, 1985 (50 FR 27892). Portions of the regulations have been remanded by a panel of the U.S. Court of Appeals for the D.C. Circuit in NRDC v. Thomas, 838 F. 2d 1224(D.C. Cir. 1988). Consequently, this permit may be subject to modification if and when EPA revises the regulation in response to the court decision. This may result in revised emission limitations or may affect other actions taken by the source owners or operators." A discussion of the modeling procedure and required analyses follows.

B. Analysis of Existing Air Quality and Determination of Background Concentrations

Preconstruction ambient air quality monitoring is required for all pollutants subject to PSD review. However, an exemption to the monitoring requirement may be obtained if the maximum air quality impact resulting from the projected emissions increase, as determined by air quality modeling, is less than a pollutant-specific de minimus concentration.

Even if preconstruction ambient monitoring is exempted, determination of background concentrations may be necessary for use in any required AAQS analysis. These concentrations may be established from the required preconstruction ambient air quality monitoring analysis or from previously existing representative monitoring data. These background ambient air quality concentrations are added to pollutant impacts predicted by modeling and represent the air quality impacts of sources not included in the modeling.

Table 2 shows that NO_2 and CO impacts from the project are predicted to be less than the de minimus levels; therefore, preconstruction ambient air quality monitoring is not required for these two pollutants. Table 2 shows that PM_{10} impacts from the project are predicted to be greater than the de minimus level; consequently, preconstruction ambient air quality monitoring is required for PM_{10}. Previously existing representative monitoring data from a PM monitor in Key West is used to fulfill the PM_{10}

monitoring requirement and to establish a PM_{10} background concentration for use in the AAQS analysis. In addition, an AAQS analysis is required to determine NO_x impacts from the project. Previously existing representative monitoring data from an NO_2 monitor in Miami is used to establish an NO_2 background concentration for use in the NO_2 AAQS analysis. Background concentrations for PM_{10} and NO_2 are given in the AAQS table, Table 6.

C. Modeling Procedure

The EPA-approved SCREEN2 and Industrial Source Complex Short-Term (ISCST2) dispersion models were used to evaluate the pollutant emissions from the proposed project. SCREEN2 is a single-source screening model which uses default meteorology inputs to predict pollutant impacts. The ISCST2 model can be used as both a screening model and a refining model. It determines ground-level concentrations of gases or small particles emitted into the atmosphere by point, area and volume sources. The model incorporates elements for plume rise, transport by the mean wind, Gaussian dispersion, and pollutant removal mechanisms such as deposition. The ISCST2 model allows for the separation of sources, building wake downwash, and various other input and output features. A series of specific model features, recommended by the EPA, are referred to as the regulatory options. The applicant used the EPA recommended regulatory options in each modeling scenario. Direction-specific downwash parameters were used for all sources for which downwash was considered.

Initially, the applicant conducted preliminary modeling for the purpose of determining the worst case load and temperature scenarios for the proposed project. This preliminary modeling used the EPA SCREEN2 model. The receptors used in this model were default receptors spaced 0.1 km apart out to 3.0 km and 0.5 km apart from 3.0 to 10.0 km. Modeling was performed for three operating loads (100, 75, and 50 percent) at two temperatures (59 F° and 90 F°). For NO_x the worst-case operating conditions are predicted to occur at 75 percent load and 59 F°; for PM_{10} the worst-case operating conditions are predicted to occur at 50 percent load and 90 F°; and for CO the worst-case operating conditions are predicted to occur at 50 percent load and 59 F°.

These worst-case conditions were used as input in the significant impact analysis. For determination of the proposed project's significant impact area, ISCST2 was used by the Department with a polar receptor grid consisting of 288 receptors located at distances of 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7 and 0.8 km from the Stock Island Plant along 36 radials with each radial spaced at 10-degree intervals. An additional cartesian coordinate receptor grid centered at the Stock Island Power Plant was also used by the applicant. This grid was defined with 1.0 km spacing out to 10.0 km to further determine the project's significant impact.

The applicant also used a refined receptor grid for the PSD increment and AAQS analyses. This grid contained receptors spaced 50 meters apart out to 0.2 km. Additional receptors were located at 0.1 km spacing from 0.2 km to 0.5 km. Within this refined grid, receptors were placed at 20 m intervals along the property boundary. This refined grid system provided sufficient resolution and downwind coverage to identify the areas of maximum concentrations for the PSD increment and AAQS analyses.

The Everglades National Park (ENP) is a PSD Class I area that is located 100 km from the project site at its closest point. In the PSD Class I analysis, the southern boundary of the ENP is represented by five discrete receptors.

Meteorological data used in the ISCST2 model to determine air quality impacts consisted of a concurrent 5-year period (1985 through 1989) of hourly surface weather observations and twice-daily upper air soundings from the National Weather Service (NWS) surface station at Key West and the NWS upper air station at West Palm Beach. These NWS stations were selected for use in the model because they are the closest primary weather stations to the project site and are also most representative of this site.

Since five years of data were used, the highest-second-high (HSH) short-term predicted concentrations were compared with the appropriate ambient air quality standards or PSD increments. For the annual averages, the highest predicted yearly average was compared with the standards. For determining the significant impact area, both the highest short-term predicted concentrations and the highest predicted yearly averages were compared to the significant impact levels.

D. Significant Impact Analysis

As shown in Table 3, the maximum air quality impacts due to PM_{10} and NO_X emissions from the proposed project are greater than the respective significant impact levels. Therefore, PSD Class II increment and AAQS analyses are required to determine PM_{10} and NO_2 impacts from both the project and all interacting sources in the vicinity of the project.

E. PSD Increment Analysis

1. Class II Area

The PSD increment represents the amount that new sources in an area may increase ambient ground level concentrations of a pollutant. Atmospheric dispersion modeling, as previously

described, was performed to quantify the amount of PSD increment consumed. The results, summarized in Table 4, show that the maximum PM_{10} and NO_2 PSD increment impacts will not exceed the allowable Class II PSD increments.

2. Class I Area

A proposed source subject to PSD review must conduct a dispersion modeling analysis of its impacts on any PSD Class I area located near the source. The closest receptor point in the Class I ENP is approximately 100 km from the project site. Using the ISCST2 model, the applicant determined the maximum predicted impacts from the proposed relocation of the combustion turbine only. These impacts were then compared to the National Park Service's (NPS) significant impact levels as shown in Table 5. The results in this table show that for both PM_{10} and NO_2, the maximum predicted project impacts are less than the NPS significant impact levels. Consequently, no further PSD Class I increment modeling was required.

F. AAQS Analysis

For the pollutants subject to an AAQS review, the total impact on ambient air is obtained by adding a "background" concentration to the maximum modeled concentration. This "background" concentration takes into account all sources of a particular pollutant that are not explicitly modeled. The results of the AAQS analysis for PM10 and NO2 are summarized in Table 6. As shown in this table, emissions from the proposed project are not expected to cause or contribute to a violation of an AAQS.

V. ADDITIONAL IMPACTS ANALYSIS

A. Impacts on Soils, Vegetation, and Wildlife

The maximum ground-level concentrations predicted to occur for PM10, NOx and CO as a result of the proposed project, including background concentrations and all other nearby sources, will be below the associated AAQS. The AAQS are designed to protect both the public health and welfare. As such, this project is not expected to have a harmful impact on soils and vegetation in the PSD Class II area. An air quality related values (AQRV) analysis was done by the applicant for the Class I area. No significant impacts on this area are expected.

B. Impact on Visibility

Visual Impact Screening and Analysis (VISCREEN), the EPA-approved Level I visibility computer model, was used to estimate

the impact of the proposed project's stack emissions on visibility in the ENP. The results indicate that the maximum visibility impacts do not exceed the screening criteria inside or outside the ENP Class I area. As a result, there is no significant impact on visibility predicted for the Class I area.

C. Growth-Related Air Quality Impacts

There will be no significant impacts on air quality caused by associated population growth since this project is the simple relocation of a combustion turbine.

D. GEP Stack Height Determination

Good Engineering Practice (GEP) stack height means the greater of: (1) 65 m (213 ft) or (2) the maximum nearby building height plus 1.5 times the building height or width, whichever is less. The stack will not exceed the GEP stack height and will comply with GEP stack height regulations. However, since this stack will be less than GEP stack height, the potential for building downwash to occur was considered in the modeling analysis for this stack.

VI. CONCLUSION

Based on the Department's review of information presented by the applicant, the Department has reasonable assurance that the proposed relocation of a 23.5 MW CT project, as described in the application and subject to the conditions of approval proposed herein, will not cause or contribute to any violation of any PSD increment, ambient air quality standard, or any other technical provision of Chapter 62-212 of the Florida Administrative Code.

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the impact of the proposed project's stack emissions on visibility in the ENP. The results indicate that the maximum visibility impacts do not exceed the screening criteria inside or outside the ENP Class I area. As a result, there is no significant impact on visibility predicted for the Class I area.

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VI. CONCLUSION

Based on the Department's review of information presented by the applicant, the Department has reasonable assurance that the proposed relocation of a 23.5 MW CT project, as described in the application and subject to the conditions of approval proposed herein, will not cause or contribute to any violation of any PSD increment, ambient air quality standard, or any other technical provision of Chapter 62-212 of the Florida Administrative Code.

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Table 1. Significant and Net Emission Rates (Tons per Year)

Pollutant	Proposed Net Emissions Increase	Significant Emission Rate	Applicable Pollutant (Yes/No)
PM	43	25	Yes
PM_{10}	43	15	Yes
SO_2	24	40	No
NO_x	138	40	Yes
CO	152	100	Yes
VOC	15	40	No
Lead	0.004	0.6	No

Table 2. Maximum Project Air Quality Impacts for Comparison to the De Minimus Ambient Levels.

Pollutant	Avg. Time	Max Predicted Impact (ug/m^3)	De Minimus Level (ug/m^3)
PM_{10}	24-hour	20.2	10
NO_2	Annual	1.6	14
CO	8-hour	400	575

Table 3. Maximum Project Air Quality Impacts for Comparison to the PSD Class II Significant Impact Levels.

Pollutant	Avg. Time	Max Predicted Impact (ug/m^3)	Significant Impact Level (ug/m^3)
PM_{10}	Annual	0.4	1
	24-hour	20.2	5
NO_2	Annual	1.6	1
CO	1-hour	707	2000
	8-hour	400	500

Table 4. PSD Class II Increment Analysis

Pollutant	Averaging Time	Max. Predicted Impact (ug/m^3)	Allowable Increment (ug/m^3)
PM_{10}	Annual	0.4	17
	24-hour	14.6	30
NO_2	Annual	3.2	25

Table 5. Maximum Project Air Quality Impacts for Comparison to the PSD Class I Significant Impact Levels

Pollutant	Averaging Time	Max. Predicted Impact (ug/m^3)	National Park Service (NPS) Significant Impact Level (ug/m^3)
PM_{10}	Annual	0.0009	0.08
	24-hour	0.043	0.33
NO_2	Annual	0.003	0.025

Table 6. Ambient Air Quality Impacts

Pollutant	Averaging Time	Major Sources Impact (ug/m^3)	Background Conc. (ug/m^3)	Total Impact (ug/m^3)	Florida AAQS (ug/m^3)
NO_2	Annual	40	27	67	100
PM_{10}	Annual	4.8	28	32.8	50
	24-hour	104.9	28	132.9	150

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Skip Jansen
Utility Board of the City of Key West
P O Drawer 6100
Key West, Fl 33041

4a. Article Number
Z 392 979 067

4b. Service Type
☐ Registered ☐ Insured
☑ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

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AUG 07 1995

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Maria L Wild

PS Form 3811, December 1991 *U.S. GPO: 1993—352-714 **DOMESTIC RETURN RECEIPT**

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UNITED STATES POSTAL SERVICE

PS Form 3800, March 1993

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