



## **FINAL DETERMINATION**

### **Miami-Dade Water and Sewer Department**

**Permit No. 0250476-002-AC, PSD-FL-240**

### **Central District Wastewater Treatment Plant**

An Intent to Issue an air construction permit to Miami-Dade Water and Sewer Department to increase the hours of operation of its three existing diesel generators and four existing digester gas generators at Central District Wastewater Treatment Plant in Dade County, was distributed on January 28, 1999. The Notice of Intent was published in the Miami Daily Business Review on February 8, 1999. Copies of the draft construction permit were available for public inspection at the Department's offices in West Palm Beach and Tallahassee and the Air Program Office of the Miami-Dade Department of Environmental Resources Management.

No comments were submitted by the National Park Service, the U.S. Environmental Protection Agency or the public.

The final action of the Department is to issue the permit as proposed.



# Department of Environmental Protection

Jeb Bush  
Governor

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

David B. Struhs  
Secretary

## PERMITTEE:

Miami-Dade Water and Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

### *Authorized Representative:*

Robert C. Ready, P.E.  
Assistant Director of Treatment Facility

<b>FID No.</b>	0250476
<b>PSD No.</b>	PSD-FL-240
<b>SIC No.</b>	4952
<b>Project:</b>	Diesel Generators
<b>Permit No.</b>	0250476-002-AC
<b>Expires:</b>	December 31, 1999

## PROJECT AND LOCATION:

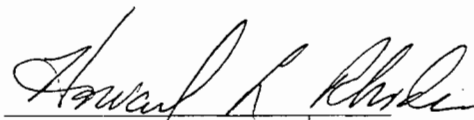
Permit for increasing the hours of operation for the three 2.5 megawatt diesel electric generators and four 1.2 megawatt digester gas electric generators at the Central District Wastewater Treatment Plant, Virginia Key, Miami, Dade County. UTM coordinates are Zone 17; 585.2 km E; 2848.1 km N.

## STATEMENT OF BASIS:

This construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and the Florida Administrative Code (F.A.C.) Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297. The above named permittee is authorized to modify the facility in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department of Environmental Protection (Department).

## Attached appendices are made a part of this permit:

Appendix BD	BACT Determination
Appendix GC	Construction Permit General Conditions
Appendix CSC	Emission Unit(s) Common Specific Conditions

  
Howard L. Rhodes, Director  
Division of Air Resources  
Management

# AIR CONSTRUCTION PERMIT 0250476-002-AC AND PSD-FL-240

## SECTION I. FACILITY INFORMATION

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### SUBSECTION A. FACILITY DESCRIPTION

The Miami-Dade Water and Sewer Department (WASD) Central District Wastewater Treatment Plant presently consists of three nominal 2.5 Megawatt (MW) diesel engine-driven generators, designated as Units 13 and 14 and 15; four nominal 1.2 MW digester gas engine-driven generators, designated as Units 7, 9, 10 and 11; and one wastewater treatment plant, designated as Unit 8. This permit is to increase the hours of operation for the seven generators (Units 7, 9, 10, 11, 13, 14 and 15) and to limit the potential-to-emit of units 7, 9, 10 and 11.

### SUBSECTION B. REGULATORY CLASSIFICATION

The Central District Wastewater Treatment is classified as a Major Source of Air Pollution or Title V Source because it emits or has the potential to emit at least 100 tons per year of nitrogen oxides (NO<sub>x</sub>) and carbon monoxide (CO). It is also a Major Facility with respect to preconstruction review because it emits or has the potential to emit at least 250 tons per year of NO<sub>x</sub>.

### SUBSECTION C. PERMIT SCHEDULE:

- 07-24-97: Date of Receipt of Application
- 10-21-98: Application deemed complete
- 12-31-98: Intent issued
- 01-28-99: Revised Intent issued
- 02-08-99: Notice of Intent published in Miami Daily Business Review

### SUBSECTION D. RELEVANT DOCUMENTS:

The documents listed form the basis of the permit. They are specifically related to this permitting action. These documents are on file with the Department.

- Application received 7-24-97
- Department's letters dated 8-21-97, 3-9-98, and 4-15-98
- Company letters dated 3-16-98, and 10-21-98
- Technical Evaluation and Preliminary Determination dated 12-31-98
- Revised Technical Evaluation and Preliminary Determination dated 01-28-99
- Best Available Control Technology determination (issued concurrently with permit)

# AIR CONSTRUCTION PERMIT 0250476-002-AC AND PSD-FL-240

## SECTION II. EMISSION UNIT(S) GENERAL REQUIREMENTS

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### SUBSECTION A. ADMINISTRATIVE

- A.1 Regulating Agencies: All documents related to applications for permits to operate, reports, tests, minor modifications and notifications shall be submitted to the Department of Environmental Protection, Southeast District Office located at 400 North Congress Avenue, West Palm Beach, Florida 33401, and phone number (561) 681-6600. All applications for permits to construct or modify an emission unit(s) *subject to the Prevention of Significant Deterioration (PSD)* should be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (FDEP) located at 2600 Blairstone Road, Tallahassee, Florida 32399-2400 and phone number (850)488-0114.
- A.2 General Conditions: The owner and operator is subject to and shall operate under the attached General Permit Conditions G.1 through G.15 listed in *Appendix GC* of this permit. General Permit Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
- A.3 Emission Unit(s) Common Specific Conditions: The owner and operator is subject to and shall operate under the attached Emission Unit(s) Common Specific Conditions listed in *Appendix CSC* of this permit. The Emission Unit(s) Common Specific Conditions are binding and enforceable pursuant to Chapters 62-204 through 62-297 of the Florida Administrative Code.
- A.4 Terminology: The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.
- A.5 Forms and Application Procedures: The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. [Rule 62-210.900, F.A.C.]
- A.6 Expiration: This air construction permit shall expire on **December 31, 1999**. [Rule 62-210.300(1), F.A.C.]. The permittee may, for good cause, request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit. However, the permittee shall promptly notify the permitting authority office of any delays in completion of the project which would affect the startup day by more than 90 days. [Rule 62-4.090, F.A.C.]
- A.7 Applicable Regulations: The facility is subject to the following regulations: Florida Administrative Code Chapters 62-4; 62-103; 62-204; 62-210; 62-212, 62-296, and 62-297. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements or regulations. [Rule 62-210.300, F.A.C.]

AIR CONSTRUCTION PERMIT 0250476-002-AC AND PSD-FL-240

**SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS**

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**SUBSECTION A. LISTING OF EMISSIONS UNITS**

This permit addresses the following emission units.

EMISSIONS UNIT NO.	SYSTEM	EMISSIONS UNITS DESCRIPTION
007	Power	1.2 MW Digester Gas Electric Generator
009	Power	1.2 MW Digester Gas Electric Generator
010	Power	1.2 MW Digester Gas Electric Generator
011	Power	1.2 MW Digester Gas Electric Generator
013	Power	2.5 MW Diesel Electric Generator
014	Power	2.5 MW Diesel Electric Generator
015	Power	2.5 MW Diesel Electric Generator

**SUBSECTION B. SPECIFIC CONDITIONS (UNITS 013, 014 AND 015):**

The following Specific Conditions apply to the following emission unit:

EMISSION UNIT NO.	SYSTEM	EMISSION UNIT DESCRIPTION
013	Power	2.5 MW Diesel Electric Generator
014	Power	2.5 MW Diesel Electric Generator
015	Power	2.5 MW Diesel Electric Generator

**EMISSION LIMITATIONS**

- B.1 The maximum allowable emission rates for NO<sub>x</sub> for Units No. 013, 014 and 015 shall not exceed 58 pounds per hour (lb/hr) each and 267 tons per year (TPY) combined pursuant to the Best Available Control Technology (BACT) Determination. [Rule 62-212.400(6), F.A.C.]
- B.2 Visible emissions shall be less than 20% opacity. [Rule 62-296.320, F.A.C.]
- B.3 In order to minimize excess emissions during startup/shutdown/malfunction this emission unit shall adhere to best operational practices. [Rule 62-210.700, F.A.C.]

**OPERATIONAL LIMITATIONS**

- B.4 The emission unit is allowed to operate continuously (8760 hours/year) at reduced load. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit].
- B.5 Only No. 2 fuel oil can be fired in the diesel generator. The maximum sulfur content of the No. 2 fuel oil shall not exceed 0.05 percent, by weight. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit].
- B.6 The combined maximum heat input rate to Units No. 013, 014 and 015 shall not exceed 81 million Btu per hour (MMBtu/hr) at 100 percent load. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit].

AIR CONSTRUCTION PERMIT 0250476-002-AC AND PSD-FL-240

**SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS**

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- B.7 The maximum No. 2 fuel oil consumption allowed to be burned in Units No. 013, 014 and 015 is 1,800,000 gallons per year, which is equivalent to 5056 hours per year of operation at full load for each unit. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit]

**TEST METHODS AND PROCEDURES**

- B.8 Compliance with the allowable emission limiting standards for NO<sub>x</sub> in B.1 shall be determined by using EPA Reference Method 7 (or equivalent) as described in 40 CFR 60, Appendix A (1996, version) adopted by reference in Rule 62-204.800, F.A.C. [Rule 62-297.401, F.A.C.]
- B.9 The fuel shall be monitored for the sulfur content using ASTM D4294 Method (or equivalent), or by maintaining records of fuel sulfur content certifications, as provided by the fuel supplier. [Rule 62-297.440, F.A.C.]
- B.10 The permittee shall maintain daily records of fuel oil consumption for the emission unit. [Rule 62-210.200, F.A.C.]
- B.11 Compliance with the visible emission standard shall be demonstrated with EPA Reference Method 9 as described in 40 CFR 60, Appendix A (1996, version) adopted by reference in Rule 62-204.800, F.A.C. [Rule 62-297.401, F.A.C.]

**RECORDKEEPING AND REPORTING REQUIREMENTS**

- B.12 All measurements, records, and other data required to be maintained by this facility shall be retained for at least five (5) years following the data on which such measurements, records, or data are recorded. These data shall be made available to the Department upon request. [Rule 62-4.070(3), F.A.C.]
- B.13 Two copies of the results of the emission tests for the pollutant listed in Condition B.1 for Units No. 13, 14 and 15 shall be submitted within forty-five days of the last sampling run to the Southeast District office in West Palm Beach. All reports shall be in a format consistent with and shall include the information in accordance with Rule 62-297.310 (8), F.A.C. [Rule 62-297.310(8), F.A.C.]

# AIR CONSTRUCTION PERMIT 0250476-002-AC AND PSD-FL-240

## SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

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### SUBSECTION C. SPECIFIC CONDITIONS (UNITS 007, 009, 010 AND 011)

The following Specific Conditions apply to the following emission units:

EMISSIONS UNIT NO.	SYSTEM	EMISSIONS UNITS DESCRIPTION
007	Power	1.2 MW Digester Gas Electric Generator
009	Power	1.2 MW Digester Gas Electric Generator
010	Power	1.2 MW Digester Gas Electric Generator
011	Power	1.2 MW Digester Gas Electric Generator

### EMISSION LIMITATIONS

- C.1 The maximum allowable emission rates for NO<sub>x</sub> for Units No. 007, 009, 010 and 011 shall not exceed 7.6 pounds per hour (lb/hr) each and 133 tons per year (TPY) combined. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit.]
- C.2 Visible emissions shall be less than 20% opacity. [Rule 62-296.320, F.A.C.]
- C.3 In order to minimize excess emissions during startup/shutdown/malfunction this emission unit shall adhere to best operational practices. [Rule 62-210.700, F.A.C.]

### OPERATIONAL LIMITATIONS

- C.4 The existing Units No. 007, 009, 010 and 011 are allowed to operate continuously (8760 hours per year). [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit ]
- C.5 Only digester gas can be fired in the diesel generators 007, 009, 010 and 011. The maximum annual usage rate of the digester gas shall be 656,000,000 cubic feet. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit]

### TEST METHODS AND COMPLIANCE PROCEDURES

- C.6 Compliance with the allowable emission limiting standards for NO<sub>x</sub> in C.1 shall be determined by using EPA Reference Method 7 (or equivalent) as described in 40 CFR 60, Appendix A (1996, version) adopted by reference in Rule 62-204.800, F.A.C. [Rule 62-297.401, F.A.C.]
- C.7 Compliance with the visible emission standard shall be demonstrated with EPA Reference Method 9 as described in 40 CFR 60, Appendix A (1996, version) adopted by reference in 62-204.800, F.A.C. [Rule 62-297.310, F.A.C.]



**APPENDIX BD**  
**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)**

Central District Wastewater Treatment Plant  
 Miami-Dade Water and Sewer Department  
 PSD-FL-240 and 0250476-002-AC  
 Miami, Dade County

The Miami-Dade Water and Sewer Department (WASD) plans to increase the hours of operation of its three existing standby Diesel Engine Generators at Central District Wastewater Treatment Plant (WWTP) in Miami, Dade County. The units are Electro-Motive Diesel generator model 20-645E4 with a nominal base load rating of 2.5 megawatts (MW) each. The units will be fired with No. 2 fuel oil with a sulfur content of 0.05 percent or less, by weight, and a fuel oil consumption limit of 1.800 million gallons per year. The facility additionally consists of four (4) digester gas engine generators used for peaking power. These units are each rated at 1.2 MW burning digester gas. The facility also has two parallel wastewater treatment trains.

WASD has indicated that the maximum annual air pollutant emission rates in tons per year for the three diesel generators, based on consumption of 1.800 million gallons of No. 2 fuel oil, with a maximum sulfur content of 0.05 percent, by weight, will be:

Pollutant	PSD Significance Levels <sup>1</sup>	Maximum Emissions	Subject to PSD Review?
NO <sub>x</sub>	40	267 <sup>2</sup>	Yes
CO	100	37.7 <sup>3</sup>	No
PM/PM <sub>10</sub>	25/15	9.8 <sup>4</sup>	No
SO <sub>2</sub>	40	9.6 <sup>5</sup>	No
VOC	40	14.7 <sup>6</sup>	No

<sup>1</sup> Florida Administrative Code 212.400-2

<sup>2</sup> Maximum emissions based on operation at 3,056 hours per year at full load while firing No. 2 fuel oil (0.05% sulfur by weight).

<sup>3</sup> Maximum emissions based on continuous operation at 25 percent load while firing No. 2 fuel oil (0.05% sulfur by weight).

<sup>4</sup> Maximum emissions based on operation at 8,590 hours per year at 50 percent load while firing No. 2 fuel oil (0.05% sulfur by weight).

<sup>5</sup> Maximum emissions based on operation at 8,590 hours per year at 50 percent load while firing No. 2 fuel oil (0.05% by weight).

<sup>6</sup> Maximum emissions based on operation at 8,590 hours per year at 50 percent load while firing No. 2 fuel oil (0.05% by weight).

Following is the BACT determination proposed by the applicant:

**BACT DETERMINATION REQUESTED BY THE APPLICANT:**

POLLUTANT	EMISSION LIMIT
Nitrogen Oxides	58 lbs/hr each by timing retardation and aftercoolers

The Central District Wastewater Treatment Plant is a major source of air pollution or Title V source. Because emissions of nitrogen oxides are greater than 250 tons per year, it is a major facility with respect to the Prevention of Significant Deterioration (Rule 62-212.400). Because the project will result in a significant increase in nitrogen

**APPENDIX BD**  
**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)**

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oxides emissions per Table 62-212.400-2, F.A.C., "Regulated Air Pollutants - Significant Emissions Rates," a BACT determination is required pursuant to Rule 62-212.410, F.A.C.

**DATE OF RECEIPT OF A BACT APPLICATION:**

July 24, 1997

**REVIEWER:**

Syed Arif, P.E., prepared BACT

**BACT DETERMINATION PROCEDURE:**

In accordance with Chapter 62-212, F.A.C., this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department of Environmental Protection (Department), on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that, in making the BACT determination, the Department shall give consideration to:

- Any Environmental Protection Agency determination of BACT pursuant to Section 169, and any emission limitation contained in 40 CFR Part 60 - Standards of Performance for New Stationary Sources or 40 CFR Part 61 - National Emission Standards for Hazardous Air Pollutants.
- All scientific, engineering, and technical material and other information available to the Department.
- The emission limiting standards or BACT determination of any other state.
- The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine, for the emission unit in question, the most stringent control available for a similar or identical emission unit or emission unit category. If it is shown that this level of control is technically or economically unfeasible for the emission unit in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

The air pollutant emissions from this facility can be grouped into categories based upon the control equipment and techniques that are available to control emissions from these emission units. Using this approach, the emissions can be classified as follows:

- **Combustion Products** (e.g., SO<sub>2</sub>, NO<sub>x</sub>, PM). Controlled generally by good combustion of clean fuels, removal in add-on control equipment.
- **Products of Incomplete Combustion** (e.g., CO, VOC). Control is largely achieved by proper combustion techniques.

Grouping the pollutants in this manner facilitates the BACT analysis because it enables the equipment available to control the type or group of pollutants emitted and the corresponding energy, economic, and environmental impacts to be examined on a common basis. Although all of the pollutants addressed in the BACT analysis may be subject to a specific emission limiting standard as a result of PSD review, the control of "non-regulated" air pollutants is

**APPENDIX BD**  
**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)**

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considered in imposing a more stringent BACT limit on a "regulated" pollutant (i.e., PM, SO<sub>2</sub>, H<sub>2</sub>SO<sub>4</sub>, fluorides, etc.), if a reduction in "non-regulated" air pollutants can be directly attributed to the control device selected as BACT for the abatement of the "regulated" pollutants.

**BACT POLLUTANT ANALYSIS**

**NITROGEN OXIDES (NO<sub>x</sub>)**

Oxides of nitrogen (NO<sub>x</sub>) are generated during fuel combustion by oxidation of chemically bound nitrogen in the fuel (fuel NO<sub>x</sub>) and by thermal fixation of nitrogen in the combustion air (thermal NO<sub>x</sub>). As flame temperature increases, the amount of thermally generated NO<sub>x</sub> increases. Fuel type affects the quantity and type of NO<sub>x</sub> generated. Generally, natural gas is low in nitrogen. However it causes higher flame temperatures and generates more thermal NO<sub>x</sub> than oil or coal, which have higher fuel nitrogen content, but exhibit lower flame temperatures.

NO<sub>x</sub> emissions represent a significant portion of the total emissions generated by this project, and must be minimized using BACT. A review of EPA BACT/LAER Clearinghouse (BACT Clearinghouse) information indicates that NO<sub>x</sub> emissions at most small facilities are minimized by process control and good combustion practices.

In a diesel engine, injection of fuel into the cylinder starts the combustion process. Retarding the timing of fuel injection until the piston is in its downward motion increases the volume of the combustion chamber, which reduces combustion temperature and pressure, subsequently reducing the formation of NO<sub>x</sub>. However, fuel injection timing retardation (IR) generally increases black smoke and cold smoke (white smoke during start up) emissions, as well as increasing exhaust temperatures. The increase in exhaust temperatures affect turbocharger performance and may be detrimental to exhaust valve life. A small increase in fuel consumption (2 percent) and a significant increase in particulate emissions (25 percent) usually result from the application of IR alone to diesel engines. To counteract this problem, it has been demonstrated that the installation of a device to cool the combustion air upstream of the cylinder alleviates most of the negative side effects of IR.

In large bore diesel engines equipped with a turbocharger, the combustion air pre-cooler consists of a heat exchanger, located downstream of the turbocharger, and is typically referred to as an after-cooler. Cooler air box temperatures reduce bulk combustion temperature, which reduces NO<sub>x</sub> formation. Because cooler air is denser, the cylinders are charged with a greater mass of air that generally helps reduce emissions of unburned hydrocarbons, carbon monoxide, and particulate matter. Manufacturer's test results have shown that installation of four-pass aftercoolers piped to the engine's cooling system reduce uncontrolled emissions of NO<sub>x</sub> and PM<sub>10</sub> by up to 10 percent while slightly lowering fuel consumption (0.5 to 1 percent). Tests have also shown that combining a 4-degree IR with the installation of a four pass aftercooler will reduce NO<sub>x</sub> emissions by 28 percent and PM<sub>10</sub> emissions by 7 percent with a slight decrease in fuel consumption.

The applicant has proposed modification of the combustion process through a combination of fuel injection timing retardation and cooling of combustion air resulting in exhaust temperature reduction. The design specific to WARD's 20-645E4 includes a 4° injection timing retardation and a 4-pass aftercooler circuit. The combination of retarded injection timing and lowered combustion air temperature results in less NO<sub>x</sub> formation. **This combination of NO<sub>x</sub> controls, proper engine design, good combustion practices, and the use of low sulfur fuel should provide effective emissions control.**

**BACT DETERMINATION BY DEP:**

Based on the information provided by the applicant and the information searches conducted by the Department, lower emissions limits can be obtained employing the top-down BACT approach for NO<sub>x</sub>.

**APPENDIX BD**  
**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)**

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**NO<sub>x</sub> DETERMINATION**

The top-down BACT approach for diesel fired internal combustion engines listed in order from most stringent control to least:

1. Selective Catalytic Reduction (SCR)
2. Combined technologies of injection timing retardation, turbocharger with aftercoolers
3. Good combustion design/practices

The following table summarizes the feasibility of using these control technologies with the EMD 20-645E4 as designed for installation in WASD's Central District Wastewater Treatment Plant.

Control Technology	Emission Reduction (%)	Technically Feasible	Cost per ton (\$)	Adverse Environ. Impacts	Adverse Energy Impacts
SCR with ammonia	75-95	No	3,800	Yes	N/A
SCR with urea	80	No	N/A	N/A	N/A
Timing retard; turbo charger aftercoolers	28	Yes	31	No	0.3%
Dry/Low NO <sub>x</sub>	18	No	N/A	N/A	N/A

SCR is more widely used in Japan and Germany than it is in the United States and the technology is being improved such that the hazards and costs have been reduced. It remains, however, a costly technology for small applications and has potential hazards associated with the use and storage of ammonia. SCR is not generally used with diesel engines of this size. The BACT/LAER database lists only a single facility which uses SCR on diesel engines. SCR was selected in that instance because a local ordinance mandated strict limits on emissions without regards to cost. SCR is not technically feasible for this diesel engine because the exhaust temperatures will be below 550°F up to 50 percent of the time. In order for SCR technology to achieve effective reduction of NO<sub>x</sub>, the catalyst temperature must be at least 550°F.

For NO<sub>x</sub> emissions, the Department accepts the applicants proposed use of injection timing retardation and cooling of combustion air as BACT for this project.

The BACT emission levels established by the Department are as follows:

POLLUTANT	EMISSION LIMIT
Nitrogen Oxides (NO <sub>x</sub> )	58 lbs/hr each (267 TPY combined)

**COMPLIANCE**

Compliance with the NO<sub>x</sub> limitations shall be in accordance with the EPA Reference Method 7 or equivalent as contained in 40 C.F.R. 60, Appendix A.

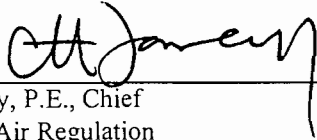
**APPENDIX BD**  
**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)**

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**DETAILS OF THE ANALYSIS MAY BE OBTAINED BY CONTACTING:**

Syed Arif, P.E.  
Department of Environmental Protection  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Recommended By:

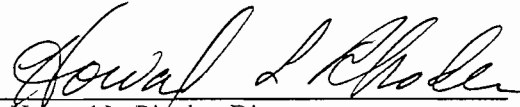


C. H. Fancy, P.E., Chief  
Bureau of Air Regulation

3/16/99

Date:

Approved By:



Howard L. Rhodes, Director  
Division of Air Resources Management

3/17/99

Date:

**APPENDIX GC**  
GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]

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- G.1 The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
- G.2 This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings or exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
- G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
- G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
- G.5 This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
- G.6 The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
- G.7 The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
- (a) Have access to and copy and records that must be kept under the conditions of the permit;
  - (b) Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
  - (c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

- G.8 If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
- (a) A description of and cause of non-compliance; and
  - (b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

**APPENDIX GC**  
GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]

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The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

- G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.
- G.10 The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
- G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
- G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.
- G.13 This permit also constitutes:
- (a) Determination of Best Available Control Technology (X)
  - (b) Determination of Prevention of Significant Deterioration (X); and
  - (c) Compliance with New Source Performance Standards ( ).
- G.14 The permittee shall comply with the following:
- (a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
  - (b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
  - (c) Records of monitoring information shall include:
    - 1. The date, exact place, and time of sampling or measurements;
    - 2. The person responsible for performing the sampling or measurements;
    - 3. The dates analyses were performed;
    - 4. The person responsible for performing the analyses;
    - 5. The analytical techniques or methods used; and
    - 6. The results of such analyses.
- G.15 When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

## APPENDIX CSC

### EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

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#### SUBSECTION 1.0 CONSTRUCTION REQUIREMENTS

- 1.1 Applicable Regulations: Unless otherwise indicated in this permit, the construction and operation of the subject emission unit(s) shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of Chapter 403, F.S and Florida Administrative Code Chapters 62-4, 62-103, 62-204, 62-210, 62-212, 62-213, 62-296, 62-297; and the applicable requirements of the Code of Federal Regulations Section 40, Part 60, adopted by reference in the Florida Administrative Code regulation [Rule 62-204.800, F.A.C.]. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements or regulations. [Rule 62-210.300, F.A.C.]

#### SUBSECTION 2.0 EMISSION LIMITING STANDARDS

- 2.1 General Particulate Emission Limiting Standards. General Visible Emissions Standard: Except for emissions units that are subject to a particulate matter or opacity limit set forth or established by rule and reflected by conditions in this permit, no person shall cause, let, permit, suffer, or allow to be discharged into the atmosphere the emissions of air pollutants from any activity, the density of which is equal to or greater than that designated as Number 1 on the Ringelmann Chart (20% opacity). [Rule 62-296-320(4)(b)1, F.A.C.]
- 2.2 Unconfined Emissions of Particulate Matter [Rule 62-296.320(4)(c), F.A.C.]
- (a) The owner or operators shall not cause, let, permit, suffer or allow the emissions of unconfined particulate matter from any source whatsoever, including, but not limited to, vehicular movement, transportation of materials, construction, alteration, demolition or wrecking, or industrially related activities such as loading, unloading, storing or handling, without taking reasonable precautions to prevent such emission.
- (b) Any permit issued to a facility with emissions of unconfined particulate matter shall specify the reasonable precautions to be taken by that facility to control the emissions of unconfined particulate matter.
- (c) Reasonable precautions include the following:
- Paving and maintenance of roads, parking areas and yards.
  - Application of water or chemicals to control emissions from such activities as demolition of buildings, grading roads, construction, and land clearing.
  - Application of asphalt, water, oil, chemicals or other dust suppressants to unpaved roads, yards, open stock piles and similar activities.
  - Removal of particulate matter from roads and other paved areas under the control of the owner or operator of the facility to prevent reentrainment, and from buildings or work areas to prevent particulate from becoming airborne.
  - Landscaping or planting of vegetation.
  - Use of hoods, fans, filters, and similar equipment to contain, capture and/or vent particulate matter.



## APPENDIX CSC

### EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

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- Confining abrasive blasting where possible.
- Enclosure or covering of conveyor systems.

*NOTE: Facilities that cause frequent, valid complaints may be required by the Permitting Authority to take these or other reasonable precautions. In determining what constitutes reasonable precautions for a particular source, the Department shall consider the cost of the control technique or work practice, the environmental impacts of the technique or practice, and the degree of reduction of emissions expected from a particular technique or practice.*

#### 2.3 General Pollutant Emission Limiting Standards: [Rule 62-296.320, F.A.C.]

- (a) The owner or operator shall not store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems.
- (b) No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor.

*NOTE: An objectionable odor is defined as any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [F.A.C. 62-210.200(198)]*

### SUBSECTION 3.0 OPERATION AND MAINTENANCE

- 3.1 Changes/Modifications: The owner or operator shall submit to the Permitting Authority(s), for review any changes in, or modifications to: the method of operation; process or pollution control equipment; increase in hours of operation; equipment capacities; or any change which would result in an increase in potential/actual emissions. Depending on the size and scope of the modification, it may be necessary to submit an application for, and obtain, an air construction permit prior to making the desired change. *Routine maintenance of equipment will not constitute a modification of this permit.* [Rule 62-4.030, 62-210.300 and 62-4.070(3), F.A.C.]
- 3.2 Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the owner or operator shall notify the Permitting Authority as soon as possible, but at least within (1) working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; the steps being taken to correct the problem and prevent future recurrence; and where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit and the regulations. [Rule 62-4.130, F.A.C.]

## APPENDIX CSC

### EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

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- 3.3 Circumvention: The owner or operator shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rules 62-210.650, F.A.C.]
- 3.4 Excess Emissions Requirements [Rule 62-210.700, F.A.C.]
- (a) Excess emissions resulting from start-up, shutdown or malfunction of these emissions units shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized, but in no case exceed two hours in any 24 hour period unless specifically authorized by the Permitting Authority office for longer duration. [Rule 62-210.700(1), F.A.C.]
  - (b) Excess emissions that are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during start-up, shutdown, or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]
  - (c) In case of excess emissions resulting from malfunctions, the owner or operator shall notify Permitting Authority within one (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the problem; and the corrective actions being taken to prevent recurrence. [Rule 62-210.700(6), F.A.C.]
- 3.5 Operating Procedures: Operating procedures shall include good operating practices and proper training of all operators and supervisors. The good operating practices shall meet the guidelines and procedures as established by the equipment manufacturers. All operators (including supervisors) of air pollution control devices shall be properly trained in plant specific equipment. [Rule 62-4.070(3), F.A.C.]

#### SUBSECTION 4.0 MONITORING OF OPERATIONS

- 4.1 Determination of Process Variables
- (a) The permittee shall operate and maintain equipment and/or instruments necessary to determine process variables, such as process weight input or heat input, when such data is needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.
  - (b) Equipment and/or instruments used to directly or indirectly determine such process variables, including devices such as belt scales, weigh hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value. [Rule 62-297.310(5), F.A.C.]

## APPENDIX CSC

### EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

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#### SUBSECTION 5.0 TEST REQUIREMENTS

- 5.1 Test Performance Within 60 days after achieving the maximum production rate at which these emission units will be operated, but not later than 180 days after initial startup and annually thereafter, the owner or operator of this facility shall conduct performance test(s) pursuant to 40 CFR 60.8, Subpart A, General Provisions and 40 CFR 60, Appendix A. No other test method shall be used unless approval from the Department has been received in writing. Unless otherwise stated in the applicable emission limiting standard rule, testing of emissions shall be conducted with the emission unit(s) operating at permitted capacity pursuant to Rule 62-297.310(2), F.A.C. [Rules 62-204.800, 62-297.310, 62-297.400, 62-297.401, F.A.C.]
- 5.2 Test Procedures shall meet all applicable requirements of the Florida Administrative Code Chapter 62-297. [Rule 62-297.310, F.A.C.]
- 5.3 Test Notification: The owner or operator shall notify the Permitting Authority in writing at least (30) days (initial) and 15 days (annual) prior to each scheduled compliance test to allow witnessing. The notification shall include the compliance test date, place of such test, the expected test time, the facility contact person for the test, and the person or company conducting the test. The (30) or (15) day notification requirement may be waived at the discretion of the Department. Likewise, if circumstances prevent testing during the test window specified for the emission unit, the owner or operator may request an alternate test date before the expiration of this window. [Rule 62-297.310 and 40 CFR 60.8, F.A.C.]
- 5.4 Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in Rule 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C. or in a permit issued pursuant to those rules is being violated, it may require the owner or operator of the facility to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions units and to provide a report on the results of said tests to the Permitting Authority. [Rule 62-297.310(7)(b), F.A.C.]
- 5.5 Stack Testing Facilities: The owner or operator shall install stack testing facilities in accordance with Rule 62-297.310(6), F.A.C..
- 5.6 Exceptions and Approval of Alternate Procedures and Requirements: An Alternate Sampling Procedure (ASP) may be requested from the Bureau of Air Monitoring and Mobile Sources of the Florida Department of Environmental Protection in accordance with the procedures specified in Rule 62-297.620, F.A.C.
- 5.7 Operating Rate During Testing: Unless otherwise stated in the applicable emission limiting standard rule, testing of emissions shall be conducted with the emissions unit operation at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impracticable to test at permitted capacity, an

## APPENDIX CSC

### EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

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emissions unit may be tested at less than the minimum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test load until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. [Rule 62-297.310(2) and (3), F.A.C.]

#### SUBSECTION 6.0 REPORTS AND RECORDS

- 6.1 Duration: All reports and records required by this permit shall be kept for at least (5) years from the date the information was recorded. [Rule 62-4.160(14)(b), F.A.C.]
- 6.2 Emission Compliance Stack Test Reports:
- (a) A *test report* indicating the results of the required compliance tests shall be filed with the Permitting Authority as soon as practical, but no later than 45 days after the last sampling run is completed. [Rule 62-297.310(8), F.A.C.]
  - (b) The *test report* shall provide sufficient detail on the tested emission unit and the procedures used to allow the Department to determine if the test was properly conducted and if the test results were properly computed. At a minimum, the test report shall provide the applicable information listed in **Rule 62-297.310(8), F.A.C.**
- 6.3 Excess Emissions Report: If excess emissions occur, the owner or operator shall notify the Permitting Authority within (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the Department may request a written summary report of the incident. Pursuant to the New Source Performance Standards, excess emissions shall also be reported in accordance with 40 CFR 60.7, Subpart A. [Rules 62-4.130 and 62-210.700(6), F.A.C.]
- 6.4 Annual Operating Report for Air Pollutant Emitting Facility: Before March 1st of each year, the owner or operator shall submit to the Permitting Authority this required report [DEP Form No. 62-210.900(5)], which summarizes operations for the previous calendar year. [Rule 62-210.370(3), F.A.C.]

#### SUBSECTION 7.0 OTHER REQUIREMENTS

- 7.1 Waste Disposal: The owner or operator shall treat, store, and dispose of all liquid, solid, and hazardous wastes in accordance with all applicable Federal, State, and Local regulations. This air pollution permit does not preclude the permittee from securing any other types of required permits, licenses, or certifications.



SERVE • CONSERVE

June 24, 1997

Hand Delivered

*Received 6/24  
A. Linero  
FDEP  
BAR*

Mr. Alvaro Linero, P.E.  
Professional Engineer Administrator  
Florida Department of Environmental Protection  
Air Resources Management  
2600 Blair Stone Road  
Mail Station 5505  
Tallahassee, FL 32399-2400

RE: Application for Air Construction Permit Application for Three Diesel Engine Driven  
Generator Sets at Central District Wastewater Treatment Plant

Dear Mr. Linero:

*0250476-002 AC/PSO-F1-240*

In accordance with Chapter 62-213, Florida Administrative Code (FAC), enclosed please find the referenced application. This submittal augments the Title V application currently being considered for this facility and includes:

- 1) One (1) signed and sealed full application.
- 2) Three (3) additional signed and sealed signature pages.
- 3) Four (4) diskettes copies of the application in the Electronic Submission of Application System (ELSA) format.

Should you have any questions about this submittal, please call me at (305) 669-7668 or Ms. Bertha M. Goldenberg, P.E. at (305) 669-5711.

Sincerely,

Robert C. Ready, P.E.  
Assistant Director  
Treatment Facilities

RCR/BMG/rsi

Enclosures

cc: David E. Lindberg, P.E., CH2MHILL

L729DEP.WPD

*CC: NPS  
EPA  
Syed Arif, BAR  
SED  
Dade  
Cleve Holladay, BAR*

MIAMI-DADE WATER AND SEWER DEPARTMENT  
**POOLED CASH FUND**  
 P.O. BOX 330316 • MIAMI, FLORIDA 33233-0316

CHECK NO.  
**091894**

DATE	<i>Hand Delivered</i>				PAYEE NAME
06/24/97	STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION				
INVOICE DATE	INVOICE NUMBER	AMOUNT	PURCHASE ORDER NUMBER	DESCRIPTION	
06/20/97	PERMIT	\$7,500.00			

The attached check represents the amount due you from Dade County as shown on file in the Clerk's Office. For additional information Contact (305) 665-7471



**METROPOLITAN DADE COUNTY, FLORIDA** 091894 <sup>63-643</sup>/<sub>670</sub>  
 MIAMI-DADE WATER AND SEWER DEPARTMENT-POOLED CASH FUND

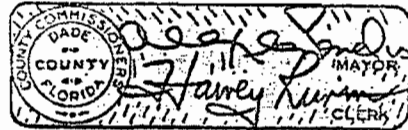
VOID AFTER SIX MONTHS  
 FIRST UNION NATIONAL BANK  
 OF FLORIDA  
 MIAMI, FLORIDA 33131

PAY EXACTLY \*\*\*\*\*7,500 DOLLARS AND \*\*\*\*\*00 CENTS

Date	Control Number	Amount of Check
06/24/97	091894	\$7,500.00

To  
 The  
 Order  
 Of

STATE OF FLORIDA  
 DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 SOUTHEAST FLORIDA DISTRICT  
 400 N. CONGRESS AVE.  
 W. PALM BEACH, FL 33401



# CH2MHILL TRANSMITTAL

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

**FROM:** David Lindberg, P.E.  
800 Fairway Drive Suite 350  
Deerfield Beach, FL 33441

**ATTN:** Mr. Alvaro Linero

**DATE:** July 22, 1997

**RE:** Application for Air Construction Permit

**PROJECT NUMBER:** 139633.AP

**WE ARE SENDING YOU:**

◆ ATTACHED	UNDER SEPARATE COVER VIA	
SHOP DRAWINGS	◆ DOCUMENTS	TRACINGS
PRINTS	SPECIFICATIONS	CATALOGS
COPY OF LETTER	OTHER:	

QUANTITY	DESCRIPTION
3	Application for Air Construction Permit for Three Diesel-Engine Driven Generator Sets at the Central District Wastewater Treatment Plant with original signatures
3	Application for Air Construction Permit for Three Diesel-Engine Driven Generator Sets at the Central District Wastewater Treatment Plant with copies

**IF MATERIAL RECEIVED IS NOT AS LISTED, PLEASE NOTIFY US AT ONCE**

**REMARKS:**

**COPY TO:**

800 Fairway Drive Suite 350  
Deerfield Beach, FL 33441

Voice: 619/687-0110, ext. 209

FAX: 619/687-0120



---

Application for Air Construction Permit for  
*Three Diesel Engine-Driven Generator  
Sets at the Central District  
Wastewater Treatment Plant  
Miami, Florida*

---

Prepared for:



*Miami-Dade Water and  
Sewer Department*

Prepared by:

**CH2MHILL**

---

June 1997



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JUL 24 1997

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# Acronyms

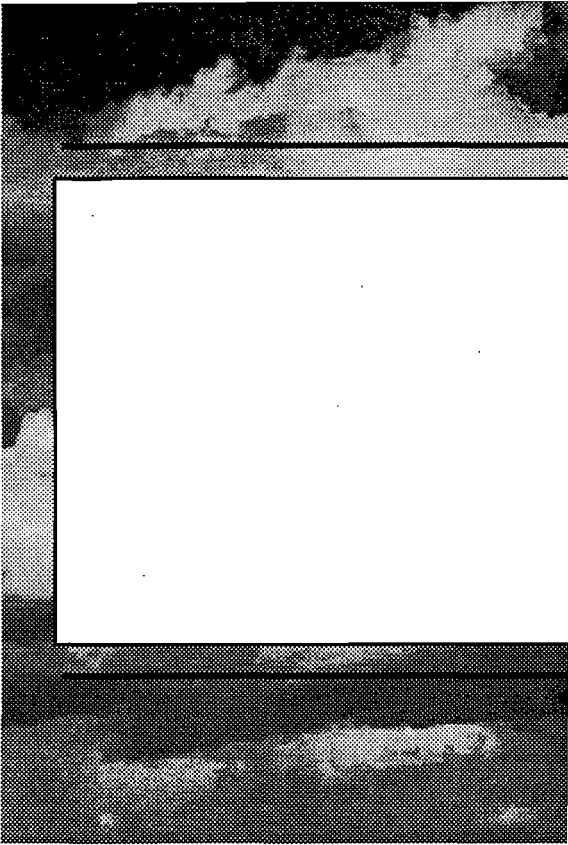
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ARC	ambient reference concentration
acfm	actual cubic feet per minute
BACT	Best Achievable Control Technology
BSFC	Brake-Specific Fuel Consumption
CAA	Clean Air Act
CO	carbon monoxide
m <sup>3</sup> /s	cubic meters per second
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FP&L	Florida Power & Light
GEP	Good Engineering Practice
g/m <sup>2</sup>	gram(s) per square meter
g/s	gram(s) per second
HAP	hazardous air pollutant
HC	hydrocarbon
HHV	Higher Heating Value
hp	horsepower
IC	internal combustion
IR	Fuel Injection Timing Retard
ISC	Industrial Source Complex
kW	kilowatt
kW-hr	kilowatt-hour
LAER	Lowest Achievable Emission Rate
LHV	Lower Heating Value
m/s	meter(s) per second
µg/m <sup>3</sup>	microgram per cubic meter
NAAQS	National Ambient Air Quality Standards
NO <sub>x</sub>	nitrogen oxides
NO <sub>2</sub>	nitrogen dioxide
PAH	polynuclear aromatic hydrocarbon
PM-10	Particulate matter less than 10 micrometers in diameter
ppm	part(s) per million

# Acronyms, continued

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PSD	Prevention of Significant Deterioration
RBLC	RACT/BACT/LAER Clearinghouse
rpm	revolutions per minute
SCR	selective catalytic reduction
SO <sub>2</sub>	sulfur dioxide
EPA	Environmental Protection Agency (United States)
VOC	volatile organic compound
WASD	Water and Sewer Department (Miami-Dade)
WWTP	wastewater treatment plant



SECTION 1  
*Introduction*

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0250476-002-AC  
PSD-FI-240

SECTION 1

# Introduction

---

The Miami-Dade Water and Sewer Department (WASD) proposes to increase operation of three existing (and previously exempt) standby electricity generators at its Central District Wastewater Treatment Plant (WWTP) on Virginia Key in Miami, Florida. Miami-Dade WASD desires to increase operation of its generator sets to provide power generation capacity during periods of load-sharing with the local utility, Florida Power and Light (FP&L); during power failure events; or as needed under other circumstances.

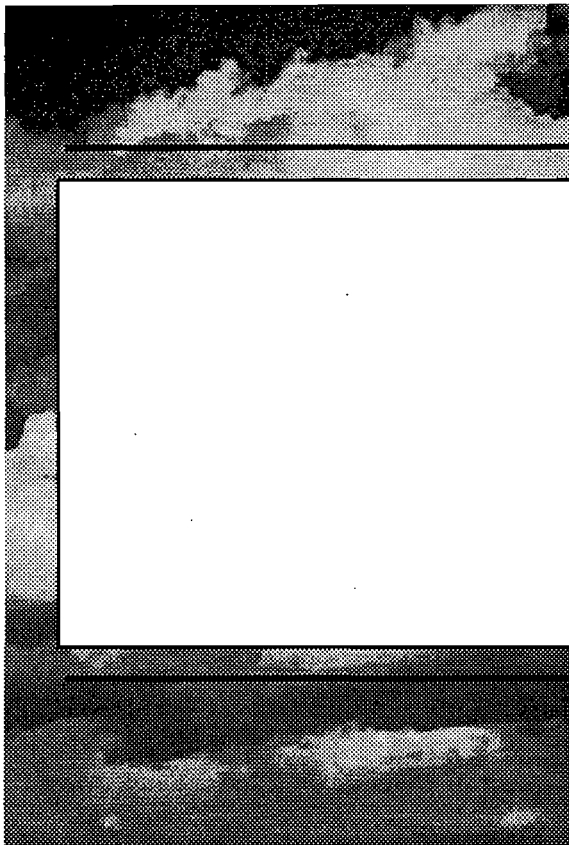
Each generator set is rated to produce 2,500 kilowatts (kW) of electric power at continuous, full load operating conditions. The generators are capable of operating at partial load conditions, as well as short durations (less than 2 hours) at peaking duty conditions (110 percent load or 2,750 kW). The generators are driven by 3,600-horsepower (hp) diesel engine prime movers. The 3,600-hp engines burn transportation-grade diesel fuel, which has a low sulfur content (0.05 weight percent sulfur).

The air quality impact analyses conducted in support of this application have demonstrated that operation of the standby generators will not cause an adverse impact on air quality at any location, or pose any threats to ambient air quality standards or prevention of significant deterioration (PSD) increments. This permit application was prepared with the assistance of the consulting firm, CH2M HILL. Questions regarding CH2M HILL's participation can be addressed to the individuals listed below at Miami-Dade WASD in Coral Gables, Florida, or CH2M HILL in San Diego, California:

Ms. Bertha M. Goldenberg, P.E.  
Environmental Coordinator  
Miami-Dade Water and Sewer Department  
4200 Salzedo Street  
Coral Gables, FL 33146  
Telephone (305) 669-5711  
FAX (305) 669-5717

Mr. David E. Lindberg, P.E.  
Project Engineer  
CH2M HILL  
701 B Street, Suite 700  
San Diego, CA 92101  
Telephone (619) 687-0110  
FAX (619) 687-0111

The completed air permit application is provided as Appendix A.



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SECTION 2  
*Facility Description*

---





# Facility Description

---

## 2.1 General

Facility Name: Central District Wastewater Treatment Plant

Owner: Miami-Dade Water and Sewer Department

Contact: Ms. Bertha M. Goldenberg, P.E.  
Environmental Coordinator  
Miami-Dade Water and Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146  
(305) 669-5711  
FAX (305) 669-5717

## 2.2 Site Description

The Central District WWTP is located on Virginia Key in Miami, Florida, as shown in Figure 2-1. Also located on the island are public beaches; two small lakes (Lamar Lake to the east of the facility and Duck Lake to the south of the facility); the Marine Stadium to the west of the facility; and the Virginia Beach County Park, Miami Seaquarium, and University of Miami Marine Laboratory to the south of the facility. The facility is approximately 1.0 mile north of the north end of Key Biscayne (3.0 miles north of residential areas), 0.5 miles south of Fisher Island (residential), 1.0 mile south of Miami Beach, and 2.5 miles east of downtown Miami.

A public access road runs from Rickenbacher Causeway to the facility. A plant layout is included as Figure 2-2. The facility consists of two parallel wastewater treatment trains, including the following processes and associated structures:

- Liquid processes consisting of identical grit chamber buildings at both plants, aeration tanks at plant 1, oxygenation tanks at plant 2, final settling tanks at both plants, and chlorination buildings at both plants.

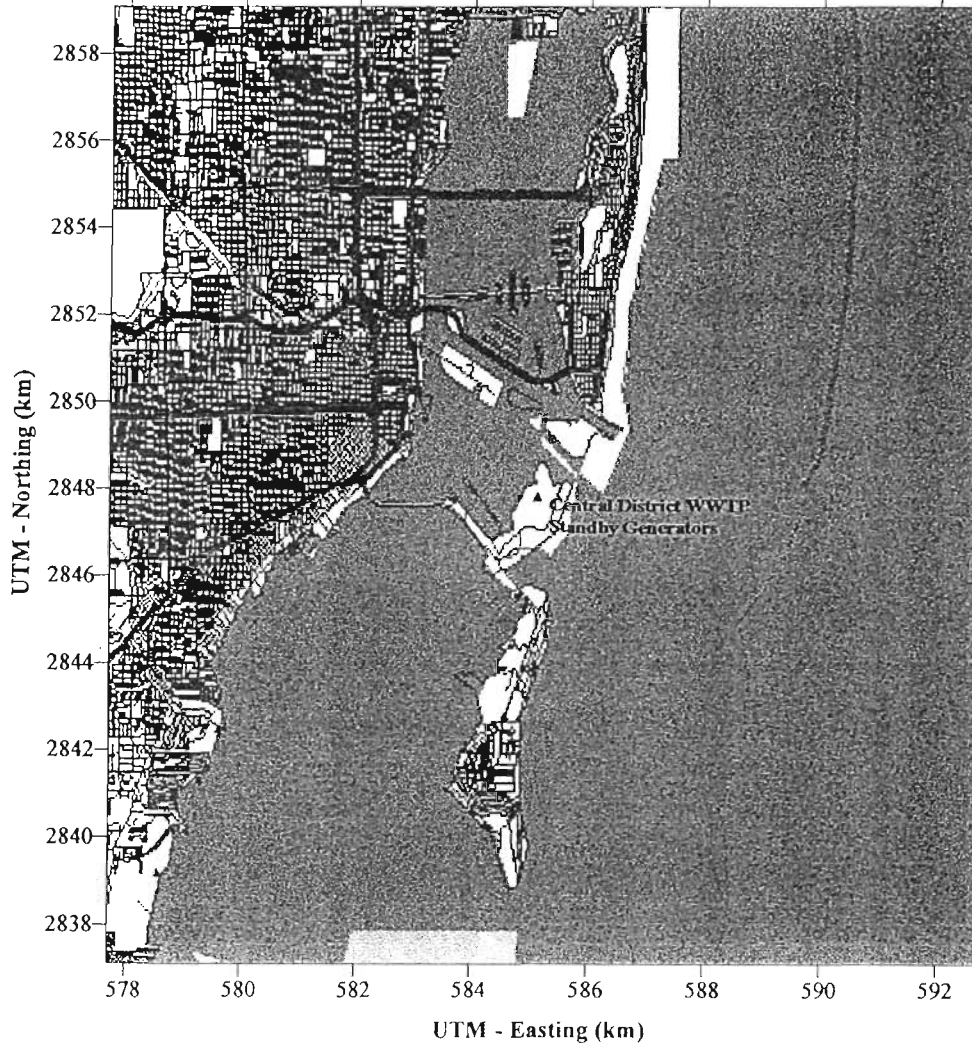
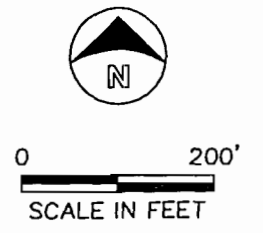
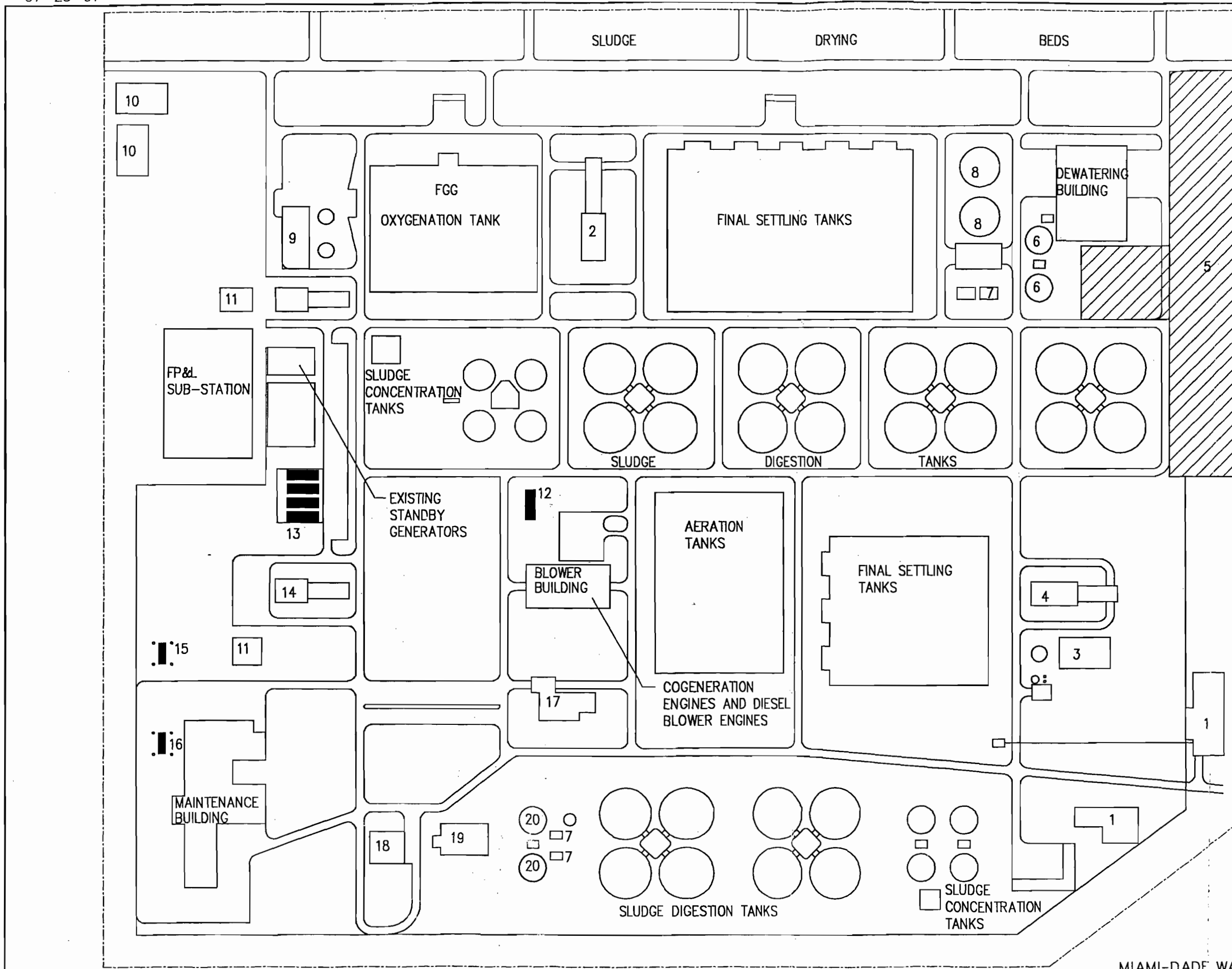


Figure 2-1  
Site Location Map



- BUILDING LEGEND**
1. ADMINISTRATION BUILDING
  2. EFFLUENT PUMPING STATION
  3. RESERVOIR
  4. CHLORINATION BUILDING
  5. COMPOST FACILITY
  6. SLUDGE GRAVITY THICKENERS
  7. METHANE GAS SCRUBBERS
  8. METHANE GAS SPHERES
  9. OXYGEN PLANT
  10. SLUDGE STORAGE BUILDING
  11. AIR SCRUBBER
  12. 2,000 GAL. ABOVEGROUND DIESEL FUEL TANK W/ CONTAINMENT
  13. (4) 25,000 GAL. ABOVEGROUND DIESEL FUEL TANKS W/ CONTAINMENT
  14. GRIT CHAMBERS
  15. 6,000 GAL. UNDERGROUND DIESEL FUEL TANK W/ 4 MONITORING WELLS
  16. 10,000 GAL. UNDERGROUND UNLEADED REGULAR GAS TANK W/ 4 MONITORING WELLS
  17. OLD MAINTENANCE BUILDING
  18. SLUDGE DRYING BUILDING
  19. WAREHOUSE
  20. SLUDGE ELUTRIATION

**FIGURE 2-2**  
 SITE LAYOUT MAP  
 CENTRAL DISTRICT WWTTP  
 MIAMI-DADE WATER AND SEWER DEPARTMENT



- Solids processes consisting of 8 gravity sludge concentration tanks, 24 anaerobic digesters, 2 sludge thickener tanks, a sludge dewatering building, and a dried sludge storage building.
- Other processes and structures, including a maintenance building, a blower and cogeneration building, four scrubber buildings, an electrical switchgear building, an oxygen plant, and the three standby generator enclosures.

## 2.3 Description of the Standby Generators

The sources include three 3,600-hp EMD model 20-645E4 internal combustion (IC) engines, each coupled to a 2,500-kW continuous-rated electrical generator. All engines are diesel-fueled 20-cylinder, 2-cycle, and turbocharged. Exhaust emissions (for nitrogen oxides [NO<sub>x</sub>]) will be controlled using Best Achievable Control Technology (BACT), which will consist of fuel injection timing retard (IR) plus turbocharger aftercoolers. In addition, the engines will continue to burn low sulfur (0.05 weight percent) diesel fuel, which is representative of BACT for sulfur dioxide (SO<sub>2</sub>). The combination of low-sulfur diesel fuel and combustion modifications is also representative of BACT for particulate matter with a diameter less than or equal to 10 micrometers (PM-10). Use of BACT will reduce emissions of NO<sub>x</sub> in the engine exhaust by approximately 28 percent. The stacks are located approximately 25 feet apart, and each generator is located within a sound-attenuating, all-weather enclosure.

## 2.4 Operation

Table 2-1 summarizes the exhaust and operating characteristics of each generator set. This permit application includes an assessment of air quality impacts based on operation of the standby generators to 21,750,000 kilowatt-hour (kW-hr) power output annually. This level of operation corresponds to 2,900 hours per year at full load conditions. When operation of the generators is necessary, Miami-Dade WASHD intends to operate at least one standby generator at partial load conditions instead of all generators at full load conditions. This will be done for the purpose of maintaining additional load capacity, thereby allowing the generators to accommodate sudden load changes.

The standby generators are physically capable of operating at 110 percent load conditions for peaking duty, but they are limited to 2 hours at this setting. The facility, however, does not intend to operate any of its generators in the peaking duty mode. Engine operating conditions will range from minimum load (20 percent) for short periods to full load (100 percent), with typical operation at some level of partial load. Table 2-1 shows that brake-specific fuel consumption (BSFC) increases as the engine loads are decreased.

**Table 2-1**  
 Summary of Exhaust and Operating Characteristics  
 EMD Model 20-645E4 Standby Generators  
 Miami-Dade Water and Sewer Department Central District WWTP

EMD Model 20-645E4 Generator Sets		
Number of units		3
Generator Capacity		
- Peaking (110% load - 2 hours max)		2,750 kW, each
- Continuous (full load - 100 %)		2,500 kW, each
Brake Specific Fuel Consumption (lb/bhp-hr)		
- Peaking - 110%		0.375, each
- Full Load - 100%		0.375, each
- Partial Load - 75%		approx. 0.394, each
- Partial Load - 50%		approx. 0.413, each
- Minimum Load - 20%		approx. 0.469, each
Operating Speed		900 rpm
Exhaust Characteristics		
- Height	(m)	6.40
	(ft)	21
- Diameter	(m)	0.91
	(ft)	3.0
- Exhaust Flow	(m <sup>3</sup> /s)	10.85
	(acfm)	23,000
- Exhaust Velocity	(m/s)	16.7
	(ft/s)	54.2
- Temperature	(°K)	669
	(°F)	735

Notes:

lb/bhp-hr = pounds per brake horsepower-hour  
 rpm = revolutions per minute  
 m = meter  
 ft = feet

m<sup>3</sup>/s = cubic meters per second  
 acfm = actual cubic feet per minute  
 °K = degrees Kelvin  
 °F = degrees Fahrenheit

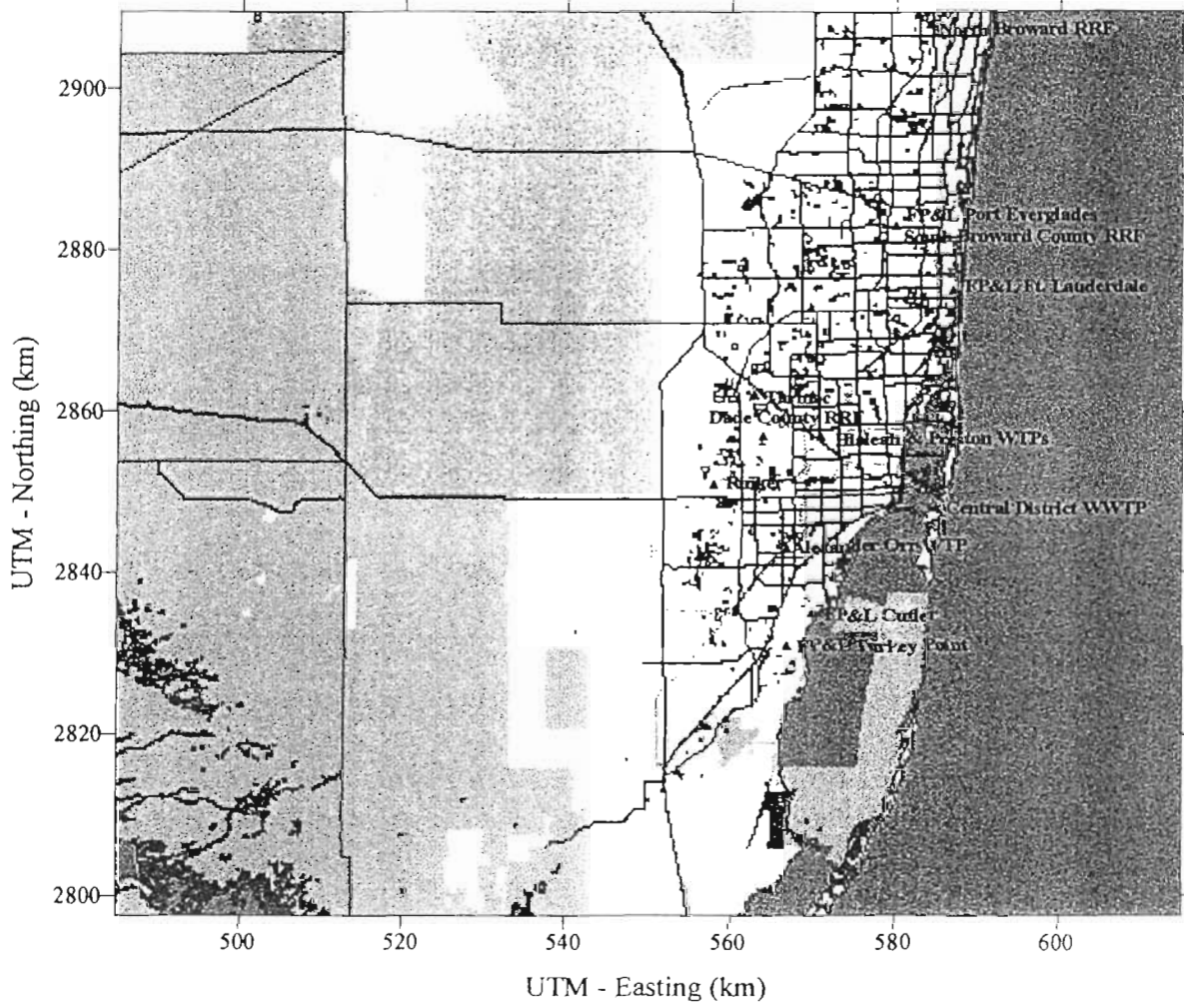
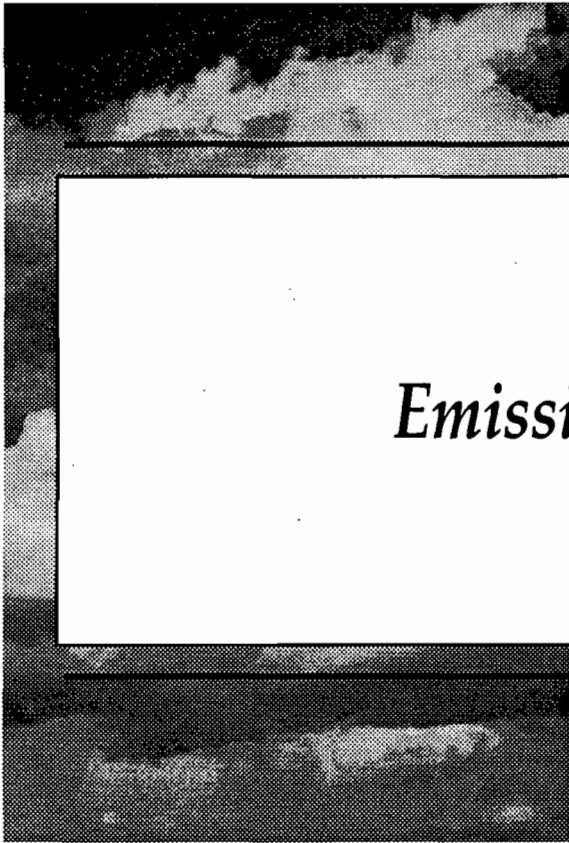


Figure 3-1  
Map of Regional Emissions Sources



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SECTION 3  
*Emission Source Information*

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# Emission Source Information

## 3.1 Standby Generator Set Emissions

### 3.1.1 Regulated Pollutants

A summary of the annual emissions from all three generator sets operating under a range of load conditions is presented in Table 3-1. Because of air emissions, energy efficiency, and maintenance considerations, the IC engines will not be operated at partial loads less than 25 percent of their respective full load rating except during startup.

**Table 3-1**  
Proposed Annual and PSD Significant Emission Rates  
EMD Model 20-645E4 Standby Generators (3)  
Miami-Dade Water and Sewer Department

Pollutant	Emissions (tons/yr)				Significant Emission Rate (tons/yr)
	25% load <sup>1</sup>	50% load <sup>2</sup>	75% load <sup>3</sup>	100% load <sup>4</sup>	
CO	50.1	20.4	14.5	17.6	100
NO <sub>x</sub>	197	226	216	253	40
SO <sub>2</sub>	5.4	6.6	6.3	6.0	40
PM/PM-10	5.7	6.6	6.3	6.0	25/15
VOC	8.4	9.9	9.6	9.0	40

<sup>1</sup> Continuous operation (8,760 hours per year), each generator.

<sup>2</sup> Operating 5,800 hours per year, each generator.

<sup>3</sup> Operating 3,866 hours per year, each generator.

<sup>4</sup> Operating 2,900 hours per year, each generator.

The estimates of emission rates were determined using the following assumptions:

- Reduction of NO<sub>x</sub> emissions by 28 percent from uncontrolled levels and PM-10 emissions by 25 percent from uncontrolled levels using IR plus aftercoolers
- Reduction of SO<sub>2</sub> emissions by using low-sulfur diesel fuel (0.05 weight percent)
- All particulate emissions are less than or equal to 10 micrometers (PM-10)
- Operation at 2,900 hours per year at full load, 3,688 hours per year at 75 percent load, 5,800 hours per year at 50 percent load, or continuous at 25 percent load

Emissions data provided by the engine manufacturer for carbon monoxide (CO) and NO<sub>x</sub> indicate that hp-specific emissions reach a minimum at 75 percent load conditions (approximately 2,700 hp). No hp-specific emissions data were provided for PM-10 or



volatile organic compounds (VOCs). Hp-specific emissions of SO<sub>2</sub> decrease with increasing engine power output because of the decrease in BSFC (more efficient operation) for engine power output approaching the engine's rated capacity.

For all pollutants summarized in Table 3-1, maximum emissions of all pollutants except CO occur when operating at full load. Maximum emissions of CO occur at 25 percent load conditions. Because no hp-specific emissions data are available for PM-10 and VOCs, maximum emissions are assumed to coincide with full load operation. As shown in Table 3-1, only emissions of NO<sub>x</sub> are expected to exceed the corresponding PSD significant emission rates. Detailed emissions calculations for the standby generators are provided in Appendix B.

Because NO<sub>x</sub> emissions exceed PSD thresholds, the project is a major source of NO<sub>x</sub> as defined by the regulations governing PSD. As such, a PSD permit is required, including a demonstration of BACT, and an air quality impact analysis to demonstrate that there will not be a violation of any National Ambient Air Quality Standards (NAAQS) or exceedance of any PSD increments.

### **3.1.2 Non-regulated Pollutants**

The Environmental Protection Agency's (EPA's) guidance on the assessment of non-regulated "toxic pollutants" requires that permit applicants evaluate emissions of toxic air emissions for those pollutants that the proposed source could emit in amounts potentially of concern to the public. In the case of IC engines, potential toxic air pollutants could include benzene, toluene, xylenes, formaldehyde, acetaldehyde, acrolein, propylene, and polynuclear aromatic compounds (PAHs). None of these pollutants are expected to be emitted in significant quantities. A more complete analysis of these non-regulated pollutants is provided in Section 6.

## **3.2 Other Emission Sources**

To facilitate the determination of PSD increment consumption and compliance with the NAAQS in the vicinity of the Central District WWTP, an inventory of permitted emission sources was requested from the Florida Department of Environmental Protection (FDEP). The inventory, which included all emission sources in Broward and Dade Counties, was screened to identify sources with the potential to interact with emissions from the standby

generators at the Central District WWTP. Based on FDEP guidance, all sources having an annual emission rate (in tons) less than 20 times their distance (in kilometers [km]) from the Central District WWTP were excluded from the air quality impact analysis on the basis that they would not likely have any significant impact on the area impacted by the standby generators. The resulting list of sources is provided in Table 3-2, and the relative locations of these sources is shown in Figure 3-1.

Emissions from all sources listed in Table 3-2 were included in the air quality impact analysis to demonstrate that ambient concentrations of nitrogen dioxide (NO<sub>2</sub>) at all receptors impacted by the standby generators will be below the NAAQS. Sources installed or modified before the baseline date for NO<sub>2</sub> (March 28, 1988) were identified as "baseline" sources. Emissions from these sources were excluded from determination of PSD increment consumption, because (by definition) they do not consume increment. Emissions from identified PSD sources (non-baseline sources) were included in the air quality impact analysis to demonstrate that consumption of PSD increment resulting from operation of the standby generators will be within acceptable limits at all receptor locations.

**Table 3-2**

Regional Emission Source Inventory  
Miami-Dade Water and Sewer Department

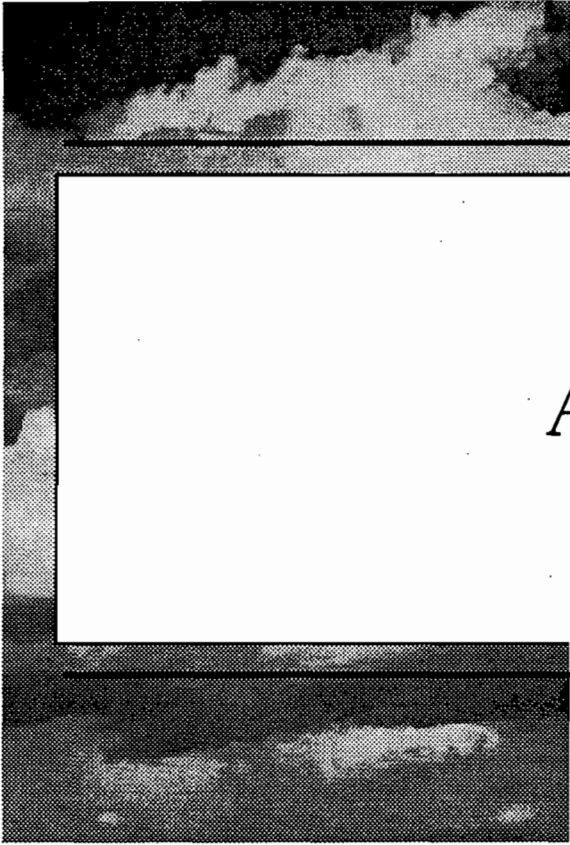
Source	Location (UTM)		Emission Rate (g/s)	Height (m)	Stack Parameters			Baseline?
	Northing (km)	Easting (km)			Temp (K)	Velocity (m/s)	Diameter (m)	
MDWASD Central District WWTP Gas Engines	2847.66	585.12	5.37	7.62	741	0.1	7.85	No
MDWASD Central District WWTP Blower Engines	2847.66	585.12	4.62	10.66	875	31.0	0.2	Yes
MDWASD Alexander Orr WTP Standby Generators	2843.38	566.59	42.31	3.5	608	45.2	0.53	No
MDWASD Alexander Orr WTP Pump Engines	2843.51	566.68	16.84	8.53	735	10.0	0.24	Yes
MDWASD Alexander Orr Lime Plant	2843.31	566.41	0.02	4.57	228	0.15	0.0	Yes
MDWASD Preston WTP Standby Generators	2857.11	571.49	49.65	8.8	608	45.2	0.53	No
MDWASD Hialeah Lime Plant	2856.85	571.35	0.84	22.85	330	8.25	0.85	Yes
South Broward County RRF	2883.3	579.6	68.55	59.44	381	18.0	3.96	No
North Broward County RRF	2907.6	583.6	64.00	58.5	381	18.0	3.96	No
Tarmac Kiln 1	2861.7	562.9	21.14	60.96	465	12.8	2.44	No
Tarmac Kiln 2	2861.7	562.9	12.89	60.96	422	9.11	2.44	No
Tarmac Kiln 3 Modified	2861.7	562.9	68.18	60.96	450	11.0	4.57	No
Tarmac Kiln 3 Baseline	2861.7	562.9	-60.80	60.96	472	10.78	4.57	Yes
Dade County RRF Kilns 1 & 2	2857.39	564.4	35.38	76.2	405	15.86	3.66	No
Dade County RRF Kilns 1 & 2 Baseline	2857.39	564.4	-22.50	45.72	472	12.20	2.74	Yes
Dade County RRF Kilns 3 & 4	2857.39	564.4	35.38	76.2	405	15.86	3.66	No
Dade County RRF Kilns 3 & 4 Baseline	2857.39	564.4	-22.53	45.72	472	12.20	2.74	Yes
Dade County RRF Kiln 5	2857.4	564.3	13.24	76.2	400	15.74	2.97	No
FP&L Ft Lauderdale CT 1-4	2883.3	580.1	135.7	45.72	411	10.97	4.88	No
FP&L Ft Lauderdale CT 1-12	2883.3	580.1	508.0	13.72	733	121.34	5.49	Yes
FP&L Ft Lauderdale CT 13-24	2883.3	580.1	508.0	13.72	733	121.34	5.49	Yes
FP&L Ft Lauderdale 4-5 Baseline	2883.3	580.1	-70.6	46.00	422	14.63	4.27	Yes
FP&L Cutler Unit 5	2834.9	570.4	51.15	45.72	408	11.58	4.57	Yes
FP&L Cutler Unit 6	2834.9	570.4	86.82	45.72	408	14.33	4.57	Yes
FP&L Port Everglades 1-2	2875.3	587.4	313.78	104.85	416	18.59	4.27	Yes
FP&L Port Everglades 3-4	2875.3	587.4	508.27	104.55	408	19.2	5.52	Yes
FP&L Port Everglades CT 1-12	2875.3	587.4	498.95	15.54	733	21.34	5.49	Yes
FP&L Turkey Point 1-2	2831.2	567.2	475.24	121.92	408	19.2	5.52	Yes
Rinker Kilns 1 & 2	2851.3	558.2	20.19	41.76	400	7.62	4.57	Yes
South Florida Cogeneration	2850.9	580.5	6.21	39.6	389	16.46	2.74	Yes

Notes:

UTM = universal transverse mercator

km = kilometer

g/s = grams per second



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SECTION 4  
*Applicable Regulations*

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# Applicable Regulations

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## 4.1 Applicable Pollutants

Total allowable annual emissions of NO<sub>x</sub> and CO from the Central District WWTP currently exceed 250 tons/year for each of these pollutants. Therefore, the Central District WWTP constitutes a major source of emissions under the regulations governing PSD (40 CFR 52.21). Estimated emissions of NO<sub>x</sub> from the standby generators for the proposed level of operation will exceed the corresponding PSD significant emission rate (see Table 3-1). As a result, an ambient air quality impact analysis and demonstration of BACT are required for NO<sub>x</sub>.

## 4.2 Air Quality Impact Analysis Requirements

The air quality regulations that the proposed project must comply with are the NAAQS for NO<sub>2</sub> (40 CFR 50 and Chapter 62-204.240(5), Florida Administrative Code [FAC]); and the PSD Class II and Class I increments for NO<sub>2</sub> (40 CFR 52 and Chapter 62-204.260, FAC). These limits are summarized in Table 4-1 along with the corresponding limits for SO<sub>2</sub> and PM-10. Analyses of the proposed emissions from the standby generators (Section 6) demonstrate that the standby generators will be in compliance with all state and federal ambient air quality regulations.

Also listed in Table 4-1 are the "significant" impact levels for each pollutant. The area of significant impact for the Central District WWTP consists of the area covered by all receptors having predicted concentrations in excess of significant impact levels for each PSD pollutant. When the ambient concentrations at a particular location attributable to a given facility are below the significant impact levels, the impact of the facility at that location is considered to be insignificant.

**Table 4-1**  
Ambient Air Quality Standards and Significant Impact Levels  
(Concentrations in  $\mu\text{g}/\text{m}^3$ )

Pollutant and Averaging Period	NAAQS		PSD Increments		Significant Impact Level		
	Primary	Secondary	Class II	Class I	Class II	Class I'	
SO <sub>2</sub>	3-hour	-	1,300 <sup>b</sup>	512 <sup>b</sup>	25 <sup>b</sup>	25	1.0
	24-hour	365 <sup>b</sup>	-	91 <sup>b</sup>	5 <sup>b</sup>	5	0.2
	Annual	80	-	20	2	1	0.1
NO <sub>2</sub>	Annual	100	100	25	2.5	1	0.1
PM-10	24-hour	150 <sup>b</sup>	150 <sup>b</sup>	30	8	5	0.3
	Annual	50	50	17	4	1	0.2

Notes:

<sup>a</sup> Proposed by the National Park Service, July 23, 1996.

<sup>b</sup> Concentrations not to be exceeded more than once per year, on an average basis.

### 4.3 Emission Limits and Performance Standards

While there are no federal or state regulations specifically applicable to IC engines, any source subject to PSD is required to install or comply with BACT. A discussion of BACT for the standby generators is provided in Section 5.

### 4.4 Monitoring Requirements

#### 4.4.1 Pre-construction Monitoring

FDEP has indicated that they consider data available from an air quality monitoring station on Virginia Key representative of air quality and meteorological conditions at the facility. Therefore, pre-application meteorological monitoring will not be required for this project.

Dispersion modeling performed for the standby generators have indicated that the predicted air quality impacts (Section 6) attributable to NO<sub>x</sub> emissions from the sources are above EPA-defined *de minimis* ambient impact levels. Background levels of NO<sub>2</sub> at the Virginia Key monitoring station, provided by FDEP, are included in Section 6.5.3. These data were used in conjunction with dispersion modeling analyses of existing and permitted emission sources in the Miami area to demonstrate compliance with the NAAQS.

#### 4.4.2 Operational Monitoring

The Central District WWTP will comply with all applicable operational monitoring requirements imposed by federal and state regulations. Annual emissions monitoring will

be conducted to verify compliance with BACT for NO<sub>x</sub>. The facility will also comply with any other operational monitoring and reporting requirements as may be determined necessary by FDEP to ensure compliance with federal or state rules or regulations (such as maintaining documentation of diesel fuel sulfur content). This will include any applicable future monitoring, reporting, and recordkeeping required under Title V (Operating Permits) of the Clean Air Act (CAA) Amendments of 1990.



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SECTION 5  
*Demonstration of BACT*

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# Demonstration of BACT

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## 5.1 General

Under PSD regulations, a new or modified "major source" is required to apply BACT for any pollutant emitted in "major" or "significant" amounts. As discussed in Section 3, the proposed standby generators have the potential to emit NO<sub>x</sub> in "significant" quantities. A BACT analysis is therefore required for this pollutant.

The purpose of this review is to demonstrate that the air pollution control measures to be utilized at these facilities represent BACT as defined by Section 169 of the CAA:

"An emission limitation (including a visible emissions standard) based on the maximum degree of reduction of each pollutant subject to regulations under the Act which would be emitted from any proposed major stationary source or major modification, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, economic impacts and other costs, determines is achievable for such source or modifications through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment of innovative fuel combination techniques for control technology resulting in emissions of any pollutant which will exceed the emissions allowed by any applicable standard under 40 CFR Parts 60 and 61. If the EPA determines that technological or economic limitations on the application of measurement methodology to a particular emission unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirements for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results."

Both FDEP and EPA have indicated that demonstration of BACT described above must follow a "top-down" approach. The "top-down" process requires that all available control technologies be ranked in descending order of control effectiveness. This process ensures that the BACT demonstration considers the most stringent level of control technology available. That control option is established as BACT, unless it can be demonstrated that energy, environmental, or economic impacts justify a conclusion that the most stringent technology is not achievable. The next most stringent alternative is then considered. The process continues until the BACT level under consideration cannot be eliminated by any substantial or unique economic or environmental objectives.

The purpose of this section is to demonstrate that the proposed emission control systems and methods will be representative of BACT. To facilitate the demonstration, information obtained from EPA's RACT/BACT/LAER Clearinghouse (RBLC) database for diesel engines is presented in Table 5-1. The following paragraphs summarize the control technology options available for diesel engines, and the proposed BACT for NO<sub>x</sub>.

## 5.2 Nitrogen Oxides (NO<sub>x</sub>)

NO<sub>x</sub> is formed during the fuel combustion process in the presence of atmospheric nitrogen. Nitrogen and oxygen dissociate into their atomic states under high temperature and pressure conditions present inside combustion engines. Atomic oxygen and nitrogen quickly react with each other to form seven different oxides of nitrogen: NO, NO<sub>2</sub>, NO<sub>3</sub>, N<sub>2</sub>O, N<sub>2</sub>O<sub>3</sub>, N<sub>2</sub>O<sub>4</sub>, and N<sub>2</sub>O<sub>5</sub>. Only nitric oxide (NO) and NO<sub>2</sub> are formed in significant quantities, and NO accounts for approximately 95 percent of total NO<sub>x</sub> emissions. NO is eventually converted to NO<sub>2</sub> in the atmosphere.

### 5.2.1 Selective Catalytic Reduction

The RBLC database indicates that the top method of controlling emissions of NO<sub>x</sub> from diesel engines is selective catalytic reduction (SCR). The database indicates that SCR has been applied to diesel engines at a single facility in Philadelphia, Pennsylvania (PA-0006 and 0007 in Table 2). Philadelphia is in an ozone transport nonattainment region where new and modified facilities are required to comply with regulations that limit NO<sub>x</sub> emissions

**Table 5-1**

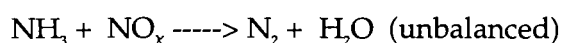
Summary of NO<sub>x</sub> Control Technology Determinations for Diesel Engines as of 7/6/97

RBLCID	Permit Date	Process	Pollutant	Primary Emissions	Ctrl Description	% Effic	Asis
AK-0026	7/26/93	Generator, Wartsilla #2 & #6	NO <sub>2</sub>	135 lb/hr	3 Degree Timing IR	66	BACT-PSD
AK-0026	7/26/93	Generator, Transportable	NO <sub>x</sub>	26.3 lb/hr	Restricted to 3,000 Hrs/Yr	0	BACT-PSD
AK-0026	7/26/93	Generator, Caterpillar #1, #2 & #3	NO <sub>x</sub>	71.1 lb/hr	Restricted to 1,690,000 kW-hr	0	BACT-PSD
AK-0028	6/21/96	6.5 mW Power Generation, Diesel	NO <sub>2</sub>	632.6 tons/yr	Limit Operating Hours; Aftercoolers	0	BACT-PSD
AK-0029	6/27/96	3.4 mW Power Generation, Diesel	NO <sub>2</sub>	427 tons/yr	Aftercoolers	0	BACT-PSD
CA-0417	12/2/91	410 hp Diesel Generator, Emergency	NO <sub>x</sub>	0.0	Turbo/Aftercooler, 4 Deg. Timing IR	40	BACT-PSD
CA-0422	1/6/92	211 bhp @ 1800 Rpm Diesel Generator	NO <sub>x</sub>	2.88 lb/hr	Timing IR, Turbo/Water Injection*	64	BACT-PSD
CA-0453	12/2/91	410 hp Diesel Engine	NO <sub>x</sub>	0.0	Turbo/Aftercooler	40	BACT-PSD
CA-0562	6/18/93	953 bhp Engine	NO <sub>x</sub>	6.6 g/bhp-hr	Turbo/Aftercooler, 4 Deg Timing IR	40	BACT-OTH
CA-0586	6/15/93	Generator, Diesel	NO <sub>x</sub>	4.0 degrees IR	4 Degree Timing IR	0	BACT-OTH
HI-0011	11/25/91	7.86 mW Diesel Engine Generators (4)	NO <sub>x</sub>	590 ppmvd	Variable IR, Turbo/Aftercooler	18.6	BACT-PSD
HI-0016	11/8/95	2.2 mW Diesel Engine Generators (3)	NO <sub>x</sub>	656 ppmvd	Timing IR; Intake Air Cooling	0	BACT-PSD
HI-0017	5/4/96	2.2 mW Diesel Engine Generators (3)	NO <sub>x</sub>	656 ppmvd	Timing IR; Intake Air Cooling	0	BACT-PSD
MN-0022	3/1/95	2.7 MMBtu/Hr Diesel Fire Pump	NO <sub>x</sub>	5.0 lb/hr	Timing IR; Turbo/Aftercooling	0	BACT-PSD
NY-0044	6/6/95	3000 kW Generator, Emergency	NO <sub>x</sub>	2.6 lb/MMBtu		0	LAER
NY-0047	9/1/92	1.3 MMBtu/Hr Diesel Fire Pump	NO <sub>x</sub>	1.3 lb/MMBtu	Lean Burn Engine	0	BACT-OTH
NY-0047	9/1/92	1.5 MMBtu/Hr Nat. Gas Emgcy Gen.	NO <sub>x</sub>	1.3 lb/MMBtu	Lean Burn Engine	0	BACT-OTH
NY-0072	12/10/94	22.00 MMBtu/Hr Diesel Generator	NO <sub>x</sub>	1.166 lb/MMBtu	No Controls	0	BACT-OTH
NY-0072	12/10/94	1.5 MMBtu/Hr Fire Pump	NO <sub>x</sub>	4.25 lb/MMBtu	No Controls	0	BACT-OTH
PA-0083	5/3/91	1135 kW Diesel Generators (2)	NO <sub>x</sub>	36 lb/hr each		0	OTHER
PA-0096	10/15/92	1156 kW Diesel Engines (11)	NO <sub>x</sub>	2.0 g/bhp-hr	Selective Catalytic Reduction	80	BACT-OTH
PA-0097	10/15/92	1635 kW Diesel Engines (7)	NO <sub>x</sub>	2.0 g/bhp-hr	Selective Catalytic Reduction	80	BACT-OTH
SC-0027	7/15/92	400 kW Diesel Generator, Emergency	NO <sub>x</sub>	13.1 lb/hr		0	BACT
VA-0191	1/28/93	1200 kW Diesel Generators (3)	NO <sub>x</sub>	137.3 lb/hr	Turbo/Aftercooler	0	BACT-OTH
VA-0207	7/30/93	748,000 Gal/Yr Diesel Generators (6)	NO <sub>x</sub>	33.2 lb/hr	5 Degree Timing IR	21.7	NSPS
WI-0083	11/23/94	Diesel Generator, Back-Up	NO <sub>x</sub>	67.5 lb/hr	Low Sulfur (0.05%) Diesel Fuel	0	BACT-PSD

Source: U.S. EPA RACT/BACT/LAER Clearinghouse

through the imposition of reasonably achievable control technology (RACT) or lowest achievable emission rate (LAER). SCR was specifically installed at this facility to comply with a locally-mandated emission limit of 2 grams NO<sub>x</sub> per horsepower-hour (hp-hr). As such, it is more representative of LAER than BACT. Because SCR has been installed at only one facility and under conditions that effectively required the use of LAER for NO<sub>x</sub> emission control, the use of SCR is considered to exceed what would be considered BACT for MDWASD's diesel engines.

SCR process reduces NO<sub>x</sub> emissions by injecting ammonia (NH<sub>3</sub>) into the exhaust stream, where the NH<sub>3</sub> and NO<sub>x</sub> react in the presence of a catalyst to form water and nitrogen:



The catalyst reactor is usually a honeycomb configuration consisting of either a ceramic or metal substrate and the active catalyst coating. Several types of catalysts are available, including vanadium oxides, titanium oxides, or precious metals. Zeolite catalysts are also available in which the catalyst is distributed uniformly throughout the extruded crystalline reactor structure. Because SCR requires the injection of ammonia upstream of the reactor, an ammonia injection system and storage facilities are required.

The presence of higher oxygen concentrations in the exhaust of lean-burn engines (all diesel engines) makes SCR applicable. SCR applies most effectively to natural-gas-fired lean-burn engines with constant load carrying operation. NO<sub>x</sub> emission reduction levels from SCR typically range from 75 percent to 95 percent without any corresponding increase in hydrocarbon (HC) or CO emissions, and NH<sub>3</sub> concentrations in the exhaust between from 20 to 30 parts per million (ppm). Backpressure on the engine increases by approximately 2 to 4 inches water with installation of SCR. A small, 0.5 percent increase in BSFC is associated with the 4-inch backpressure, and power output is estimated to decrease by approximately 2 percent for turbocharged engines.

Fuel characteristics and engine duty cycle may reduce the effectiveness of SCR technology. Contaminants present in diesel fuel and engine lube oils, including sulfur, phosphorus, and ash, can poison or mask the surface of the catalyst and reduce or terminate its activity. Fuel sulfur, which oxidizes to SO<sub>2</sub> during combustion, is oxidized to SO<sub>3</sub> in some catalysts and reacts with NH<sub>3</sub> to form ammonium sulfate and ammonium bisulfate salts. These salts form

a coating over the catalyst surface, reducing its effectiveness. Particulate emissions from diesel engines also mask or foul surfaces of the catalyst.

Because exhaust temperature and  $\text{NO}_x$  emissions depend on engine power output, variable load applications may also cause exhaust temperatures and  $\text{NO}_x$  concentrations that pose a problem for SCR. Under varying load situations, off-stoichiometric quantities of  $\text{NH}_3$  are injected into the exhaust, leading to either reduced  $\text{NO}_x$  reduction efficiency or the release of unreacted  $\text{NH}_3$  in the exhaust (commonly called "ammonia slip"). Because the Central District WWTP standby generators will be accommodating fluctuations in load, this problem is a significant disadvantage to the application of SCR. Exhaust temperatures, which fluctuate significantly under varying load conditions, may not be within the temperature range for optimum catalyst performance. Because of these technical problems, SCR is not well-suited for the standby generators and is not representative of BACT.

### **5.2.2 Fuel Injection Timing Retard/Combustion Air Precooling**

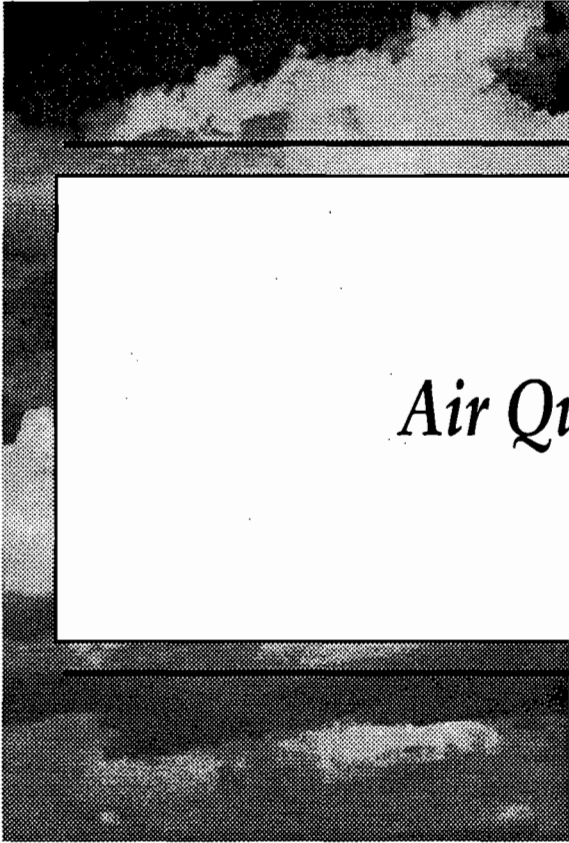
The next most stringent method of controlling emissions of  $\text{NO}_x$  is a combination of IR and precooling of combustion air. As shown in Table 5-1, this combination of  $\text{NO}_x$  emission control technologies is the second most stringent technology applied to diesel engines.

In a diesel engine, injection of fuel into the cylinder starts the combustion process. Retarding the timing of fuel injection until the piston is in its downward motion increases the volume of the combustion chamber, which reduces combustion temperature and pressure, subsequently reducing the formation of  $\text{NO}_x$ . However, IR generally increases black smoke and cold smoke (white smoke during start up) emissions, as well as increasing exhaust temperatures. The increase in exhaust temperatures affect turbocharger performance and may be detrimental to exhaust valve life. A small increase in BSFC (2 percent) and a significant increase in particulate emissions (25 percent) usually result from the application of IR alone to diesel engines. To counteract this problem, it has been demonstrated that the installation of a device to cool the combustion air upstream of the cylinder alleviates most of the negative side effects of IR.

In large bore diesel engines equipped with a turbocharger, the combustion air precooler consists of a heat exchanger located downstream of the turbocharger, and is typically referred to as an aftercooler. Cooler air box temperatures reduce bulk combustion

temperature, which reduces NO<sub>x</sub> formation. Because cooler air is denser, the cylinders are charged with a greater mass of air that generally helps reduce emissions of unburned HC, CO, and particulate matter. Manufacturer's test results of the 20E4 and 20F4B series-engines have shown that installation of four-pass aftercoolers piped to the engine's cooling system reduce uncontrolled emissions of NO<sub>x</sub> and PM-10 by up to 10 percent while slightly lowering BSFC (0.5 to 1.0 percent). Tests have also shown that combining a 4-degree IR with the installation of a four-pass aftercooler will reduce NO<sub>x</sub> emissions by 28.0 percent, PM-10 emissions by 7.0 percent, and BSFC by 0.7 percent. Documentation of the aftercooler technology is included in Appendix B.

According to the *Alternative Control Techniques Document - NO<sub>x</sub> Emissions from Reciprocating Internal Combustion Engines* (EPA, July 1993), the cost effectiveness for application of IR to a diesel engine that operates continuously is approximately \$500 per ton of NO<sub>x</sub> emissions reduction. According to cost estimates provided by equipment manufacturers to Miami-Dade WASD, most of the cost may be offset by the addition of turbocharger/aftercooling that provides additional NO<sub>x</sub> reduction without increasing BSFC (there may actually be a slight decrease in BSFC). Depending on system performance, maintenance requirements, and fuel consumption, the cost-effectiveness of this technology is approximately \$50/ton.



SECTION 6  
*Air Quality Impact Analysis*



# Air Quality Impact Analysis

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The dispersion modeling analyses documented here were designed to assess the potential impact on ambient air quality of the three standby generator sets located at the Central District WWTP in Miami, Florida. Prior to initiation of the air quality impact analysis as described herein, a modeling protocol was submitted to FDEP for review and approval. Verbal approval of the protocol was obtained from FDEP in March 1997. A copy of the modeling protocol is included in Appendix D. The dispersion models, meteorological data, modeling methodology, and results of the analyses described in this application are discussed in the following subsections.

## 6.1 Dispersion Model

Dispersion modeling results were obtained using EPA's short-term Industrial Source Complex Model (ISCST3), version 96113 (EPA, 1996). The ISCST3 model was used to determine long-term (annual average) concentrations only because NO<sub>2</sub> has a single annual average standard.

## 6.2 Meteorological Input Data

The meteorological database used in the air quality modeling analyses consisted of 5 years (1987 - 1991) of surface observations from Miami International Airport, and upper air data from West Palm Beach, Florida, as recommended by FDEP. The Miami International Airport station where surface data were obtained is approximately 14 kilometers (km) to the northwest of the proposed project site. These data were processed by EPA's meteorological data preprocessor program PCRAMMET, and the results made ready for input into the ISCST3 model.

## 6.3 Receptor Grids

A polar-based receptor grid was used for all analyses, with a radial spacing of 10 degrees (i.e., 10°, 20°, 30°, etc.). Initial modeling was performed with a coarsely-defined receptor



grid. The coarse grid, shown in Figure 6-1, consists of receptors at 50-meter spacings along the property fenceline, and along each of the 36 radials at the following distances:

- 250-meter spacings from  $r = 250$  m to  $r = 2,000$  m
- 500-meter spacings from  $r = 2,000$  m to  $r = 5,000$  m
- 1,000-meter spacings from  $r = 5,000$  m to  $r = 16,000$  m

In addition, 28 receptors along the northern and eastern boundaries of Everglades National Park and 4 receptors within the northeast corner of the park were included in the modeling analysis. Everglades National Park Receptors are shown in Figure 6-2.

Subsequent refined modeling was performed with a refined receptor grid with receptors out to the maximum radius of significant impact. The fine grid, shown in Figure 6-3, consists of receptors located at 50-meter spacings along the property fenceline, and along each of the 36 radials at the following distances:

- 100-meter spacings from  $r = 200$  m to  $r = 1,000$  m
- 250-meter spacings from  $r = 1,000$  m to  $r = 2,500$  m
- 500-meter spacings from  $r = 2,500$  m to  $r = 5,000$  m

There were no offsite receptors located within 100 meters of the standby generators.

## 6.4 Other Modeling Considerations

The ISCST3 model contains options that determine the way in which calculations are made. The choice of options was made consistent with EPA's current recommended approach, including the regulatory default option. The options utilized in the analysis included stack tip downwash, final plume rise, buoyancy-induced dispersion, and rural stability coefficients. The ISCST3 calms processor was used to account for calm winds in the calculations. Terrain elevations were omitted from the model because of the relatively flat topography of the area. Rural stability coefficients were used.

Emissions from the standby generators are released from three identical 21-foot exhaust stacks 25 feet apart. For modeling purposes, the standby generators were modeled as a single point source with all emissions occurring at the middle stack. Based on the dimension of the adjacent structures, these stacks are less than the calculated good engineering

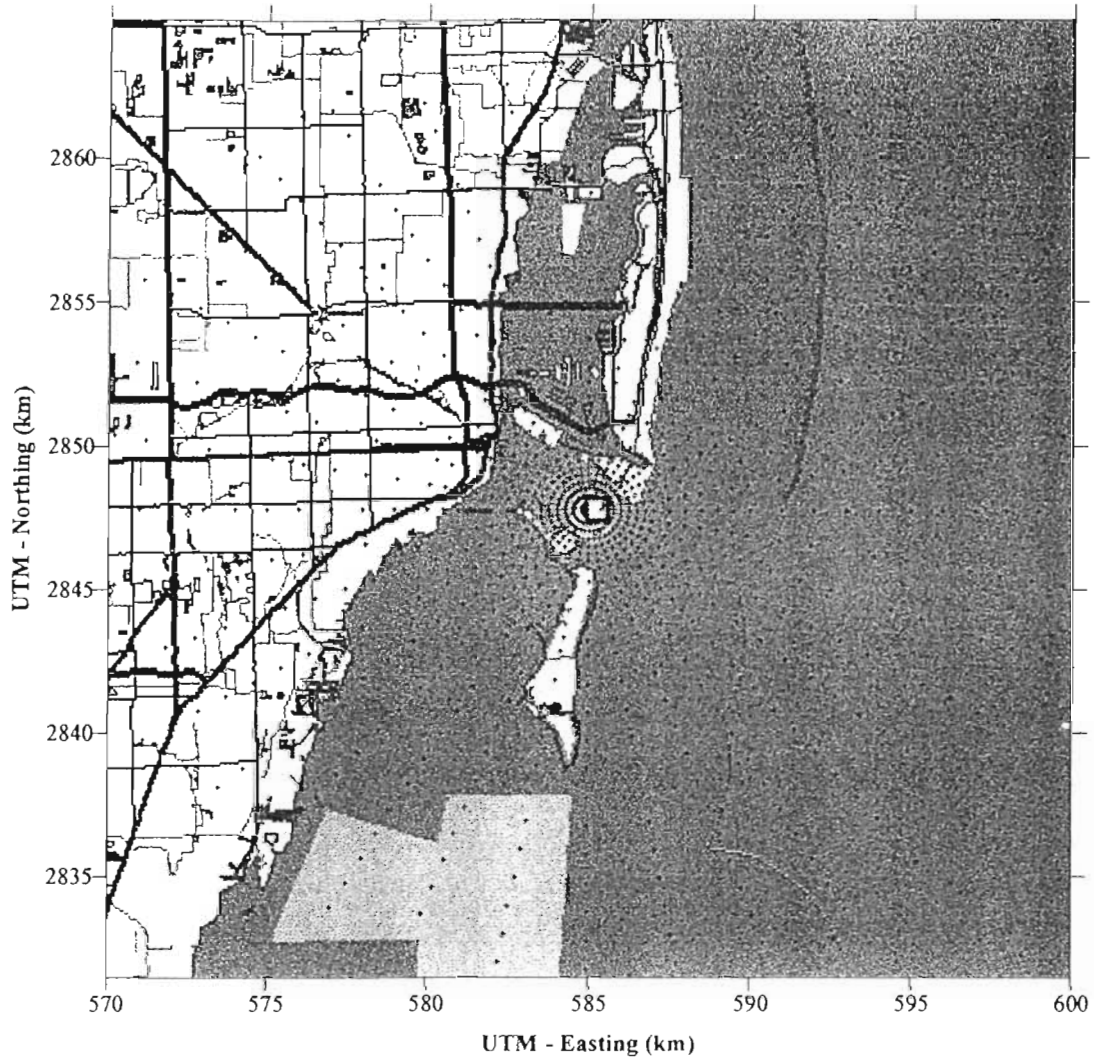


Figure 6-1  
Coarse Grid Receptor Locations

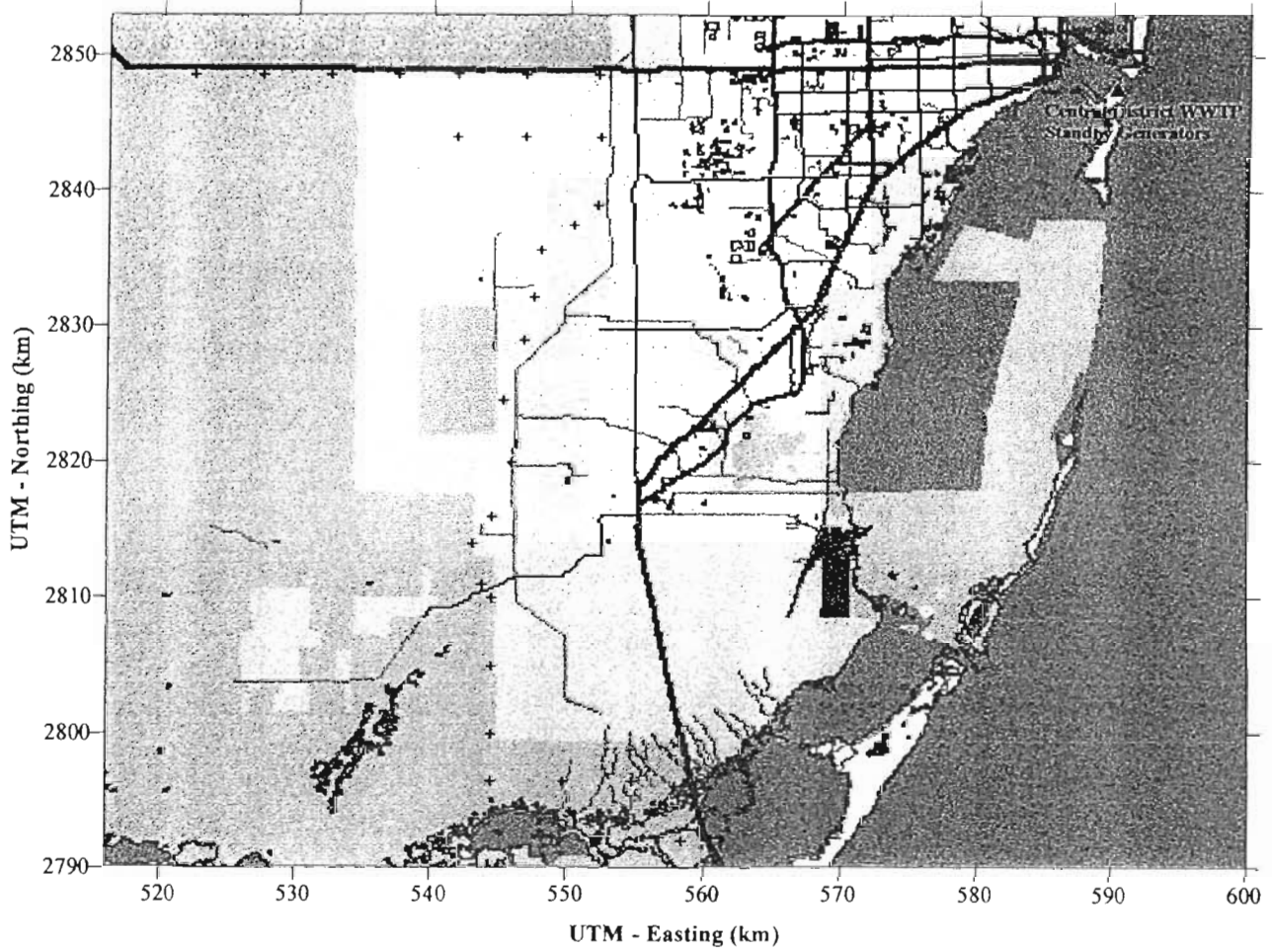


Figure 6-2  
Everglades National Park Receptors

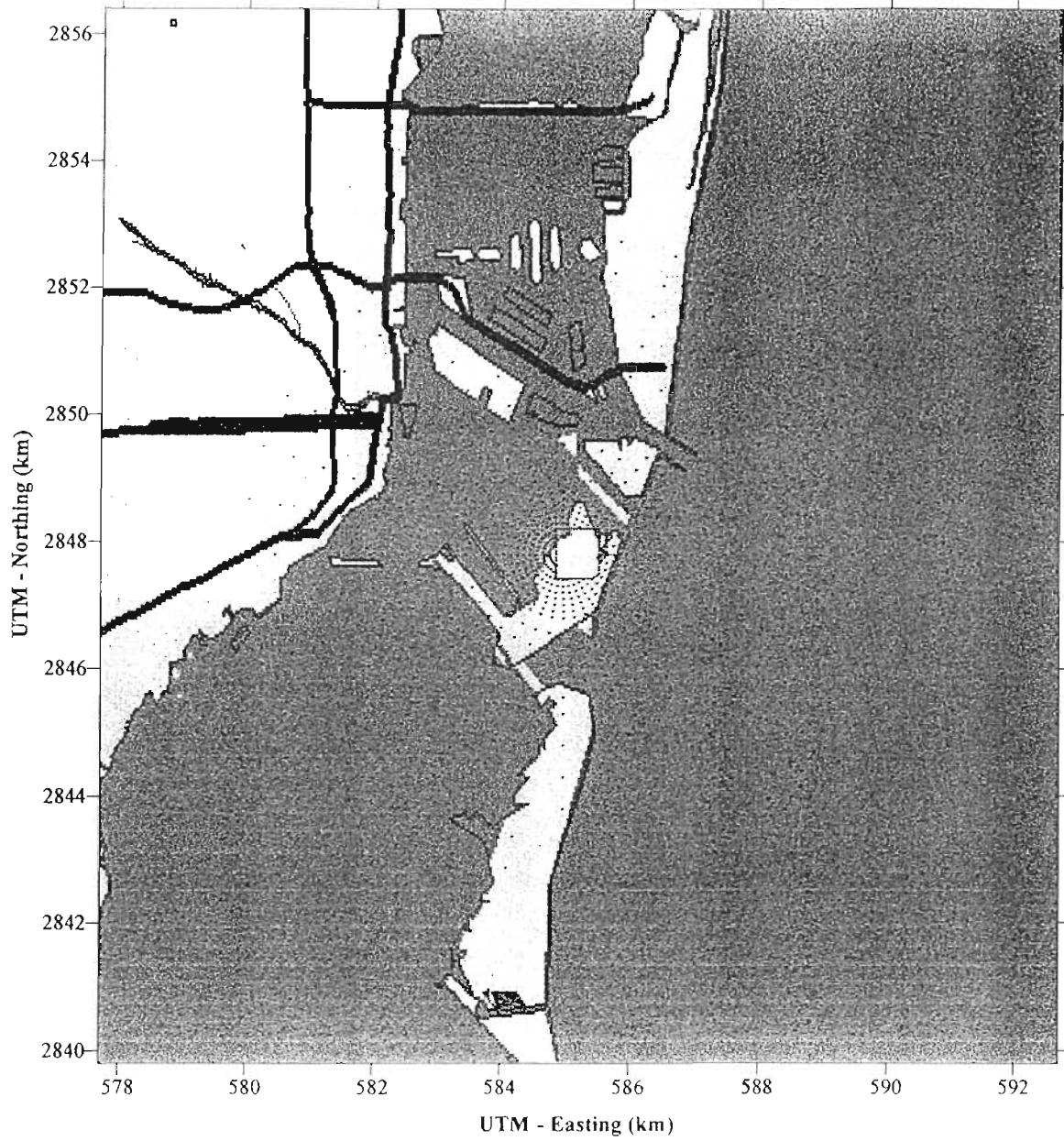


Figure 6-3  
Fine Grid Receptor Locations

practice (GEP) stack height of 100 feet (i.e., 2.5 times the height of Scrubber Building No. 2). The dispersion modeling was designed to incorporate building wake and downwash effects attributable to scrubber building Nos. 2 and 4, the electrical switchgear building, grit chamber structure No. 2, and the standby generator enclosure structures.

Emissions from four identical cogeneration engines and three diesel blower engines at the Central District WWTP were also included in the refined modeling. Both of these sources were included in the determination of ambient concentrations for comparison to the NAAQS, but only the cogeneration engines were included in the determination of PSD Class II increment consumption, as the diesel blower engines are baseline sources of NO<sub>x</sub> emissions (installed prior to March 28, 1988). The cogeneration engines are equipped with horizontal exhaust, and were modeled as a single source of emissions with an exit velocity of 0.1 meter per second (m/s). The blower engines are equipped with vertical exhausts, and were also modeled as a single source of emissions. The dispersion modeling also incorporated wake and downwash effects from the blower building, which houses the cogeneration engines and diesel blower engines.

## **6.5 Dispersion Modeling Methodology and Results**

The dispersion modeling results reported in this section are based on exhaust and operating characteristics for the standby generators presented in Table 2-1, emissions data for full load operation of the standby generators presented in Table 3-1, and exhaust and emission data for regional sources presented in Table 3-2. It is noted that emissions from the standby generators as shown in Table 3-1 also are representative of BACT as demonstrated in Section 5.

The modeling analyses described in this report were based on three objectives to determine or demonstrate: (1) the maximum impact and radius of significant impact of the proposed sources during maximum/full load operation, (2) PSD increment consumption in the area surrounding the sources, and (3) compliance with the NAAQS. In accordance with EPA and FDEP guidance, if maximum predicted impacts from the operation of the proposed sources are found to be less than the EPA-defined level of significant impacts (see Table 4-1), further modeling analysis to demonstrate compliance with the applicable PSD increments and NAAQS is not required.

Initial modeling was performed using an emission rate of 1 gram per second (g/s) from a single stack. The results were adjusted to the actual NO<sub>x</sub> emission rate of 7.29 g/s to obtain conservative estimates of predicted concentrations. Total conversion of NO<sub>x</sub> to NO<sub>2</sub> was assumed for the initial or "tier 1" screening. Subsequent refined modeling revealed that this assumption resulted in exceedance of PSD class II increment. In accordance with the *Multi-Tiered Screening Approach for Estimating Annual NO<sub>2</sub> Concentrations from Point Sources* (60 FR 40469), an empirically-derived NO<sub>x</sub> to NO<sub>2</sub> conversion of 75 percent was used for the "tier 2" screening to adjust the model results. Using this assumption, predicted NO<sub>x</sub> concentrations were multiplied by 0.75 to obtain predicted NO<sub>2</sub> concentrations. Selected sections of the dispersion modeling input and output files are contained in Appendix E.

### **6.5.1 Maximum Impact and Radius of Significant Impact**

The maximum impact and radius of significant impact for NO<sub>x</sub> emissions from the standby generators was determined by modeling the maximum expected emissions under full load. This analysis indicates that NO<sub>x</sub> is the only pollutant emitted in excess of PSD significant emission rates (see Table 4-1). Maximum hourly NO<sub>x</sub> emission rates are 58.2 lb/hr (7.34 g/s) and 174.5 lb/hr (22.01 g/s) for individual and combined generator sets, respectively. Because the facility is proposing to limit annual operation to 21,750,000 kW-hr (2,900 hours per year, each, at full load), the equivalent annual-average emission rate was obtained by adjusting the maximum hourly rate by the ratio of 2,900 hours/8,760 hours. Using this method, the equivalent annual-average NO<sub>x</sub> emission rates are 19.3 lb/hr (2.43 g/s) and 57.8 lb/hr (7.29 g/s) for the individual and combined generator sets, respectively.

The results of the screening analysis are summarized in Table 6-1. Using 1987-1991 meteorological data, predicted offsite concentrations attributable to the standby generators exceeded the significant impact levels for the annual averaging period. The area exceeding the PSD Class II significant impact concentration of 1 µg/m<sup>3</sup> for NO<sub>2</sub> is shown in Figure 6-4. The maximum offsite predicted NO<sub>2</sub> concentration attributed to the standby generators is 9.19 µg/m<sup>3</sup>, occurring at the property fenceline approximately 175 meters northwest of the source.

**Table 6-1**

Summary of Initial Dispersion Modeling Results

EMD Model 20-645E4 Standby Generators (3)

Miami-Dade Water and Sewer Department Central District WWTP

	Significant Impact Level ( $\mu\text{g}/\text{m}^3$ )		Maximum Predicted Offsite $\text{NO}_2$ Concentration ( $\mu\text{g}/\text{m}^3$ ) <sup>1</sup>				
	Class I	Class II	1987	1988	1989	1990	1991
Everglades NP Class I Area	0.1	-	0.060	0.048	0.062	0.079	0.056
Class II Area	-	1.0	5.87	8.11	9.19	8.12	6.58
Maximum ROI (m)	-	-	3500	4500	5000	3500	3000

Notes:

<sup>1</sup> Full load operation of all three generator sets, 2,900 hours per year, each.

$Q_s = 7.29 \text{ g/s NO}_x$

$\text{NO}_2:\text{NO}_x = 0.75$

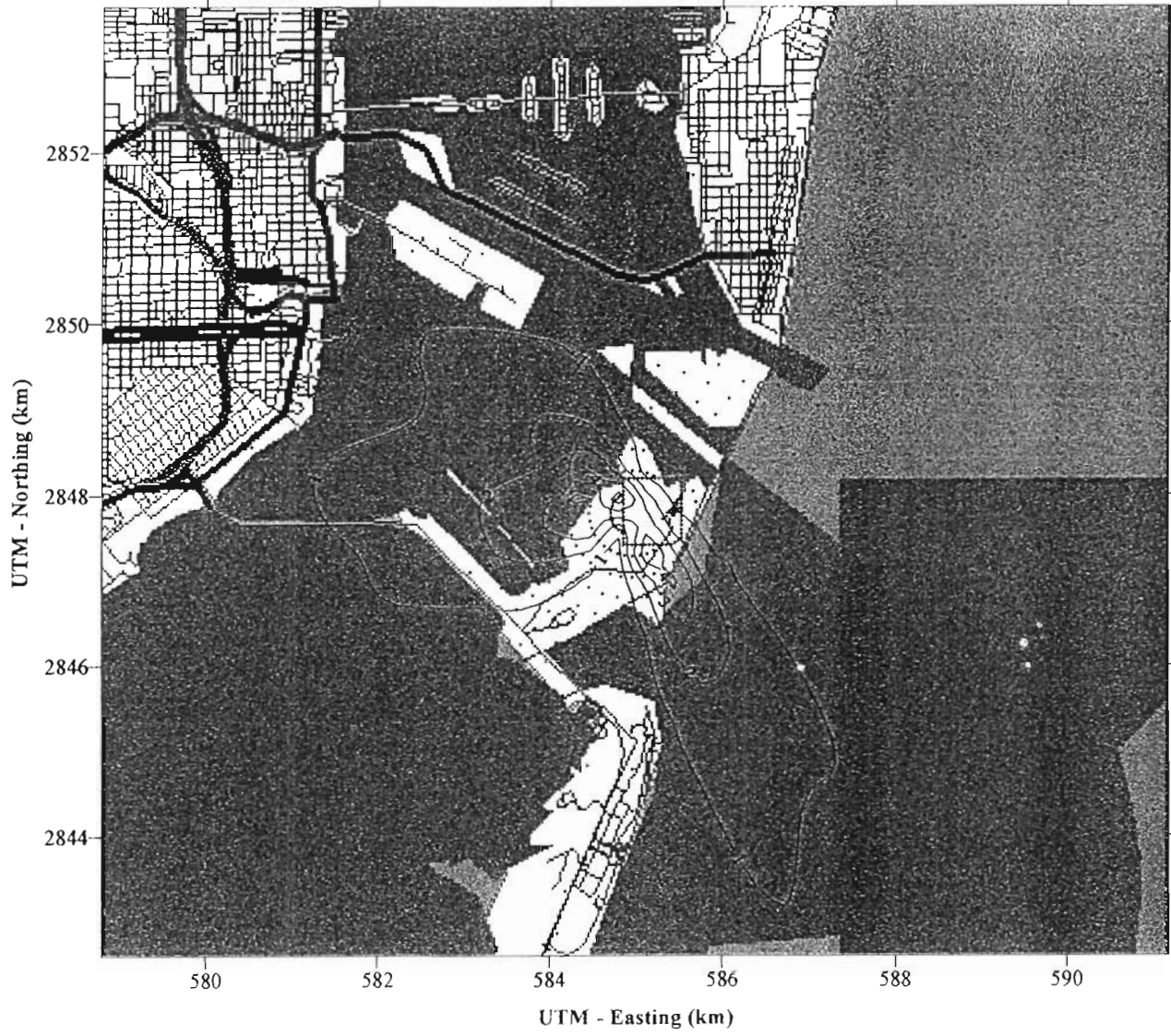


Figure 6-4  
Area of Significant Impact - NO<sub>2</sub>



Significant concentrations extend a maximum distance of 5 km from the source. Based on the initial modeling analyses, no significant air quality impacts are expected at distances greater than 5 km from the Central District WWTP.

The highest NO<sub>2</sub> concentration predicted at any receptor in the Everglades National Park Class I area was 0.079 µg/m<sup>3</sup>. This concentration is below the PSD Class I significance criteria of 0.1 µg/m<sup>3</sup> proposed by the National Park Service.

### **6.5.2 PSD Class II Increment Consumption**

Federal regulations (40 CFR 52) specify that the air quality in an area cannot deteriorate by more than a specified amount by establishing "PSD increments." The PSD increment is the allowable level of air quality degradation in an area. These increments, which were summarized in Table 4-1, represent the maximum allowable increase in ambient concentration in an area (by pollutant and averaging period) since the regulations were enacted in 1977, or since the first PSD increment consuming source was permitted, whichever is later. Currently, PSD increments exist for NO<sub>2</sub>, SO<sub>2</sub>, and PM-10. Prior to the issuance of a construction permit for a major new or modified source, a facility must demonstrate that the PSD increments are not exceeded in the area as a result of the operation of the proposed new or modified facility. In addition to the standby generators, FDEP identified 12 PSD increment-consuming sources that could impact the same area as the standby generators (see Table 3-2). Emissions from all PSD increment-consuming sources, including the proposed standby generators, were modeled to determine increment consumption. Maximum predicted NO<sub>2</sub> concentrations are compared to the allowable PSD Class II increment consumption criteria in Table 6-2. Model-predicted PSD increment consumption in the Class II area is shown graphically in Figure 6-5.

The analysis illustrates that the maximum predicted consumption of NO<sub>2</sub> increment is 24.54 µg/m<sup>3</sup>. Because of the relatively low stack heights, the absence of a plume rise from the gas-fueled cogeneration engines, and the distance from the cogeneration engines to the property fenceline, the highest concentrations are predicted to occur in a small area along and adjacent to the property fenceline. The maximum predicted concentration on the property fenceline occurs approximately 150 meters northwest of the source. Predicted increment consumption decreases rapidly with increasing distance from the source.

**Table 6-2**

Summary of Maximum Predicted PSD Increment Consumption - NO<sub>2</sub>  
EMD Model 20-645E4 Standby Generators (3)  
Miami-Dade Water and Sewer Department Central District WWTP

	PSD Increment Consumption - Annual Average NO <sub>2</sub> (µg/m <sup>3</sup> )				
	1987	1988	1989	1990	1991
Contribution - Standby Generators	2.78	8.09	9.18	8.11	6.58
Contribution - Cogeneration Engines	16.30	12.62	14.70	13.93	13.57
Contribution - Other PSD Sources	0.91	0.79	0.66	0.76	0.76
Maximum Predicted Impact	19.99	21.50	24.54	22.80	20.91
Allowable PSD Limit	25.00	25.00	25.00	25.00	25.00
Location	(200 m, 230 deg)	(150 m, 317 deg)	(150 m, 317 deg)	(150 m, 317 deg)	(150 m, 317 deg)

Notes:

Q<sub>s</sub> = 7.28 g/s NO<sub>x</sub>

NO<sub>2</sub>:NO<sub>x</sub> = 0.75

µg/m<sup>3</sup> = micrograms per cubic meter

Full load operation 2,900 hours per year, each generator

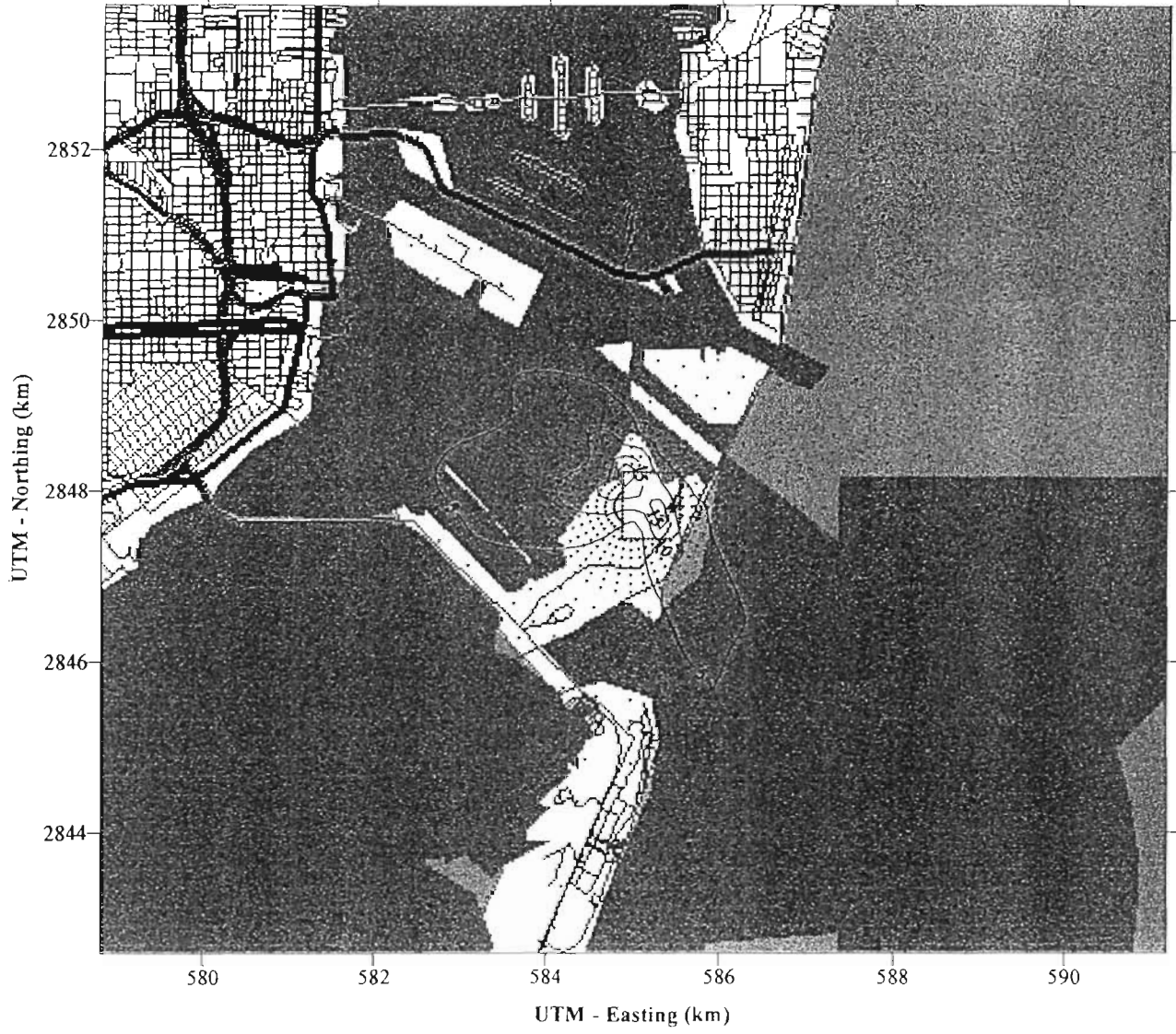


Figure 6-5  
Predicted NO<sub>2</sub> PSD Increment Consumption

At the receptor with the highest increment consumption, the standby generators consume 37 percent of the increment, the cogeneration engines (permitted emissions of 248.9 tons NO<sub>x</sub> per year) consume 59 percent of the increment, and other (offsite) PSD sources consume 3 percent of the increment.

### **6.5.3 Compliance with NAAQS**

The proposed facility must comply with the NAAQS for NO<sub>2</sub>, SO<sub>2</sub>, PM-10, CO, lead (Pb), and ozone (40 CFR 50), which are the same air quality standards that have been adopted by the State of Florida (refer to Table 4-1 for the NAAQS). However, the dispersion modeling analysis was only conducted for NO<sub>2</sub>, as it is the only pollutant emitted in significant quantities. The approach used to demonstrate compliance with the NAAQS in the area impacted by the standby generators at the Central District WWTP was to assess the combined impact of 1) the proposed facility, 2) all existing emission sources in the area as identified by FDEP, and 3) existing background air quality.

A summary of the dispersion modeling results for all existing and permitted sources of emissions identified in Table 3-2 is provided in Table 6-3. The estimates in the table are conservatively based on the sum of the maximum predicted concentrations attributable to the standby generators and all other regional sources and the background NO<sub>2</sub> concentration at Virginia Key. Model predicted ambient NO<sub>2</sub> concentrations in the Class II area are shown graphically in Figure 6-6.

The maximum predicted annual average NO<sub>2</sub> concentration in the area is 58.24 µg/m<sup>3</sup>, which is well below the NAAQS of 100 µg/m<sup>3</sup>. The location of the maximum impact is along the property fenceline approximately 175 meters northwest of the source. The standby generators account for 18 percent and the gas-fueled cogeneration engines account for 24 percent of the predicted impact, excluding background. Because of limitations of the ISCST3 model, a separate source group was not created for the diesel blower engines, which are a baseline source. The combined contribution of the diesel blowers and offsite sources account for 58 percent of the impact. Background NO<sub>2</sub> concentration data from the Rosenstiel School-Virginia Key monitoring station, measured in 1996, were provided by FDEP from the 1996 ALLSUM database. It is concluded that no threat exists to any NAAQS as a result of operating the standby generators at the Central District WWTP.

**Table 6-3**

Summary of Maximum Predicted Ambient Concentrations - NO<sub>2</sub>  
 EMD Model 20-645E4 Standby Generators (3)  
 Miami-Dade Water and Sewer Department Central District WWTP

	Ambient Concentration - Annual Average NO <sub>2</sub> (µg/m <sup>3</sup> )				
	1987	1988	1989	1990	1991
Contribution - Standby Generators	1.78	8.09	9.18	8.11	6.58
Contribution - Cogeneration Engines	16.92	10.73	14.71	13.93	13.57
Contribution - Other Sources <sup>1</sup>	<u>26.53</u>	<u>25.90</u>	<u>20.29</u>	<u>21.21</u>	<u>21.59</u>
Maximum Impact All Sources	45.24	44.72	44.18	43.26	41.74
Background Conc. - Virginia Key <sup>2</sup>	<u>13.00</u>	<u>13.00</u>	<u>13.00</u>	<u>13.00</u>	<u>13.00</u>
Maximum Predicted Concentration	58.24	57.72	57.18	56.26	54.74
NAAQS - NO <sub>2</sub>	100.00	100.00	100.00	100.00	100.00
Location	(174 m, 216 deg)	(174 m, 216 deg)	(150 m, 317 deg)	(150 m, 317 deg)	(150 m, 317 deg)

## Notes:

<sup>1</sup> Includes diesel blower engines.

<sup>2</sup> Arithmetic mean background NO<sub>2</sub> concentration for Rosenstiel School-Virginia Key monitoring station, 1996 ALLSUM database, as provided by FDEP.

Q<sub>s</sub> = 7.28 g/s No<sub>x</sub>

NO<sub>2</sub>:NO<sub>x</sub> = 0.75

Full load operation 2900 hours per year, each generator

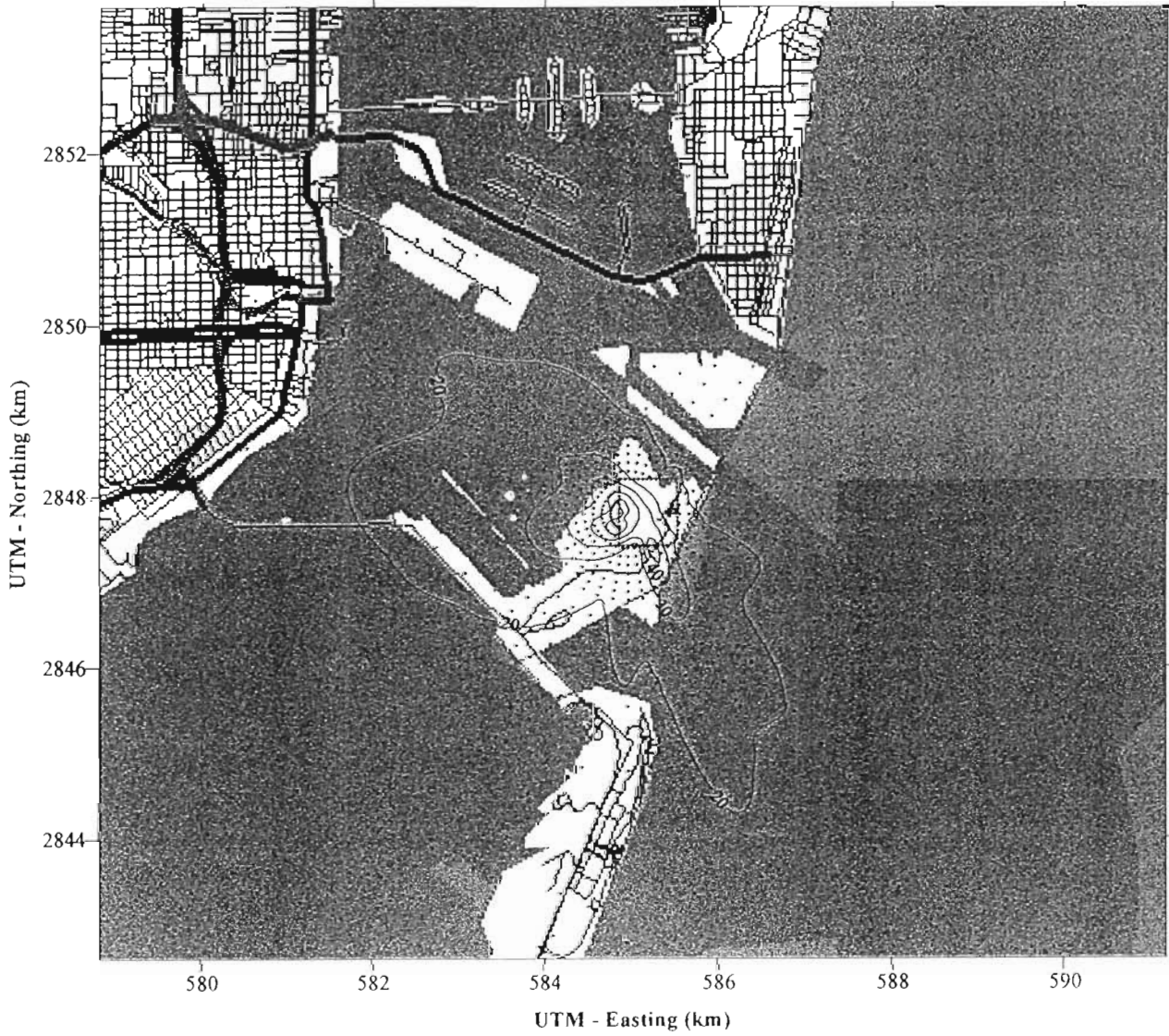


Figure 6-6  
Predicted Annual Average NO<sub>2</sub> Concentrations

#### **6.5.4 Air Toxics Impact Assessment**

The EPA's guidance on the assessment of non-regulated "toxic pollutants" requires that permit applicants evaluate emissions of toxic air pollutants that the Facility could emit in amounts potentially of concern to the public. Additional information is therefore provided on the potential impacts of the following toxic pollutants that may be emitted from diesel engines: benzene, toluene, xylenes, formaldehyde, acetaldehyde, acrolein, and numerous PAH compounds.

FDEP has an air toxics policy, the purpose of which is to evaluate the potential impacts of hazardous air pollutants (HAPs) during the new source (construction) permitting process.

FDEP's air toxics policy requires that new and modified sources seeking approval to construct air emission facilities demonstrate that, for compounds included in the Florida Air Toxic Working List, maximum offsite 8-hour average, 24-hour average, and annual average concentrations do not exceed acceptable ambient reference concentrations (ARCs) adopted by the state.

Estimates of short- and long-term air toxic emissions from operation of the standby generators are provided in Table 6-4. The estimates are based on emission factors obtained from EPA publication AP-42. FDEP has adopted ARCs for all of the toxic pollutants listed in Table 3-1 except propylene.

In addition to calculation of annual average concentrations, results from initial (screening) modeling of the standby generators were calculated for a 1-hour averaging period. This was done to facilitate determination of 8-hour average and 24-hour average concentrations of toxic pollutants for comparison to the Florida ARCs. Emission rates and maximum predicted concentrations for each pollutant and averaging period are summarized in Table 6-4. Actual 1-hour average concentrations were calculated by scaling the model output concentration to the appropriate emission rate. The 8-hour average and 24-hour average concentrations were then determined by adjusting the 1-hour concentration by factors of 0.7 and 0.4, respectively. Annual average concentrations were determined by directly scaling the model-predicted annual average results.

**Table 6-4**

Summary of Predicted Toxic Pollutant Concentrations

EMD 20-645E4 Standby Generators (3)

Miami-Dade Water and Sewer Department Central District WWTP

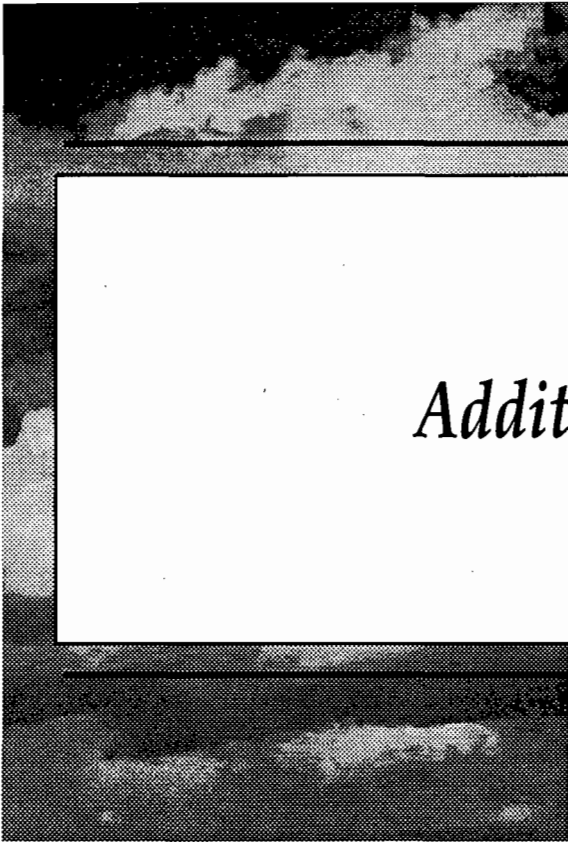
Pollutant	Emission Rate (mg/s)		Maximum Predicted Concentration ( $\mu\text{g}/\text{m}^3$ ) <sup>1</sup>			Florida Ambient Reference Concentration ( $\mu\text{g}/\text{m}^3$ )		
	max hourly	annual avg	8-hr Avg <sup>2</sup>	24-hr Avg <sup>3</sup>	Annual Avg	8-hr Avg	24-hr Avg	Annual Avg
Benzene	7.67	2.54	0.660	0.377	0.23	30	7	0.12
Toluene	2.78	0.92	0.239	0.137	0.008	1880	448	400
Xylenes	1.91	0.63	0.164	0.094	0.006	4340	1033	80
Formaldehyde	0.78	0.26	0.067	0.038	0.002	3.7	0.9	0.077
Acetaldehyde	0.25	0.08	0.021	0.012	0.001	450	107	0.5
Acrolein	0.08	0.03	0.007	0.004	<0.001	2.3	0.5	0.02
Naphthalene	1.29	0.43	0.111	0.063	0.004	50	119	-
Flourene	0.13	0.04	0.011	0.006	<0.001	2.0	0.5	50
Benz(a)anthracene	<0.01	<0.01	<0.001	<0.001	<0.001	-	-	0.0011
Chrysene	0.02	0.01	0.001	<0.001	<0.001	2.0	0.5	-
Benzo(a)pyrene	<0.01	<0.01	<0.001	<0.001	<0.001	-	-	0.0003
Dibenz(a,h)anthracene	<0.01	<0.01	<0.001	<0.001	<0.001	-	-	0.000071

Notes:

<sup>1</sup> Concentrations associated with operation of all 3 standby generators at full load conditions.<sup>2</sup> 1-hour average concentration \* 0.7 = 8-hour average concentration<sup>3</sup> 1-hour average concentration \* 0.4 = 24-hour average concentration



Estimated maximum impacts shown in Table 6-4 show that none of the toxic pollutants emitted from the standby generators exceed any of the Florida ARCs. It is concluded that HAP emissions from operation of the standby generators does not present any significant threat to any offsite receptor.



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SECTION 7  
*Additional Impact Analyses*

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## Additional Impact Analyses

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As required by PSD regulations, this section addresses possible impacts on visibility, vegetation and soils, growth, PSD Class I areas, and nonattainment areas.

### 7.1 Effects on Visibility in PSD Class I Areas

A Level I screening analysis was performed using the EPA VISCREEN model to evaluate the impact of the standby generators on visibility in the Everglades National Park Class I area. The Shark Valley Tower observation point, located 62 km west of the standby generators, is the closest Everglades vista to the source. The minimum and maximum viewing distances from the source to locations on the park boundary are 33.8 km and 131 km, respectively. The viewing distances are measured along a radial line extending 11.25 degrees north of the line directly between the Shark Valley Tower and the standby generators. The minimum viewing distance corresponds to where this line first enters the park, and the maximum viewing distance corresponds to where the line exits the park. Relative locations of the Shark Valley Tower and the standby generators are shown in Figure 7-1. The minimum viewing distance is the distance from the generators to the northeastern park boundary, and the maximum viewing distance is the distance from the generators to the northwestern park boundary.

The Level I analysis assumes a highly stable meteorological condition (stability Class F) and low wind speed (1 m/s) to provide a conservative estimate of visibility impacts intended for screening purposes. The VISCREEN model was run using maximum hourly NO<sub>x</sub> and PM-10 emission rates of 22.01 g/s and 0.53 g/s, respectively. Worst-case Everglades National Park Class I meteorological data, provided by the National Park Service, were used in the Level I analysis instead of the Level I default data. Use of the Everglades meteorological data would be more likely to result in a significant visibility impact. This data indicated that fall was the worst-case season (easiest to see a plume), with a background ozone concentration of 0.047 parts per million (ppm) and a standard visibility range of 63 km. Results from the Level I screening analysis are summarized in Appendix F. Results

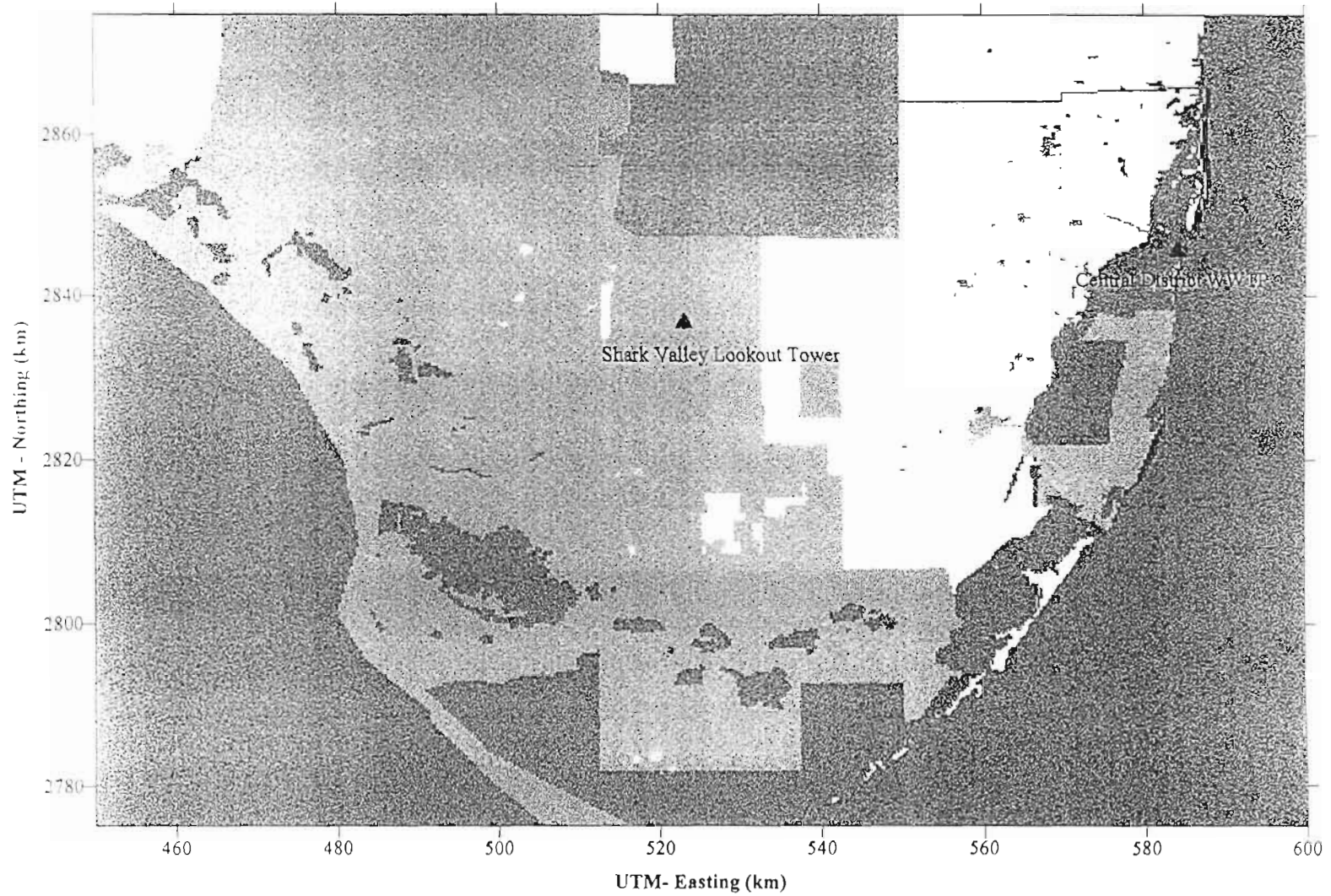


Figure 7-1  
Location of Everglades National Park Class I Vista Shark Valley Tower

indicate that the standby generators are not expected to have any significant impact on visibility in the Everglades Class I area or in any Class II areas.

## 7.2 Effects on Vegetation and Soils

One indicator of potential vegetation and soils effects is a comparison of predicted ambient concentrations with ambient air quality standards. Of most significance here is that the secondary NAAQS were established to prevent adverse "welfare" effects, such as direct damage to vegetation and harmful contamination of soils. The secondary NAAQS for  $\text{NO}_2$  is the same as the primary standard— $100 \mu\text{g}/\text{m}^3$ . Because it has been shown that the operation of the standby generators will not result in a threat to any NAAQS, primary or secondary, there should not be any discernible effects on vegetation and soils.

Vegetation and soils are also affected by acid deposition. Acid deposition is caused by the conversion of  $\text{SO}_2$  and  $\text{NO}_2$  in exhaust gases to sulfuric and nitric acids ( $\text{H}_2\text{SO}_4$  and  $\text{HNO}_3$ , respectively) in the presence of water in the air. The acids are then deposited onto vegetation and soils by fog, rain, or snow (snow is an extremely rare occurrence in the Everglades). The maximum ambient concentration of  $\text{NO}_2$  at any receptor in the Everglades National Park Class I area associated with operation of the standby generators, as predicted in the screening analysis, was used to calculate  $\text{HNO}_3$  deposition in Class I area. The calculation was performed assuming all  $\text{NO}_x$  emissions were converted to  $\text{HNO}_3$ .

The maximum predicted  $\text{NO}_x$  concentration at any receptor in the Everglades Class I area associated with operation of the standby generators is  $0.105 \mu\text{g}/\text{m}^3$ . This corresponds to an  $\text{HNO}_3$  deposition rate of  $0.144 \mu\text{g}/\text{m}^3$  per second. The  $\text{HNO}_3$  deposition rate is multiplied by its averaging period, which in this case is 1 year or 31,536,000 seconds, and by the deposition velocity, which is 0.05 m/s for  $\text{HNO}_3$ . The resulting  $\text{HNO}_3$  deposition rate is 4.55 grams per square meter ( $\text{g}/\text{m}^2$ ), or 318  $\mu\text{g}$  per hectare.

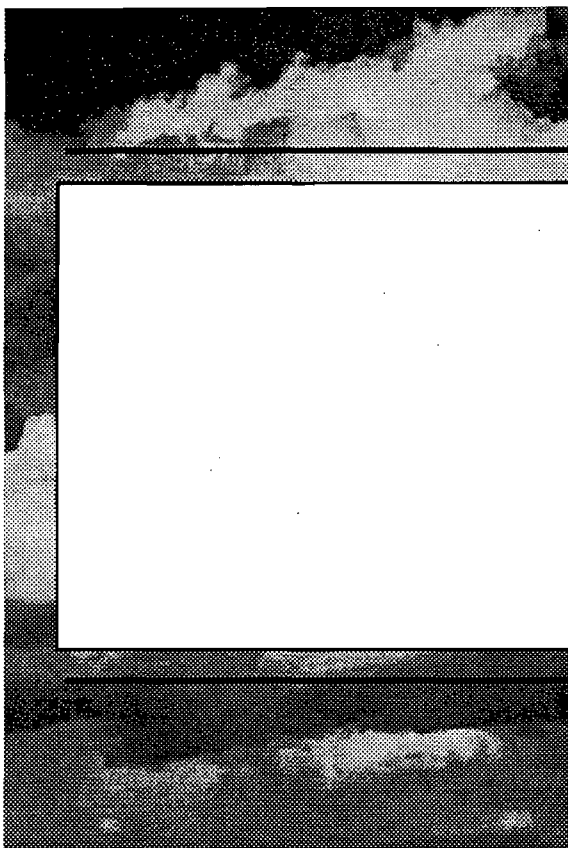
## 7.3 Effects on Associated Growth

While the need to operate the standby generators and to maintain power generation capacity is dictated by the size of the plant and its associated power demand, the standby generators will not have any direct or indirect impact on the capacity of the plant to treat wastewater. Because it is the capacity of the plant to treat wastewater is linked to growth,

the standby generators will not have any significant impact on growth in the area. In addition, employment at the Central District WWTP for the purpose of maintaining the standby generators is not expected to increase. Therefore, increased operation of the standby generators, as proposed in this application, is not expected to promote growth in the area.

## **7.4 Impacts on Nonattainment Areas**

There are no nonattainment areas for any pollutant in Florida, nor are there any nonattainment areas within 200 km of the Central District WWTP. Dade County was previously classified as a nonattainment area for ozone; however, this area was reclassified in April 1995 as an attainment area (air quality maintenance areas) for all pollutants. The facility is not expected to impact any nonattainment areas based on the air quality impact analysis performed.



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SECTION 8  
*References*

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SECTION 8

## References

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Florida Air Toxics Working List. Florida Department of Environmental Protection.

U.S. Environmental Protection Agency. Industrial Source Complex Model, Version 96113. Office of Air Quality Planning and Standards. Available from EPA TTN Electronic Bulletin Board System (919) 541-5742. 1996.

Multi-Tiered Screening Approach for Estimating Annual NO<sub>2</sub> Concentrations from Point Sources, Federal Register, Vol. 60, No. 153, p. 40469. August 9, 1995.

U.S. Environmental Protection Agency. Interagency Workgroup On Air Quality Modeling (IWAQM) Phase I Report: Interim Recommendations for Modeling Long Range Transport and Impacts on Regional Visibility. EPA-454/R-93-015. April 1993.





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APPENDIX A  
*Completed Air Permit Application*

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**Scope of Application**

<b>Emissions Unit ID</b>	<b>Description of Emissions Unit</b>	<b>Permit Type</b>
No Id	3 Standby Generator Sets (20E4)	AF2A

**Purpose of Application and Category**

Category I : All Air Operation Permit Applications Subject to Processing Under Chapter 62-213, F.A.C.

This Application for Air Permit is submitted to obtain :

- ] Initial air operation permit under Chapter 62-213, F.A.C., for an existing facility which is classified as a Title V source.
  
- ] Initial air operation permit under Chapter 62-213, F.A.C., for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.

Current construction permit number :

- ] Air operation permit renewal under Chapter 62-213, F.A.C., for a Title V source.

Operation permit to be renewed :

- ] Air operation permit revision for a Title V source to address one or more newly constructed or modified emissions units addressed in this application.

Current construction permit number :

Operation permit to be revised :

- ] Air operation permit revision or administrative correction for a Title V source to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application.

Operation permit to be revised/corrected :

- ] Air operation permit revision for a Title V source for reasons other than construction or modification of an emissions unit.

Operation permit to be revised :

Reason for revision :

Category II : All Air Operation Permit Applications Subject to Processing Under Rule 62-210.300(2)(b), F.A.C.

This Application for Air Permit is submitted to obtain :

- ] Initial air operation permit under Rule 62-210.300(2)(b), F.A.C., for an existing facility seeking classification as a synthetic non-Title V source.

Current operation/construction permit number(s) :

- ] Renewal air operation permit under Rule 62-210.300(2)(b), F.A.C., for a synthetic non-Title V source.

Operation permit to be renewed :

- ] Air operation permit revision for a synthetic non-Title V source.

Operation permit to be revised :

Reason for revision :

Category III : All Air Construction Permit Applications for All Facilities and Emissions Units

This Application for Air Permit is submitted to obtain :

- ] Air construction permit to construct or modify one or more emissions units within a facility (including any facility classified as a Title V source).

I. Part 4 - 2

DEP Form No. 62-210.900(1) - Form

Effective : 3-21-96

Current operation permit number(s), if any :

- Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

Current operation permit number(s) :

- Air construction permit for one or more existing, but unpermitted, emissions units.

I. Part 4 - 3

DEP Form No. 62-210.900(1) - Form

Effective : 3-21-96





4. Professional Engineer Statement :

*I, the undersigned, hereby certified, 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 pollutant 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.*

*If the purpose of this application is to obtain a Title V source 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 schedule is submitted with this application.*

*If the purpose of this application is to obtain an air construction permit 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.*

*If the purpose of this application is to obtain an initial air operation permit or operation permit revision 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 has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.*

*David Lindberg*  
\_\_\_\_\_  
Signature

*7/17/97*  
\_\_\_\_\_  
Date

\* Attach any exception to certification statement.

I. Part 6 - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96



**Application Contact**

1. Name and Title of Application Contact :

Name : Bertha Goldenberg, P.E.  
Title : Environmental Coordinator

2. Application Contact Mailing Address :

Organization/Firm : Miami-Dade Water and Sewer Departme  
Street Address : 4200 Salzedo Street  
City : Coral Gables  
State : FL                      Zip Code : 33146-0316

3. Application Contact Telephone Numbers :

Telephone : (305)669-5711                      Fax : (305)669-5717

**Application Comment**

The purpose of this application is to obtain a permit to increase allowable operation of the standby generator sets to 21,750,000 kW-hours per year, total.

## II. FACILITY INFORMATION

### A. GENERAL FACILITY INFORMATION

#### Facility, Location, and Type

1. Facility UTM Coordinates :			
Zone :	17	East (km) :	585.20 North (km) : 2848.10
2. Facility Latitude/Longitude :			
Latitude (DD/MM/SS) :		25 44 43	Longitude (DD/MM/SS) : 80 8 55
3. Governmental Facility Code :	4. Facility Status Code :	5. Facility Major Group SIC Code :	6. Facility SIC(s) :
3	A	49	
7. Facility Comment :			
The Central District Wastewater Treatment Plant is a publicly-owned treatment works.			

#### Facility Contact

1. Name and Title of Facility Contact :	
Thomas Maxwell Assistant Plant Superintendent	
2. Facility Contact Mailing Address :	
Organization/Firm : Miami-Dade Water & Sewer Department	
Street Address : 4200 Salzedo Street	
City : Coral Gables	State : FL Zip Code : 33146-0316
3. Facility Contact Telephone Numbers :	
Telephone : (305)361-5497	Fax : (305)365-3000

**Facility Regulatory Classifications**

1. Small Business Stationary Source?	N
2. Title V Source?	Y
3. Synthetic Non-Title V Source?	N
4. Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)?	Y
5. Synthetic Minor Source of Pollutants Other than HAPs?	N
6. Major Source of Hazardous Air Pollutants (HAPs)?	N
7. Synthetic Minor Source of HAPs?	N
8. One or More Emissions Units Subject to NSPS?	N
9. One or More Emission Units Subject to NESHAP?	N
10. Title V Source by EPA Designation?	N
11. Facility Regulatory Classifications Comment :	

## B. FACILITY REGULATIONS

### Rule Applicability Analysis

Not required for construction permit application.

## B. FACILITY REGULATIONS

### List of Applicable Regulations

62-296.320 - General Pollutant Emission Limiting Standards

62-204.240 - Ambient Air Quality Standards

62-204.260 - Prevention of Significant Deterioration Increments

II. Part 3b - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

**C. FACILITY POLLUTANTS**

**Facility Pollutant Information**

<b>1. Pollutant Emitted</b>	<b>2. Pollutant Classification</b>
NOX	A

**D. FACILITY POLLUTANT DETAIL INFORMATION**

**Facility Pollutant Information**

Pollutant   1  

1. Pollutant Emitted :	NOX
2. Requested Emissions Cap :	NA (lbs/hour) (tons/year)
3. Basis for Emissions Cap Code :	
4. Facility Pollutant Comment :	

II. Part 4b - 1



### III. EMISSIONS UNIT INFORMATION

#### A. TYPE OF EMISSIONS UNIT (Regulated and Unregulated Emissions Units)

Emissions Unit Information Section 1

3 Standby Generator Sets (20E4)

#### Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one :

[ X ] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

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

2. Single Process, Group of Processes, or Fugitive Only? Check one :

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

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

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

III. Part 1 - 1



**Emissions Unit Information Section**      1  
3 Standby Generator Sets (20E4)

**Emissions Unit Control Equipment**      1

1. Description :

BACT for NOx emissions from diesel engines is fuel injection timing retard (IR) + turbocharger aftercoolers.

2. Control Device or Method Code :

III. Part 3 -      1



**D. EMISSIONS UNIT REGULATIONS  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**      1  
3 Standby Generator Sets (20E4)

**Rule Applicability Analysis**

The increase in emissions of NOx associated with proposed operation of the standby generators constitutes a major source. Therefore, this project is subject to the requirements of PSD review, as stated in Chapter 62-212.400, FAC.

**Emissions Unit Information Section**

1

3 Standby Generator Sets (20E4)

**List of Applicable Regulations**

62-210.300 (1) - Air Construction Permits

62-212.400 - Prevention of Significant Deterioration

62-296.320(4)(b) - General Visible Emissions Standard

III. Part 6b - 1

DEP Form No. 62-210.900(1) - Form

Effective : 3-21-96

## E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 1

3 Standby Generator Sets (20E4)

### Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram :	20E4 Gens				
2. Emission Point Type Code :	3				
3. Descriptions of Emission Points Comprising this Emissions Unit :	A vertical stack located on top of each enclosure structure.				
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :					
5. Discharge Type Code :	V				
6. Stack Height :	21 feet				
7. Exit Diameter :	3.00 feet				
8. Exit Temperature :	735 °F				
9. Actual Volumetric Flow Rate :	23,000 acfm				
10. Percent Water Vapor :	%				
11. Maximum Dry Standard Flow Rate :	dscfm				
12. Nonstack Emission Point Height :	feet				
13. Emission Point UTM Coordinates :					
Zone :	17	East (km) :	584.959	North (km) :	2,847.790
14. Emission Point Comment :					

III. Part 7b - 1

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

3 Standby Generator Sets (20E4)

Segment Description and Rate : Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :

Diesel fueled internal combustion engines (emissions related to thousand gallons burned or horsepower-hours run)

2. Source Classification Code (SCC) : 2-02-004-01

3. SCC Units : Thousand Gallons Burned (all liquid fuels)

4. Maximum Hourly Rate : 0.19      5. Maximum Annual Rate : 559.00

6. Estimated Annual Activity Factor :

7. Maximum Percent Sulfur : 0.05      8. Maximum Percent Ash :

9. Million Btu per SCC Unit : 135

10. Segment Comment :

Maximum hourly and annual fuel rates are based on a single generator set consuming 193 gallons/hour diesel fuel (density = 7.0 lb/gal) and operating 2,900 hours per year. Total annual fuel consumption by all 3 standby generators is 1,679,000 gallons (21,750,000 kW-hr).

III. Part 8 - 1



**G. EMISSIONS UNIT POLLUTANTS**  
**(Regulated and Unregulated Emissions Units)**

**Emissions Unit Information Section**        1    
3 Standby Generator Sets (20E4)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 - CO			NS
2 - NOX			EL
3 - SO2			WP
4 - PM10			NS
5 - VOC			NS

III. Part 9a - 1

**Emissions Unit Information Section**                      1  
3 Standby Generator Sets (20E4)

**Pollutant Information Section**                      2

**Allowable Emissions**                      1

1. Basis for Allowable Emissions Code :		AMBIENT	
2. Future Effective Date of Allowable Emissions :			
3. Requested Allowable Emissions and Units :		10.57	g/kW-hr
4. Equivalent Allowable Emissions :			
	58.18	lb/hour	253.00 tons/year
5. Method of Compliance :			
Annual stack testing using EPA Method 7 or equivalent.			
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :			
Monthly monitoring of total power output (kW-hr) and comparison of 12-month rolling total to annual limit of 21,750,000 kW-hr.			

**I. VISIBLE EMISSIONS INFORMATION**  
**(Regulated Emissions Units Only)**

**Emissions Unit Information Section**       1    
3 Standby Generator Sets (20E4)

**Visible Emissions Limitation :** Visible Emissions Limitation       1  

1. Visible Emissions Subtype :
2. Basis for Allowable Opacity : <u>  RULE  </u>
3. Requested Allowable Opacity :  Normal Conditions :     20            % Exceptional Conditions :                    % Maximum Period of Excess Opacity Allowed :                    min/hour
4. Method of Compliance :  Annual opacity monitoring using EPA Method 9
5. Visible Emissions Comment :

**J. CONTINUOUS MONITOR INFORMATION  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section \_\_\_\_\_**

**Continuous Monitoring System : Continuous Monitor \_\_\_\_\_**

1. Parameter Code :	2. Pollutant :
3. CMS Requirement :	
4. Monitor Information : Manufacturer : Model Number : Serial Number :	
5. Installation Date :	
6. Performance Specification Test Date :	
7. Continuous Monitor Comment :	

**K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT  
TRACKING INFORMATION**

**Emissions Unit Information Section**          1    

3 Standby Generator Sets (20E4)

**PSD Increment Consumption Determination**

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

- [ ] The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.
- [ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and emissions unit consumes increment.
- [ ] The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- [X] For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- [ ] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

- [ X ] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.
- [ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- [ ] The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- [ ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- [ ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code :		
PM : C	SO2 : C	NO2 : C
4. Baseline Emissions :		
PM :	0.0000 lb/hour	0.0000 tons/year
SO2 :	0.0000 lb/hour	0.0000 tons/year
NO2 :		36.4000 tons/year
5. PSD Comment :		
<p>The standby generators were installed in 1980. Baseline NO2 emissions are based on 3 engines running 400 hours/yr, 10.19 g/bhp-hr NOx emissions at full load, and 75% conversion of NOx to NO2.</p>		

running 400 hours/yr, 10.19 g/bhp-hr NOx emissions at full load, and 75% conversion of NOx to NO2.

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III. Part 12 - 3

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

## L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 1

3 Standby Generator Sets (20E4)

### Supplemental Requirements for All Applications

1. Process Flow Diagram :	NA
2. Fuel Analysis or Specification :	Attachment
3. Detailed Description of Control Equipment :	Attachment A
4. Description of Stack Sampling Facilities :	20e4stac.doc
5. Compliance Test Report :	12/6/96
6. Procedures for Startup and Shutdown :	standby.doc
7. Operation and Maintenance Plan :	NA
8. Supplemental Information for Construction Permit Application :	Report
9. Other Information Required by Rule or Statue :	NA

### Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operations :	NA
11. Alternative Modes of Operation (Emissions Trading) :	NA

III. Part 13 - 1



12. Identification of Additional Applicable Requirements :	NA
13. Compliance Assurance Monitoring Plan :	NA
14. Acid Rain Application (Hard-copy Required) :	
NA	Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))
NA	Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
NA	New Unit Exemption (Form No. 62-210.900(1)(a)2.)
NA	Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)

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AWARD SHEET  
ADDENDUM NO. 1

changes effective July 1, 1996:

		LO-SULPHUR CLEAR DIESEL	HI-SULPHUR DYED DIESEL
	GASOLINE		
Federal Excise Tax	EXEMPT	EXEMPT	EXEMPT
State Excise Tax	.04	.04	EXEMPT
State Sales Tax	.085	.085	EXEMPT
Local Option & SCETS	.107	.117	EXEMPT
County Surcharge			
Dade	.06		
Broward	.03		
Palm Beach	.06		
other Counties	EXEMPT	EXEMPT	EXEMPT
Pollution Taxes (state & federal)	.022	.0207	.0207
Minimum Tax to be collected at time of sale	.254	.2627	.0207

1. TO QUALIFY FOR EXEMPTIONS, OR TO PURCHASE NON-TAXABLE DIESEL FUEL. MASS TRANSIT AND STATE AND LOCAL GOVERNMENT USERS MUST BE LICENSED.
2. PURCHASER IS EXEMPT FOR PAYMENT OF FEDERAL EXCISE TAX ON AND FUEL AT THE TIME OF SALE: IN THE CASE OF TAXABLE FUELS, SELLER MUST FILE FOR A REFUND.
3. ALL STATE AND LOCAL OPTION TAXES ARE COLLECTED ON GASOLINE AND CLEAR TAXABLE LO SULPHUR DIESEL, HOWEVER THE PURCHASER MAY FILE FOR A PARTIAL REFUND.

ALL ELSE REMAINS THE SAME  
WILLIAM GARVISO, CPPB

To: Greg Lane  
R. Ritter

From R. Ritter May 9/96  
We must continue to buy  
low sulfur diesel fuel  
until we can determine  
our permits

02/28/97

13:03

Best Available Copy

NO. 207 003

CUSTOMER COPY - 2

EMERGENCY NUMBER CHEMTREC 1-800-424-9



Coastal Refining & Marketing, Inc. A SUBSIDIARY OF THE COASTAL CORPORATION. The Every People

INSERT FOLLOWING WHEN REQUIRED BY FEDERAL OR STATE LAWS OR REGULATIONS

STATE PERMIT OR LICENSE	VEHICLE LICENSE NO.	STATE MVT FUEL TAX RATE
-------------------------	---------------------	-------------------------

To certify that the above-named materials are properly classified, described, packaged, marked, labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Transportation.

This is to also certify that the above-named materials are properly classified, described, packaged, marked, and labeled according to the applicable regulations of the Federal Trade Commission and the Environmental Protection Agency.

Shipper's imprint in lieu of stamp; not a part of Bill of Lading approved by the Interstate Commerce Commission.

Shipper represents that in the production and manufacture of the goods and/or services covered by this invoice, it has fully complied with all the provisions of THE FAIR LABOR STANDARDS ACT OF 1938, as amended.

SEAL NOS.

RECEIVED FOR COASTAL BY *[Signature]* DATE 11-27-96

RECEIVED BY TRUCK DRIVER *[Signature]* DATE

SHIPMENTS REQUIRE RAILROAD BILL OF LADING

GOODS RECEIVED: *[Signature]*

PURCHASER: *[Signature]*

SHIPPER: *[Signature]*

TRUCK NO. 6112 TRLR NO. 6205

If this shipment moves in other than Shipper's vehicle, it shall be governed by (a) the contract between shipper and carrier is a contract carrier or (b) the terms of the applicable uniform bill of lading form prescribed in the current Motor Freight Classification, if carrier is a common carrier, provided that, if this is intrastate shipment by common carrier state where bills of lading have been legally prescribed, this shipment shall be governed by the terms of applicable lading.

SPECIAL TRUCK MARKINGS, LABELS OR PLACARDS OFFERED/APPLIED AS REQUIRED BY DEPARTMENT OF TRANSPORTATION

CARRIER CERTIFIES THAT THE CARGO TANK SUPPLIED FOR THIS SHIPMENT IS A PROPER CONTAINER FOR THE TRANSPORTATION OF THIS COMMODITY

CUSTOMER	DESTINATION	DATE	TIME	TAKEAWAY	LOADING
MIAMI1	PORT EVERGLADES	11-27-96	14:05:33	BOCO	00103463

Best Code Meth Del **CU** FOB Order

PO

Carrier **COASTAL REF & MKTG INC**

Shipper To:

**MIAMI DADE WATER AND SEWR  
PRESTON PLANT  
1100 W 2 AVE  
PO#S08135B  
HIALEAH FL 33010**

Card Reference Numbers			
Customer <b>023312</b>	Exchange	Carrier <b>03547</b>	DRM <b>0130</b>

Charge To:

Prod	Description	Unit	Gross	Temp	API	Net
	DIESEL FUEL, 3, NA1993	PGIII				
	DIESEL 0.05% MAX	GALS	07501.00	078.6	34.9	07436.30

THIS DIESEL FUEL DOES NOT CONTAIN VISIBLE EVIDENCE OF DYE.

19'-20 1/4

SE ADDRESS  
GREENWAY PLAZA HOUSTON, TX 77046  
COASTAL REFINING AND MARKETING, INC. E.P.A. REGISTRATION #4116



02/28/97

13:03

# Non-Negotiable Bill of Lading

MARATHON OIL COMPANY "Transferor" - 539 S. MAIN ST., FINDLAY, OH - EPA - RFG REG #5045  
 MATERIAL SAFETY DATA SHEET AVAILABLE FROM THE TERMINAL FOR THESE PRODUCTS ON REQUEST  
**CUSTOMER NOTICE** - THE PRODUCT TRANSFER DOCUMENTS FOR THIS TRANSACTION INCLUDE OTHER DOCUMENTS WHICH MAY CONTAIN ADDITIONAL AND/OR CORRECTING REFORMULATED GASOLINE INFORMATION. IF IN CONFLICT, THE INFORMATION IN THE OTHER DOCUMENTS WILL CONTROL.

Form 50805-A REV. 9/95

**SEE REVERSE SIDE FOR HAZARD WARNING INFORMATION & NOTES**

DRIVER SIGNATURE: 

ALL ITEMS SUBJECT TO CONDITIONS ON REVERSE SIDE HEREOF.

TRUCK SEAL NUMBERS: \_\_\_\_\_ SHIPMENT RECEIVED BY: \_\_\_\_\_

For Product Emergency  
 Spill, Leak, Fire, Exposure or Accident, CALL  
**CHEMTREC - Day or Night 800-424-9300**

COPY 

MARATHON OIL COMPANY "TRANSFEROR" - 539 S. MAIN ST., FINDLAY, OH -  
 NOT CONVENTIONAL GASOLINES - THESE PRODUCTS DO NOT MEET THE  
 USED IN ANY RFG COVERED AREA. SHIPPED FROM: 1601 S.E. 20TH

EPA-RFG REG #5045  
 REQUIREMENTS FOR REFORMULATED GASOLINES (RFG) AND RMT MIX  
 STREET, FT. LAUDERDALE, FL 33314

MARATHON OIL COMPANY  
 MARATHON OIL COMPANY "TRANSFEROR" - 539 S. MAIN ST., FINDLAY, OH - EPA-RFG REG #5045

DATE 02/28/97  
 NUMBER 5-89748-036  
 TIME IN 9601  
 TIME OUT 0611

SOLD TO (CONSIGNEE)		SHIPPED FROM		LOC CODE
GROTA REFINING & MARKETING CO FIELD OIL COMPANY DAK FL		FT. LAUDERDALE		3000000400
DATE SHIPPED	SHIPPED VIA			
02/26/97	KILL FRETCH/ UNBRAIN			
DESTINATION		CUSTOMER NUMBER	ITEM NUMBER	
UNKNOW FL		P1303140000000		
DRIVER	TRAILER	COMPANY	CUSTOMER P.O. AND RELEASE NUMBER	TRANSMITTED CUSTOMER AND RELEASE NUMBER
5100	115H	0500		
S 8300514/0500 11				

CARGO TANK COMPARTMENT PRODUCT DESCRIPTIONS	GROSS GAL.	NET GAL	TEMP./API GR.	COMMENTS
CONVENTIONAL GASOLINES - THESE PRODUCTS DO NOT MEET THE REQUIREMENTS FOR REFORMULATED USED IN ANY RFG COVERED AREA. SHIPPED FROM: 1601 S.E. 20TH STREET, FT. LAUDERDALE, FL 33314	5201	3185	675.0/036.2	
NO. 2 LOW SULFUR FUEL OIL, UNDYED ".05% MAXIMUM SULFUR; 40 CETANE MINIMUM"	3500	2120	674.5/036.2	

**Procedures for Startup  
Standby Generators - All Models  
Central District Wastewater Treatment Plant  
Miami-Dade Water and Sewer Department**

There are two types of startup procedures that can be followed depending on the scenario requiring power standby power production. These procedures are: normal baseload / peaking startup and deadline startup. These procedures are discussed briefly in the following paragraphs.

At the time of submittal of this application, the standby generators at the Central District WWTP are started by battery (electric) power. The facility is in the process of converting the generators to compressed air startup capability. With electric startup, sufficient battery capacity is available to startup a single generator, so startup of the generators is staggered in 15 second intervals. With compressed air startup, each generator will have a dedicated compressed air tank and all generators will be able to startup simultaneously.

**Normal Baseload/Peaking Startup**

The normal baseload/peaking startup procedure is followed under circumstances where the facility is given advance notice that power will be curtailed, or in the event that the facility proactively decides to startup the generators to protect against emergency power loss. This procedure is initiated manually. Upon startup, each engine is allowed to run 10 minutes at idle setting to warm-up, followed by 15 seconds of acceleration, 10 to 20 seconds of synchronization, and 10 to 30 seconds to accept load. When each unit synchronizes to bus, the load breaker closes and the unit provides electricity to the plant. The total procedure takes approximately 11 minutes to come on-line.

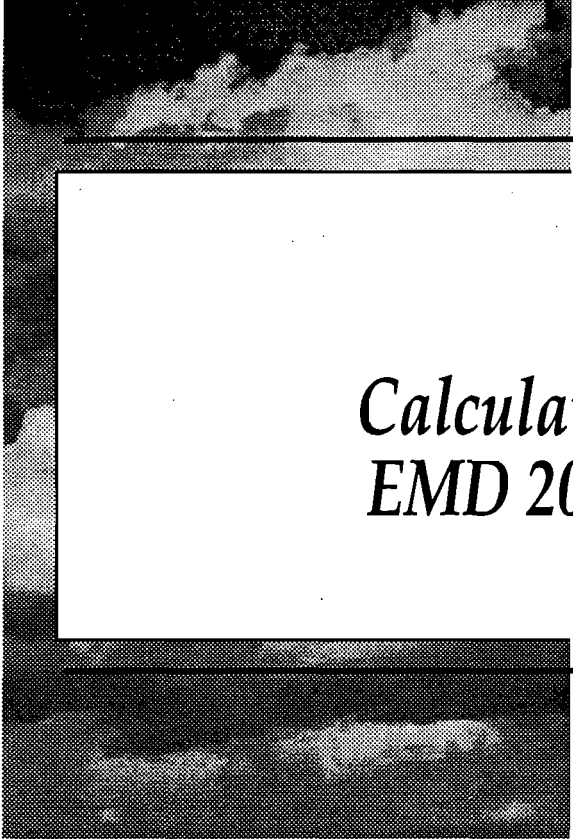

**Deadline Startup**

The deadline startup procedure is followed under circumstances where the facility is not given advance notice that power will be curtailed (emergency power loss). This procedure is initiated automatically by the plant control systems when the plant loses power. Upon startup, the units remain at idle for up to 1 minute, accelerate for approximately 15 seconds, synchronize for approximately 15 seconds, and accept load. When each unit synchronizes to bus, the load breaker closes and the unit provides electricity to the plant. The total procedure usually takes less than 2 minutes.

**Excess Emissions**

Excess emissions that occur during startup will consist of elevated hydrocarbon (HC), carbon monoxide (CO), and particulate (PM) emissions as a result of cold combustion temperatures and reduced load conditions. As the units warm up and accept load, emissions of these pollutants will decrease. Emissions of nitrogen oxides (NOx) will mirror the other pollutants - increasing as the engines warm up and accept load.

Since limitations in the permit application are based on generator power output (kW-hr), emissions resulting from startup of the generators are not accounted for in monitoring, recordkeeping, and reporting. However, emissions that occur during this period are not expected to be significant (low NOx emissions due to engine warm-up and relatively short duration of emissions of other pollutants).



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APPENDIX B  
*Calculation of Emissions from  
EMD 20-645E4 Generator Sets*

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**Description of Stack Sampling Facilities  
3 Standby Generator Sets (20E4)  
Central District Wastewater Treatment Plant  
Miami-Dade Water and Sewer Department**

Diameter: 33 inches

Orientation: Vertical

Height Above Structure: approximately 8 ft

Height Above Grade: approximately 21 ft

Means of Access: No permanent ladder is provided on the enclosure structures for access to the rooftop. Therefore, an extension ladder must be obtained from plant maintenance staff. The stack extends vertically from the top center of the enclosure.

Sampling Ports: Not equipped with sampling ports. Probe can be inserted into end of stack.



**Emissions from 20E4B Standby Generators (Each)**  
**Central District Wastewater Treatment Plant**  
**Miami-Dade Water and Sewer Department**

Compound	Reference	Factor Units	Controlled Emissions											
			25% Load			50% Load			75% Load			100% Load		
			Factor	lb/hr	tons/yr	Factor	lb/hr	tons/yr	Factor	lb/hr	tons/yr	Factor	lb/hr	tons/yr
CO	Manufacturer's Data <sup>1</sup>	g/bhp-hr	1.45	2.87	16.7	0.59	2.34	6.8	0.42	2.50	4.8	0.51	4.04	5.9
NOx	Manufacturer's Data <sup>1</sup>	g/bhp-hr	7.58	15.0	65.8	6.54	25.9	75.3	6.27	37.3	72.1	7.34	58.2	84.4
SO <sub>2</sub>	Mass balance <sup>2</sup>	lb/10 <sup>3</sup> gal	7.10	0.42	1.8	7.10	0.74	2.2	7.10	1.06	2.1	7.10	1.35	2.0
PM <sub>10</sub>	AP-42, Table 3.4-2 <sup>3</sup>	lb/mmbtu	0.05	0.43	1.9	0.05	0.75	2.2	0.05	1.10	2.1	0.0533	1.40	2.0
VOCs	AP-42, Table 3.4-1 <sup>3</sup>	lb/mmbtu	0.08	0.64	2.8	0.08	1.15	3.3	0.08	1.65	3.2	0.0800	2.10	3.0
Benzene	AP-42, Table 3.4-3 <sup>3</sup>	lb/mmbtu	7.76E-04	0.01	0.0	7.76E-04	0.01	0.0	7.76E-04	0.02	0.0	7.76E-04	0.02	0.0
Toluene	AP-42, Table 3.4-3 <sup>3</sup>	lb/mmbtu	2.81E-04	0.00	0.0	2.81E-04	0.00	0.0	2.81E-04	0.01	0.0	2.81E-04	0.01	0.0
Xylenes	AP-42, Table 3.4-3 <sup>3</sup>	lb/mmbtu	1.93E-04	0.00	0.0	1.93E-04	0.00	0.0	1.93E-04	0.00	0.0	1.93E-04	0.01	0.0
Formaldehyde	AP-42, Table 3.4-3 <sup>3</sup>	lb/mmbtu	7.89E-05	0.00	0.0	7.89E-05	0.00	0.0	7.89E-05	0.00	0.0	7.89E-05	0.00	0.0
Acetaldehyde	AP-42, Table 3.4-3 <sup>3</sup>	lb/mmbtu	2.52E-05	0.00	0.0	2.52E-05	0.00	0.0	2.52E-05	0.00	0.0	2.52E-05	0.00	0.0
Acrolein	AP-42, Table 3.4-3 <sup>3</sup>	lb/mmbtu	7.88E-06	0.00	0.0	7.88E-06	0.00	0.0	7.88E-06	0.00	0.0	7.88E-06	0.00	0.0
Propylene	AP-42, Table 3.4-3 <sup>3</sup>	lb/mmbtu	2.79E-03	0.02	0.1	2.79E-03	0.04	0.1	2.79E-03	0.06	0.1	2.79E-03	0.07	0.1
Total PAH	AP-42, Table 3.4-4 <sup>3</sup>	lb/mmbtu	1.55E-03	0.01	0.1	1.55E-03	0.02	0.1	1.55E-03	0.03	0.1	1.55E-03	0.04	0.1

<sup>1</sup> NOx emissions @ 15% O<sub>2</sub> for EMD Model 20-645E4 generator set with BACT applied (fuel injection timing retard + turbocharger/aftercooler).

NOx reduction using BACT is 28%.

<sup>2</sup> SO<sub>2</sub> emissions are calculated using a mass balance approach based on a fuel sulfur content of 0.05 wt% (BACT).

<sup>3</sup> Emissions for large bore diesel engines assume a diesel fuel density of 7.1 lb/gal and a gross heating value of 0.138 mmbtu/gal. PM<sub>10</sub> reduction using BACT is 7%.

20-645E4		Operation, each (hrs/yr):		2,900		BSFC		Fuel	
				% Load	(lb/bhp-hr)	gal/hr	Penalty		
Prime Mover Power Output (hp):	3,600			100%	0.375	190	0%		
Generator Capacity (kW):	2,500			75%	0.394	150	5%		
Allowable power output, each (hp-hr):	10,440,000			50%	0.413	105	10%		
Allowable power output, each (kW-hr):	7,250,000			25%	0.469	59	25%		

EMD MP45 Unit  
Information

EMD Model 20-645E4 Diesel Engine  
3600 BHP/2500 KW Continuous Rating

Applies to Miami-Dade W&S Authority Dept.  
Diesel-Generators at:

North District WWTP (4)  
Central District WWTP (3)  
Preston WTP (3)  
Pump Station #300

# OPERATING DATA

## 8, 12, 16, 20-645E4 TURBOCHARGED ENGINES

Unit Model	S8E4		S12E4		S16E4		S20E4		
Engine Model	8-645E4		12-645E4		16-645E4		20-645E4		
Rated RPM	750	900	750	900	750	900	750	900	
BHP - Continuous	1200	1525	1830	2305	2450	3070	3050	3600	
BMEP - Nominal	psi	130	130	130	131	130	129	123	
Torque @ Cont. BHP	lb-ft	8400	8900	12,815	13,450	17,225	17,915	21,395	21,000
Piston Speed	fpm	1250	1500	1250	1500	1250	1500	1250	1500
Nominal Fuel Rate - full load	lb/BHP-hr	.385	.375	.376	.375	.379	.379	.370	.375
Estimated Lube Oil Consumption	gal/hr	0.41	0.52	0.49	0.59	0.69	0.83	0.86	0.98
<u>LUBRICATING OIL SYSTEMS</u>									
Lube Pressure Pump Flow	gpm	88	105	131	157	154	185	191	229
Lube Piston Cooling Pump Flow	gpm	41	48	55	66	77	92	91	109
Lube Scavenging Pump	gpm	171	205	232	279	325	390	325	390
<u>FUEL OIL SYSTEM</u>									
Fuel Supply Pump - capacity	gpm	1.8	2.1	3.8	4.5	3.8	4.5	3.8	4.5
Fuel Supply Pump - suction lift - max.	ft	12	12	12	12	12	12	12	12
<u>AIR AND EXHAUST SYSTEMS</u>									
Intake Air @ 14.7 psi - 90° F	cfm	3300	4250	5820	7100	7200	9040	9300	10,700
Exhaust Temp.	°F	700	660	770	790	765	745	725	735
Exhaust Volume @ Exh. Temp.	cfm	7140	8700	12,750	15,800	16,250	19,650	20,000	23,000
Exhaust Back Pressure Total System-max. allowable	in. H <sub>2</sub> O	5	5	5	5	5	5	5	5
Air Intake Total System Suction - max.	in. H <sub>2</sub> O	6	6	6	6	6	6	6	6
<u>COOLING WATER SYSTEMS</u>									
Engine Water Flow	gpm	415	500	550	660	710	850	920	1100
Total System Pressure Drop	psi	33	47	35	50	42	60	38	55
Piping and Cooling Equipment	psi	8	8	8	8	8	8	8	8
Raw Water Flow (with EMD Stand. Extra Heat Exch.)									
Min. Flow - 100°F	gpm	250	290	325	490	600	*600	650	1000
90°F	gpm	225	225	250	365	460	600	490	710
80°F	gpm	200	200	205	285	350	520	390	550
Max. Raw Water Flow	gpm	650	650	600	600	600	600	1000	1000
Heat Exchanger Raw Water } Δ p (psi) @ Max. Flow }		2.5	2.5	3.9	3.9	3.9	3.9	4.3	4.3

\* Fouling factor less than .001

## GENERAL INFORMATION

### RATING CONDITIONS

All engine ratings contained herein apply under the following conditions:

90° F (32° C) Air Intake Temperature	
28.25 in. (718 mm) Hg. Barometer (Min.)	
19,350 BTU/LB (20,414,250 J/.4536 kg) Fuel (HHV)	[APZ 28]
15 in. (381 mm) H <sub>2</sub> O Air Intake Depression (Max.)	} Roots-Blown Scav- enged Engines
21 in. (553 mm) H <sub>2</sub> O Exhaust Back Pressure (Max.)	
6 in. (152 mm) H <sub>2</sub> O Air Intake Depression (Max.)	} Turbocharged Engines
5 in. (127 mm) H <sub>2</sub> O Exhaust Back Pressure (Max.)	

### ALTITUDE DERATING

Roots-Blown engines - Sea level to 4000 ft. (1219 m) altitude - no derating. Above 4000 ft. (1219 m) - 4% per 1000 ft. (305 m)

Turbocharged engines - See derating charts, pages 1-9 to 1-12.

### OVERLOAD RATINGS

For generator units and for continuous duty power take-off unit ratings, the following applies:

Standard DEMA rating of 10% overload for 2 continuous hours out of every 24 hours continuous operation.

### MINIMUM LOAD RESTRICTION - TURBOCHARGED ENGINES

Minimum load for all Model 645E4 turbocharged engines running at 750 or 900 rpm should not be less than 20% of the full load rating. There is no minimum load restriction for operation at lower engine speeds.

### TEMPERATURE DERATING

See Temperature Derating Chart, pages 1-7 and 1-8

### ANTI-FREEZE DERATING

The power rating of turbocharged engines must be reduced when anti-freeze is used in the cooling system. Specific deratings will be furnished on request.



ENGINE MODEL 20-645E4/7

PM&I DATA

LAB REPORT REFERENCE NO.  
FUEL SULFUR CONTENT

C34000

DATE: 16-NOV-79

0.27%

Percent Load	RPM	BHP	AIR TEMP F	NOx g/bhp-hr	CO g/bhp-hr	CH2 g/bhp-hr	SO2 g/bhp-hr	O2 %	NOx g/hr	CO g/hr	CH2 g/hr	SO2 g/hr
110	900	3958	83.6	10.12	0.70	na	0.90	12.7	40052	2771	na	3579
100	900	3603	85.0	10.19	0.51	na	0.90	13.1	36716	1838	na	3254
75	900	2705	81.9	8.71	0.42	na	0.93	15.2	23569	1136	na	2504
50	900	1801	94.2	9.09	0.59	na	1.01	16.8	18366	1063	na	1814
25	900	891	88.0	10.53	1.45	na	1.32	18.2	9381	1292	na	1180

NOx measurement method - (NDIR/NDUV) DATA CORRECTED TO CHEMILUMINESCENT METHOD.

CO measurement method - NDIR

CH2 (unburned hydrocarbons) measurement method - flame ionization detector

O2 measurement method - paramagnetic analyzer or calculated

SO2 was calculated based upon the assumption of 100% oxidation of the sulfur in the fuel to sulfur dioxide (SO2).



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APPENDIX C  
*Aftercooler Documentation*

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## EMD TECHNICAL PAPER

# 40020885 Four Pass Aftercooler

The four pass aftercooler is an increased capacity aftercooler developed in response to the demands placed on the two pass aftercooler by greater combustion air flows required by the 710 engine series. In early testing of 710 engines equipped with the two pass aftercooler, it was found that the temperatures in the engine airbox (intake manifold) were higher than that of the 645 engine. The four pass aftercooler has improved heat transfer properties reducing the power assembly charging temperature (air box temperature at full load). It can be applied to 710G engines, 16 and 20 cylinder 645E and 645F engine series.

### FEATURES

The four pass aftercooler attained greater thermal capacity due to the following improvements:

- A water flow path which passes the water through the tube bundle 4 times
- A 50% increase in fin heat transfer area, yielding improved heat transfer
- A change in the fin material from aluminium to copper further improving heat conductivity. Copper as utilized in the four pass aftercooler has 83% greater thermal conductivity (k)<sup>\*</sup> than aluminum
- An improvement in the aftercooler's side baffle which assures that air is not permitted to leak around the core and escape cooling
- Identical exterior dimensions which allow the four pass to be installed in any application where either the P/N 9541961 or P/N 8365645 had been applied. The four pass aftercooler is field retrofittable to the 645 engine. (It can not be installed in place of the smaller p/n 8288974 unit.)

### BENEFITS

With the above five improvements, the four pass aftercooler retains several advantages over its two pass version including:

- **A reduction in airbox temperatures.** A 30-35 degree reduction in airbox temperature at the engine's rated horsepower has been measured; in the 710 engine, temperatures were restored to the levels attained in the 645 engine
- **Reduced Oxides of Nitrogen (NOx) emissions.** Previous test results have demonstrated a reduction in NOx emissions up to 15% at full horsepower
- **Fuel economy savings.** At full load, substituting the four pass aftercooler for the two pass has produced fuel savings measured from .75% to 1.5% for 710 engines and approximately .5% for 645 engines
- **Identical System Design, as a result of identical water capacity,** (approximately 85 gpm in the 16-710 engine) permits installation of the four pass aftercooler without alteration of the engine's cooling water pumps or piping circuit. This also assures that water flow to the engine's power assemblies is not altered by diversion of a greater quantity of water to the aftercoolers

### ENGINE EMISSIONS

The four pass aftercooler lowers the airbox charge temperature, engine peak combustion temperatures and exhaust temperatures and therefore reduces NOx emissions from our engines. The NOx formation reactions are highly thermal sensitive, so an enhanced charge cooling is an effective way to reduce NOx emissions.

\* ref. Keith, Frank, Principles of Heat Transfer, 2nd Ed., International Textbook Co., Scranton PA., 1965, p. 593

## ENGINE FUEL ECONOMY

The application of aftercooling to a turbocharged Diesel engine is known to have advantages in the areas of fuel economy and in the emissions of oxides of nitrogen (NOx). The fuel economy advantages of the four pass aftercooler in the 710 engine series has shown to produce fuel economy improvements in the range of .75% to 1.5% at the engine's rated speed and load. When these improvements are applied to the annual fuel consumption of a locomotive, they will show an attractive return on the investment represented by the price premium of the four pass aftercooler over its two pass predecessor. The investment payback periods of the four pass aftercooler used in 645 and 710 engines have ranged from one to two years, depending on annual fuel consumption.

## PERFORMANCE ADVANTAGE CONDITIONS

The four pass aftercooler provides superior performance over the two pass at the following conditions:

- High engine air flow rates, such as in the 710 engine series (particularly the 16 and 20 cylinder versions of the 710)
- Operating conditions which produce high air flows. For example:
  - At throttle settings six through eight. These are the conditions at which the turbocharger is operating "off the geartrain" and air flow rates and air compression ratios are highest
  - High ambient temperatures and/or high altitudes result in particularly high turbocharger

discharge temperatures. Under these especially demanding conditions, the benefits of the four pass are even greater than that of the two pass

## PRODUCT RELIABILITY

The superior construction of the four pass aftercooler makes it a reliable, high performance heat transfer product built to last. The four pass and two pass aftercoolers have identical major features of construction, such as retention of the reliable rolled mechanical bond between the aftercooler's red brass tubes and the tube bundle's header plates. This method of construction has proved reliable in the two pass aftercooler design and in the premium mechanically-bonded radiators.

## CONCLUSION

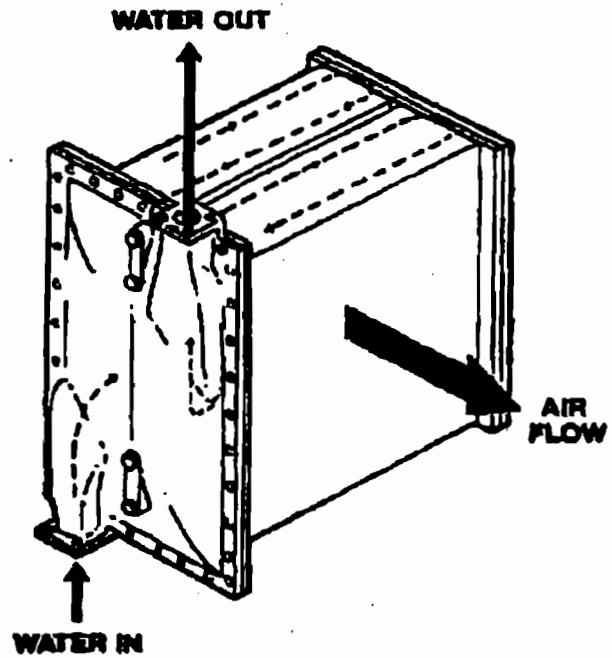
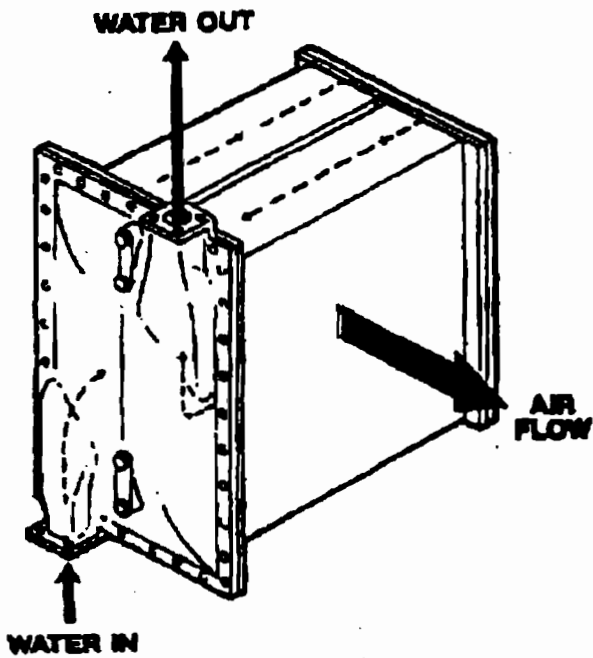
The value of the four pass aftercooler is evident in the areas of improved air box temperatures, engine emission reductions and improved fuel economy. Electro-Motive, in partnership with Young Radiator, has demonstrated their commitment to accepting and meeting the performance challenges of the rail industry. It is this partnership that continues to provide the best heat transfer products to the industry. The four pass aftercooler is the latest product of this commitment.

**Note:** A performance comparison of the four pass and two pass aftercooler depends on which particular engine it is installed in and on the power at which they are compared. EMD welcomes the opportunity to provide technical expertise to discuss individual railroad needs.



## 2-PASS AFTERCOOLER

## 4-PASS AFTERCOOLER (Baffles not shown for clarity)



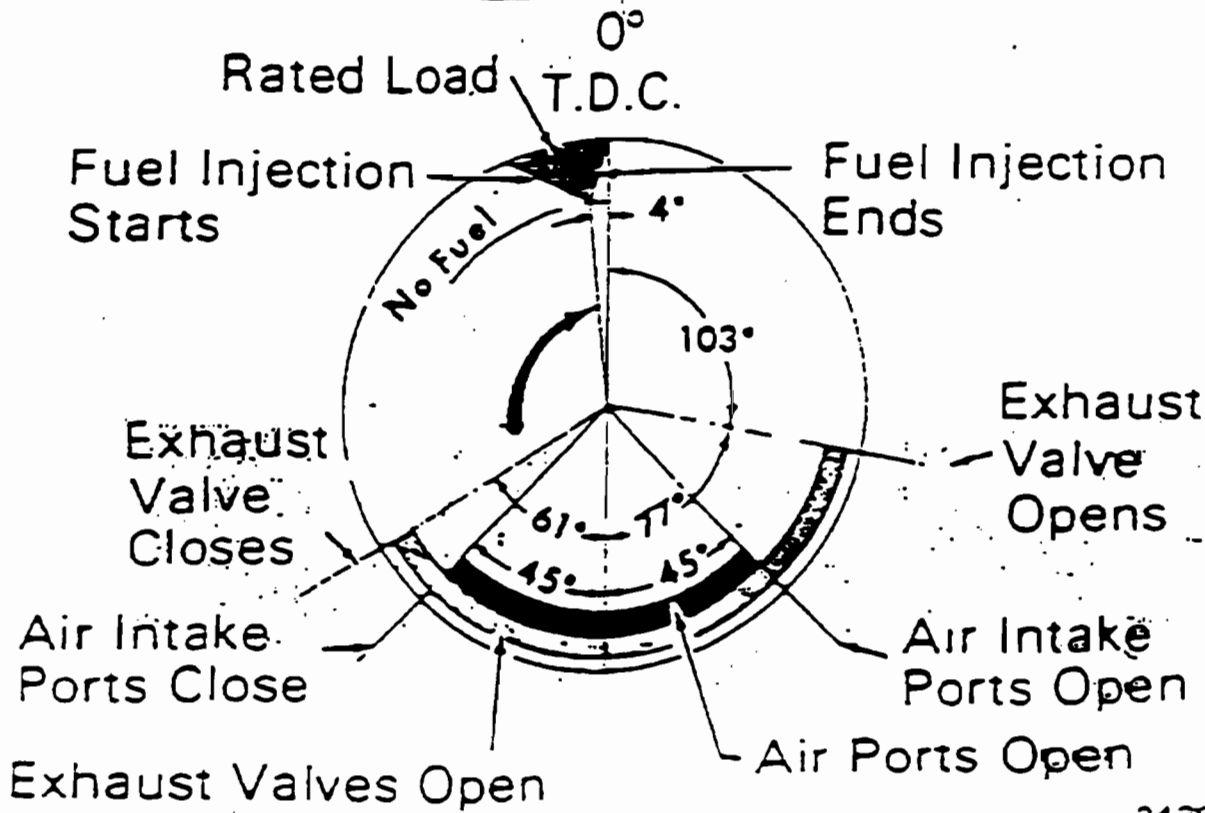
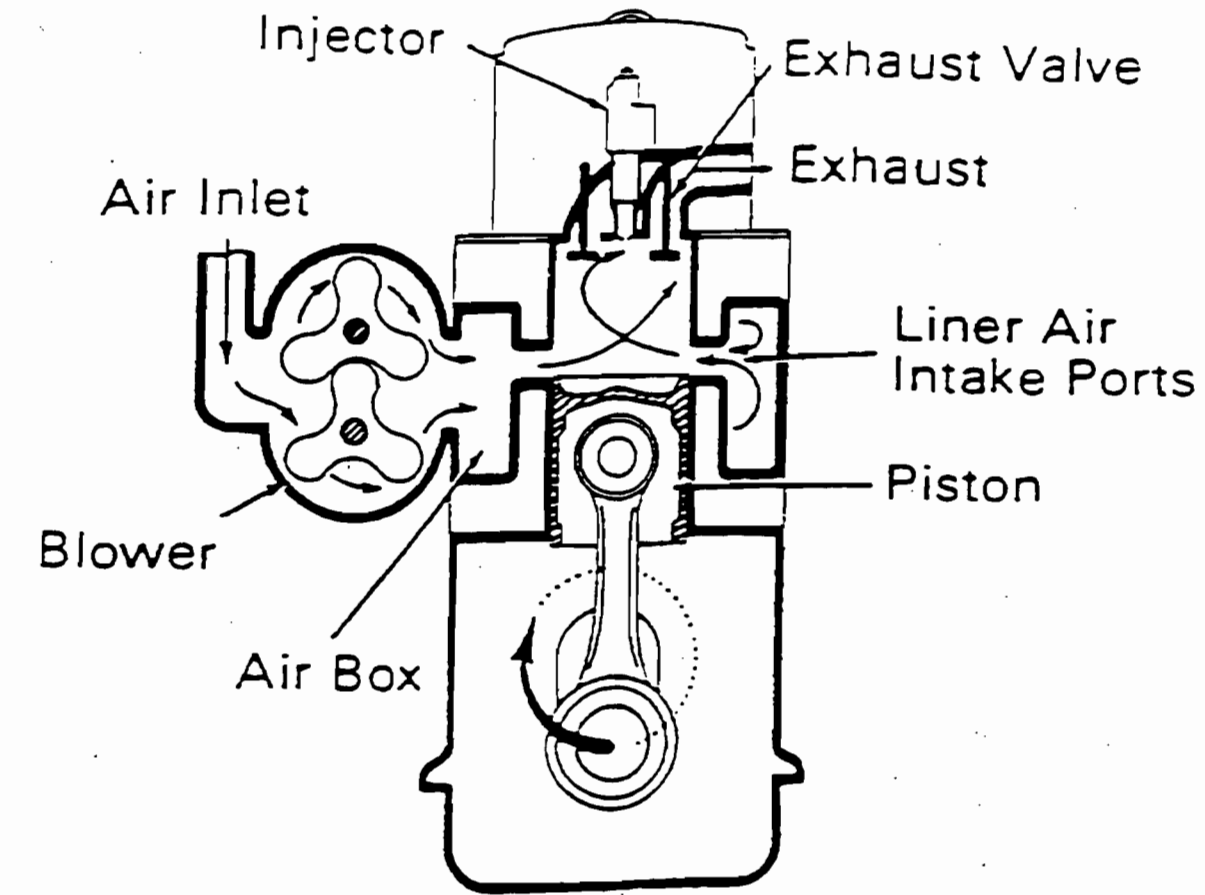
Electro-Motive Division  
General Motors Corporation  
Warren, MI 48090  
270041 McCook, IL USA  
Phone: (708) 887-6000  
Fax: (708) 387-6988

Diecast Division  
General Motors of Canada Limited  
Box 5100, London, Ontario N5A 4M5  
Telex: 087-8500 Canada  
Telephone: (519) 452-6182  
Fax: (519) 452-6380



1992 General Motors Corporation. All rights reserved. Water fill method, see Air and Water  
only as approved under the approval number shown on the correct model Labelled Graph  
Form GM Engineering Communication of 78-224-102.

4-PASS-992



24395

Fig.O-1 - Schematic Illustration Of



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APPENDIX D  
*Modeling Protocol*

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**CH2MHILL**

*Celebrating  
50 Years*

**CH2M HILL**  
701 B Street  
Suite 700  
San Diego, CA  
92101-8120  
**Tel 619.687.0110**  
**Fax 619.687.0111**

February 21, 1997

139633.AP

Mr. Martin Costello  
Florida Department of Environmental Protection  
Division of Air Resources Management  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

Dear Mr. Costello:

Subject: Modeling Protocol  
Proposed Standby Power Generators  
Miami-Dade Water and Sewer Department  
Alexander Orr Water Treatment Plant

The Miami-Dade Water and Sewer Department (WASD) will apply for a permit to operate standby generators at three of its facilities: the Central District Wastewater Treatment Plant, located on Virginia Key in Miami; the Alexander Orr Water Treatment Plant, located at 6800 SW 87th Avenue in Miami; and the John E. Preston Water Treatment Plant, located at 1100 W 2nd Avenue in Hialeah. The Central District and Alexander Orr facilities are major sources of criteria pollutant emissions with respect to prevention of significant deterioration (PSD), and estimated emissions from the standby generators at the desired level of operation will constitute a significant net emissions increase. The Preston facility is a minor source of criteria pollutant emissions, but the estimated emissions increase from the standby generators at the desired level of operation will constitute a major source by itself. As such, permitting of these sources will be subject to PSD review. Separate permit applications will be submitted for each source.

CH2M HILL has prepared this Modeling Protocol in order to obtain consensus from Florida Department of Environmental Protection (FDEP) on the approach to be taken for the air quality impact analyses that will be required as part of the PSD reviews for these projects. The contents of the proposed modeling protocol are based on recent communications with Mr. Cleve Holliday of your staff, as well as our experience in conducting previous dispersion modeling studies in Florida.

## **Project Background**

PSD permit applications will be prepared and submitted for the following sources:

- At the Central District Wastewater Treatment Plant, three existing (previously exempt) 3,600 horsepower (hp) diesel-fueled internal combustion (IC) engines, each driving an associated 2,500 kilowatt (kW) electrical generator; and one new 3,800 hp diesel-fueled IC engine, driving a 2,700 kW electrical generator.
- At the Alexander Orr Water Treatment Plant, five 3,800 hp diesel-fueled IC engines (four existing - previously exempt - and one new), each driving an associated 2,700 kW electrical generator;
- At the John E. Preston Water Treatment Plant, three existing (previously exempt) 3,600 hp diesel-fueled IC engines, each driving an associated 2,500 kW electrical generator; and three new 3,800 hp diesel-fueled IC engines, each driving an associated 2,700 kW electrical generator.

## **Pollutants to be Evaluated**

The proposed projects will increase emissions of NO<sub>x</sub>, sulfur dioxide (SO<sub>2</sub>), and particulate matter (PM<sub>10</sub>) by significant quantities (as defined by the PSD regulations). Emissions of these pollutants will be evaluated in the PSD applications. Emissions of other pollutants are not expected to be significant as a result of operating the proposed sources, but will be evaluated in each application.

## **Emissions Inventory (Proposed Emission Sources)**

An emissions inventory will be prepared for proposed operation of the standby generators to facilitate a comprehensive dispersion analysis of PSD pollutants emitted. The inventory will be based on the worst-case scenario of operating each plant entirely on power produced by the standby generators. Plant loads are approximately 7,000 kW (Central District - including electrical load from the future oxygen plant); 8,000 kW (Alexander Orr); and 9,000 kW (John E. Preston). Therefore, it will be necessary that the plants be capable of operating 3 standby generator sets (Central District) or 4 generator sets (Alexander Orr and John E. Preston) simultaneously in order to accommodate worst-case demand scenarios. Additional generator sets are present at each facility and will be operated; however, maximum operation will not exceed the levels stated above.

The emissions inventory will be utilized to determine the source's PSD increment consumption (NO<sub>x</sub>, SO<sub>2</sub>, and PM<sub>10</sub>) and to demonstrate compliance with the national ambient air quality standards (NAAQS) for these pollutants. The general approach will be to perform initial modeling and screening analyses using a single year of meteorological data in order to identify the area of significant air quality impacts. Subsequent detailed modeling will be conducted for pollutants having a significant impact on air quality using all five years of meteorological data. The results of the detailed 5-year modeling will be included in the permit application submittal in both hard copy and electronic format.

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### **Best Available Control Technology Demonstration (BACT)**

BACT will be utilized for all pollutants that will be emitted in significant quantities (NO<sub>x</sub>, SO<sub>2</sub>, and PM<sub>10</sub>). BACT will be determined by obtaining information from EPA's RACT/BACT/LAER Clearinghouse database and by contacting select state and agency personnel to ensure that the most recent PSD permit determinations will be considered in the determination of what constitutes BACT. In accordance with State and Federal guidance, the BACT demonstration for this project will follow the "top-down" approach.

It is currently expected that BACT for NO<sub>x</sub> emissions will consist of combustion air precooling plus fuel injection timing retard (FITR) technology. BACT for SO<sub>2</sub> and PM<sub>10</sub> emissions will consist of a fuel oil sulfur content restriction of 0.05 weight percent and efficient combustion practices (FITR).

### **Emission Inventory (Other Emission Sources)**

If the predicted impact of the proposed source is greater than the PSD significant impact thresholds, it will be necessary to model other emission sources (using five years of meteorological data) along with the emissions from the proposed source for the purpose of determining PSD increment consumption and/or demonstrating compliance with the NAAQS. If this is necessary, a written request for an inventory of PSD and baseline emission sources will be submitted to FDEP. Such a request will specify the proposed location of the source and the predicted radii of significant impact of the facility (by pollutant).

### **Dispersion Model**

The dispersion model to be used in the modeling analysis will be EPA's most recent version of the Industrial Source Complex Model (ISC3) as is available from EPA's Technology Transfer Network (TTN) Bulletin Board. The ISC3 model will be used for all averaging periods (including annual) for all pollutants to be modeled. Horizontal stacks, present at the Alexander Orr Water Treatment Plant, will be modeled with a negligible exit velocity (0.1 m/s) and an effective stack diameter to conserve stack flow rate while retaining the effect of thermal buoyancy.

### **Meteorological Data**

In accordance with FDEP guidance, the meteorological data that will be used in the modeling will consist of five years of Miami International Airport surface air data and West Palm Beach upper air data. The data have been obtained from the EPA TTN bulletin board and processed using EPA's most recent meteorological data processing program, the Meteorological Processor for Regulatory Models (MPRM). The five year period of record for the data to be used will be 1987 - 1991.

Mr. Martin Costello  
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### **Receptor Data**

Maximum concentrations will be identified with a resolution of at least 100 meters in the receptor grid. The general approach will be to perform initial modeling with a coarse spacing not greater than 500 meters, followed by refined modeling with a closer receptor spacing of 100 meters. The initial modeling will allow the determination of the radius of significant impact of the facility by pollutant, averaging period, and year of meteorological data. Areas within the radii of significant impact where high concentrations are predicted will be subjected to increased scrutiny in the refined modeling.

### **Model Options**

The regulatory default, simple terrain, and rural dispersion options will be selected for all model runs. Building heights for structures within 5L of the sources, where L is the minimum of the building height or the maximum projected building width, will be identified for modeling purposes to facilitate calculation of downwash and building wake effects by the model.

### **PSD Class I Areas**

All three facilities are located within 100 kilometers (km) of the Everglades National Park, which has been designated a Federal Class I area. Since the Everglades National Park is a Federal Class I area, it will be necessary to evaluate the impacts of the proposed source on air quality related values. The Federal Land Manager will be contacted to determine the appropriate level of analysis.

### **Nonattainment Areas**

There are no nonattainment areas for any pollutants located within 200 km of the proposed source. Therefore it is assumed that there will be no need to evaluate the impacts of the proposed source on any nonattainment area.

### **Background Air Quality Data**

Preconstruction air quality monitoring data must be obtained and included in the air quality impact analysis for all PSD pollutants. It is our understanding that air quality monitoring data is available in the Miami area. If initial modeling of emission from the proposed source indicates that the pollutants will be present in excess of PSD significant impact levels, we will request that FDEP provide us with background ambient air quality levels for this area. The data will be used to demonstrate that the NAAQS will not be threatened or exceeded as a result of the operation of the proposed source.

### **Determination of PSD Increment Consumption**

If the predicted impacts of the proposed source exceed the PSD significant impact levels for any criteria pollutants, then a modeling analysis will be conducted to predict the PSD increment consumption for those pollutants in the area surrounding the source. This will be accomplished by modeling, in conjunction with the proposed source emissions, all other

Mr. Martin Costello  
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PSD increment consuming sources identified and provided to the applicant by FDEP. The modeling will be conducted within the area of significant impact (for each pollutant) as determined by modeling only the proposed source emissions (see previous), using five years of meteorological data.

### **Demonstration of Compliance with NAAQS**

If the predicted impacts of the proposed source exceed the PSD significant impact levels, a demonstration of compliance with the NAAQS will be conducted for all pollutants that have a significant impact. This will be conducted by modeling, in conjunction with the proposed source emissions, all other PSD and baseline emission sources identified and provided to the applicant by FDEP. The modeled impacts of all other PSD and baseline sources will be added to the ambient air quality background data that will be supplied by FDEP (see previous). The modeling will be conducted within the area of significant impact (for each pollutant) as determined by modeling only the proposed source emissions (see previous), using five years of meteorological data.

### **Modeling Results**

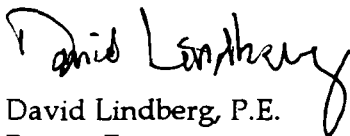
The results of the modeling analysis will be summarized in a chapter of a PSD Permit Application Report that will be submitted to FDEP.

\*\*\*\*\*

We request that FDEP provide us with written concurrence on the above described approach. If you should have any questions, comments, or suggestions regarding the above, please do not hesitate to call me at (619) 687-0110. My FAX number is (619) 687-0111.

Sincerely,

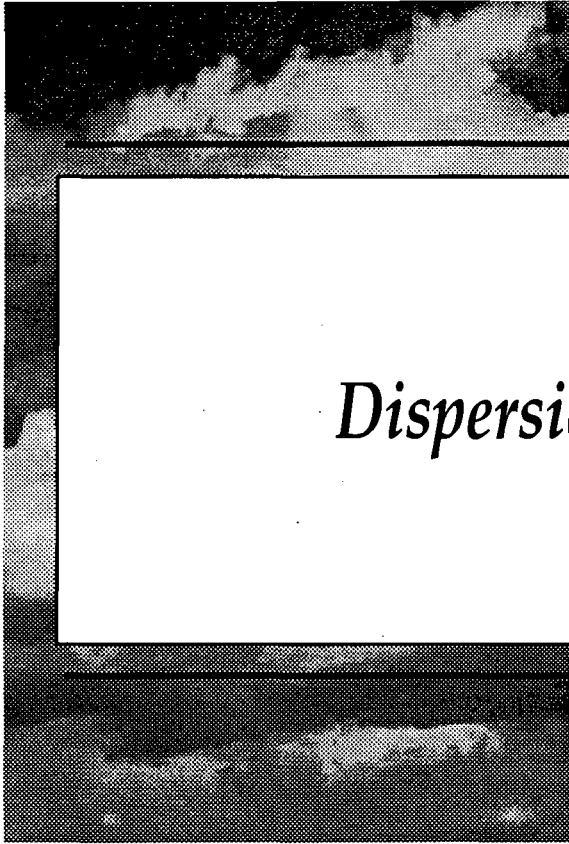
CH2M HILL



David Lindberg, P.E.  
Project Engineer

cc: Bertha Goldenberg/Miami-Dade WASD  
George Howroyd/CH2M HILL  
John Castleberry/CH2M HILL





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APPENDIX E  
*Dispersion Modeling Input and  
Output Files*

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NO ECHO  
CO STARTING

TITLEONE Standby Generator Sets - Significant Impacts - 1987  
TITLETWO Miami-Dade Water and Sewer Department Central District WWTP  
MODELOPT DFAULT CONC RURAL  
TERRHGTS FLAT  
AVERTIME 1 PERIOD  
POLLUTID ALL  
RUNORNOT RUN  
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SO STARTING

\*\* LOCATION SRC-ID TYPE UTM X (m) UTM Y (m) Z (m)

LOCATION CDGENS POINT 584959.1 2847789.6 0.00

\*\* SRCPARAM SRC-ID EMIS Hgt temp,X,sy vel,y,sz dia,ang

SRCPARAM CDGENS 1.0000 6.40 663.0 16.50 0.91

SO BUILDHGT CDGENS	5.49	5.49	5.49	3.65	3.65	3.65
SO BUILDHGT CDGENS	3.65	3.65	3.65	3.65	3.65	3.65
SO BUILDHGT CDGENS	12.19	12.19	12.19	8.84	8.84	5.49
SO BUILDHGT CDGENS	5.49	5.49	5.49	3.65	3.65	3.65
SO BUILDHGT CDGENS	3.65	3.65	3.65	3.65	3.65	3.65
SO BUILDHGT CDGENS	5.49	5.49	5.49	5.49	5.49	5.49
SO BUILDWID CDGENS	19.85	25.39	30.16	13.10	14.80	16.05
SO BUILDWID CDGENS	16.81	17.07	16.80	17.07	16.81	16.05
SO BUILDWID CDGENS	25.78	25.78	25.00	14.81	12.14	13.70
SO BUILDWID CDGENS	19.85	25.39	30.16	13.10	14.80	16.05
SO BUILDWID CDGENS	16.81	17.07	16.80	17.07	16.81	16.05
SO BUILDWID CDGENS	36.84	34.02	30.16	25.39	19.85	13.70

SRCGROUP ALL

SO FINISHED

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GRIDPOLR POL1 STA

GRIDPOLR POL1 ORIG 584959.08442548 2847789.56629077

GRIDPOLR POL1 DIST 750 1000 1250 1500 1750

GRIDPOLR POL1 DIST 2000 2250 2500 3000 3500

GRIDPOLR POL1 DIST 4000 4500 5000 6000 7000

GRIDPOLR POL1 DIST 8000 9000 10000

GRIDPOLR POL1 GDIR 36 10 10

GRIDPOLR POL1 END

\*\* Receptors at r = 250 m (excluding receptors within fenceline)

RE DISCCART 584834.1 2847573.1

RE DISCCART 584798.4 2847598.1

RE DISCCART 584767.6 2847628.9

RE DISCCART 584742.6 2847664.6

RE DISCCART 584724.2 2847704.1

RE DISCCART 584712.9 2847746.2

RE DISCCART 584709.1 2847789.6

RE DISCCART 584712.9 2847833.0

RE DISCCART 584724.2 2847875.1

RE DISCCART 584742.6 2847914.6

RE DISCCART 584767.6 2847950.3

RE DISCCART 584798.4 2847981.1

RE DISCCART 584834.1 2848006.1

\*\* Receptors at r = 500 m (excluding receptors within fenceline)

RE DISCCART 584959.1 2848289.6

RE DISCCART 585045.9 2848282.0

RE DISCCART 585130.1 2848259.4

RE DISCCART 585209.1 2848222.6

RE DISCCART 585280.5 2847406.5

RE DISCCART 585209.1 2847356.6

RE DISCCART 585130.1 2847319.7

RE DISCCART 585045.9 2847297.2

RE DISCCART 584959.1 2847289.6

RE DISCCART 584872.3 2847297.2

RE DISCCART 584788.1 2847319.7

RE DISCCART 584709.1 2847356.6

RE DISCCART 584637.7 2847406.5

RE DISCCART 584576.1 2847468.2

RE DISCCART 584526.1 2847539.6

RE DISCCART 584489.2 2847618.6

RE DISCCART 584466.7 2847702.7

RE DISCCART 584459.1 2847789.6

RE DISCCART 584466.7 2847876.4

RE DISCCART 584489.2 2847960.6

RE DISCCART 584526.1 2848039.6

RE DISCCART 584576.1 2848111.0

RE DISCCART 584637.7 2848172.6

RE DISCCART 584709.1 2848222.6

RE DISCCART 584788.1 2848259.4

RE DISCCART 584872.3 2848282.0

\*\* Fenceline Receptors

RE DISCCART 584857.0 2848199.5

RE DISCCART 584857.0 2848149.5

RE DISCCART 584857.0 2848099.5

RE DISCCART 584857.0 2848049.5

RE DISCCART 584857.0 2847999.5

RE DISCCART 584857.0 2847949.5

RE DISCCART 584857.0 2847899.5

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RE DISCCART 584857.0 2847799.5

RE DISCCART 584857.0 2847749.5

RE DISCCART 584857.0 2847699.5

RE DISCCART 584857.0 2847649.5

RE DISCCART 584857.0 2847599.5

RE DISCCART 584857.0 2847549.5

RE DISCCART 584857.0 2847499.5

RE DISCCART 584857.0 2847449.5

RE DISCCART 584857.0 2847417.7

RE DISCCART 584907.0 2847417.7

RE DISCCART 584957.0 2847417.7

RE DISCCART 585007.0 2847417.7

RE DISCCART 585057.0 2847417.7

RE DISCCART 585107.0 2847417.7

RE DISCCART 585157.0 2847417.7  
RE DISCCART 585207.0 2847417.7  
RE DISCCART 585257.0 2847417.7  
RE DISCCART 585307.0 2847417.7  
RE DISCCART 585357.0 2847417.7  
RE DISCCART 585407.0 2847417.7  
RE DISCCART 585413.2 2847417.7  
RE DISCCART 585453.1 2847447.0  
RE DISCCART 585493.4 2847475.6  
RE DISCCART 585527.5 2847502.5  
RE DISCCART 585527.5 2847552.5  
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RE DISCCART 584877.5 2848199.5

\*\* Everglades National Park Receptors

RE DISCCART 557000.0 2789000.0  
RE DISCCART 556600.0 2792000.0  
RE DISCCART 556000.0 2796000.0  
RE DISCCART 553000.0 2796500.0  
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RE DISCCART 542700.0 2805000.0  
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RE DISCCART 541300.0 2814000.0  
RE DISCCART 542700.0 2816000.0  
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RE DISCCART 543500.0 2824600.0

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RE DISCCART 545000.0 2848600.0  
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RE DISCCART 535600.0 2848600.0  
RE DISCCART 530600.0 2848600.0  
RE DISCCART 525600.0 2848600.0  
RE DISCCART 520600.0 2848600.0  
RE DISCCART 515600.0 2848600.0  
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ME FINISHED

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PLOTFILE PERIOD ALL CDROI87a.PLT 38  
OU FINISHED

\*\*\* ISCST3 - VERSION 96113 \*\*\*

\*\*\* Standby Generator Sets - Significant Impacts - 1987\*\*\*

\*\*\* Miami-Dade Water and Sewer Department Central District WWTP\*\*\*

1-MAY-97

17:05:55

\*\*\* MODELING OPTIONS USED: CONC                      RURAL FLAT              DFAULT

\*\*\* THE SUMMARY OF MAXIMUM PERIOD ( 8760 HRS) RESULTS \*\*\*

\*\* CONC OF ALL    IN MICROGRAMS/M\*\*3\*\*

GROUP ID	AVERAGE CONC	NETWORK RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	GRID-ID
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ALL	1ST HIGHEST VALUE IS	1.07416 AT ( 585207.00, 2847417.75,	0.00, 0.00)	DC NA
	2ND HIGHEST VALUE IS	1.03892 AT ( 585157.00, 2847417.75,	0.00, 0.00)	DC NA
	3RD HIGHEST VALUE IS	0.98365 AT ( 585209.13, 2847356.50,	0.00, 0.00)	DC NA
	4TH HIGHEST VALUE IS	0.98252 AT ( 585257.00, 2847417.75,	0.00, 0.00)	DC NA
	5TH HIGHEST VALUE IS	0.92813 AT ( 585280.50, 2847406.50,	0.00, 0.00)	DC NA
	6TH HIGHEST VALUE IS	0.87506 AT ( 584857.00, 2847899.50,	0.00, 0.00)	DC NA

\*\*\* THE SUMMARY OF HIGHEST 1-HR RESULTS \*\*\*

\*\* CONC OF ALL    IN MICROGRAMS/M\*\*3\*\*

GROUP ID	DATE AVERAGE CONC	(YYMMDDHH)	NETWORK RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	GRID-ID
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ALL	HIGH 1ST HIGH VALUE IS	109.91544 ON 87022811:	AT ( 584857.00, 2847899.50,	0.00, 0.00)	DC NA
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\*\*\* ISCST3 - VERSION 96113 \*\*\*

\*\*\* Standby Generator Sets - Significant Impacts - 1988\*\*\*

\*\*\* Miami-Dade Water and Sewer Department Central District WWTP\*\*\*

1-MAY-97

17:07:45

\*\*\* MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

\*\*\* THE SUMMARY OF MAXIMUM PERIOD ( 8784 HRS) RESULTS \*\*\*

\*\* CONC OF ALL IN MICROGRAMS/M\*\*3\*\*

GROUP ID	AVERAGE CONC	NETWORK RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	GRID-ID
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ALL	1ST HIGHEST VALUE IS	1.48325 AT ( 584857.00, 2847899.50, 0.00, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	1.38611 AT ( 585157.00, 2847417.75, 0.00, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	1.34774 AT ( 585207.00, 2847417.75, 0.00, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	1.29073 AT ( 585209.13, 2847356.50, 0.00, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	1.08692 AT ( 585107.00, 2847417.75, 0.00, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	1.08340 AT ( 585257.00, 2847417.75, 0.00, 0.00)	DC	NA

\*\*\* THE SUMMARY OF HIGHEST 1-HR RESULTS \*\*\*

\*\* CONC OF ALL IN MICROGRAMS/M\*\*3\*\*

GROUP ID	DATE AVERAGE CONC (YYMMDDHH)	NETWORK RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	GRID-ID
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ALL	HIGH 1ST HIGH VALUE IS	122.89244 ON 88073116: AT ( 584857.00, 2847899.50, 0.00, 0.00)	DC	NA
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\*\*\* ISCST3 - VERSION 96113 \*\*\*

\*\*\* Standby Generator Sets - Significant Impacts - 1989 \*\*\*

\*\*\* Miami-Dade Water and Sewer Department Central District WWTP\*\*\*

1-MAY-97

17:09:30

\*\*\* MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

\*\*\* THE SUMMARY OF MAXIMUM PERIOD ( 8760 HRS) RESULTS \*\*\*

\*\* CONC OF ALL IN MICROGRAMS/M\*\*3\*\*

GROUP ID	AVERAGE CONC	NETWORK RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	GRID-ID
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ALL	1ST HIGHEST VALUE IS	1.68214 AT ( 584857.00, 2847899.50, 0.00, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	1.30577 AT ( 584857.00, 2847949.50, 0.00, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	1.15481 AT ( 585207.00, 2847417.75, 0.00, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	1.13300 AT ( 585157.00, 2847417.75, 0.00, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	1.08759 AT ( 585209.13, 2847356.50, 0.00, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	0.99264 AT ( 584798.38, 2847981.00, 0.00, 0.00)	DC	NA

\*\*\* THE SUMMARY OF HIGHEST 1-HR RESULTS \*\*\*

\*\* CONC OF ALL IN MICROGRAMS/M\*\*3\*\*

GROUP ID	DATE	AVERAGE CONC (YYMMDDHH)	NETWORK RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	GRID-ID
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ALL	HIGH	1ST HIGH VALUE IS	111.84219 ON 89061515: AT ( 584857.00, 2847899.50, 0.00, 0.00)	DC	NA
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\*\*\* ISCST3 - VERSION 96113 \*\*\*

\*\*\* Standby Generator Sets - Significant Impacts - 1990\*\*\*

\*\*\* Miami-Dade Water and Sewer Department Central District WWTP\*\*\*

1-MAY-97

17:13:06

\*\*\* MODELING OPTIONS USED: CONC                      RURAL FLAT              DFAULT

\*\*\* THE SUMMARY OF MAXIMUM PERIOD ( 8760 HRS) RESULTS \*\*\*

\*\* CONC OF ALL    IN MICROGRAMS/M\*\*3\*\*

GROUP ID	AVERAGE CONC	NETWORK RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	GRID-ID
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ALL	1ST HIGHEST VALUE IS	1.48533 AT ( 584857.00, 2847899.50,	0.00, 0.00)	DC NA
	2ND HIGHEST VALUE IS	0.92921 AT ( 584857.00, 2847949.50,	0.00, 0.00)	DC NA
	3RD HIGHEST VALUE IS	0.85694 AT ( 584798.38, 2847981.00,	0.00, 0.00)	DC NA
	4TH HIGHEST VALUE IS	0.78920 AT ( 584637.69, 2848172.50,	0.00, 0.00)	DC NA
	5TH HIGHEST VALUE IS	0.76430 AT ( 584576.13, 2848111.00,	0.00, 0.00)	DC NA
	6TH HIGHEST VALUE IS	0.73494 AT ( 584767.63, 2847950.25,	0.00, 0.00)	DC NA

\*\*\* THE SUMMARY OF HIGHEST 1-HR RESULTS \*\*\*

\*\* CONC OF ALL    IN MICROGRAMS/M\*\*3\*\*

GROUP ID	DATE AVERAGE CONC (YYMMDDHH)	NETWORK RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	GRID-ID
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ALL	HIGH 1ST HIGH VALUE IS	102.31303 ON 90022206: AT ( 584857.00, 2847899.50,	0.00, 0.00)	DC NA
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\*\*\* ISCST3 - VERSION 96113 \*\*\*

\*\*\* Standby Generator Sets - Significant Impacts - 1991\*\*\*

\*\*\* Miami-Dade Water and Sewer Department Central District WWTP\*\*\*

1-MAY-97

17:15:06

\*\*\* MODELING OPTIONS USED: CONC                      RURAL FLAT        DFAULT

\*\*\* THE SUMMARY OF MAXIMUM PERIOD ( 8760 HRS) RESULTS \*\*\*

\*\* CONC OF ALL    IN MICROGRAMS/M\*\*3\*\*

GROUP ID	AVERAGE CONC	NETWORK RECEPTOR (XR, YR, ZELEV, ZFLAG) OF TYPE GRID-ID
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ALL	1ST HIGHEST VALUE IS	1.20485 AT ( 584857.00, 2847899.50, 0.00, 0.00) DC NA
	2ND HIGHEST VALUE IS	0.87037 AT ( 584857.00, 2847949.50, 0.00, 0.00) DC NA
	3RD HIGHEST VALUE IS	0.73032 AT ( 584576.13, 2848111.00, 0.00, 0.00) DC NA
	4TH HIGHEST VALUE IS	0.70217 AT ( 584798.38, 2847981.00, 0.00, 0.00) DC NA
	5TH HIGHEST VALUE IS	0.69310 AT ( 584767.63, 2847950.25, 0.00, 0.00) DC NA
	6TH HIGHEST VALUE IS	0.68800 AT ( 584637.69, 2848172.50, 0.00, 0.00) DC NA

\*\*\* THE SUMMARY OF HIGHEST 1-HR RESULTS \*\*\*

\*\* CONC OF ALL    IN MICROGRAMS/M\*\*3\*\*

GROUP ID	DATE AVERAGE CONC (YMMDDHH)	NETWORK RECEPTOR (XR, YR, ZELEV, ZFLAG) OF TYPE GRID-ID
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ALL	HIGH 1ST HIGH VALUE IS	101.00788 ON 91031713: AT ( 584857.00, 2847899.50, 0.00, 0.00) DC NA
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NO ECHO

CO STARTING

TITLEONE Standby Generator Sets - NAAQS & PSD Class II Increment - NO2 - 1987

TITLETWO Miami-Dade Water and Sewer Department Central District WWTP

MODELOPT DFAULT CONC RURAL

TERRHGTS FLAT

AVERTIME PERIOD

POLLUTID NO2

RUNORNOT RUN

CO FINISHED

SO STARTING

\*\* LOCATION SRC-ID TYPE X- Easting (m) Y- Northing (m) Z (m)

\*\* PSD Increment Consuming Sources

LOCATION CDGENS POINT 584959.1 2847789.6 0.00  
LOCATION CDCOGENS POINT 585116.0 2847661.6 0.00  
LOCATION AOGENS POINT 566590.0 2843380.0 0.00  
LOCATION HPGENS POINT 571492.0 2857105.0 0.00  
LOCATION SBROWRRF POINT 579600.0 2883300.0 0.00  
LOCATION NBROWRRF POINT 583600.0 2907600.0 0.00  
LOCATION TARMAC1 POINT 562900.0 2861700.0 0.00  
LOCATION TARMAC2 POINT 562900.0 2861700.0 0.00  
LOCATION TARMAC3 POINT 562900.0 2861700.0 0.00  
LOCATION DCRRF12 POINT 564390.0 2857390.0 0.00  
LOCATION DCRRF34 POINT 564360.0 2857390.0 0.00  
LOCATION DCRRF5 POINT 564300.0 2857400.0 0.00  
LOCATION FPLF14 POINT 580100.0 2883300.0 0.00

\*\* Baseline Sources

LOCATION CDBLOWRS POINT 585123.7 2847661.6 0.00  
LOCATION HPLIME POINT 571350.0 2856854.0 0.00  
LOCATION AOLIME AREA 566407.0 2843306.0 0.00  
LOCATION AOPUMPS POINT 566680.0 2843510.0 0.00  
LOCATION TARMAC3B POINT 562900.0 2861700.0 0.00  
LOCATION DCRRF12B POINT 564390.0 2857390.0 0.00  
LOCATION DCRRF34B POINT 564360.0 2857390.0 0.00  
LOCATION FPLF112 POINT 580100.0 2883300.0 0.00  
LOCATION FPLF1324 POINT 580100.0 2883300.0 0.00  
LOCATION FPLF45B POINT 580100.0 2883300.0 0.00  
LOCATION FPLC5 POINT 570400.0 2834900.0 0.00  
LOCATION FPLC6 POINT 570400.0 2834900.0 0.00  
LOCATION FPLPE12 POINT 587400.0 2875300.0 0.00  
LOCATION FPLPE34 POINT 587400.0 2875300.0 0.00  
LOCATION FPLPE112 POINT 587400.0 2875300.0 0.00  
LOCATION FPLTP12 POINT 567200.0 2831200.0 0.00  
LOCATION RINKER12 POINT 558200.0 2851300.0 0.00  
LOCATION SFCOGEN POINT 580500.0 2850900.0 0.00

\*\* SRCPARAM SRC-ID EMIS Hgt temp,X,sy vel,y,sz dia,ang

\*\* PSD Increment Consuming Sources

SRCPARAM CDGENS 7.2800 6.40 663.0 16.50 0.91  
SRCPARAM CDCOGENS 7.1700 7.62 741.0 0.10 7.85  
SRCPARAM AOGENS 42.3133 3.50 608.0 0.10 11.32  
SRCPARAM AOPUMPS 16.8400 8.53 735.0 10.00 0.24  
SRCPARAM AOLIME 0.0240 4.57 228.59 0.15 0.00  
SRCPARAM HPGENS 25.5000 8.80 608.0 45.19 0.53  
SRCPARAM SBROWRRF 68.5500 59.44 381.0 17.98 3.96  
SRCPARAM NBROWRRF 64.0000 58.50 381.0 18.01 3.96  
SRCPARAM TARMAC1 21.1400 60.96 465.0 12.80 2.44  
SRCPARAM TARMAC2 12.8900 60.96 422.0 9.11 2.44  
SRCPARAM TARMAC3 68.1800 60.96 450.0 11.03 4.57

SRCPARAM DCRRF12 35.3800 76.20 405.4 15.86 3.66  
SRCPARAM DCRRF34 35.3800 76.20 405.4 15.86 3.66  
SRCPARAM DCRRF5 13.2400 76.20 399.8 15.74 2.97  
SRCPARAM FPLF14 135.7000 46.00 422.0 14.63 4.27

\*\* Baseline Sources

SRCPARAM CDBLOWRS 7.6900 10.66 875.0 31.01 0.20  
SRCPARAM HPLIME 0.8410 22.85 330.0 8.25 0.85  
SRCPARAM TARMAC3B -60.8000 60.96 472.0 10.78 4.57  
SRCPARAM DCRRF12B -22.5000 45.72 472.0 12.20 2.74  
SRCPARAM DCRRF34B -22.5300 45.72 472.0 12.20 2.74  
SRCPARAM FPLF112 508.0100 13.72 733.0 21.34 5.49  
SRCPARAM FPLF1324 508.0100 13.29 733.0 21.34 5.49  
SRCPARAM FPLF45B -70.6000 46.00 422.0 14.63 4.27  
SRCPARAM FPLC5 51.1500 45.72 408.0 11.58 4.57  
SRCPARAM FPLC6 86.8200 45.72 408.0 14.33 4.57  
SRCPARAM FPLPE12 313.7800 104.85 416.0 18.59 4.27  
SRCPARAM FPLPE34 508.2700 104.55 408.0 19.20 5.52  
SRCPARAM FPLPE112 498.9500 15.54 733.0 21.34 5.49  
SRCPARAM FPLTP12 475.2400 121.92 408.0 19.20 5.52  
SRCPARAM RINKER12 20.1900 41.76 400.0 7.62 4.57  
SRCPARAM SFCOGEN 6.2100 39.60 389.0 16.46 2.74  
SO BUILDHGT CDGENS 5.49 5.49 5.49 3.65 3.65 3.65  
SO BUILDHGT CDGENS 3.65 3.65 3.65 3.65 3.65 3.65  
SO BUILDHGT CDGENS 12.19 12.19 12.19 8.84 8.84 5.49  
SO BUILDHGT CDGENS 5.49 5.49 5.49 3.65 3.65 3.65  
SO BUILDHGT CDGENS 3.65 3.65 3.65 3.65 3.65 3.65  
SO BUILDHGT CDGENS 5.49 5.49 5.49 5.49 5.49 5.49  
SO BUILDWID CDGENS 19.85 25.39 30.16 13.10 14.80 16.05  
SO BUILDWID CDGENS 16.81 17.07 16.80 17.07 16.81 16.05  
SO BUILDWID CDGENS 25.78 25.78 25.00 14.81 12.14 13.70  
SO BUILDWID CDGENS 19.85 25.39 30.16 13.10 14.80 16.05  
SO BUILDWID CDGENS 16.81 17.07 16.80 17.07 16.81 16.05  
SO BUILDWID CDGENS 36.84 34.02 30.16 25.39 19.85 13.70  
SRCGROUP GENS CDGENS  
SRCGROUP MDWASDCD CDGENS CDCOGENS  
SRCGROUP PSD2INCR CDGENS CDCOGENS AOGENS HPGENS SBROWRRF NBROWRRF  
SRCGROUP PSD2INCR TARMAC1 TARMAC2 TARMAC3 TARMAC3B DCRRF12 DCRRF34  
SRCGROUP PSD2INCR DCRRF12B DCRRF34B DCRRF5 FPLF14 FPLF45B  
SRCGROUP NAAQS CDGENS CDCOGENS CDBLOWRS AOGENS AOLIME AOPUMP  
SRCGROUP NAAQS HPGENS HPLIME SBROWRRF NBROWRRF TARMAC1 TARMAC2  
SRCGROUP NAAQS TARMAC3 DCRRF12 DCRRF34 DCRRF5 FPLF14 FPLF112  
SRCGROUP NAAQS FPLF1324 FPLC5 FPLC6 FPLPE12 FPLPE34 FPLPE112  
SRCGROUP NAAQS FPLTP12 RINKER12 SFCOGEN

SO FINISHED

RE STARTING

GRIDPOLR POL1 STA

GRIDPOLR POL1 ORIG 584959.08442548 2847789.56629077

GRIDPOLR POL1 DIST 700 800 900 1000 1250

GRIDPOLR POL1 DIST 1500 1750 2000 2250 2500

GRIDPOLR POL1 DIST 3000 3500 4000 4500 5000

GRIDPOLR POL1 GDIR 36 10 10

GRIDPOLR POL1 END

\*\* Receptors at fenceline, r = 200 m, 300 m, 400 m, 500 m, 600 m, and 700 m

RE DISCCART 584859.1 2847616.4

RE DISCCART 584830.5 2847636.4

RE DISCCART 584805.9 2847661.0

RE DISCCART 584785.9 2847689.6

RE DISCCART 584771.1 2847721.2

RE DISCCART 584762.1 2847754.8  
RE DISCCART 584759.1 2847789.6  
RE DISCCART 584762.1 2847824.3  
RE DISCCART 584771.1 2847858.0  
RE DISCCART 584785.9 2847889.6  
RE DISCCART 584805.9 2847918.1  
RE DISCCART 584830.5 2847942.8  
RE DISCCART 584859.1 2847962.8  
RE DISCCART 584856.5 2847507.7  
RE DISCCART 584809.1 2847529.8  
RE DISCCART 584766.2 2847559.8  
RE DISCCART 584729.3 2847596.7  
RE DISCCART 584699.3 2847639.6  
RE DISCCART 584677.2 2847687.0  
RE DISCCART 584663.6 2847737.5  
RE DISCCART 584659.1 2847789.6  
RE DISCCART 584663.6 2847841.7  
RE DISCCART 584677.2 2847892.2  
RE DISCCART 584699.3 2847939.6  
RE DISCCART 584729.3 2847982.4  
RE DISCCART 584766.2 2848019.4  
RE DISCCART 584809.1 2848049.4  
RE DISCCART 584856.5 2848071.5  
RE DISCCART 585095.9 2847413.7  
RE DISCCART 585028.5 2847395.6  
RE DISCCART 584959.1 2847389.6  
RE DISCCART 584889.6 2847395.6  
RE DISCCART 584822.3 2847413.7  
RE DISCCART 584759.1 2847443.2  
RE DISCCART 584702.0 2847483.1  
RE DISCCART 584652.7 2847532.5  
RE DISCCART 584612.7 2847589.6  
RE DISCCART 584583.2 2847652.8  
RE DISCCART 584565.2 2847720.1  
RE DISCCART 584559.1 2847789.6  
RE DISCCART 584565.2 2847859.0  
RE DISCCART 584583.2 2847926.4  
RE DISCCART 584612.7 2847989.6  
RE DISCCART 584652.7 2848046.7  
RE DISCCART 584702.0 2848096.0  
RE DISCCART 584759.1 2848136.0  
RE DISCCART 584822.3 2848165.4  
RE DISCCART 584959.1 2848289.6  
RE DISCCART 585045.9 2848282.0  
RE DISCCART 585130.1 2848259.4  
RE DISCCART 585209.1 2848222.6  
RE DISCCART 585280.5 2847406.5  
RE DISCCART 585209.1 2847356.6  
RE DISCCART 585130.1 2847319.7  
RE DISCCART 585045.9 2847297.2  
RE DISCCART 584959.1 2847289.6  
RE DISCCART 584872.3 2847297.2  
RE DISCCART 584788.1 2847319.7  
RE DISCCART 584709.1 2847356.6  
RE DISCCART 584637.7 2847406.5  
RE DISCCART 584576.1 2847468.2  
RE DISCCART 584526.1 2847539.6  
RE DISCCART 584489.2 2847618.6

RE DISCCART 584466.7 2847702.7  
RE DISCCART 584459.1 2847789.6  
RE DISCCART 584466.7 2847876.4  
RE DISCCART 584489.2 2847960.6  
RE DISCCART 584526.1 2848039.6  
RE DISCCART 584576.1 2848111.0  
RE DISCCART 584637.7 2848172.6  
RE DISCCART 584709.1 2848222.6  
RE DISCCART 584788.1 2848259.4  
RE DISCCART 584872.3 2848282.0  
RE DISCCART 584959.1 2848389.6  
RE DISCCART 585063.3 2848380.5  
RE DISCCART 585164.3 2848353.4  
RE DISCCART 585259.1 2848309.2  
RE DISCCART 585344.8 2848249.2  
RE DISCCART 585522.9 2847994.8  
RE DISCCART 585550.0 2847893.8  
RE DISCCART 585559.1 2847789.6  
RE DISCCART 585550.0 2847685.4  
RE DISCCART 585418.7 2847403.9  
RE DISCCART 585344.8 2847329.9  
RE DISCCART 585259.1 2847270.0  
RE DISCCART 585164.3 2847225.8  
RE DISCCART 585063.3 2847198.7  
RE DISCCART 584959.1 2847189.6  
RE DISCCART 584854.9 2847198.7  
RE DISCCART 584753.9 2847225.8  
RE DISCCART 584659.1 2847270.0  
RE DISCCART 584573.4 2847329.9  
RE DISCCART 584499.5 2847403.9  
RE DISCCART 584439.5 2847489.6  
RE DISCCART 584395.3 2847584.4  
RE DISCCART 584368.2 2847685.4  
RE DISCCART 584359.1 2847789.6  
RE DISCCART 584368.2 2847893.8  
RE DISCCART 584395.3 2847994.8  
RE DISCCART 584439.5 2848089.6  
RE DISCCART 584499.5 2848175.2  
RE DISCCART 584573.4 2848249.2  
RE DISCCART 584659.1 2848309.2  
RE DISCCART 584753.9 2848353.4  
RE DISCCART 584854.9 2848380.5  
RE DISCCART 584857.0 2848199.5  
RE DISCCART 584857.0 2848149.5  
RE DISCCART 584857.0 2848099.5  
RE DISCCART 584857.0 2848049.5  
RE DISCCART 584857.0 2847999.5  
RE DISCCART 584857.0 2847949.5  
RE DISCCART 584857.0 2847899.5  
RE DISCCART 584857.0 2847849.5  
RE DISCCART 584857.0 2847799.5  
RE DISCCART 584857.0 2847749.5  
RE DISCCART 584857.0 2847699.5  
RE DISCCART 584857.0 2847649.5  
RE DISCCART 584857.0 2847599.5  
RE DISCCART 584857.0 2847549.5  
RE DISCCART 584857.0 2847499.5  
RE DISCCART 584857.0 2847449.5

RE DISCCART 584857.0 2847417.7  
RE DISCCART 584907.0 2847417.7  
RE DISCCART 584957.0 2847417.7  
RE DISCCART 585007.0 2847417.7  
RE DISCCART 585057.0 2847417.7  
RE DISCCART 585107.0 2847417.7  
RE DISCCART 585157.0 2847417.7  
RE DISCCART 585207.0 2847417.7  
RE DISCCART 585257.0 2847417.7  
RE DISCCART 585307.0 2847417.7  
RE DISCCART 585357.0 2847417.7  
RE DISCCART 585407.0 2847417.7  
RE DISCCART 585413.2 2847417.7  
RE DISCCART 585453.1 2847447.0  
RE DISCCART 585493.4 2847475.6  
RE DISCCART 585527.5 2847502.5  
RE DISCCART 585527.5 2847552.5  
RE DISCCART 585527.5 2847602.5  
RE DISCCART 585527.5 2847652.5  
RE DISCCART 585527.5 2847702.5  
RE DISCCART 585527.5 2847752.5  
RE DISCCART 585527.5 2847802.5  
RE DISCCART 585527.5 2847852.5  
RE DISCCART 585527.5 2847902.5  
RE DISCCART 585527.5 2847952.5  
RE DISCCART 585527.5 2848002.5  
RE DISCCART 585527.5 2848052.5  
RE DISCCART 585527.5 2848102.5  
RE DISCCART 585527.5 2848152.5  
RE DISCCART 585527.5 2848199.5  
RE DISCCART 585477.5 2848199.5  
RE DISCCART 585427.5 2848199.5  
RE DISCCART 585377.5 2848199.5  
RE DISCCART 585327.5 2848199.5  
RE DISCCART 585277.5 2848199.5  
RE DISCCART 585227.5 2848199.5  
RE DISCCART 585177.5 2848199.5  
RE DISCCART 585127.5 2848199.5  
RE DISCCART 585077.5 2848199.5  
RE DISCCART 585027.5 2848199.5  
RE DISCCART 584977.5 2848199.5  
RE DISCCART 584927.5 2848199.5  
RE DISCCART 584877.5 2848199.5

RE FINISHED

ME STARTING

INPUTFIL 1283987.met

ANEMHGHT 10 METERS

SURFDATA 12839 1987

UAIRDATA 12844 1987

ME FINISHED

OU STARTING

RECTABLE ALLAVE FIRST

MAXTABLE ALLAVE 50

PLOTFILE PERIOD PSD2INCR CD87incr.PLT 40

PLOTFILE PERIOD NAAQS CD87ambi.PLT 42

OU FINISHED

\*\*\* ISCST3 - VERSION 96113 \*\*\*

\*\*\* Standby Generator Sets - NAAQS & PSD Class II Increment - NO2 - 1987\*\*

\*\*\* Miami-Dade Water and Sewer Department Central District WWTP\*\*\*

27-MAY-97

18:02:34

\*\*\* MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

\*\*\* THE SUMMARY OF MAXIMUM PERIOD ( 8760 HRS) RESULTS \*\*\*

\*\* CONC OF NO2 IN MICROGRAMS/M\*\*3\*\*

NETWORK  
GROUP ID AVERAGE CONC RECEPTOR (XR, YR, ZELEV, ZFLAG) OF TYPE GRID-ID

-----

GENS	1ST HIGHEST VALUE IS	7.81986	AT ( 585207.00, 2847417.75,	0.00,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	7.56331	AT ( 585157.00, 2847417.75,	0.00,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	7.16098	AT ( 585209.13, 2847356.50,	0.00,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	7.15272	AT ( 585257.00, 2847417.75,	0.00,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	6.75679	AT ( 585280.50, 2847406.50,	0.00,	0.00)	DC	NA
	6TH HIGHEST VALUE IS	6.37046	AT ( 584857.00, 2847899.50,	0.00,	0.00)	DC	NA
MDWASDCD	1ST HIGHEST VALUE IS	25.44624	AT ( 584805.88, 2847661.00,	0.00,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	24.93510	AT ( 584857.00, 2847649.50,	0.00,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	24.65436	AT ( 584857.00, 2847699.50,	0.00,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	23.81616	AT ( 584785.88, 2847689.50,	0.00,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	23.67550	AT ( 584830.50, 2847636.50,	0.00,	0.00)	DC	NA
	6TH HIGHEST VALUE IS	23.35454	AT ( 584857.00, 2847599.50,	0.00,	0.00)	DC	NA
PSD2INCR	1ST HIGHEST VALUE IS	26.65288	AT ( 584805.88, 2847661.00,	0.00,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	26.13951	AT ( 584857.00, 2847649.50,	0.00,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	25.85463	AT ( 584857.00, 2847699.50,	0.00,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	25.02170	AT ( 584785.88, 2847689.50,	0.00,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	24.88272	AT ( 584830.50, 2847636.50,	0.00,	0.00)	DC	NA
	6TH HIGHEST VALUE IS	24.56329	AT ( 584857.00, 2847599.50,	0.00,	0.00)	DC	NA
NAAQS	1ST HIGHEST VALUE IS	60.31151	AT ( 584857.00, 2847649.50,	0.00,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	59.45847	AT ( 584805.88, 2847661.00,	0.00,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	57.56551	AT ( 584830.50, 2847636.50,	0.00,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	56.90918	AT ( 584857.00, 2847599.50,	0.00,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	56.60430	AT ( 584857.00, 2847699.50,	0.00,	0.00)	DC	NA
	6TH HIGHEST VALUE IS	55.80542	AT ( 584859.13, 2847616.50,	0.00,	0.00)	DC	NA



\*\*\* ISCST3 - VERSION 96113 \*\*\*

\*\*\* Standby Generator Sets - NAAQS & PSD Class II Increment - NO2 - 1988\*\*\*

\*\*\* Miami-Dade Water and Sewer Department Central District WWTP\*\*\*

27-MAY-97

18:29:30

\*\*\* MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

\*\*\* THE SUMMARY OF MAXIMUM PERIOD ( 8760 HRS) RESULTS \*\*\*

\*\* CONC OF NO2 IN MICROGRAMS/M\*\*3\*\*

GROUP ID AVERAGE CONC NETWORK  
RECEPTOR (XR, YR, ZELEV, ZFLAG) OF TYPE GRID-ID

-----  
GENS 1ST HIGHEST VALUE IS 10.79804 AT ( 584857.00, 2847899.50, 0.00, 0.00) DC NA  
2ND HIGHEST VALUE IS 10.09088 AT ( 585157.00, 2847417.75, 0.00, 0.00) DC NA  
3RD HIGHEST VALUE IS 9.81150 AT ( 585207.00, 2847417.75, 0.00, 0.00) DC NA  
4TH HIGHEST VALUE IS 9.39654 AT ( 585209.13, 2847356.50, 0.00, 0.00) DC NA  
5TH HIGHEST VALUE IS 8.16261 AT ( 585259.13, 2847270.00, 0.00, 0.00) DC NA  
6TH HIGHEST VALUE IS 7.91275 AT ( 585107.00, 2847417.75, 0.00, 0.00) DC NA

MDWASDCD 1ST HIGHEST VALUE IS 27.62108 AT ( 584857.00, 2847899.50, 0.00, 0.00) DC NA  
2ND HIGHEST VALUE IS 25.08234 AT ( 584857.00, 2847649.50, 0.00, 0.00) DC NA  
3RD HIGHEST VALUE IS 24.76147 AT ( 584857.00, 2847599.50, 0.00, 0.00) DC NA  
4TH HIGHEST VALUE IS 24.74269 AT ( 584859.13, 2847616.50, 0.00, 0.00) DC NA  
5TH HIGHEST VALUE IS 24.35793 AT ( 584857.00, 2847699.50, 0.00, 0.00) DC NA  
6TH HIGHEST VALUE IS 24.35074 AT ( 585207.00, 2847417.75, 0.00, 0.00) DC NA

PSD2INCR 1ST HIGHEST VALUE IS 28.67117 AT ( 584857.00, 2847899.50, 0.00, 0.00) DC NA  
2ND HIGHEST VALUE IS 26.18198 AT ( 584857.00, 2847649.50, 0.00, 0.00) DC NA  
3RD HIGHEST VALUE IS 25.86926 AT ( 584857.00, 2847599.50, 0.00, 0.00) DC NA  
4TH HIGHEST VALUE IS 25.84758 AT ( 584859.13, 2847616.50, 0.00, 0.00) DC NA  
5TH HIGHEST VALUE IS 25.44863 AT ( 584857.00, 2847699.50, 0.00, 0.00) DC NA  
6TH HIGHEST VALUE IS 25.43953 AT ( 585207.00, 2847417.75, 0.00, 0.00) DC NA

NAAQS 1ST HIGHEST VALUE IS 59.62062 AT ( 584857.00, 2847649.50, 0.00, 0.00) DC NA  
2ND HIGHEST VALUE IS 58.62686 AT ( 584859.13, 2847616.50, 0.00, 0.00) DC NA  
3RD HIGHEST VALUE IS 58.51704 AT ( 584857.00, 2847599.50, 0.00, 0.00) DC NA  
4TH HIGHEST VALUE IS 58.09530 AT ( 584830.50, 2847636.50, 0.00, 0.00) DC NA  
5TH HIGHEST VALUE IS 57.43444 AT ( 584857.00, 2847699.50, 0.00, 0.00) DC NA  
6TH HIGHEST VALUE IS 56.15969 AT ( 584805.88, 2847661.00, 0.00, 0.00) DC NA



\*\*\* ISCST3 - VERSION 96113 \*\*\*

\*\*\* Standby Generator Sets - NAAQS & PSD Class II Increment - NO2 - 1990\*\*\*

\*\*\* Miami-Dade Water and Sewer Department Central District WWTP\*\*\*

27-MAY-97

19:22:19

\*\*\* MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

\*\*\* THE SUMMARY OF MAXIMUM PERIOD ( 8760 HRS) RESULTS \*\*\*

\*\* CONC OF NO2 IN MICROGRAMS/M\*\*3\*\*

GROUP ID AVERAGE CONC NETWORK RECEPTOR (XR, YR, ZELEV, ZFLAG) OF TYPE GRID-ID

-----

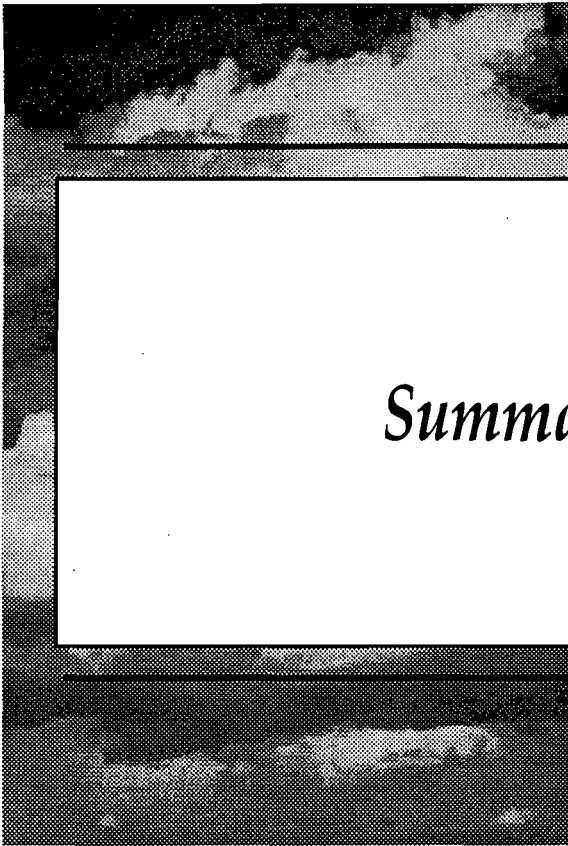
GENS 1ST HIGHEST VALUE IS 10.81321 AT ( 584857.00, 2847899.50, 0.00, 0.00) DC NA  
2ND HIGHEST VALUE IS 7.97604 AT ( 584830.50, 2847942.75, 0.00, 0.00) DC NA  
3RD HIGHEST VALUE IS 6.76467 AT ( 584857.00, 2847949.50, 0.00, 0.00) DC NA  
4TH HIGHEST VALUE IS 6.53543 AT ( 584805.88, 2847918.00, 0.00, 0.00) DC NA  
5TH HIGHEST VALUE IS 5.78300 AT ( 584859.13, 2847962.75, 0.00, 0.00) DC NA  
6TH HIGHEST VALUE IS 5.74735 AT ( 584702.00, 2848096.00, 0.00, 0.00) DC NA

MDWASDCD 1ST HIGHEST VALUE IS 29.39229 AT ( 584857.00, 2847899.50, 0.00, 0.00) DC NA  
2ND HIGHEST VALUE IS 24.64123 AT ( 584830.50, 2847942.75, 0.00, 0.00) DC NA  
3RD HIGHEST VALUE IS 23.78901 AT ( 584857.00, 2847949.50, 0.00, 0.00) DC NA  
4TH HIGHEST VALUE IS 23.29879 AT ( 584805.88, 2847918.00, 0.00, 0.00) DC NA  
5TH HIGHEST VALUE IS 23.16507 AT ( 584857.00, 2847849.50, 0.00, 0.00) DC NA  
6TH HIGHEST VALUE IS 22.33585 AT ( 584859.13, 2847962.75, 0.00, 0.00) DC NA

PSD2INCR 1ST HIGHEST VALUE IS 30.39604 AT ( 584857.00, 2847899.50, 0.00, 0.00) DC NA  
2ND HIGHEST VALUE IS 25.64019 AT ( 584830.50, 2847942.75, 0.00, 0.00) DC NA  
3RD HIGHEST VALUE IS 24.78530 AT ( 584857.00, 2847949.50, 0.00, 0.00) DC NA  
4TH HIGHEST VALUE IS 24.30318 AT ( 584805.88, 2847918.00, 0.00, 0.00) DC NA  
5TH HIGHEST VALUE IS 24.17672 AT ( 584857.00, 2847849.50, 0.00, 0.00) DC NA  
6TH HIGHEST VALUE IS 23.33004 AT ( 584859.13, 2847962.75, 0.00, 0.00) DC NA

NAAQS 1ST HIGHEST VALUE IS 57.67365 AT ( 584857.00, 2847899.50, 0.00, 0.00) DC NA  
2ND HIGHEST VALUE IS 52.51670 AT ( 584857.00, 2847849.50, 0.00, 0.00) DC NA  
3RD HIGHEST VALUE IS 50.37409 AT ( 584857.00, 2847699.50, 0.00, 0.00) DC NA  
4TH HIGHEST VALUE IS 49.96112 AT ( 584830.50, 2847942.75, 0.00, 0.00) DC NA  
5TH HIGHEST VALUE IS 49.55463 AT ( 584857.00, 2847949.50, 0.00, 0.00) DC NA  
6TH HIGHEST VALUE IS 49.03671 AT ( 584805.88, 2847918.00, 0.00, 0.00) DC NA





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APPENDIX F  
*Summary of Level I Visibility  
Screening Analysis*

---



Visual Effects Screening Analysis  
Source: Central District Standby Generators  
Class I Area: Shark Valley Tower

\*\*\* User-selected Screening Scenario Results \*\*\*

Input Emissions for

Particulates	0.53 g/s
NOx (as NO2)	22.01 g/s
Primary NO2	0.00 g/s
Soot	0.00 g/s
Primary SO4	0.00 g/s

\*\*\*\* Default Particle Characteristics Assumed

Transport Scenario Specifications:

Background Ozone:	0.05 ppm
Background Visual Range:	63.00 km
Source-Observer Distance:	62.00 km
Min. Source-Class I Distance:	33.75 km
Max. Source-Class I Distance:	131.00 km
Plume-Source-Observer Angle:	11.25 degrees
Stability:	6
Wind Speed:	1.00 m/s

## RESULTS

Asterisks (\*) indicate plume impacts that exceed screening criteria

Maximum Visual Impacts INSIDE Class I Area  
Screening Criteria ARE NOT Exceeded

<u>Backgrnd</u>	<u>Theta</u>	<u>Azi</u>	<u>Distance</u>	<u>Alpha</u>	<u>Delta E</u>		<u>Contrast</u>	
					<u>Crit</u>	<u>Plume</u>	<u>Crit</u>	<u>Plume</u>
SKY	10.	40.	51.1	129.	2.00	1.290	.05	-.005
SKY	140.	40.	51.1	129.	2.00	.529	.05	-.007
TERRAIN	10.	35.	49.2	134.	2.00	.337	.05	.003
TERRAIN	140.	35.	49.2	134.	2.00	.143	.05	.003

Maximum Visual Impacts OUTSIDE Class I Area  
Screening Criteria ARE NOT Exceeded

<u>Backgrnd</u>	<u>Theta</u>	<u>Azi</u>	<u>Distance</u>	<u>Alpha</u>	<u>Delta E</u>		<u>Contrast</u>	
					<u>Crit</u>	<u>Plume</u>	<u>Crit</u>	<u>Plume</u>
SKY	10.	10.	29.7	159.	2.00	.592	.05	-.005
SKY	140.	10.	29.7	159.	2.00	.238	.05	-.007
TERRAIN	10.	10.	29.7	159.	2.00	.222	.05	.003
TERRAIN	140.	10.	29.7	159.	2.00	.085	.05	.003

**Department of  
Environmental Protection**

**DIVISION OF AIR RESOURCES MANAGEMENT  
APPLICATION FOR AIR PERMIT - LONG FORM**

**I. APPLICATION INFORMATION**

**Identification of Facility Addressed in This Application**

1. Facility Owner/Company Name : Miami-Dade Water & Sewer Department		
2. Site Name : Central District Wastewater Treatment Pl		
3. Facility Identification Number :	130476	<input type="checkbox"/> Unknown
4. Facility Location : Central District WWTP		
Street Address or Other Locator :	Virginia Key	
City : Miami	County : Dade	Zip Code : 33146-
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

0250476-002-AC  
PSD-FI-240

I. Part 1 - 1



**Owner/Authorized Representative or Responsible Official**

1. Name and Title of Owner/Authorized Representative or Responsible Official :

Name : Robert C. Ready, P.E.  
Title : Asst. Director of Treatment Facilit

2. Owner or Authorized Representative or Responsible Official Mailing Address :

Organization/Firm : Miami-Dade Water & Sewer Department  
Street Address : 4200 Salzedo Street  
City : Coral Gables  
State : FL Zip Code : 33146-0316

3. Owner/Authorized Representative or Responsible Official Telephone Numbers :

Telephone : (305)<sup>6</sup>669-7668 Fax : (305)669-3753

4. Owner/Authorized Representative or Responsible Official Statement :

*I, the undersigned, am the owner or authorized representative\* of the non-Title V source addressed in this Application for Air Permit or the responsible official, as defined in Rule 62-210.200, F.A.C., of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions units.*

  
Signature

6-24-97  
Date

\* Attach letter of authorization if not currently on file.

4. Professional Engineer Statement :

*I, the undersigned, hereby certified, 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 pollutant 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.*

*If the purpose of this application is to obtain a Title V source 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 schedule is submitted with this application.*

*If the purpose of this application is to obtain an air construction permit 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.*

*If the purpose of this application is to obtain an initial air operation permit or operation permit revision 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 has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.*

*David Lindberg*  
\_\_\_\_\_  
Signature

*20 June 1997*  
\_\_\_\_\_  
Date

\* Attach any exception to certification statement.

I. Part 6 - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96





# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

July 21, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert C. Ready, P.E.  
Assistant Director of Treatment Facility  
Miami-Dade Water & Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

Re: DRAFT Permit No. 0250476-002-AC, PSD-FL-240  
Central District Wastewater Treatment Plant

Dear Mr. Ready:

The Department has received your application for an air construction/operation permit for Three 3,600-horsepower (hp) Diesel Engine Driven Generator Sets for your Central District Wastewater Treatment Plant. The application was hand delivered to me on June 25, 1997, when I visited the facility. My Secretary contacted your office a few days later requesting additional copies in accordance with our Rule 62-4.050(2), F.A.C., so that Environmental Protection Agency (EPA), National Park Service (NPS), Dade County Department of Environmental Resources Management (DERM) and our Southeast District (SED) office can conduct a simultaneous review. Although we are continuing to review the application, it remains incomplete until we receive some additional technological information and the extra application copies.

We are in contact with CH2M-Hill on these matters. If you have any questions, please call Syed Arif at 904/488-1344.

Sincerely,

A. A. Linero, P.E.  
Administrator  
New Source Review Section

AAL/sa

cc: Mr. Brian Beals, EPA  
Mr. John Bunyak, NPS  
Mr. Isidore Goldman, SED  
Mr. Patrick Wong, DERM  
Mr. David Lindberg, P.E., CH2M-Hill

*"Protect, Conserve and Manage Florida's Environment and Natural Resources"*

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
  - Restricted Delivery
- Consult postmaster for fee.

3. Article Addressed to:  
 Robert C. Ready, PE  
 Assistant Director  
 Miami-Dade Water &  
 Sewer Dept.  
 4200 Janello St.  
 Coral Gables, FL 3346-0316

4a. Article Number  
P 265 659 242

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

7. Date of Delivery  
7 24 97

5. Received By: (Print Name)  
L. Banfield

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)  
X L. BANFIELD

PS Form 3811, December 1994

Domestic Return Receipt

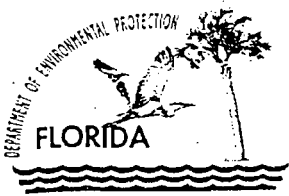
Thank you for using Return Receipt Service.

P 265 659 242

US Postal Service  
**Receipt for Certified Mail**  
 No Insurance Coverage Provided.  
 Do not use for International Mail (See reverse)

Sent to	Robert Ready
Street & Number	Miami Dade Water
Post Office, State, & ZIP Code	Coral Gables FL
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	7-22-97

PS Form 3800, April 1995



# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

August 21, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert C. Ready, P.E.  
Assistant Director of Treatment Facility  
Miami-Dade Water & Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

Re: DRAFT Permit No. 0250476-002-AC, PSD-FL-240  
Central District Wastewater Treatment Plant

Dear Mr. Ready:

The Department has received your updated application for an air construction/operation permit for Three 3,600-horsepower (hp) Diesel Engine Driven Generator Sets for your Central District Wastewater Treatment Plant. The application was received on July 24, 1997. We need the additional information listed below in order to continue processing this request.

1. Please provide a detailed cost analysis in \$/ton removed based on the vendor information for the chosen control technology (Fuel Injection Timing Retard/Combustion Air Precooling) for  $\text{NO}_x$  as well as the technology that is economically and technically infeasible (SCR) for this project.
2. Please provide the heat input rate (MMBtu/hr) for each diesel generator and indicate the method of compliance for that heat input rate.
3. Please verify that the g/bhp-hr factor used for the chosen control technology at 100% load is 7.34 for  $\text{NO}_x$ . Provide the factor as well as emission rates for  $\text{NO}_x$  if SCR is selected as the control technology.
4. Please indicate if the three diesel generators will be able to comply with the requirements of Chapter 62-297.310(6), F.A.C. If not, how will testing be conducted to show compliance with the  $\text{NO}_x$  emission limit.
5. The air quality impact analysis did not address the impacts of downwash on the four cogeneration engines or the three diesel blower engines. The impacts of downwash need to be considered for all sources at your facility in order to determine whether any ambient air quality standards or PSD increments are predicted to be exceeded. Please do the modeling with downwash included for these sources and submit these results to the Department.

*"Protect, Conserve and Manage Florida's Environment and Natural Resources"*

Mr. Robert C. Ready, P.E.  
Page Two  
Draft Permit No.: 0870004-002-AC, PSD-FL-237

If you have any questions, please call Syed Arif (engineer) or Cleve Holladay (meteorologist) at 904/488-1344.

Sincerely,



A. A. Linero, P.E.  
Administrator  
New Source Review Section

AAL/sa

cc: Mr. Brian Beals, EPA  
Mr. John Bunyak, NPS  
Mr. Isidore Goldman, SED  
Mr. Patrick Wong, DERM  
Mr. David Lindberg, P.E., CH2M-Hill

Is your RETURN ADDRESS completed on the reverse side?

<b>SENDER:</b> ■ Complete items 1 and/or 2 for additional services. ■ Complete items 3, 4a, and 4b. ■ Print your name and address on the reverse of this form so that we can return this card to you. ■ Attach this form to the front of the mailpiece, or on the back if space does not permit. ■ Write "Return Receipt Requested" on the mailpiece below the article number. ■ The Return Receipt will show to whom the article was delivered and the date delivered.		I also wish to receive the following services (for an extra fee): 1. <input type="checkbox"/> Addressee's Address 2. <input type="checkbox"/> Restricted Delivery Consult postmaster for fee.
3. Article Addressed to: Robert C. Ready, P.E. Miami-Dade Water & Sewer 4200 Salzedo St. Coral Gables, FL 33146-0316	4a. Article Number P 265 659 443	4b. Service Type <input type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified <input type="checkbox"/> Express Mail <input type="checkbox"/> Insured <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> COD
5. Received By: (Print Name) L. Baquel et	7. Date of Delivery 8-25-97	8. Addressee's Address (Only if requested and fee is paid)
6. Signature: (Addressee or Agent) X L. Baquel		
PS Form 3811, Dec 87		Return Receipt

Thank you for using Return Receipt Service.

P 265 659 443

US Postal Service  
**Receipt for Certified Mail**  
 No Insurance Coverage Provided.  
 Do not use for International Mail (See reverse)

Sent to	Robert Ready
Street & Number	Miami-Dade
Post Office, State, & ZIP Code	Coral Gables, FL
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	8-22-97
CA 5-476-002-AC	

Form 3800, April 1995



# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

March 9, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert C. Ready, P.E.  
Assistant Director of Treatment Facilities  
Miami-Dade Water & Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

Re: DEP File No. 0250476-002-AC, PSD-FL-240  
PSD Permit for CDWWTP Diesel Generators

Dear Mr. Ready:

The Department sent your office a letter on August 21, 1997 requesting additional information to complete the application for an air construction/operation permit for three 3,600-horsepower (hp) diesel electrical generators for your Central District Wastewater Treatment Plant. We have not received a reply to-date. The generators were constructed some years ago and apparently operated in excess of the hours or emissions triggering the permit requirements for the Prevention of Significant Deterioration of Air Quality (PSD) under Department and Federal regulations.

Please provide the additional information required to complete the application. Otherwise we will initiate procedures leading to the denial of the application. As you are aware, there may be several other diesel engine-driven electric generators at various other installations which may also require additional permitting for the same reasons. We urge you to complete the present application and submit any others required to insure that all comply with the PSD regulations.

If you have any questions regarding this matter, please call Mr. Syed Arif, P.E., at 850/921-8968.

Sincerely,

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

CHF/t

cc: Carlos Rivero de Aguilar, SED  
John Renfrow, DERM  
Isadore Goldman, SED  
Tom Tittle, SED

*"Protect, Conserve and Manage Florida's Environment and Natural Resources"*



Fold at the top of envelope to the right of the return address

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- 1.  Addressee's Address
- 2.  Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:  
 Robert C Ready, PE  
 Assistant Director of Treatment  
 Facilities  
 Miami-Dade Water & Sewer  
 4200 Salzedo Street  
 Coral Gables, FL  
 33146-0316

4a. Article Number  
 P 265 659 305

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

7. Date of Delivery  
 3 12 98

5. Received By: (Print Name)  
 L. Banfield

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)  
 X L. BANFIELD

PS Form 3811, December 1994

Domestic Return Receipt

Thank you for using Return Receipt Service.

P 265 659 305

US Postal Service

**Receipt for Certified Mail**

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent to	Robert Ready
Street & Number	Miami-Dade
Post Office, State, & ZIP Code	Water & Sewer
Postage	Coral Gables, FL
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	3-10-98

PS Form 3800, April 1995

0350476-002-AC  
 P00-F1-240



SERVE • CONSERVE

March 10, 1998

CERTIFIED: Z 427 642 038  
RETURN RECEIPT

Mr. Alvaro Linero, P.E.  
Administrator  
New Source Review Section  
Florida Department of Environmental Protection  
Tallahassee, FL 32399-2400

**RECEIVED**

**MAR 16 1998**

**BUREAU OF  
AIR REGULATION**

RE: DRAFT Permit No. 0250476-002-AC PSD-FL-240 (Re submittal)  
Permit No. AC13-81284 (Modification)  
Central District Wastewater Treatment Plant

Dear Mr. Linero:

Our revised application to obtain a Prevention of Significant Deterioration (PSD) air construction permit for three standby generators at the above-referenced facility is enclosed along with the ELSA submittal diskettes. This submittal also includes an application to modify our construction permit for four Superior 16GTLB engines and serves as an updated Title V air permit application. An additional fee of \$4,500 is enclosed for the construction permit modification.

We have addressed the issues you raised in your August 21, 1997, letter (Attachment A). A brief discussion of our response to each issue follows.

Item 1. A cost-effectiveness analysis comparison between Fuel Election Timing Retard / Combustion Air Precooling (proposed BACT) and Selective Catalytic Reduction (SCR) is included in Attachment B. Cost-effectiveness for the proposed BACT and SCR alternatives are estimated to be \$126 and \$1,424 per ton NO<sub>x</sub> removed, respectively. We claim that technical feasibility problems associated with SCR for our application in combination with its elevated cost-effectiveness makes SCR an unattractive method to control emissions of NO<sub>x</sub>.

Item 2. According to information provided by the engine manufacturer (see Attachment 11 of the Air Permit Application-Appendix A), the full load nominal fuel consumption rate of the 20-645E4 engine is 0.375 lb /bhp-hr. This corresponds to a heat input rate of 26.1 million BTU per hour, assuming a gross heating value of 19,340 BTU/lb fuel. No 'method of compliance' testing or monitoring of fuel consumption is proposed in this application. Instead, we propose to monitor generator power output, which is also a reliable indicator of emissions.

Mr. Alvaro Linero, P.E., March 10, 1998

CDWWTP, Title V, PSD Air Construction Permit Application Re submittal

Page 2

Item 3. Uncontrolled annual emissions of NO, for the proposed level of operation are estimated to be 521 tons (see Attachment B). According to information provided by the engine manufacturer (see Attachment 11 of the Air Permit Application - Appendix A), the 20-645E4 engine emits 10.19 g/bhp-hr power output when tested at 100 percent load. Information is also provided by the manufacturer indicating that adjustment of engine timing (4-degree retarded fuel injection) and installation of turbo charger after coolers will reduce emissions of NOx by 28 percent from uncontrolled levels. It was assumed that SCR would reduce emissions of NO, by 85 percent from uncontrolled levels. Controlled emissions of NOx following installation of proposed BACT would be 7.34 g/bhp-hr and 375 tons per year. Controlled emissions of NOx following installation of SCR would be 1.53 g/bhp-hr and 77.9 tons per year.

Item 4. Regarding requirements for stack sampling facilities, as stated in Chapter 62-297.310(6), Florida Administrative Code, exhaust silencers extending the entire stack length prevent the installation of special sampling ports. We propose to collect exhaust samples through a 'rake probe' apparatus, which composites gas from locations at 33 percent, 50 percent, and 67 percent of the stack diameter. Temporary stack sampling facilities are proposed to satisfy the requirements of part (a) of this rule.

Item 5. The air quality impact analysis has been revised to include effects of building downwash on the superior (cogeneration) engines. The blower engines have been omitted from this application, as they are scheduled to be removed from service in June 1998 upon completion of the oxygenation train at this plant.

We request that all three permits (both construction permits and the Title V permit) be reviewed and issued simultaneously, as minimal construction is necessary and the entire process can be accomplished through a single public notice. If you have any questions about this application, please contact Bertha Goldenberg at (305) 669-5711 or David Lindberg/CH2M HILL at (619) 687-0110.

Sincerely,



Robert Ready, P.E.

Assistant Director of Treatment Facilities

c: Isidore Goldman, FDEP Southeast District  
Patrick Wong, Dade County DERM  
David Lindberg, CH2M HILL

**ATTACHMENT A**  
FDEP Letter Request for Information  
August 21, 1997



# Department of Environmental Protection



Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

August 21, 1997

## CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert C. Ready, P.E.  
Assistant Director of Treatment Facility  
Miami-Dade Water & Sewer Department  
4200 Saizedo Street  
Coral Gables, Florida 33146-0316

Re: DRAFT Permit No. 0250476-002-AC, PSD-FL-240  
Central District Wastewater Treatment Plant

Dear Mr. Ready:

The Department has received your updated application for an air construction/operation permit for Three 3,600-horsepower (hp) Diesel Engine Driven Generator Sets for your Central District Wastewater Treatment Plant. The application was received on July 24, 1997. We need the additional information listed below in order to continue processing this request.

1. Please provide a detailed cost analysis in \$/ton removed based on the vendor information for the chosen control technology (Fuel Injection Timing Retard/Combustion Air Precooling) for NO<sub>x</sub> as well as the technology that is economically and technically infeasible (SCR) for this project.
2. Please provide the heat input rate (MMBtu/hr) for each diesel generator and indicate the method of compliance for that heat input rate.
3. Please verify that the g/bhp-hr factor used for the chosen control technology at 100% load is 7.34 for NO<sub>x</sub>. Provide the factor as well as emission rates for NO<sub>x</sub> if SCR is selected as the control technology.
4. Please indicate if the three diesel generators will be able to comply with the requirements of Chapter 62-297.310(6), F.A.C. If not, how will testing be conducted to show compliance with the NO<sub>x</sub> emission limit.
5. The air quality impact analysis did not address the impacts of downwash on the four cogeneration engines or the three diesel blower engines. The impacts of downwash need to be considered for all sources at your facility in order to determine whether any ambient air quality standards or PSD increments are predicted to be exceeded. Please do the modeling with downwash included for these sources and submit these results to the Department.

*"Protect, Conserve and Manage Florida's Environment and Natural Resources"*


Mr. Robert C. Ready, P.E.

Page Two

Draft Permit No.: 0870004-002-AC, PSD-FL-237

If you have any questions, please call Syed Arif (engineer) or Cleve Holladay (meteorologist) at 904/488-1344.

Sincerely,



A. A. Linero, P.E.

Administrator

New Source Review Section

AAL/sa

cc: Mr. Brian Beals, EPA  
Mr. John Bunyak, NPS  
Mr. Isidore Goldman, SED  
Mr. Patrick Wong, DERM  
Mr. David Lindberg, P.E., CH2M-Hill

MIAMI-DADE WATER AND SEWER DEPARTMENT  
**POOLED CASH FUND**  
 P.O. BOX 330316 • MIAMI, FLORIDA 33233-0316

CHECK NO.  
**134046**

DATE	PAYEE NAME			
03/04/98	STATE OF FLORIDA DEPARTMENT OF			
INVOICE DATE	INVOICE NUMBER	AMOUNT	PURCHASE ORDER NUMBER	DESCRIPTION
02-27-98	DP002055	4,500.00	DP002055	
	TOTAL	4,500.00		

The attached check represents the amount due you from Dade County as shown on file in the Clerk's Office. For additional information Contact (305) 665-7471



**METROPOLITAN DADE COUNTY, FLORIDA 134046** 63-643  
870  
 MIAMI-DADE WATER AND SEWER DEPARTMENT-POOLED CASH FUND

VOID AFTER SIX MONTHS  
 FIRST UNION NATIONAL BANK  
 OF FLORIDA  
 MIAMI, FLORIDA 33131

PAY EXACTLY \*\*\*\*4,500 DOLLARS AND 00 CENTS

Date	Control Number	Amount of Check
03/04/98	00134046	\$4,500.00

To  
 The  
 Order  
 Of

STATE OF FLORIDA DEPARTMENT OF  
 ENVIRONMENTAL PROTECTION  
 2600 BLAIR STONE ROAD  
 TALLAHASSEE, FL 32399



METROPOLITAN DADE COUNTY

*Gregory Paulis*  
 MAYOR  
*Henry Kavin*  
 CLERK



**ATTACHMENT B**

Cost Effectiveness Analysis

4-Degree Timing Retard/Combustion Air Precooling vs. Selective Catalytic Reduction



**Table B-1**

Total Capital Cost Estimates  
 Central District WWTP Standby Generators  
 Miami-Dade Water and Sewer Department

	4 deg IR + Combustion		
	Air Precoolers		SCR
<b>Direct Costs</b>			
Purchased equipment cost (PEC) <sup>1</sup>	\$	33,103.45	\$ 1,055,000.00
Control device and auxiliary equipment			
Instrumentation			
Sales Taxes (3% of PEC)			
Freight (5% of PEC)			
Direct installation cost <sup>1</sup>	\$	14,896.55	\$ 474,750.00
Foundations and supports			
Handling and erection			
Electrical			
Piping			
Insulation for ductwork			
Painting			
<b>Total Direct Cost</b>	<b>\$</b>	<b>48,000.00</b>	<b>\$ 1,529,750.00</b>
<b>Indirect Costs</b>			
Indirect installation costs <sup>2</sup>	\$	10,924.14	\$ 348,150.00
Engineering			
Construction and field expenses			
Contractor fees			
Start-up			
Performance test			
Model study			
Training			
Contingencies <sup>3</sup>	\$	6,620.69	\$ 211,000.00
Equipment redesign and modifications			
Cost escalations			
Delays in start-up			
<b>Total Indirect Cost</b>	<b>\$</b>	<b>17,544.83</b>	<b>\$ 559,150.00</b>
<b>TOTAL CAPITAL COST</b>	<b>\$</b>	<b>65,544.83</b>	<b>\$ 2,088,900.00</b>

<sup>1</sup> Includes 3 SCR systems, 3 CEMS, and a 17,000 gallon anhydrous ammonia tank.

<sup>2</sup> Direct installation cost assumed equal to 45% of PEC.

<sup>3</sup> Indirect installation cost assumed equal to 33% of PEC.

<sup>4</sup> Contingency costs assumed equal to 20% of PEC.

**Table B-2**

Total Annual Cost Estimates  
 Central District WWTP Standby Generators  
 Miami-Dade Water and Sewer Department

	Cost	Unit	4 deg IR + Combustion Air Precoolers	SCR
<b>Total Operating Hours (all 3 engines)</b>			12,880	12,880
<b>Direct Annual Costs</b>				
Utilities				
Electricity @ 20 kW <sup>1</sup>	\$ 0.06	kW-hr	\$ -	\$ 15,456.00
Diesel fuel <sup>2</sup>	\$ 0.77	gallon	\$ -	\$ 9,612.89
Anhydrous ammonia @ 23 lb/hr each	\$ 275.00	ton	\$ -	\$ 40,733.00
Operating labor				
Operating labor <sup>3</sup>	\$ 30.39	hr	\$ -	\$ 4,830.00
Supervising labor <sup>4</sup>			\$ -	\$ 724.50
Maintenance <sup>5</sup>			\$ 1,622.42	\$ 51,706.24
Annual compliance test (one engine)			\$ 3,000.00	\$ 3,000.00
Catalyst replacement <sup>6</sup>			\$ -	\$ 60,650.68
Catalyst disposal <sup>7</sup>	\$ 0.15	lb	\$ -	\$ 2,880.00
<b>Total Direct Annual Costs</b>			<b>\$ 4,622.42</b>	<b>\$ 189,593.31</b>
<b>Indirect Annual Costs</b>				
Overhead <sup>8</sup>			\$ 973.45	\$ 31,023.74
Property tax <sup>9</sup>			\$ 655.45	\$ 20,889.00
Insurance <sup>10</sup>			\$ 655.45	\$ 20,889.00
Administrative charges <sup>11</sup>			\$ 1,310.90	\$ 41,778.00
Capital recovery <sup>12</sup>	0.15582009		\$ 10,213.20	\$ 325,492.59
<b>Total Indirect Annual Costs</b>			<b>\$ 13,808.45</b>	<b>\$ 440,072.33</b>
<b>TOTAL ANNUAL COST</b>			<b>\$ 18,430.87</b>	<b>\$ 629,665.64</b>

<sup>1</sup> Vaporizer and instrumentation electrical requirement, "&G6&" total hours of operation."

<sup>2</sup> No fuel penalty for IR, fuel penalty of 0.5% for SCR based on 5-inch water backpressure, "&G6&" total" hours of operation, and BSFC = 0.375 lb/bhp-hr.

<sup>3</sup> Assumes 3 hrs per 8 hr shift for SCR, "&G6&" hours operation per year. No labor for IR."

<sup>4</sup> Supervisor labor is 15% of operator labor.

<sup>5</sup> Maintenance costs are 10% of purchased equipment costs, prorated by the number of hours of operation.

<sup>6</sup> Catalyst replacement every 8760 hours of operation per engine.

<sup>7</sup> Assume catalyst density 100 lb/cf. Total weight = (4 modules/engine)(1600 lb/module)(3 engines) = 19,200 lb.

<sup>8</sup> Overhead charge rate is 60% of maintenance costs.

<sup>9</sup> Property tax is estimated to be 1% of total capital costs.

<sup>10</sup> Insurance is estimated to be 1% of total capital costs.

<sup>11</sup> Administrative costs are estimated to be 1% of total capital costs.

<sup>12</sup> Capital recovery cost is calculated at an interest rate of 9% for a lifetime of 10 years.

**Table B-3**  
 Cost-Effectiveness Comparison  
 Central District WWTP Standby Generators  
 Miami-Dade Water and Sewer Department

		<b>4 deg IR + Combustion Air Precoolers</b>		<b>SCR</b>
<b>NOx Emissions</b>				
Uncontrolled	tons/yr		520	520
% Reduction			28%	85%
Controlled	tons/yr		375	78
Reduction	tons/yr		146	442
<b>Total Annual Cost</b>	<b>\$000/yr</b>	<b>\$</b>	<b>18.4</b>	<b>\$ 630</b>
<b>Cost-Effectiveness</b>		<b>\$</b>	<b>126</b>	<b>\$ 1,424</b>

**Table B-4**

Controlled NOx Emissions from Three 20E4 Standby Generators

Central District Wastewater Treatment Plant

Miami-Dade Water and Sewer Department

Compound	Reference	Uncontrolled Emissions			Controlled Emissions			
		Factor (g/bhp-hr)	lb/hr	tons/yr	Control Efficiency	Factor (g/bhp-hr)	lb/hr	tons/yr
SCR	Manufacturer's Data	10.19	80.8	520	85%	1.53	12.1	78.1
Combustion Mods	Manufacturer's Data	10.19	80.8	520	28%	7.34	58.2	374.7



# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

March 17, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert Ready, P.E.  
Assistant Director of Treatment Facilities  
Miami-Dade Water & Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146

Dear Mr. Ready:

RE: Revised Application - Central District Wastewater Treatment Plant

The Bureau of Air Regulation received your March 10 letter concerning the above referenced facility. The Department is returning your check number 134046 for \$4,500, which was submitted with your request. There is no additional fee required for this revision of a pending application pursuant to our incompleteness letter dated August 21, 1997.

If you have any questions, please call Syed Arif at (850)488-1344.

Sincerely,

A handwritten signature in cursive script, appearing to read "A. A. Linero", followed by the date "3/17".

A. A. Linero, P.E.  
Administrator  
New Source Review Section

AAL/kt

cc: S. Arif, BAR

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**  
 ■ Complete items 1 and/or 2 for additional services.  
 ■ Complete items 3, 4a, and 4b.  
 ■ Print your name and address on the reverse of this form so that we can return this card to you.  
 ■ Attach this form to the front of the mailpiece, or on the back if space does not permit.  
 ■ Write "Return Receipt Requested" on the mailpiece below the article number.  
 ■ The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):  
 1.  Addressee's Address  
 2.  Restricted Delivery  
 Consult postmaster for fee.

3. Article Addressed to:  
 Mr. Robert Ready, P.E.  
 Assistant Director of Treat. Fac.  
 Miami-Dade Water & Sewer Dept  
 4200 Salzedo St.  
 Coral Gables, FL  
 33146

4a. Article Number  
 P265 659 315  
 4b. Service Type  
 Registered  Certified  
 Express Mail  Insured  
 Return Receipt for Merchandise  COD  
 7. Date of Delivery  
 3/19/98

5. Received By: (Print Name)  
 L. BANFIELD

8. Addressee's Address (Only if requested and fee is paid)

6. Signature (Addressee or Agent)

Thank you for using Return Receipt Service.

Return Receipt

P 265 659 315

US Postal Service  
**Receipt for Certified Mail**  
 No insurance Coverage Provided.  
 Do not use for International Mail (See reverse)

Sent to	Robert Ready
Street & Number	Miami-Dade
Post Office, State, & ZIP Code	Water & Sewer
City	Coral Gables, FL
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	3-17-98

PS Form 3800, April 1995



# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

April 15, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert C. Ready, P.E.  
Assistant Director of Treatment Facility  
Miami-Dade Water & Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

Re: DRAFT Permit No. 0250476-002-AC, PSD-FL-240  
Central District Wastewater Treatment Plant

Dear Mr. Ready:

The Department has received your response to our August 21, 1997 incompleteness letter regarding air construction/operation permit for Three 3,600-horsepower (hp) Diesel Engine Driven Generator Sets. The response also includes a request for modification to your construction permit (AC13-81285) for Four Superior 16GTLB engines at your Central District Wastewater Treatment Plant. The updated application was received on March 16, 1998. The Department will combine the two projects under the same PSD permit and has therefore returned the fee of \$4,500 that was included with the updated application. We will also coordinate with the District Office in issuing the PSD and the Title V operating permit simultaneously. In order to expedite the application, we need the additional information listed below:

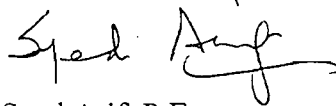
1. The response for the cost analysis for SCR technology for the Three 3,600 hp diesel engines includes cost of three SCR's. Please provide the cost analysis in \$/ton removed if the three stacks are combined and a single SCR system is employed to reduce the NO<sub>x</sub> emissions to 12.1 lb/hr and 78.1 tons/yr.
2. Table 3-1 of the updated application lists a different emission value for CO at 25% load compared to the original application. Please explain the discrepancy.
3. Please provide past actual emissions for criteria pollutants for the four Superior 16GTLB engines. Also, indicate the future potential emissions for the criteria pollutants for these units. What is the operating hour restrictions on these engines based on the current permit. Rule 62-212.300(3)(a)1 and 2 of the General Preconstruction Review mandates submittal of this information.

*"Protect, Conserve and Manage Florida's Environment and Natural Resources"*

4. Please indicate if any physical modifications will be done to the four Superior 16GTLB engines. If so, provide in detail what those modifications will be.
5. In your air quality impact analysis section there was no table summarizing the cumulative PSD increment impact from all sources in the area on the PSD Class I Everglades National Park. You provided modeling results which show that you did a cumulative increment impact analysis and that these values are less than the PSD Class I  $\text{NO}_x$  increment of  $2.5 \text{ ug/m}^3$ . Please submit this summary table in order to complete the air quality impact analysis.

If you have any questions, please call me or Cleve Holladay (meteorologist) at 850/488-1344.

Sincerely,



Syed Arif, P.E.

New Source Review Section

SA/a

cc: Mr. Brian Beals, EPA  
Mr. John Bunyak, NPS  
Mr. Isidore Goldman, SED  
Mr. Patrick Wong, DERM  
Mr. David Lindberg, P.E., CH2M-Hill



**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:  
 Robert C. Ready, PE.  
 Miami Dade Water &  
 Sewer Dept.  
 4200 Salzedo St.  
 Coral Gables, FL  
 33146-0316

4a. Article Number  
 P 265 659 335

4b. Service Type

Registered  Certified  
 Express Mail  Insured  
 Return Receipt for Merchandise  COD

7. Date of Delivery  
 4 17 98

5. Received By: (Print Name)  
 L. Banfield

6. Signature: (Addressee or Agent)  
 X L. BANFIELD

8. Addressee's Address (Only if requested and fee is paid)

Domestic Return Receipt

PS Form 3811, December 1994

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

P 265 659 335

US Postal Service  
**Receipt for Certified Mail**

No Insurance Coverage Provided.  
 Do not use for International Mail (See reverse)

Sent to:	Robert Ready
Street & Number	Miami Dade
Post Office, State, & ZIP Code	Water & Sew Dept. Coral Gables, FL
Postage	
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	4-15-98
	0850476-002-AC
	PSD-FL-240

PS Form 3800, April 1995



SERVE • CONSERVE

MIAMI-DADE WATER AND SEWER DEPARTMENT  
4200 Salzedo Street, Coral Gables, Florida 33146 • Tel: 305-669-3700 • Fax: 669-5717

**Fax**

<b>To:</b> Thomas Tittle	<b>From:</b> Richard O'Rourke
<b>Fax:</b> 1-561-681-6790	<b>Pages:</b> 10 w/cover
<b>Phone:</b> 1-561-681-6760	<b>Date:</b> 05/29/98
<b>Re:</b> Record Keeping at Central District and South District Facilities	<b>CC:</b> Raisa Neginsky

**Urgent**     **For Review**     **Please Comment**     **Please Reply**     **Please Recycle**

● **Comments:**

The following is copy of our responses to the concerns in your letter dated May 7, 1998.

Should you have any questions regarding these responses, please call me at (305) 669-5749.

SERVE • CONSERVE

May 29, 1998

Mr. Thomas Tittle  
Southeast District Office  
Florida Department of Environmental Protection  
Southeast District  
P.O. Box 15425  
West Palm Beach, FL 33416

RECEIVED  
JUN 04 1998  
BUREAU OF  
AIR REGULATION

RE: Response to FDEP letter dated May 7, 1998  
Record Keeping at Central District and South District Facilities

Dear Mr. Tittle:

PSD-FI-240

The referenced letter was received by the Miami-Dade Water and Sewer Department (MDWASD) on May 11, 1998. Prior to its receipt, action was taken on many of the items contained in the referenced letter. Enclosed, please find our responses to the concerns raised in your letter.

Should you have any questions regarding these responses, please call me at (305) 669-7668 or Mr. Richard M. O'Rourke, P.E. at (305) 669-5749.

Sincerely,



Robert C. Ready, P.E.  
Assistant Director,  
Treatment Facilities

RCR/RMO/ro

Enclosures

cc: Al Linero, FDEP/TAL  
Andrew Nieta, FDEP/WPB

## Central District (Va. Key)

### **Hourly limitations:**

*During the inspections, the inspector was unable to determine whether or not the four electrical generating units were in compliance with the 8400 hour operation limitation (each). Air Permit A013-244408 specific condition 2.a. states that the "maximum annual hours of operation shall not exceed 8,400 per electrical generating unit (prime mover and associated generator)".*

*Current logging procedures do not allow the facility to track the total running hours for each engine (i.e. total hours of generating, testing, etc ...). In fact, the operation log for at least one unit showed more hours of operation than the maintenance log. The latter is based on readings of the timing devices (which were required to be installed for each unit) which record the actual time of operation. This indicates that these meters may not be recording properly. Also, some of these logs were not signed or did not indicate when the reading took place, and some pages were missing. In addition, although the replacement date and the last reading of the replaced meters was recorded, the starting reading of the replacement meters was not recorded.*

*Therefore, these logs are not adequate to assure compliance with the above permit limitation. The data derived from these logs could not verify the compliance status of the units. In accordance with F.S. Ch.403.381, Record and Reports of Operation, "Each licensee [permittee] shall keep and maintain a record of all operations conducted by him or her pursuant to his or her license [permit] showing the method employed, ... the times ... of operation, ... and such other information as may be required by the department and shall report the same to the department at such times as it may require."*

*In order to provide the Department with the reasonable assurance required to demonstrate compliance with the hourly permit limitation on each electrical generating unit, submit a Standard Procedure document. This document shall specify the record keeping procedure to be followed and documented for each hourly limited unit and the quality assurance procedures which will be followed and documented to assure the recording device is operating properly. Please submit this information to this office no later than May 29, 1998 to avoid possible enforcement action.*

Hour meter readings of all major pieces of equipment (which include these engines) are read by plant maintenance personnel on a weekly basis. These hour meter readings, identified by "loop tag" identification numbers, are faxed to the Plant Maintenance Division main offices where data entry and processing is done. These are the logs which were referred to as having missing pages or pages not signed. Daily log sheets are prepared by the operators for each engine when it is operated and they record specific engine operating parameters. These daily log sheets are reviewed and signed by the operators on duty. Unfortunately, time did not allow a detailed review of these daily operating log sheets by your compliance engineer. A review of these daily records might have provided the assurance that the units were in compliance. The generator operators have also been manually keeping separate record of electrical production and hours of production. This record was reviewed and referred to in the letter as not being consistent with the maintenance "loop tag" hour meter readings.

Attached, as exhibit "A", is our proposed interim Standard Procedure to provide the reasonable assurance required to demonstrate compliance with the hourly permit limitation of our operating permit.

## **EXHIBIT "A"**

### **STANDARD PROCEDURE OPERATING HOUR RECORDS FOR THE CENTRAL DISTRICT WWTP COGENERATION ENGINES AT VIRGINIA KEY**

1. Engine hour meter readings are to be taken daily at the beginning of the day by cogeneration plant operators for every cogeneration engine operating at the start of the day and whenever an engine is started or stopped. Both hour meter reading and time that reading was taken shall be entered onto the engine operating log sheet.
2. Engine hour meter readings are to be taken daily at the end of the day by cogeneration plant operators for every cogeneration engine that was operated during the day. Both hour meter reading and time that reading was taken shall be entered onto the engine operating log sheet.
3. Cogeneration plant operators at the end of the day shall calculate the hours of operation based on the elapsed hour meter readings.
4. Cogeneration plant operators shall enter actual engine start and stop times of the cogeneration engines on the respective engine operating log sheet.
5. Cogeneration plant operators at the end of the day shall calculate the hours of operation based on the starting and stop times of the engines.
6. Cogeneration plant operators shall compare the daily hours of operation determined from the start and stop times to the elapsed engine hour meter readings at the end of the day. Unless there is a major discrepancy, the elapsed engine hour meter readings will be considered the actual run time of the engine. Operators are to report any major discrepancies or hour meter failures to Plant Maintenance for repair or replacement of the hour meter.
7. When an hour meter is determined to be defective, the calculated hours of operation based on the engine start and stop time will be considered to be the actual run time of the engine.
8. Maintenance personnel shall notify cogeneration plant operators, prior to starting and stopping any cogeneration engine for maintenance purposes.
9. Both Maintenance and cogeneration plant operators shall note in their respective engine logs and operation log sheet the ending times any hour meters removed and starting times of any hour meters replaced along with the actual time and date of the occurrence.

Central District (Va. Key) continued

**Blowers:**

*During the inspection, the inspector was informed that Blower #2 was going to be retired shortly and the other blowers would be retired sometime this June. These blowers will not need not be tested again if the units are permanently disconnected and the permit is modified to reflect the removal of these blowers. Please note that the muffler system on Blower #2 was broken when it was operated for testing during the inspection. To avoid enforcement, do not operate air pollution units in this manner in the future. Please notify the Department as each unit is disabled. Please provide the Department with notice that Blower #2 is disabled no later than May 29, 1998, so that we may inspect and verify.*

All engine driven blowers are to be retired as soon as the plant oxygenation tanks are functionally complete and the MDWASD receives approval to begin operation. Prospective contractors bidding on the removal of these engines have already been on site. Removal of portions of the engine blower intake structure has already begun. Blower #2 has not been run since it was operated for the purpose of testing on April 16, 1998. It is not MDWASD's intent to run blower engine #2 until the hole in the muffler outside the building is repaired, and the engine has been tagged out pending repairs.

MDWASD requests that the FDEP reconsider its request to disable this unit, in that its use may be required to insure proper treatment of wastewater. MDWASD will notify the FDEP when the individual units are retired from service.

**South District (Black Point)**

**Hourly limitations:**

*This facility has a similar problem with inadequate record keeping as noted during the Department inspection on March 12, 1998. During the inspection, the inspector was unable to determine whether or not the three electrical units were in compliance with the 8400 hour operation limitation (each). Air permit AO-2444406 permit specific condition # 2 a. states that the "maximum total hours of operation shall not exceed 8400 per electrical unit at this facility."*

*In the logs, the ending hours readings do not usually match the next day's starting hours reading. Because of this, we are not assured that the testing time and idling time, etc., are included in the log book. Also, the last reading of the removed meters was not reflected in the logs at first. Fortunately, the old meters were at the facility and the operator was able to correct this. In addition, each unit at this facility is equipped with two meters, electronic and manual, however, their readings do not match each other. There is no assurance which meter is used to demonstrate compliance and recorded in the log.*

*In order to provide the Department with the reasonable assurance required to demonstrate compliance with the hourly permit limitation on each electrical unit, submit a Standard Procedure document. This document shall specify the record keeping procedure to be followed and documented for each hourly limited unit and the quality assurance procedures which will be followed and documented to assure the recording device is operating properly. Please submit this information to this office no later than May 29, 1998 to avoid possible enforcement action.*

Only a single electronic hour meter is used on the cogeneration engines. The standby generators, which are under permit application, had two hour meters (as described in your letter) on engines #1 through #4, only one meter is being used for recording.

Attached, as exhibit "B", is our proposed interim Standard Procedure to provide the reasonable assurance required to demonstrate compliance with the hourly permit limitation of our operating permit.

## **EXHIBIT "B"**

### **STANDARD PROCEDURE OPERATING HOUR RECORDS FOR THE SOUTH DISTRICT WWTP COGENERATION ENGINES AT BLACK POINT**

1. Engine hour meter readings are to be taken daily at the beginning of the day by cogeneration plant operators for every cogeneration engine operating at the start of the day and whenever an engine is started or stopped. Both hour meter reading and time that reading was taken shall be entered onto the engine operating log sheet.
2. Engine hour meter readings are to be taken daily at the end of the day by cogeneration plant operators for every cogeneration engine that was operated during the day. Both hour meter reading and time that reading was taken shall be entered onto the engine operating log sheet.
3. Cogeneration plant operators at the end of the day shall calculate the hours of operation based on the elapsed hour meter readings.
4. Cogeneration plant operators shall enter actual engine start and stop times of the cogeneration engines on the respective engine operating log sheet.
5. Cogeneration plant operators at the end of the day shall calculate the hours of operation based on the starting and stop times of the engines.
6. Cogeneration plant operators shall compare the daily hours of operation determined from the start and stop times to the elapsed engine hour meter readings at the end of the day. Unless there is a major discrepancy, the elapsed engine hour meter readings will be considered the actual run time of the engine. Operators are to report any major discrepancies or hour meter failures to Plant Maintenance for repair or replacement of the hour meter.
7. When an hour meter is determined to be defective, the calculated hours of operation based on the engine start and stop time will be considered to be the actual run time of the engine.
8. Maintenance personnel shall notify cogeneration plant operators, prior to starting and stopping any cogeneration engine for maintenance purposes.
9. Both Maintenance and cogeneration plant operators shall note in their respective engine logs and operation log sheet the ending times any hour meters removed and starting times of any hour meters replaced along with the actual time and date of the occurrence.



## **VOC:**

*Please be reminded that our letter dated June 7, 1997, requested information regarding the VOC emissions resulting from painting activities and solvent use at any one facility and total amount for all MDW&SD facilities. We have not yet received your response. Please provide your best estimate, if more accurate information is not available. Please supply this response by May 29, 1998.*

The FDEP Division of Air Resources Management Memo, DARM-PER/V-15, provided guidance to Air Program Administrators and Engineers on the use of the listing of trivial activities listed in the July 3, 1995 Environmental Protection Agency (EPA) memorandum, "Initial Operating Permit Application Compliance Certification Policy,". The EPA listing conditionally includes painting under the category of plant maintenance and upkeep activities as a trivial activity.

MDWASD contends that its painting under the category of plant maintenance and upkeep activities at all of its Title V Facilities is a trivial activity. Enclosed as (EXHIBIT "C") is a tabulation of paint related items issued in Fiscal Year 1995-1996 for the upkeep of all MDWASD facilities. Based on this tabulation, of which the Title V facilities represent a small part, the total emissions are below the thresholds for exemption in Rule 62-213.430(6)(b), F.A.C. As such, painting is included in the application as an exemptible activity.

### ***Emergency generators (all facilities):***

*Although these units are not yet permitted, the record keeping problems pointed out above should be avoided. The Title V permits will require adequate record keeping to demonstrate compliance with any limitations (hourly, fuel consumption, etc ... ) imposed under those permits. Also, please make sure the Title V permit applications address the number and location of the many portable generators operated at each of your facilities. Please address this issue with each person reviewing your Title V applications by May 29, 1998.*

The use of trailer mounted generators is primarily limited to emergency use. This is being addressed in an RFI to be issued by FDEP Tallahassee regarding the Alexander Orr, Jr. WWTP in the near future.

## EXHIBIT "C"

### Paint Related Issues to all WASD Facilities in Fiscal Year 1995-1996

Total Issues	U/I	Part Description	Unit Volume (Gals)	Total Gallons Issued	VOC Content % by volume	Estimated VOC Content Lbs/Gal	Estimated VOC lbs. emitted upon use
125	GL	Acetone, solvent, use as thinner, clea	1.000	125.00		7.3	912.5
282	TU	Adhesive sealant, RTV silicone rubber	0.250	70.53		7.3	514.9
106	PI	Bitumastic, black, super service, 3 T	5.000	530.01	38.60	2.8	1,484.0
6	PL	Bitumastic, super tank solution, black	5.000	30.00	29.00	2.1	63.0
584	TU	Caulking compound, pure white, polyse	0.250	146.06		7.3	1,066.2
29	GL	Cement, Contact, adhesive brushable	1.000	29.00		5.09	147.6
8	PL	Coating, roof, black, 5 GL pail	5.000	40.00		5.09	203.6
18	PL	Emulsion, evergreen, floor latex, 5 G	5.000	90.00	0.08	0.52	46.8
116	CN	Enamel, aluminum/chrome, quick spray	0.063	7.25		2.93	21.2
4	GL	Enamel, cafe noir, polyurethane, oil	1.000	4.00	4.50	2.93	11.7
83	CN	Enamel, chinese red, quick spray, 10	0.063	5.19		2.93	15.2
153	PL	Enamel, EH cork, special floor paint	5.000	765.02		2.93	2,241.5
252	CN	Enamel, flat black, quick spray, 10 oz.	0.063	15.75		2.93	46.1
209	GL	Enamel, glamortex 501, eye rest green	1.000	209.00		2.93	612.4
356	CN	Enamel, gloss black, quick spray, 10	0.063	22.25		2.93	65.2
645	CN	Enamel, Gold, quick spray	0.063	40.31		2.93	118.1
434	CN	Enamel, high gloss equipment yellow	0.063	27.13		2.93	79.5
76	CN	Enamel, royal blue, quick spray, 10 oz.	0.063	4.75		2.93	13.9
450	CN	Enamel, rust preventive, red primer	0.063	28.13		2.93	82.4
397	CN	Enamel, white, quick spray, 10 oz. can	0.063	24.81		2.93	72.7
9	QT	Glazing compound, smooth & ready mixed	0.250	2.25		2.08	4.7
232	PL	Grease coating, no oxide	5.000	1,160.02	0.08	0.52	603.2
841	PL	Latex, acrylic semi-gloss, antique ivory	5.000	4,205.08		2.08	8,746.6
108	GL	Latex, black, 5200 series, white base	1.000	108.00		2.08	224.6
11	GL	Latex, cafe noir, PVA exterior latex	1.000	11.00		2.08	22.9
319	GL	Latex, charcoal gray, 5200 series, white	1.000	319.00		2.08	663.5
256	GL	Latex, dark brown, 5200 series, white	1.000	256.00		2.08	532.5
82	GL	Latex, doeskin, 5200 series, white ba	1.000	82.00		2.08	170.6
32	GL	Latex, effluent brown, 5200 series	1.000	32.00		2.08	66.6
395	GL	Latex, light gray, 5200 series, white	1.000	395.00		2.08	821.6
171	GL	Latex, Medium yellow, 5200 series	1.000	171.00		2.08	355.7
60	GL	Latex, OSHA green, 5200 series, white	1.000	60.00		2.08	124.8
1	GL	Latex, OSHA safety orange, industrial	1.000	1.00		2.08	2.1
2	GL	Latex, OSHA safety purple, 5200 series	1.000	2.00		2.08	4.2
31	GL	Latex, OSHA safety red, 5200 series	1.000	31.00		2.08	64.5
16	GL	Latex, royal blue, 5200 series, white	1.000	16.00		2.08	33.3
14	PL	Latex, traffic marking, black, water	5.000	70.00	0.00	0.009	0.6
537	PL	Latex, white, 5200 series, white base	5.000	2,685.05		2.08	5,584.9
31	GL	Ospho, metal treatment-not a primer	1.000	31.00		2.08	64.5
221	CN	Paint, marking, yellow, spray	0.063	13.81		7.3	100.8
2	PL	Paint, traffic marking, white, solvent	5.000	10.00		7.3	73.0
177	GL	Paint, traffic marking, yellow, latex	1.000	177.00	0.00	0.009	1.6

## EXHIBIT "C"

### Paint Related Issues to all WASD Facilities in Fiscal Year 1995-1996

Total Issues	U/I	Part Description	Unit Volume (Gals)	Total Gallons Issued	VOC Content % by volume	Estimated VOC <sup>u</sup> Content Lbs/Gal	Estimated VOC lbs. emitted upon use
61	QT	Polyurethane, gloss, clear wood finish	0.250	15.25		5.09	77.6
62	CN	Polyurethane, gloss, clear, coating	0.063	3.88		5.09	19.7
116	QT	Polyurethane, quick dry, primer/sealer	0.250	29.00		5.09	147.6
49	QT	Polyurethane, satin, clear wood finish	0.250	12.25		5.09	62.4
369	GL	Primer, red	1.000	369.00		5.09	1,878.2
1	QT	Putty, white painter's	0.250	0.25		2.08	0.5
20	PL	Roof cement, fibered plastic, PL=5 Gallon	5.000	100.00		5.09	509.0
263	GL	Rust-resistant aluminum, silver brite	1.000	263.00	78.30	5.09	1,338.7
68	GL	Rust inhibitor & primer	1.000	68.00		5.09	346.1
146	GL	Sealant, vinyl patching, elastomeric	1.000	146.00		5.09	743.1
1151	GL	Sealer, acrylic primer and stain kill	1.000	1,151.00		5.09	5,858.6
27	PL	Sealer, protector, elastomeric roof	5.000	135.00	0.01	0.076	10.3
5	GL	Shellac, pigment, stain sealer	1.000	5.00		5.09	25.5
48	GL	Solvent, denatured alcohol, for thinn	1.000	48.00		7.3	350.4
34	QT	Spackling compound, vinyl, ready mixed	0.250	8.50		2.08	17.7
4	QT	Stain, dark walnut	0.250	1.00		5.09	5.1
6	QT	Stain, early american	0.250	1.50		5.09	7.6
12	QT	Stain, golden oak	0.250	3.00		5.09	15.3
6	QT	Stain, special walnut	0.250	1.50		5.09	7.6
22	ST	Wall-nu, brushable gray, UN=1/2 gallon	0.500	11.00		2.08	22.9
38	ST	Wall-Nu, trowelable gray, UN=2 Gallon	2.000	76.00		2.08	158.1
<b>Total</b>				15,569.54		<b>Total</b>	37,687.18

MDWASD has numerous minor facilities such as pump stations, water storage facilities as well as office buildings in addition to the 5 Major Title V Facilities that are being maintained using these supplies.

Assuming that all of these supplies are divided equally & used among these 5 Title V Facilities and using extremely conservative values for VOC content (7.3 lbs/gal in some products), the estimated uncontrolled emissions related to painting for plant maintenance and upkeep activities is:

$$37,687.18 / 5 = 7,537.44 \text{ lbs}$$

or

3.77 tons
-----------



SERVE • CONSERVE

July 8, 1998

RECEIVED

JUL 13 1998

BUREAU OF  
AIR REGULATION

Mr. Laxmana Tallum  
District Air Program  
Florida Department of Environmental Protection  
Southeast District  
P.O. Box 15425  
West Palm Beach, FL 33416

RE: North District Wastewater Treatment Plant  
Title V Operating Permit Application (File No. 0250600-002-AV)  
Construction Permit Application (File No. 0250600-003-AC)

Dear Mr. Tallum:

I am sending you this letter to inform you that we are currently evaluating changes to the approach of our application for the above referenced facility based on your Request for Additional Information, dated 11 May 1998. As you are aware, we have received a similar request for the South District Wastewater Treatment. We intend to use a consistent approach for all of our facilities, including the 3 PSD permit applications submitted to Tallahassee.

We will provide a written response to the request for additional information for this facility by July 31, 1998. If you have any questions regarding these applications, please call Ms. Bertha M. Goldenberg, P.E. at 305/669-5711 or David Lindberg, P.E. of CH2M HILL at 619/687-0110.

Sincerely,

Robert C. Ready, P.E.  
Assistant Director, Treatment Facilities

RCR/RMO/ro

cc: Alvaro Linero, P.E., FDEP Tallahassee  
Patrick Wong, Miami-Dade DERM  
David E. Lindberg, P.E., CH2M HILL



SERVE • CONSERVE

July 30, 1998

RECEIVED

AUG 04 1998

BUREAU OF  
AIR REGULATION

Mr. Laxmana Tallum  
District Air Program  
Florida Department of Environmental Protection  
Southeast District  
P.O. Box 15425  
West Palm Beach, FL 33416

RE: South District Wastewater Treatment Plant, Title V Operating Permit Application  
(File No. 0250520-002-AV), Construction Permit Application (File No. 0250520-003-AC)  
North District Wastewater Treatment Plant, Title V Operating Permit Application  
(File No. 0250600-002-AV), Construction Permit Application (File No. 0250600-003-AC)

Dear Mr. Tallum:

I am sending you this letter to advise you that the revisions to the applications for the above referenced facilities and our responses to the Requests for Additional Information will be delayed. We should provide the written response to the request for additional information for the facilities by August 14, 1998.

Sincerely,

Richard M. O'Rourke, P.E.  
Permitting Engineer

ro

cc: Alvaro Linero, P.E., FDEP Tallahassee  
Patrick Wong, Miami-Dade DERM  
David E. Lindberg, P.E., CH2M HILL



# Department of Environmental Protection

Lawton Chiles  
Governor

September 22, 1998

Virginia B. Wetherell  
Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert C. Ready, P.E.  
Assistant Director of Treatment Facility  
Miami-Dade Water & Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

Re: Central District Wastewater Treatment Plant  
DEP File 0250476-002-AC (PSD-FL-240)

Dear Mr. Ready:

On April 15, 1998 the Department requested submittal of additional information to process the referenced <sup>4</sup> application request. To-date we have not received additional information. Please note that per Rule 62-~~8~~055(1):

*"The applicant shall have ninety days after the Department mails a timely request for additional information to submit that information to the Department. If an applicant requires more than ninety days in which to respond to a request for additional information, the applicant may notify the Department in writing of the circumstances, at which time the application shall be held in active status for one additional period of up to ninety days. Additional extensions shall be granted for good cause shown by the applicant. A showing that the applicant is making a diligent effort to obtain the requested information shall constitute good cause. Failure of an applicant to provide the timely requested information by the applicable date shall result in denial of the application."*

Over ninety days have transpired since our request for additional information. Because the rule provision was not in-effect when we requested the additional information, it will not be used at this time to deny the permit request. The nature of the information is such that a diligent effort would have yielded it by now and would certainly yield it in the next thirty days. Therefore, we are providing Miami-Dade Water & Sewer Department a period of an additional 30 days from the day this letter is received to provide the requested information or show good cause that an extension is required.

If you have any questions regarding this matter, please call Syed Arif at 850/921-9528.

Sincerely,

A. A. Linero, P.E. Administrator  
New Source Review Section

AAL/sa

cc: Mr. Isidore Goldman, DEP/SED  
Mr. Patrick Wong, DERM  
Mr. David Lindberg, P.E., CH2M-Hill

Is your RETURN ADDRESS completed on the reverse side?

<b>SENDER:</b> ■ Complete items 1 and/or 2 for additional services. ■ Complete items 3, 4a, and 4b. ■ Print your name and address on the reverse of this form so that we can return this card to you. ■ Attach this form to the front of the mailpiece, or on the back if space does not permit. ■ Write "Return Receipt Requested" on the mailpiece below the article number. ■ The Return Receipt will show to whom the article was delivered and the date delivered.		I also wish to receive the following services (for an extra fee): 1. <input type="checkbox"/> Addressee's Address 2. <input type="checkbox"/> Restricted Delivery Consult postmaster for fee.
3. Article Addressed to: <i>Mr. Robert C. Reedy P. E.</i> <i>Asst. Director of Treatment Facility</i> <i>Miami-Dade Water &amp; Sewer Dept</i> <i>4200 Sabalos St.</i> <i>Coral Gables, FL 33146</i>	4a. Article Number <i>2 333 612 515</i>	
4b. Service Type <input type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified <input type="checkbox"/> Express Mail <input type="checkbox"/> Insured <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> COD	7. Date of Delivery <i>9 24 98</i>	
5. Received By: (Print Name) <i>J. BANFIELD</i>	8. Addressee's Address (Only if requested and fee is paid)	
6. Signature: (Addressee or Agent) <i>X</i> <i>L. Banfield</i>		

Thank you for using Return Receipt Service.

2 333 612 515

US Postal Service  
**Receipt for Certified Mail**  
 No Insurance Coverage Provided.  
 Do not use for International Mail (See reverse)

Sent to	<i>Robert Reedy</i>
Street & Number	<i>Miami Dade Water &amp; Sewer</i>
Post Office, State, & ZIP Code	<i>Coral Gables</i>
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	<i>2 333 612 515</i>

PS Form 3800 April 1995


# Memorandum

# Florida Department of Environmental Protection

---

TO: Clair Fancy

THRU: Al Linero

FROM: Syed Arif 

DATE: December 28, 1998

SUBJECT: Miami-Dade Water and Sewer Department / Central District  
Wastewater Treatment Plant / 0250476-002-AC (PSD-FL-240)

Attached is the Public Notice package for increasing the hours of operation of three existing 2.5 MW each diesel electric generators at the above referenced facility.

The only pollutant that underwent PSD review was NO<sub>x</sub>. The diesel generator will be fired with No. 2 fuel oil with a sulfur content of 0.05 percent or less, by weight. The NO<sub>x</sub> controls will be timing retardation and turbocharger aftercoolers.

Additionally, the hourly and annual emissions of NO<sub>x</sub> for the four digester gas generators (1.2 MW ea.) will be reduced to a level more appropriate for clean burn engines.

I recommend your approval and signature.

SA

Attachments





SERVE • CONSERVE

December 24, 1998

CERTIFIED: Z 427 642 136  
RETURN RECEIPT

RECEIVED

DEC 31 1998

BUREAU OF  
AIR REGULATION

*Miami-Dade*

Mr. Laxmana Tallum  
Air Permitting Engineer  
F.D.E.P Southeast District  
P.O. Box 15425  
West Palm Beach, FL 33416

RE: Modifications to Title V Air Permit Application, Central District Wastewater Treatment Plant  
FDEP File No. 0250476-001-AV

*PSD-FI-240*

Dear Mr. Tallum:

We would like FDEP to issue the draft PSD and Title V permits for the above-referenced facility concurrently, and we would like to conduct public notice periods for both permits simultaneously. In order to make this possible, we request that our Title V application submitted to your office in June 1996 be amended for consistency with the PSD application submitted to the New Source Review Section in Tallahassee in February 1998.

PSD application No. 0250476-002-AC PSD-FL-240 requests an initial permit to construct three existing 3,600 brake-horsepower (bhp) diesel engines and modifications to construction permit AO13-244408 for the four 1,200 bhp digester gas engines. Please assimilate the conditions requested in this construction permit application directly into our Title V permit application.

If you have any questions about these applications, please contact Bertha Goldenberg at (305)669-5711 or David Lindberg/CH2M HILL at (619)687-0110.

Sincerely,

Robert C. Ready, P.E.  
Assistant Director  
Treatment Facilities

cc: Syed Arif, P.E. / FDEP Tallahassee  
Patrick Wong, P.E. / DERM  
David E. Lindberg, P.E. / CH2M HILL

*cc: S. Arif, BAR*



Lawton Chiles  
Governor

# Department of Environmental Protection

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

Virginia B. Wetherell  
Secretary

December 31, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert C. Ready, P.E.  
Assistant Director of Treatment Facility  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

Re: DRAFT Permit No. 0250476-002-AC (PSD-FL-240)  
Central District Wastewater Treatment Plant

Dear Mr. Ready:

Enclosed is one copy of the Draft Air Construction Permit Modifications for the Central District Wastewater Treatment Plant's Diesel Generators located at Virginia Key, Miami, Dade County. The Technical Evaluation and Preliminary Determination, Best Available Control Technology, the Department's Intent to Issue Air Construction Permit Modifications and the "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATIONS," are also included.

The "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATIONS" must be published within 30 (thirty) days of receipt of this letter. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within 7 (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.

Please submit any written comments you wish to have considered concerning the Department's proposed action to Mr. Syed Arif, P.E. of the New Source Review Section at the above letterhead address. If you have any other questions, please contact Mr. Arif at 850/921-9528.

Sincerely,

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

CHF/sa

Enclosures

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

In the Matter of an  
Application for Permit Modifications by:  
Miami-Dade Water and Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

---

DEP File No. 0250476-002-AC  
Draft Permit No. PSD-FL-240  
Central District Wastewater Treatment Plant  
Dade County

### INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATIONS

The Department of Environmental Protection (Department) gives notice of its intent to issue air construction permit modifications (copy of draft air construction permit modifications attached) for the proposed action, as detailed in the application specified above, for the reasons stated below.

The applicant, Miami-Dade Water and Sewer Department, applied on July 24, 1997, to the Department for air construction permit modifications to increase the hours of operation of its three existing diesel generators and four existing digester gas generators located in Miami, Dade County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above action is not exempt from permitting procedures. The Department has determined that a review for the Prevention of Significant Deterioration (PSD), a determination of Best Available Control Technology (BACT) and an air construction permit modifications are required to increase the hours of operation for the diesel generators.

The Department intends to issue these air construction permit modifications based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed "Public Notice of Intent to Issue Air Construction Permit Modifications." The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. For the purpose of these rules, "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. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/ 922-6979). You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

The Department will issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of thirty days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit Modifications." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

is your RETURN ADDRESS completed on the reverse side

- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:  
 Robert C. Ready  
 Miami Dade W 45 Dept.  
 4200 Salzedo Street  
 Coral Gables, FL

4a. Article Number  
 2 333 612 580

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

5. Received By: (Print Name)  
 33146-0316

6. Signature: (Addressee or Agent)  
 X *Robert Ready*

7. Date of Delivery  
 1-2-99

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1994 102595-97-B-0179 Domestic Return Receipt

Z 333 612 580

US Postal Service  
**Receipt for Certified Mail**  
 No Insurance Coverage Provided.  
 Do not use for International Mail (See reverse)

Sent To	<i>Robert Ready</i>
Street & Number	<i>Miami Dade</i>
Post Office, State, & ZIP Code	<i>Coral Gables, FL</i>
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	<i>12-31-98</i>
	<i>D250476-002-AC</i>
	<i>D30-C1-247</i>

PS Form 3800, April 1995

**Technical Evaluation  
and  
Preliminary Determination**

**Miami-Dade Water & Sewer Department  
Central District Wastewater Treatment Plant  
Dade County, Florida**

**THREE DIESEL GENERATORS  
(2.5 megawatts each)**

Construction Permit No. 0250476-002-AC  
PSD-FL-240

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

December 31, 1998

## 1. GENERAL INFORMATION

### 1.1 Name and address of applicant

Miami-Dade Water & Sewer Department - WASD  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

Authorized Representative: Mr. Robert C. Ready, P.E., Assistant Director of Treatment Facility

### 1.2 Reviewing and Process Schedule

07-24-97:	Date of Receipt of Application
08-21-97:	DEP Completeness Request
03-09-98:	DEP Additional Completeness Request
03-16-98:	WASD's response to DEP's Completeness Requests of 08-21-97 and 03-09-98
04-15-98:	DEP Completeness Request
10-21-98:	WASD's response to DEP's Completeness Request of 04-15-98.
	Application complete
12-xx-98:	Issue Intent

## 2 FACILITY INFORMATION

### 2.1 Facility Location

This facility is located at Central District Wastewater Treatment Plant, Virginia Key, Miami, Dade County, Florida. The UTM coordinates are Zone 17, 585.2 km east and 2848.1 km north.

### 2.2 Standard Industrial Classification Code (SIC)

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

Industry Group No. 4952 - Sewerage Systems.

### 2.3 Project Description

The Miami-Dade Water and Sewer Department proposes to increase operation of three existing standby electric generators at its Central District Wastewater Treatment Plant (WWTP) on Virginia Key in Miami, Florida. WASD desires to increase operation of its three generator sets to provide power generation capacity during periods of load-sharing with the local utility, Florida Power and Light; during power failure events; or as needed under other circumstances. WASD also requests to eliminate the hours of operation restriction for the existing four (4) digester gas engine generator sets. Actual emissions are expected to decrease due to improved maintenance procedures.

The three generator set will be noted as Emissions Unit 13, 14 and 15. Each generator is rated to produce 2,500 kilowatts (kW) of electric power at continuous, full load operating conditions. The generators are capable of operating at partial load conditions, and are driven by 3,600-horsepower (hp) diesel engine prime movers. The 3,600-hp engines burn transportation-grade diesel fuel, which has a low sulfur content (0.05 weight percent sulfur). Fuel oil combustion shall be limited to 2.486 million gallons per year for the three generators (which corresponds to 8760 hours of full-load operation per year limit).

The WWTP currently consists of seven (7) diesel engines generators used for peaking power. The three existing emergency diesel generators noted above as Emissions Unit 13, 14 and 15 are 2.5 megawatts (MW) each. Low sulfur (0.05% or less, by weight) No. 2 oil is used as fuel for these units. Additionally four existing digester gas engine generator sets noted as Units 7, 9, 10 and 11 are 1.2 MW each. Digester gas combustion per unit is approximately 312 scfm. Digester gas heating value ranges from 650 to 730 btu/mmcf. Total capacity of the facility with seven (7) units will be 12.3 MW.

## 2.4 Project Emissions

The proposed project will produce maximum emissions of 375 tons per year (TPY) of nitrogen oxides (NO<sub>x</sub>); 9.6 TPY of sulfur dioxide (SO<sub>2</sub>); 37.7 TPY of carbon monoxide (CO); 9.8 TPY of particulate matter (PM/PM<sub>10</sub>) and 14.7 TPY of volatile organic compounds (VOC) based on an annual consumption of 2.486 million gallons of No. 2 fuel oil and 100% capacity factor or 8760 hours of operation for the three diesel generator sets. The No. 2 fuel oil will be limited to maximum of 0.05% sulfur content, by weight. The actual emissions for the proposed project will be much less than the numbers represented above based on projected actual operating hours.

## 3 RULE APPLICABILITY

The proposed project, increased operation of three 2.5 MW diesel generator sets, in Dade County, is subject to 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, 1996 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 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 emission units affected by this PSD permit shall comply with all applicable provisions of the Florida Administrative Code and, specifically, the following Chapters and Rules:

Chapter 62-4	Permits.
Rule 62-204.220	Ambient Air Quality Protection
Rule 62-204.240	Ambient Air Quality Standards
Rule 62-204.260	Prevention of Significant Deterioration Increments
Rule 62-204.360	Designation of Prevention of Significant Deterioration Areas
Rule 62-204.800	Federal Regulations Adopted By Reference
Rule 62-210.200	Definitions
Rule 62-210.300	Permits Required
Rule 62-210.350	Public Notice and Comments
Rule 62-210.370	Reports
Rule 62-210.550	Stack Height Policy
Rule 62-210.650	Circumvention
Rule 62-210.700	Excess Emissions

Rule 62-210.900	Forms and Instructions
Rule 62-212.300	General Preconstruction Review Requirements
Rule 62-212.400	Prevention of Significant Deterioration
Rule 62-212.410	Best Available Control Technology (BACT)
Rule 62-213	Operation Permits for Major Sources of Air Pollution
Rule 62-296.320	General Pollutant Emission Limiting Standards
Rule 62-297.310	General Test Requirements
Rule 62-297.401	Compliance Test Methods

#### 4 TECHNICAL EVALUATION

The applicant proposes to increase operation of the three existing standby electric generators with a rated capacity of 2.5 MW each at their existing facility which consists of four additional diesel generators. This facility is a wastewater treatment plant which generates power only during periods of load-sharing with the local utility, Florida Power and Light; during power failure events; or as needed under other circumstances.

The Central District Wastewater Treatment Plant is located on Virginia Key in Miami, Florida. The facility consists of two parallel wastewater treatment trains, including the following processes and associated structures:

- Liquid processes consisting of identical grit chamber buildings at both plants, aeration tanks at plant 1, oxygenation tanks at plant 2, final settling tanks at both plants, and chlorination buildings at both plants.
- Solids processes consisting of 8 gravity sludge concentration tanks, 24 anaerobic digesters, 2 sludge thickener tanks, a sludge dewatering building, and a dried sludge storage building.
- Other processes and structures, including a maintenance building, a blower and cogeneration building, four scrubber buildings, an electrical switchgear building, an oxygen plant, and the three standby generator enclosures.

PSD is triggered due to the existing Plant being a major facility, and the emissions of NO<sub>x</sub> exceed their respective significance levels.

The diesel generators are EMD Model 20-645E4 with a nominal base load rating of 2.5 MW. All engines are diesel-fueled 20-cylinder, 2-cycle, and turbocharged. The primary fuel to the diesel generator will be No. 2 fuel oil, with a maximum sulfur content of 0.05%, by weight. There will be a fuel oil consumption limit of 2.486 million gallons per year. The emissions of NO<sub>x</sub> represents a significant proportion of the total emissions generated by this project. The facility is subject to PSD and BACT for NO<sub>x</sub> emissions because the proposed increase in annual NO<sub>x</sub> emissions exceeds the significant emission rate. The BACT for NO<sub>x</sub>, as determined by the Department, will be met by using fuel injection timing retardation and cooling of combustion air. Compliance with the NO<sub>x</sub> emission standards will be determined by stack tests.

CO emissions from the diesel engine will be below the PSD significance levels, and, therefore will not be subjected to a BACT analysis.

Particulate matter (PM/PM<sub>10</sub>) emissions from the diesel engine will be below the PSD significance levels, and, therefore will not be subjected to a BACT analysis.

SO<sub>2</sub> emissions will be controlled by the use of low sulfur fuel. The No. 2 fuel oil will be limited to a maximum of 2.486 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<sub>2</sub> emissions, because the proposed increase in annual SO<sub>2</sub> emissions does not exceed the significant emission rate.



The following table summarizes the potential maximum emissions of air pollutants in tpy :

Pollutant	PSD Significance Levels <sup>1</sup>	Maximum Emissions	Subject to PSD Review?
NO <sub>x</sub>	40	375 <sup>2</sup>	Yes
CO	100	37.7 <sup>3</sup>	No
PM/PM <sub>10</sub>	25/15	9.8 <sup>4</sup>	No
SO <sub>2</sub>	40	9.6 <sup>5</sup>	No
VOC	40	14.7 <sup>6</sup>	No

<sup>1</sup> Florida Administrative Code 212.400-2

<sup>2</sup> Maximum emissions based on operation at 4,290 hours per year at full load while firing No. 2 fuel oil (0.05% sulfur by weight).

<sup>3</sup> Maximum emissions based on continuous operation at 25 percent load while firing No. 2 fuel oil (0.05% sulfur by weight).

<sup>4</sup> Maximum emissions based on operation at 8,590 hours per year at 50 percent load while firing No. 2 fuel oil (0.05% sulfur by weight).

<sup>5</sup> Maximum emissions based on operation at 8,590 hours per year at 50 percent load while firing No. 2 fuel oil (0.05% by weight).

<sup>6</sup> Maximum emissions based on operation at 8,590 hours per year at 50 percent load while firing No. 2 fuel oil (0.05% by weight).

## 5 AIR QUALITY IMPACT ANALYSIS

### 5.1 Introduction

The proposed project will increase NO<sub>x</sub> emissions at a level in excess of PSD significant amounts. The air quality impact analyses required by the PSD regulations for this pollutant include:

- \* An analysis of existing air quality;
- \* A significant impact analysis;
- \* A PSD increment analysis;
- \* An Ambient Air Quality Standards (AAQS) analysis, and
- \* An analysis of impacts on soils, vegetation, and visibility and of growth-related air quality modeling impacts.

The analysis of existing air quality generally relies on preconstruction monitoring data collected with EPA-approved methods. The significant impact, 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 significantly 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 required analyses follows.

## 5.2 Analysis of Existing Air Quality

Preconstruction ambient air quality monitoring is required for all pollutants subject to PSD review unless otherwise exempted or satisfied. This monitoring requirement may be satisfied by using previously existing representative monitoring data, if available. An exemption to the monitoring requirement may be obtained if either of the following conditions is met: the maximum predicted air quality impact resulting from the projected emissions increase, as determined by air quality modeling, is less than a pollutant-specific de minimus concentration, or the existing ambient concentrations are less than a pollutant-specific de minimus concentration. If preconstruction ambient monitoring is exempted, determination of background concentrations for PSD significant pollutants with established AAQS may still 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 the 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.

Annual NO<sub>2</sub> impacts from the project are predicted to be 13.6 ug/m<sup>3</sup>, which is less than the de minimus level of 14 ug/m<sup>3</sup>; therefore, no preconstruction monitoring is required. However, a background concentration was established for use in the required AAQS analysis. There is an NO<sub>2</sub> monitor located on Virginia Key near the proposed project. This monitor had a measured annual average NO<sub>2</sub> concentration of 13 ug/m<sup>3</sup> in 1997.

## 5.3 Models and Meteorological Data Used in Significant Impact, PSD Increment and AAQS Analyses

The EPA-approved Industrial Source Complex Short-Term (ISCST3) dispersion model was used to evaluate the pollutant emissions from the proposed project and other existing major facilities. The model determines ground-level concentrations of inert 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 ISCST3 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. The stacks associated with this project all satisfy the good engineering practice (GEP) stack height criteria.

Meteorological data used in the ISCST3 model consisted of a concurrent 5-year period of hourly surface weather observations and twice-daily upper air soundings from the National Weather Service (NWS) stations at Miami, Florida (surface data) and West Palm Beach, Florida (upper air data). The 5-year period of meteorological data was from 1987 through 1991. These NWS stations were selected for use in the study because they are the closest primary weather stations to the study area and are most representative of the project site. The surface observations included wind direction, wind speed, temperature, cloud cover, and cloud ceiling. For this project, since only the impacts of NO<sub>x</sub> emissions are being evaluated and since the NO<sub>2</sub> standards and increments are based on annual averages, the highest predicted annual averages were compared with the significant impact level, the AAQS and the PSD increments.

5.4 Significant Impact Analysis

Initially, the applicant conducted modeling to determine whether the proposed project's NO<sub>x</sub> emissions were predicted to have a significant impact in the vicinity of the facility or in the Class I area. The applicant placed a total of 800 receptors along the site boundary and within eight km of the facility, which is located in a PSD Class II area. A total of 28 receptors were placed along the northern and eastern boundaries of the Everglades National Park (ENP). ENP is a PSD Class I area which is located approximately 30 km from the project at its closest point. The tables below show the results of this modeling. The radius of significant impact is also shown in the first table below.

**Maximum Project Air Quality Impact for Comparison to the PSD Class II Significant Impact Level in the Vicinity of the Facility**

Pollutant	Averaging Time	Maximum Predicted Impact (ug/m <sup>3</sup> )	Significant Impact Level (ug/m <sup>3</sup> )	Significant Impact?	Radius of Significant Impact (km)
NO <sub>2</sub>	Annual	13.6	1	YES	8

**Maximum Project Air Quality Impact in the ENP for Comparison to the PSD Class I Significant Impact Level**

Pollutant	Averaging Time	Maximum Predicted Impact (ug/m <sup>3</sup> )	Significant Impact?	Significant Impact Level (ug/m <sup>3</sup> )
NO <sub>2</sub>	Annual	0.118	YES	0.1

As shown in the tables the maximum predicted air quality impacts due to NO<sub>x</sub> emissions from the proposed project are greater than the PSD significant impact levels both in the vicinity of the facility and in the ENP. Therefore, the applicant was required to do full impact NO<sub>2</sub> modeling in the vicinity of the facility, within the applicable significant impact area, to determine the impacts of the project along with all other sources in the vicinity of the facility. The significant impact area is based upon the predicted radius of significant impact. Full impact modeling is modeling that considers not only the impact of the project but the impacts of the existing facility and other major sources, including background concentrations, located within the vicinity of the project to determine whether all increments or AAQS or predicted to be met.

5.5 Procedure For Performing PSD Increments And AAQS Analyses

For the PSD and AAQS analyses, receptor grids normally are based on the size of the significant impact area for each pollutant. The size of the significant impact areas for the required NO<sub>2</sub> analyses were based on a 8 km radius of significant impact.

5.6 PSD Increment Analysis

The PSD increment represents the amount that new sources in an area may increase ambient ground level concentrations of a pollutant. The results of the required PSD Class I and II increment analyses presented in the tables below show that all of the maximum predicted impacts are less than the allowable Class II increments.

**PSD Class II Increment Analysis in the Vicinity of the Facility**

Pollutant	Averaging Time	Maximum Predicted Impact (ug/m <sup>3</sup> )	Impact Greater Than Allowable Increment?	Allowable Increment (ug/m <sup>3</sup> )
NO <sub>2</sub>	Annual	23.8	NO	25

**PSD Class I Increment Analysis in the ENP**

Pollutant	Averaging Time	Maximum Predicted Impact (ug/m <sup>3</sup> )	Impact Greater Than Allowable Increment?	Allowable Increment (ug/m <sup>3</sup> )
NO <sub>2</sub>	Annual	0.74	NO	2.5

**5.7 AAQS Analysis**

The results of the AAQS analysis are summarized in the table below. As shown in this table, emissions from the proposed facility are not expected to cause or significantly contribute to a violation of any AAQS.

**Ambient Air Quality Impacts**

Pollutant	Averaging Time	Maximum Predicted Impact (ug/m <sup>3</sup> )	Predicted Impact Greater Than AAQS?	AAQS (ug/m <sup>3</sup> )
NO <sub>2</sub>	Annual	38	NO	100

**5.8 Additional Impacts Analysis**

**5.8.1 Impacts On Soils, Vegetation, Wildlife, and Visibility**

The maximum ground-level concentrations predicted to occur due to NO<sub>x</sub> emissions as a result of the proposed project, including 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. A visibility analysis was done by the Department for the Class I area. This analysis showed no significant impact on visibility in this area.

**5.8.2 Growth-Related Air Quality Impacts**

There will be no growth associated with this project .

**6 CONCLUSION**

Based on the foregoing technical evaluation of the application and additional information submitted by WASD, the Department has made a preliminary determination that the proposed project will comply with all applicable state air pollution regulations provided the Department's Best Available Control Technology Determination is implemented.

*Permit Engineer:* Syed Arif, P.E.  
*Meteorologist:* Cleve Holladay

**PERMITTEE:**

**Miami-Dade Water and Sewer Department**  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

*Authorized Representative:*

Robert C. Ready, P.E.  
Assistant Director of Treatment Facility

<b>FID No.</b>	0250476
<b>PSD No.</b>	PSD-FL-240
<b>SIC No.</b>	4952
<b>Project:</b>	Diesel Generators
<b>Permit No.</b>	0250476-002-AC
<b>Expires:</b>	December 31, 1999

**PROJECT AND LOCATION:**

Permit for increasing the hours of operation for the three 2.5 megawatt diesel-electric generators and four 1.2 megawatt digester gas electric generators at the Central District Wastewater Treatment Plant, Virginia Key, Miami, Dade County. UTM coordinates are Zone 17; 585.2 km E; 2848.1 km N.

**STATEMENT OF BASIS:**

This construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and the Florida Administrative Code (F.A.C.) Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297. The above named permittee is authorized to modify the facility in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department of Environmental Protection (Department).

**Attached appendices are made a part of this permit:**

Appendix BD      BACT Determination  
Appendix GC      Construction Permit General Conditions  
Appendix CSC      Emission Unit(s) Common Specific Conditions

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Howard L. Rhodes, Director  
Division of Air Resources  
Management

# AIR CONSTRUCTION PERMIT 0250476-002-AC AND PSD-FL-240

## SECTION I. FACILITY INFORMATION

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### SUBSECTION A. FACILITY DESCRIPTION

The Miami-Dade Water and Sewer Department (WASD) Central District Wastewater Treatment Plant presently consists of three nominal 2.5 Megawatt (MW) diesel generators designated as Units 13 and 14 and 15, four nominal 1.5 MW diesel generators (Units 7, 9, 10 and 11), and one wastewater treatment plant (Unit 8). This permit is to increase the hours of operation for the seven diesel generators (Units 7, 9, 10, 11, 13, 14 and 15) and to limit the potential-to-emit of units 7, 9, 10 and 11.

### SUBSECTION B. REGULATORY CLASSIFICATION

The Central District Wastewater Treatment is classified as a Major Source of Air Pollution or Title V Source because it emits or has the potential to emit at least 100 tons per year of nitrogen oxides (NO<sub>x</sub>) and carbon monoxide (CO). It is also a Major Facility with respect to preconstruction review because it emits or has the potential to emit at least 250 tons per year of NO<sub>x</sub>.

### SUBSECTION C. PERMIT SCHEDULE:

- 07-24-97: Date of Receipt of Application
- 10-21-98: Application deemed complete
- 12-xx-98: Intent issued

### SUBSECTION D. RELEVANT DOCUMENTS:

The documents listed form the basis of the permit. They are specifically related to this permitting action. These documents are on file with the Department.

- Application received 7-24-97
- Department's letters dated 8-21-97, 3-9-98, and 4-15-98
- Company letters dated 3-16-98, and 10-21-98
- Technical Evaluation and Preliminary Determination dated 12-xx-98
- Best Available Control Technology determination (issued concurrently with permit)

# AIR CONSTRUCTION PERMIT 0250476-002-AC AND PSD-FL-240

## SECTION II. EMISSION UNIT(S) GENERAL REQUIREMENTS

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### SUBSECTION A. ADMINISTRATIVE

- A.1 Regulating Agencies: All documents related to applications for permits to operate, reports, tests, minor modifications and notifications shall be submitted to the Department of Environmental Protection, Southeast District Office located at 400 North Congress Avenue, West Palm Beach, Florida 33401, and phone number (561) 681-6600. All applications for permits to construct or modify an emission unit(s) *subject to the Prevention of Significant Deterioration (PSD)* should be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (FDEP) located at 2600 Blairstone Road, Tallahassee, Florida 32399-2400 and phone number (850)488-0114.
- A.2 General Conditions: The owner and operator is subject to and shall operate under the attached General Permit Conditions G.1 through G.15 listed in *Appendix GC* of this permit. General Permit Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. **[Rule 62-4.160, F.A.C.]**
- A.3 Emission Unit(s) Common Specific Conditions: The owner and operator is subject to and shall operate under the attached Emission Unit(s) Common Specific Conditions listed in *Appendix CSC* of this permit. The Emission Unit(s) Common Specific Conditions are binding and enforceable pursuant to Chapters 62-204 through 62-297 of the Florida Administrative Code.
- A.4 Terminology: The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.
- A.5 Forms and Application Procedures: The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. **[Rule 62-210.900, F.A.C.]**
- A.6 Expiration: This air construction permit **shall expire on December 31, 1999.** **[Rule 62-210.300(1), F.A.C.]**. The permittee may, for good cause, request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit. However, the permittee shall promptly notify the permitting authority office of any delays in completion of the project which would affect the startup day by more than 90 days. **[Rule 62-4.090, F.A.C.]**
- A.7 Applicable Regulations: The facility is subject to the following regulations: Florida Administrative Code Chapters 62-4; 62-103; 62-204; 62-210; 62-212, 62-296, and 62-297. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements or regulations. **[Rule 62-210.300, F.A.C.]**

AIR CONSTRUCTION PERMIT 0250476-002-AC AND PSD-FL-240

**SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS**

**SUBSECTION A. LISTING OF EMISSIONS UNITS**

This permit addresses the following emission units.

EMISSIONS UNIT No.	SYSTEM	EMISSIONS UNITS DESCRIPTION
007	Power	1.2 MW Digester Gas Electric Generator
009	Power	1.2 MW Digester Gas Electric Generator
010	Power	1.2 MW Digester Gas Electric Generator
011	Power	1.2 MW Digester Gas Electric Generator
013	Power	2.5 MW Diesel Electric Generator
014	Power	2.5 MW Diesel Electric Generator
015	Power	2.5 MW Diesel Electric Generator

**SUBSECTION B. SPECIFIC CONDITIONS (UNITS 013, 014 AND 015):**

The following Specific Conditions apply to the following emission unit:

EMISSION UNIT No.	SYSTEM	EMISSION UNIT DESCRIPTION
013	Power	2.5 MW Diesel Electric Generator
014	Power	2.5 MW Diesel Electric Generator
015	Power	2.5 MW Diesel Electric Generator

**EMISSION LIMITATIONS**

- B.1 The maximum allowable emission rates for NO<sub>x</sub> for Units No. 013, 014 and 015 shall not exceed 58 pounds per hour (lb/hr) each and 375 tons per year (TPY) combined pursuant to the Best Available Control Technology (BACT) Determination. [Rule 62-212.400(6), F.A.C.]
- B.2 Visible emissions shall be less than 20% opacity. [Rule 62-296.320, F.A.C.]
- B.3 In order to minimize excess emissions during startup/shutdown/malfunction this emission unit shall adhere to best operational practices. [Rule 62-210.700, F.A.C.]

**OPERATIONAL LIMITATIONS**

- B.4 The emission unit is allowed to operate continuously (8760 hours/year). [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit].
- B.5 Only No. 2 fuel oil can be fired in the diesel generator. The maximum sulfur content of the No. 2 fuel oil shall not exceed 0.05 percent, by weight. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit].
- B.6 The combined maximum heat input rate to Units No. 013, 014 and 015 shall not exceed 81 million Btu per hour (MMBtu/hr) at 100 percent load. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit].



**SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS**

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- B.7 The maximum No. 2 fuel oil consumption allowed to be burned in Units No. 013, 014 and 015 is 2,486,000 gallons per year, which is equivalent to 4290 hours per year of operation at full load for each unit. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit]

**TEST METHODS AND PROCEDURES**

- B.8 Compliance with the allowable emission limiting standards for NO<sub>x</sub> in B.1 shall be determined by using EPA Reference Method 7 (or equivalent) as described in 40 CFR 60, Appendix A (1996, version) adopted by reference in Rule 62-204.800, F.A.C. [Rule 62-297.401, F.A.C.]
- B.9 The fuel shall be monitored for the sulfur content using ASTM D4294 Method (or equivalent). [Rule 62-297.440, F.A.C.]
- B.10 The permittee shall maintain daily records of fuel oil consumption for the emission unit. [Rule 62-210.200, F.A.C.]
- B.11 Compliance with the visible emission standard shall be demonstrated with EPA Reference Method 9 as described in 40 CFR 60, Appendix A (1996, version) adopted by reference in Rule 62-204.800, F.A.C. [Rule 62-297.401, F.A.C.]

**RECORDKEEPING AND REPORTING REQUIREMENTS**

- B.12 All measurements, records, and other data required to be maintained by this facility shall be retained for at least five (5) years following the data on which such measurements, records, or data are recorded. These data shall be made available to the Department upon request. [Rule 62-4.070(3), F.A.C.]
- B.13 Two copies of the results of the emission tests for the pollutant listed in Condition B.1 for Units No. 13, 14 and 15 shall be submitted within forty-five days of the last sampling run to the Southeast District office in West Palm Beach. All reports shall be in a format consistent with and shall include the information in accordance with Rule 62-297.310 (8), F.A.C. [Rule 62-297.310(8), F.A.C.]

# AIR CONSTRUCTION PERMIT 0250476-002-AC AND PSD-FL-240

## SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

### SUBSECTION C. SPECIFIC CONDITIONS (UNITS 007, 009, 010 AND 011)

The following Specific Conditions apply to the following emission units:

EMISSIONS UNIT NO.	SYSTEM	EMISSIONS UNITS DESCRIPTION
007	Power	1.2 MW Digester Gas Electric Generator
009	Power	1.2 MW Digester Gas Electric Generator
010	Power	1.2 MW Digester Gas Electric Generator
011	Power	1.2 MW Digester Gas Electric Generator

### EMISSION LIMITATIONS

- C.1 The maximum allowable emission rates for NO<sub>x</sub> for Units No. 007, 009, 010 and 011 shall not exceed 5.3 pounds per hour (lb/hr) each and 93 tons per year (TPY) combined. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit.]
- C.2 Visible emissions shall be less than 20% opacity. [Rule 62-296.320, F.A.C.]
- C.3 In order to minimize excess emissions during startup/shutdown/malfunction this emission unit shall adhere to best operational practices. [Rule 62-210.700, F.A.C.]

### OPERATIONAL LIMITATIONS

- C.4 The existing Units No. 007, 009, 010 and 011 are allowed to operate continuously (8760 hours per year). [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit ]
- C.5 Only digester gas can be fired in the diesel generators 007, 009, 010 and 011. The maximum annual usage rate of the digester gas shall be 656,000,000 cubic feet. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit]

### TEST METHODS AND COMPLIANCE PROCEDURES

- C.6 The permittee shall maintain daily records of digester gas consumption for the emission units. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit.]
- C.7 Compliance with the allowable emission limiting standards for NO<sub>x</sub> in C.1 shall be determined by using EPA Reference Method 7 (or equivalent) as described in 40 CFR 60, Appendix A (1996, version) adopted by reference in Rule 62-204.800, F.A.C. [Rule 62-297.401, F.A.C.]
- C.8 Compliance with the visible emission standard shall be demonstrated with EPA Reference Method 9 as described in 40 CFR 60, Appendix A (1996, version) adopted by reference in 62-204.800, F.A.C. [Rule 62-297.310, F.A.C.]

**APPENDIX BD**  
**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)**

Central District Wastewater Treatment Plant  
 Miami-Dade Water and Sewer Department  
 PSD-FL-240 and 0250476-002-AC  
 Miami, Dade County

The Miami-Dade Water and Sewer Department (WASD) plans to increase the hours of operation of its three existing standby Diesel Engine Generators at Central District Wastewater Treatment Plant (WWTP) in Miami, Dade County. The units are Electro-Motive Diesel generator model 20-645E4 with a nominal base load rating of 2.5 megawatts (MW) each. The units will be fired with No. 2 fuel oil with a sulfur content of 0.05 percent or less, by weight, and a fuel oil consumption limit of 2.486 million gallons per year. The facility additionally consists of four (4) diesel engine generators used for peaking power. These units are each rated at 1.2 MW burning digester gas. The facility also has two parallel wastewater treatment trains.

WASD has indicated that the maximum annual air pollutant emission rates in tons per year for the three diesel generators, based on consumption of 2.486 million gallons of No. 2 fuel oil, with a maximum sulfur content of 0.05 percent, by weight, will be:

Pollutant	PSD Significance Levels <sup>1</sup>	Maximum Emissions	Subject to PSD Review?
NO <sub>x</sub>	40	375 <sup>2</sup>	Yes
CO	100	37.7 <sup>3</sup>	No
PM/PM <sub>10</sub>	25/15	9.8 <sup>4</sup>	No
SO <sub>2</sub>	40	9.6 <sup>5</sup>	No
VOC	40	14.7 <sup>6</sup>	No

<sup>1</sup> Florida Administrative Code 212.400-2

<sup>2</sup> Maximum emissions based on operation at 4,290 hours per year at full load while firing No. 2 fuel oil (0.05% sulfur by weight).

<sup>3</sup> Maximum emissions based on continuous operation at 25 percent load while firing No. 2 fuel oil (0.05% sulfur by weight).

<sup>4</sup> Maximum emissions based on operation at 8,590 hours per year at 50 percent load while firing No. 2 fuel oil (0.05% sulfur by weight).

<sup>5</sup> Maximum emissions based on operation at 8,590 hours per year at 50 percent load while firing No. 2 fuel oil (0.05% by weight).

<sup>6</sup> Maximum emissions based on operation at 8,590 hours per year at 50 percent load while firing No. 2 fuel oil (0.05% by weight).

Following is the BACT determination proposed by the applicant:

**BACT DETERMINATION REQUESTED BY THE APPLICANT:**

POLLUTANT	EMISSION LIMIT
Nitrogen Oxides	58 lbs/hr each by timing retardation and aftercoolers

The Central District Wastewater Treatment Plant is a major source of air pollution or Title V source. Because emissions of nitrogen oxides are greater than 250 tons per year, it is a major facility with respect to the Prevention of Significant Deterioration (Rule 62-212.400). Because the project will result in a significant increase in nitrogen

**APPENDIX BD**  
**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)**

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oxides emissions per Table 62-212.400-2, F.A.C., "Regulated Air Pollutants - Significant Emissions Rates," a BACT determination is required pursuant to Rule 62-212.410, F.A.C.

**DATE OF RECEIPT OF A BACT APPLICATION:**

July 24, 1997

**REVIEW GROUP MEMBER:**

Syed Arif, P.E., prepared BACT

**BACT DETERMINATION PROCEDURE:**

In accordance with Chapter 62-212, F.A.C., this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department of Environmental Protection (Department), on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that, in making the BACT determination, the Department shall give consideration to:

- Any Environmental Protection Agency determination of BACT pursuant to Section 169, and any emission limitation contained in 40 CFR Part 60 - Standards of Performance for New Stationary Sources or 40 CFR Part 61 - National Emission Standards for Hazardous Air Pollutants.
- All scientific, engineering, and technical material and other information available to the Department.
- The emission limiting standards or BACT determination of any other state.
- The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine, for the emission unit in question, the most stringent control available for a similar or identical emission unit or emission unit category. If it is shown that this level of control is technically or economically unfeasible for the emission unit in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

The air pollutant emissions from this facility can be grouped into categories based upon the control equipment and techniques that are available to control emissions from these emission units. Using this approach, the emissions can be classified as follows:

- **Combustion Products** (e.g., SO<sub>2</sub>, NO<sub>x</sub>, PM). Controlled generally by good combustion of clean fuels, removal in add-on control equipment.
- **Products of Incomplete Combustion** (e.g., CO, VOC). Control is largely achieved by proper combustion techniques.

Grouping the pollutants in this manner facilitates the BACT analysis because it enables the equipment available to control the type or group of pollutants emitted and the corresponding energy, economic, and environmental impacts to be examined on a common basis. Although all of the pollutants addressed in the BACT analysis may be subject to a specific emission limiting standard as a result of PSD review, the control of "non-regulated" air pollutants is

**APPENDIX BD**  
**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)**

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considered in imposing a more stringent BACT limit on a "regulated" pollutant (i.e., PM, SO<sub>2</sub>, H<sub>2</sub>SO<sub>4</sub>, fluorides, etc.), if a reduction in "non-regulated" air pollutants can be directly attributed to the control device selected as BACT for the abatement of the "regulated" pollutants.

**BACT POLLUTANT ANALYSIS**

**NITROGEN OXIDES (NO<sub>x</sub>)**

Oxides of nitrogen (NO<sub>x</sub>) are generated during fuel combustion by oxidation of chemically bound nitrogen in the fuel (fuel NO<sub>x</sub>) and by thermal fixation of nitrogen in the combustion air (thermal NO<sub>x</sub>). As flame temperature increases, the amount of thermally generated NO<sub>x</sub> increases. Fuel type affects the quantity and type of NO<sub>x</sub> generated. Generally, natural gas is low in nitrogen. However it causes higher flame temperatures and generates more thermal NO<sub>x</sub> than oil or coal, which have higher fuel nitrogen content, but exhibit lower flame temperatures.

NO<sub>x</sub> emissions represent a significant portion of the total emissions generated by this project, and must be minimized using BACT. A review of EPA BACT/LAER Clearinghouse (BACT Clearinghouse) information indicates that NO<sub>x</sub> emissions at most small facilities are minimized by process control and good combustion practices.

In a diesel engine, injection of fuel into the cylinder starts the combustion process. Retarding the timing of fuel injection until the piston is in its downward motion increases the volume of the combustion chamber, which reduces combustion temperature and pressure, subsequently reducing the formation of NO<sub>x</sub>. However, fuel injection timing retardation (IR) generally increases black smoke and cold smoke (white smoke during start up) emissions, as well as increasing exhaust temperatures. The increase in exhaust temperatures affect turbocharger performance and may be detrimental to exhaust valve life. A small increase in fuel consumption (2 percent) and a significant increase in particulate emissions (25 percent) usually result from the application of IR alone to diesel engines. To counteract this problem, it has been demonstrated that the installation of a device to cool the combustion air upstream of the cylinder alleviates most of the negative side effects of IR.

In large bore diesel engines equipped with a turbocharger, the combustion air pre-cooler consists of a heat exchanger, located downstream of the turbocharger, and is typically referred to as an after-cooler. Cooler air box temperatures reduce bulk combustion temperature, which reduces NO<sub>x</sub> formation. Because cooler air is denser, the cylinders are charged with a greater mass of air that generally helps reduce emissions of unburned hydrocarbons, carbon monoxide, and particulate matter. Manufacturer's test results have shown that installation of four-pass aftercoolers piped to the engine's cooling system reduce uncontrolled emissions of NO<sub>x</sub> and PM<sub>10</sub> by up to 10 percent while slightly lowering fuel consumption (0.5 to 1 percent). Tests have also shown that combining a 4-degree IR with the installation of a four pass aftercooler will reduce NO<sub>x</sub> emissions by 28 percent and PM<sub>10</sub> emissions by 7 percent with a slight decrease in fuel consumption.

The applicant has proposed modification of the combustion process through a combination of fuel injection timing retardation and cooling of combustion air resulting in exhaust temperature reduction. The design specific to WASD's 20-645E4 includes a 4° injection timing retardation and a 4-pass aftercooler circuit. The combination of retarded injection timing and lowered combustion air temperature results in less NO<sub>x</sub> formation. **This combination of NO<sub>x</sub> controls, proper engine design, good combustion practices, and the use of low sulfur fuel should provide effective emissions control.**

**BACT DETERMINATION BY DEP:**

Based on the information provided by the applicant and the information searches conducted by the Department, lower emissions limits can be obtained employing the top-down BACT approach for NO<sub>x</sub>.

**APPENDIX BD**  
**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)**

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**NO<sub>x</sub> DETERMINATION**

The top-down BACT approach for diesel fired internal combustion engines listed in order from most stringent control to least:

1. Selective Catalytic Reduction (SCR)
2. Combined technologies of injection timing retardation, turbocharger with aftercoolers
3. Good combustion design/practices

The following table summarizes the feasibility of using these control technologies with the EMD 20-645E4 as designed for installation in WASD's Central District Wastewater Treatment Plant.

Control Technology	Emission Reduction (%)	Technically Feasible	Cost per ton (\$)	Adverse Environ. Impacts	Adverse Energy Impacts
SCR with ammonia	75-95	No	3,800	Yes	N/A
SCR with urea	80	No	N/A	N/A	N/A
Timing retard; turbo charger aftercoolers	28	Yes	31	No	0.3%
Dry/Low NO <sub>x</sub>	18	No	N/A	N/A	N/A

SCR is more widely used in Japan and Germany than it is in the United States and the technology is being improved such that the hazards and costs have been reduced. It remains, however, a costly technology for small applications and has potential hazards associated with the use and storage of ammonia. SCR is not generally used with diesel engines of this size. The BACT/LAER database lists only a single facility which uses SCR on diesel engines. SCR was selected in that instance because a local ordinance mandated strict limits on emissions without regards to cost. SCR is not technically feasible for this diesel engine because the exhaust temperatures will be below 550°F up to 80 percent of the time. In order for SCR technology to achieve effective reduction of NO<sub>x</sub>, the catalyst temperature must be at least 550°F.

For NO<sub>x</sub> emissions, the Department accepts the applicants proposed use of injection timing retardation and cooling of combustion air as BACT for this project.

The BACT emission levels established by the Department are as follows:

POLLUTANT	EMISSION LIMIT
Nitrogen Oxides (NO <sub>x</sub> )	58 lbs/hr each (375 TPY combined)

**COMPLIANCE**

Compliance with the NO<sub>x</sub> limitations shall be in accordance with the EPA Reference Method 7 or equivalent as contained in 40 CFR 60, Appendix A.

**APPENDIX BD**  
**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)**

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**DETAILS OF THE ANALYSIS MAY BE OBTAINED BY CONTACTING:**

Syed Arif, P.E.  
Department of Environmental Protection  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Recommended By:

Approved By:

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

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Howard L. Rhodes, Director  
Division of Air Resources Management

\_\_\_\_\_  
Date:

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Date:

**APPENDIX GC**  
**GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]**

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- G.1 The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
- G.2 This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings or exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
- G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
- G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
- G.5 This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
- G.6 The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
- G.7 The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
- (a) Have access to and copy and records that must be kept under the conditions of the permit;
  - (b) Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
  - (c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

- G.8 If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
- (a) A description of and cause of non-compliance; and
  - (b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.



**APPENDIX GC**  
**GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]**

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The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

- G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.
- G.10 The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
- G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
- G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.
- G.13 This permit also constitutes:
- (a) Determination of Best Available Control Technology (*X*)
  - (b) Determination of Prevention of Significant Deterioration (*X*); and
  - (c) Compliance with New Source Performance Standards ( ).
- G.14 The permittee shall comply with the following:
- (a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
  - (b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
  - (c) Records of monitoring information shall include:
    - 1. The date, exact place, and time of sampling or measurements;
    - 2. The person responsible for performing the sampling or measurements;
    - 3. The dates analyses were performed;
    - 4. The person responsible for performing the analyses;
    - 5. The analytical techniques or methods used; and
    - 6. The results of such analyses.
- G.15 When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

## APPENDIX CSC

### EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

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#### SUBSECTION 1.0 CONSTRUCTION REQUIREMENTS

- 1.1 Applicable Regulations: Unless otherwise indicated in this permit, the construction and operation of the subject emission unit(s) shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of Chapter 403, F.S and Florida Administrative Code Chapters 62-4, 62-103, 62-204, 62-210, 62-212, 62-213, 62-296, 62-297; and the applicable requirements of the Code of Federal Regulations Section 40, Part 60, adopted by reference in the Florida Administrative Code regulation [Rule 62-204.800, F.A.C.]. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements or regulations. [Rule 62-210.300, F.A.C.]

#### SUBSECTION 2.0 EMISSION LIMITING STANDARDS

- 2.1 General Particulate Emission Limiting Standards. General Visible Emissions Standard: Except for emissions units that are subject to a particulate matter or opacity limit set forth or established by rule and reflected by conditions in this permit, no person shall cause, let, permit, suffer, or allow to be discharged into the atmosphere the emissions of air pollutants from any activity, the density of which is equal to or greater than that designated as Number 1 on the Ringelmann Chart (20% opacity). [Rule 62-296-320(4)(b)1, F.A.C.]
- 2.2 Unconfined Emissions of Particulate Matter [Rule 62-296.320(4)(c), F.A.C.]
- (a) The owner or operators shall not cause, let, permit, suffer or allow the emissions of unconfined particulate matter from any source whatsoever, including, but not limited to, vehicular movement, transportation of materials, construction, alteration, demolition or wrecking, or industrially related activities such as loading, unloading, storing or handling, without taking reasonable precautions to prevent such emission.
- (b) Any permit issued to a facility with emissions of unconfined particulate matter shall specify the reasonable precautions to be taken by that facility to control the emissions of unconfined particulate matter.
- (c) Reasonable precautions include the following:
- Paving and maintenance of roads, parking areas and yards.
  - Application of water or chemicals to control emissions from such activities as demolition of buildings, grading roads, construction, and land clearing.
  - Application of asphalt, water, oil, chemicals or other dust suppressants to unpaved roads, yards, open stock piles and similar activities.
  - Removal of particulate matter from roads and other paved areas under the control of the owner or operator of the facility to prevent reentrainment, and from buildings or work areas to prevent particulate from becoming airborne.
  - Landscaping or planting of vegetation.
  - Use of hoods, fans, filters, and similar equipment to contain, capture and/or vent particulate matter.

## APPENDIX CSC

### EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

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- Confining abrasive blasting where possible.
- Enclosure or covering of conveyor systems.

*NOTE: Facilities that cause frequent, valid complaints may be required by the Permitting Authority to take these or other reasonable precautions. In determining what constitutes reasonable precautions for a particular source, the Department shall consider the cost of the control technique or work practice, the environmental impacts of the technique or practice, and the degree of reduction of emissions expected from a particular technique or practice.*

#### 2.3 General Pollutant Emission Limiting Standards: [Rule 62-296.320, F.A.C.]

- (a) The owner or operator shall not store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems.
- (b) No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor.

*NOTE: An objectionable odor is defined as any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [F.A.C. 62-210.200(198)]*

#### SUBSECTION 3.0 OPERATION AND MAINTENANCE

- 3.1 Changes/Modifications: The owner or operator shall submit to the Permitting Authority(s), for review any changes in, or modifications to: the method of operation; process or pollution control equipment; increase in hours of operation; equipment capacities; or any change which would result in an increase in potential/actual emissions. Depending on the size and scope of the modification, it may be necessary to submit an application for, and obtain, an air construction permit prior to making the desired change. *Routine maintenance of equipment will not constitute a modification of this permit.* [Rule 62-4.030, 62-210.300 and 62-4.070(3), F.A.C.]
- 3.2 Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the owner or operator shall notify the Permitting Authority as soon as possible, but at least within (1) working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; the steps being taken to correct the problem and prevent future recurrence; and where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit and the regulations. [Rule 62-4.130, F.A.C.]

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### EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

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- 3.3 Circumvention: The owner or operator shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rules 62-210.650, F.A.C.]
- 3.4 Excess Emissions Requirements [Rule 62-210.700, F.A.C.]
- (a) Excess emissions resulting from start-up, shutdown or malfunction of these emissions units shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized, but in no case exceed two hours in any 24 hour period unless specifically authorized by the Permitting Authority office for longer duration. [Rule 62-210.700(1), F.A.C.]
  - (b) Excess emissions that are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during start-up, shutdown, or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]
  - (c) In case of excess emissions resulting from malfunctions, the owner or operator shall notify Permitting Authority within one (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the problem; and the corrective actions being taken to prevent recurrence. [Rule 62-210.700(6), F.A.C.]
- 3.5 Operating Procedures: Operating procedures shall include good operating practices and proper training of all operators and supervisors. The good operating practices shall meet the guidelines and procedures as established by the equipment manufacturers. All operators (including supervisors) of air pollution control devices shall be properly trained in plant specific equipment. [Rule 62-4.070(3), F.A.C.]

#### SUBSECTION 4.0 MONITORING OF OPERATIONS

##### 4.1 Determination of Process Variables

- (a) The permittee shall operate and maintain equipment and/or instruments necessary to determine process variables, such as process weight input or heat input, when such data is needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.
- (b) Equipment and/or instruments used to directly or indirectly determine such process variables, including devices such as belt scales, weigh hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value. [Rule 62-297.310(5), F.A.C.]

## APPENDIX CSC

### EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

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#### SUBSECTION 5.0 TEST REQUIREMENTS

- 5.1 Test Performance Within 60 days after achieving the maximum production rate at which these emission units will be operated, but not later than 180 days after initial startup and annually thereafter, the owner or operator of this facility shall conduct performance test(s) pursuant to 40 CFR 60.8, Subpart A, General Provisions and 40 CFR 60, Appendix A. No other test method shall be used unless approval from the Department has been received in writing. Unless otherwise stated in the applicable emission limiting standard rule, testing of emissions shall be conducted with the emission unit(s) operating at permitted capacity pursuant to Rule 62-297.310(2), F.A.C. [Rules 62-204.800, 62-297.310, 62-297.400, 62-297.401, F.A.C.]
- 5.2 Test Procedures shall meet all applicable requirements of the Florida Administrative Code Chapter 62-297. [Rule 62-297.310, F.A.C.]
- 5.3 Test Notification: The owner or operator shall notify the Permitting Authority in writing at least (30) days (initial) and 15 days (annual) prior to each scheduled compliance test to allow witnessing. The notification shall include the compliance test date, place of such test, the expected test time, the facility contact person for the test, and the person or company conducting the test. The (30) or (15) day notification requirement may be waived at the discretion of the Department. Likewise, if circumstances prevent testing during the test window specified for the emission unit, the owner or operator may request an alternate test date before the expiration of this window. [Rule 62-297.310 and 40 CFR 60.8, F.A.C.]
- 5.4 Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in Rule 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C. or in a permit issued pursuant to those rules is being violated, it may require the owner or operator of the facility to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions units and to provide a report on the results of said tests to the Permitting Authority. [Rule 62-297.310(7)(b), F.A.C.]
- 5.5 Stack Testing Facilities: The owner or operator shall install stack testing facilities in accordance with Rule 62-297.310(6), F.A.C.
- 5.6 Exceptions and Approval of Alternate Procedures and Requirements: An Alternate Sampling Procedure (ASP) may be requested from the Bureau of Air Monitoring and Mobile Sources of the Florida Department of Environmental Protection in accordance with the procedures specified in Rule 62-297.620, F.A.C.
- 5.7 Operating Rate During Testing: Unless otherwise stated in the applicable emission limiting standard rule, testing of emissions shall be conducted with the emissions unit operation at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impracticable to test at permitted capacity, an emissions unit may be tested at less than the minimum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test load until a new test is

## APPENDIX CSC

### EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

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conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. [Rule 62-297.310(2) and (3), F.A.C.]

#### SUBSECTION 6.0 REPORTS AND RECORDS

- 6.1 Duration: All reports and records required by this permit shall be kept for at least (5) years from the date the information was recorded. [Rule 62-4.160(14)(b), F.A.C.]
- 6.2 Emission Compliance Stack Test Reports:
- (a) A *test report* indicating the results of the required compliance tests shall be filed with the Permitting Authority as soon as practical, but no later than 45 days after the last sampling run is completed. [Rule 62-297.310(8), F.A.C.]
  - (b) The *test report* shall provide sufficient detail on the tested emission unit and the procedures used to allow the Department to determine if the test was properly conducted and if the test results were properly computed. At a minimum, the test report shall provide the applicable information listed in **Rule 62-297.310(8), F.A.C.**
- 6.3 Excess Emissions Report: If excess emissions occur, the owner or operator shall notify the Permitting Authority within (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the Department may request a written summary report of the incident. Pursuant to the New Source Performance Standards, excess emissions shall also be reported in accordance with 40 CFR 60.7, Subpart A. [Rules 62-4.130 and 62-210.700(6), F.A.C.]
- 6.4 Annual Operating Report for Air Pollutant Emitting Facility: Before March 1st of each year, the owner or operator shall submit to the Permitting Authority this required report [DEP Form No. 62-210.900(5)], which summarizes operations for the previous calendar year. [Rule 62-210.370(3), F.A.C.]

#### SUBSECTION 7.0 OTHER REQUIREMENTS

- 7.1 Waste Disposal: The owner or operator shall treat, store, and dispose of all liquid, solid, and hazardous wastes in accordance with all applicable Federal, State, and Local regulations. This air pollution permit does not preclude the permittee from securing any other types of required permits, licenses, or certifications.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; and (f) A demand for relief.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that 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 such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542 F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of





**NOTICE TO BE PUBLISHED  
IN THE NEWSPAPER**

**PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT  
MODIFICATIONS**

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File Nos. 0250476-002-AC (PSD-FL-240)  
Central District Wastewater Treatment Plant  
Dade County

The Department of Environmental Protection (Department) gives notice of its intent to issue air construction permit modifications to Miami-Dade Water and Sewer Department for its facility located in Virginia Key, Miami, Dade County. A Best Available Control Technology (BACT) determination was required for this modification pursuant to Rule 62-212.400, F.A.C. and 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The applicant's name and address are: Miami-Dade Water and Sewer Department, 4200 Salzedo Street, Coral Gables, Florida 33146-0316.

This existing facility consists of two wastewater treatment trains. The facility wants to increase the hours of operation of the three existing 2.5 megawatt (MW) each and four 1.2 MW each digester gas generators. The 2.5 MW diesel generators will burn No. 2 fuel oil with a sulfur content of 0.05 percent or less, by weight and the 1.2 MW generators will burn digester gases only. All diesel generators are allowed to operate continuously and the No. 2 fuel oil usage is limited to 2.486 million gallons per year. Additionally, the hourly and annual emissions of NO<sub>x</sub> for the four 1.2 MW each digester gas generator will be reduced to a level more appropriate for clean burn engines.

An air quality impact analysis was conducted. Emissions from the facility will not significantly contribute to or cause a violation of any state or federal ambient air quality standards. The maximum predicted NO<sub>2</sub> PSD Class II increment consumed by all sources in the area, including this project, will be as follows:

<b>Averaging Time</b>	<b>Allowable Increment (µg/m<sup>3</sup>)</b>	<b>Increment Consumed (µg/m<sup>3</sup>)</b>	<b>Percent Consumed</b>
Annual	25	23.8	95

The maximum predicted NO<sub>2</sub> PSD Class I increment in the Everglades National Park consumed by all sources in the area, including this project, will be as follows:

<b>Averaging Time</b>	<b>Allowable Increment (µg/m<sup>3</sup>)</b>	<b>Increment Consumed (µg/m<sup>3</sup>)</b>	<b>Percent Consumed</b>
Annual	2.5	0.74	30

The Department will issue the final permit modifications with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit Modifications." Written comments should be provided to the Department's

## **NOTICE TO BE PUBLISHED IN THE NEWSPAPER**

Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit modifications and require, if applicable, another Public Notice.

The Department will issue these permit modifications with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; and (f) A demand for relief.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that 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 such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

**NOTICE TO BE PUBLISHED  
IN THE NEWSPAPER**

A complete project file 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:

Dept. of Environmental Protection  
Bureau of Air Regulation  
111 S. Magnolia Drive, Suite 4  
Tallahassee, Florida 32301  
Telephone: 850/488-0114  
Fax: 850/922-6979

Dept. of Environmental Protection  
Southeast District Office  
400 North Congress Avenue  
West Palm Beach, Florida 33401  
Telephone: 561/681-6600  
Fax: 561/681-6755

Dade County Department of  
Environmental Resources Mgmt.  
Suite 900, 33 SE 2nd. Avenue  
Miami, Florida 33130-1540  
Telephone: 305/372-6925  
Fax: 305/372-6954

The complete project file includes the Draft Permit modifications, the application, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the New Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.



SERVE • CONSERVE

January 14, 1999

CERTIFIED: Z 427 642 149

**RECEIVED** RETURN RECEIPT

JAN 19 1999

**BUREAU OF  
AIR REGULATION**

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

**Subject: Comments and Revisions to Draft Construction Permits for Central District WWTP-  
Diesel Engines (Permit No. PSD-FL-240)  
Gas Engines (Permit No. 0250476-002-AC)**

Dear Mr. Arif:

The Miami-Dade Water and Sewer Department has received a copy of the above referenced draft construction permit and technical evaluation issued by the Florida Department of Environmental Protection. In light of recent emissions test results for the Superior (gas) engines, we would like to request modifications to the draft permit before proceeding with public notice.

Emissions results for tests performed on the gas engines in April 1998 (following submittal of the PSD permit application) show that they may have trouble meeting the emission limits proposed. To address this problem, we request the following changes to the construction permit application:

- Increase emissions of NO<sub>x</sub> from the Superior (gas) engines from 5.29 pounds per hour (lb/hr) to 7.60 lb/hr. The revised emissions limit corresponds to 3.83 g/s NO<sub>x</sub>, or approximately 1.96 g/bhp-hr (150 parts per million NO<sub>x</sub> dry basis). Annual emissions for continuous operation would increase from 92.6 tons NO<sub>x</sub> to 133.2 tons Nox.
- Decrease annual emissions of NO<sub>x</sub> from the EMD (diesel) engines from 375 tons to 267 tons. Annual fuel consumption would be reduced from 2,525,000 gallons to 1,800,000 gallons.

An emissions increase is requested for the gas engines to more closely reflect emissions typically observed from natural gas clean-burn engines. An emissions reduction is requested for the diesel engines in order to maintain PSD increment consumption levels below 25 micrograms per cubic meter (µg/m<sup>3</sup>). No other changes to the permit application are requested. Revised emissions calculations for the diesel engines are provided in Attachment A.

Mr. Syed Arif, P.E., January 14, 1999

Comments and Revisions to Draft Construction Permits for Central District WWTP

Page 2 of 43

Revised FDEP permit application form pages are provided in Attachment B. Since these changes constitute a net emissions decrease from the previously submitted construction permit application, no Class I air quality analysis, toxics analysis, or visibility analysis will be performed. However, a revised Class II air quality analysis has been performed to show that the allowable NO<sub>2</sub> PSD increment and national ambient air quality standard are not being violated near the plant. A Class II air quality modeling input file (year 1987) and output summaries for all 5 years (1987-1991) is included in Attachment C.

A marked-up version of the draft permit is provided in Attachment D for your reference. Our comments on the draft permit, including the modifications requested above, are as follows:

1. The facility description should be revised to read, "... presently consists of three nominal 2.5 megawatt (MW) diesel engine-driven generators, designated as Units 13, 14, and 15; four nominal 1.2 MW digester gas engine-driven generators, designated as Units 7, 9, 10, and 11; and one wastewater treatment plant, designated as Unit 8. This permit is to increase hours of operation for the seven generators..."
2. The maximum allowable NO<sub>x</sub> emission rate stated in condition B.1 should be revised according to requested changes. NO<sub>x</sub> emissions from Units 13, 14, and 15 should not exceed 58 lb/hr each and 267 tons per year combined.
3. The combined heat input rate of the three diesel engines is acceptable as stated in condition B.6. However, the rate should not be included as an operational limitation in a subsequent Title V operating permit because it describes the maximum physical heat input capacity of the units.
4. The maximum allowable fuel consumption stated in condition B.7 should be revised according to requested changes. #2 fuel oil consumption by Units 13, 14, and 15 should not exceed 1,800,000 gallons per year.
5. Condition B.9 should be modified to allow the facility to demonstrate compliance with SO<sub>2</sub> BACT by maintaining records from the fuel supplier that indicate diesel fuel sulfur content (e.g., fuel certifications, invoices, or bills of lading).
6. The maximum allowable NO<sub>x</sub> emission rate stated in condition C.1 should be revised according to requested changes. NO<sub>x</sub> emissions from Units 7, 9, 10, and 11 should not exceed 7.6 lb/hr each and 133 tons per year combined.

Mr. Syed Arif, P.E., January 14, 1999

Comments and Revisions to Draft Construction Permits for Central District WWTP

Page 3 of 43

7. The combined gas consumption volume of the four gas engines is acceptable as stated in condition C.5. However, this volume should not be included as an operational limitation in a subsequent Title V operating permit because it describes the maximum physical heat input capacity of the units.
8. Monitoring of gas consumption by the gas engines is unnecessary and should be deleted from condition C.6 of this permit because the engines will be permitted for continuous operation at full capacity.

We request that you issue a revised draft permit and technical evaluation. If you have any questions regarding the requested modification, please call Ms. Bertha M. Goldenberg, P.E. at (305) 669-5711 or Mr. David Lindberg, P.E. at (619) 687-0110.

Sincerely,



Robert C. Ready, P.E.  
Assistant Director of Treatment Facilities

RCR/BMG/rmo

Attachments

cc: Isidore Goldman, FDEP Southeast District  
Patrick Wong, Miami-Dade County DERM  
David Lindberg, CH2M HILL

CC: C. Holladay, BAR  
EPA  
NPS

**ATTACHMENT A**  
Revised Diesel Engine Emissions Calculations  
Draft Permit No. PSD-FL-240  
Central District Wastewater Treatment Plant

**NOx Emissions Calculations  
Central District Wastewater Treatment Plant**

<u>Source</u>	<u>NOx Emissions</u>		<u>Emission Factors</u>			
	<u>tons/yr</u>	<u>Permit</u>	<u>lb/hr</u>	<u>lb/bhp-hr</u>	<u>g/bhp-hr</u>	<u>lb/MMBTU</u>
<i>Current Emissions Inventory</i>						
16GTLB Superior Engines	248.9	AO13-244408	18.3	0.0104	4.72	
Worthington SDR Blower (1996 &1997)	1.8	AO13-177237	23.0	0.0242	10.99	
Worthington CC Blowers (1996 &1997)	44.0	AO13-177237	12.6	0.0308	13.98	
Flares	15.3					
<b>Subtotal</b>	<b>310.0</b>	<b>PSD Major Source</b>				
<b>PSD Major Source Threshold</b>	<b>250.0</b>					
<i>Emissions Increase/Decrease</i>						
16GTLB Superior Engines	-115.7		7.6			
Worthington SDR Blower	-1.8	forfeit				
Worthington CC Blowers (2)	-44.0	forfeit				
Flares	0.0					
Standby Generators (20E4)	267.5		58.2	0.0162	7.34	2.15
<b>Total Emissions Increase</b>	<b>105.9</b>	<b>Significant Net Emissions Increase</b>				
Significant Net Emissions Increase	40.0					

**Proposed Emissions**

<u>Source</u>	<u>NOx Emissions</u> <u>tons/yr</u>	<u>Monitoring</u> <u>Frequency</u>	<u>Restrictions</u>
16GTLB Superior Engines	133.2	na	none
Worthington CC Blowers (2)	0.0	na	removed June 1998
Flares	15.3	na	none
Standby Generators (20E4)	267.5	<i>BACTed</i>	1,800,000 gallons 0.05 w
Central District WWTP	415.9		
<b>PSD Major Source</b>	<b>250.0</b>		



EMD Model 20-645E4  
 Central District Wastewater Treatment Plant (3)  
 Miami-Dade Water and Sewer Department

bhp	% load	36 API Fuel Consumption			NOx Emissions (uncontrolled)				NOx Emissions (controlled) <sup>1</sup>			
		lb/bhp-hr	lb/hr	MMBTU/hr	g/hr	lb/hr	lb/MMBTU	g/bhp-hr	g/hr	lb/hr	lb/MMBTU	g/bhp-hr
3958	110%	0.383	1516	29.7	40,052	88.2	2.97	10.12	28,837	63.5	2.14	7.29
3603	100%	0.383	1380	27.1	36,716	80.9	2.99	10.19	26,436	58.2	2.15	7.34
2705	75%	0.392	1060	20.8	23,589	52.0	2.50	8.72	16,984	37.4	1.80	6.28
1801	50%	0.425	765	15.0	18,366	40.5	2.69	10.20	13,224	29.1	1.94	7.34
891	25%	0.515	459	9.0	9,381	20.7	2.30	10.53	6,754	14.9	1.65	7.58
36 deg API		7.043 lb/gal 19620 BTU/lb (HHV)										

<sup>1</sup> NOx emissions reduction through combustion modifications (timing adjustment and turbocharger aftercoolers): 28%



**EMD Model 20-645E4  
 Fuel Use and NOx Emissions Calculations  
 Central District Wastewater Treatment Plant (3)**

<b>Engine Load</b>	<b>Fuel Consumption (lb/hr)</b>	<b>(gal/hr)</b>	<b>(MMBTU/hr)</b>
110 % load (3958 bhp)	0.383 lb fuel/bhp-hr * 3958 bhp = 1,516 lb/hr	1,516 lb/hr * gal 36-deg API/7.043 lb = 215.2 gal/hr	1,516 lb/hr * 0.0196 MMBTU/lb = 29.7 MMBTU/hr
100 % load (3603 bhp)	0.383 lb fuel/bhp-hr * 3603 bhp = 1,380 lb/hr	1,380 lb/hr * gal 36-deg API/7.043 lb = 195.9 gal/hr	1,380 lb/hr * 0.0196 MMBTU/lb = 27.1 MMBTU/hr
75 % load (2705 bhp)	0.392 lb fuel/bhp-hr * 2705 bhp = 1,060 lb/hr	1,060 lb/hr * gal 36-deg API/7.043 lb = 150.6 gal/hr	1,060 lb/hr * 0.0196 MMBTU/lb = 20.8 MMBTU/hr
50 % load (1801 bhp)	0.425 lb fuel/bhp-hr * 1801 bhp = 765 lb/hr	765 lb/hr * gal 36-deg API/7.043 lb = 108.7 gal/hr	765 lb/hr * 0.0196 MMBTU/lb = 15.0 MMBTU/hr
25 % load (891 bhp)	0.515 lb fuel/bhp-hr * 891 bhp = 459 lb/hr	459 lb/hr * gal 36-deg API/7.043 lb = 65.2 gal/hr	459 lb/hr * 0.0196 MMBTU/lb = 9.0 MMBTU/hr

<b>Engine Load</b>	<b>NOx Emissions - Uncontrolled (lb/MMBTU)</b>	<b>NOx Emissions - Controlled (lb/MMBTU)</b>
110 % load (3958 bhp)	10.12 g/bhp-hr * 3958 bhp * lb/454g * hr/29.7 MMBTU = 2.97 lb/MMBTU	7.29 g/bhp-hr * 3958 bhp * lb/454g * hr/29.7 MMBTU = 2.14
100 % load (3603 bhp)	10.19 g/bhp-hr * 3603 bhp * lb/454g * hr/27.1 MMBTU = 2.99 lb/MMBTU	7.34 g/bhp-hr * 3603 bhp * lb/454g * hr/27.1 MMBTU = 2.15
75 % load (2705 bhp)	8.72 g/bhp-hr * 2705 bhp * lb/454g * hr/20.8 MMBTU = 2.50 lb/MMBTU	6.28 g/bhp-hr * 2705 bhp * lb/454g * hr/20.8 MMBTU = 1.80
50 % load (1801 bhp)	10.20 g/bhp-hr * 1801 bhp * lb/454g * hr/15.0 MMBTU = 2.69 lb/MMBTU	7.34 g/bhp-hr * 1801 bhp * lb/454g * hr/15.0 MMBTU = 1.94
25 % load (891 bhp)	10.53 g/bhp-hr * 891 bhp * lb/454g * hr/9.0 MMBTU = 2.30 lb/MMBTU	7.58 g/bhp-hr * 891 bhp * lb/454g * hr/9.0 MMBTU = 1.65 lb

<b>Engine Load</b>	<b>NOx Emissions Equivalent Hours of Operation</b>
110 % load (3958 bhp)	1800000 gal/yr * 7.043 lb/gal * 0.0196 MMBTU/lb * hr/29.7 MMBTU = 8,363 hrs/yr
100 % load (3603 bhp)	1800000 gal/yr * 7.043 lb/gal * 0.0196 MMBTU/lb * hr/27.1 MMBTU = 9,187 hrs/yr
75 % load (2705 bhp)	1800000 gal/yr * 7.043 lb/gal * 0.0196 MMBTU/lb * hr/20.8 MMBTU = 11,956 hrs/yr
50 % load (1801 bhp)	1800000 gal/yr * 7.043 lb/gal * 0.0196 MMBTU/lb * hr/15.0 MMBTU = 16,563 hrs/yr
25 % load (891 bhp)	1712000 gal/yr * 7.043 lb/gal * 0.0196 MMBTU/lb * hr/9.0 MMBTU = 26,277 hrs/yr - 3 engines @ 25% load operating continuous.

**(tons/yr)**

@ 2.15 lb/MMBTU  
 Annual Fuel Consumption

2.15 lb NOx/MMBTU \* 0.0196 MMBTU/lb fuel \* 7.043 lb/gal \* 1800000 gal/yr = 267.5 tons NOx/yr  
 1,800,000 gallons

EMD Model 20-645E4

Emissions Calculations - All Pollutants - Based on information provided by EMD

Central District Wastewater Treatment Plant (3)

<b>CO</b>			tons CO/yr = gal/yr * lb fuel/gal * MMBTU/lb fuel * lb CO/hr * hr/MMBTU * ton/2000 lb
100 % load (3,603 bhp)	4.05 lb CO/hr	tons CO/yr = 1800000 gal/yr * 7.043lb fuel/gal * 0.01962 MMBTU/lb fuel * 4.05lb CO/hr * hr/27.07MMBTU * ton/2000 lb = 18.6 tons CO/yr	
75 % load (2,705 bhp)	2.50 lb CO/hr	tons CO/yr = 1800000 gal/yr * 7.043lb fuel/gal * 0.01962 MMBTU/lb fuel * 2.50lb CO/hr * hr/20.80MMBTU * ton/2000 lb = 15.0 tons CO/yr	
50 % load (1,801 bhp)	2.34 lb CO/hr	tons CO/yr = 1800000 gal/yr * 7.043lb fuel/gal * 0.01962 MMBTU/lb fuel * 2.34lb CO/hr * hr/15.02MMBTU * ton/2000 lb = 19.4 tons CO/yr	
25 % load (891 bhp)	2.85 lb CO/hr	tons CO/yr = 1712000 gal/yr * 7.043lb fuel/gal * 0.01962 MMBTU/lb fuel * 2.85lb CO/hr * hr/9.00MMBTU * ton/2000 lb = 37.4 tons CO/yr	
<b>NOx (controlled)</b>			tons NOx/yr = gal/yr * lb fuel/gal * MMBTU/lb fuel * lb NOx/MMBTU * ton/2000 lb
100 % load (3,603 bhp)	2.15 lb NOx/MMBTU	tons NOx/yr = 1800000 gal/yr * 7.043lb fuel/gal * 0.01962 MMBTU/lb fuel * 2.15lb NOx/MMBTU * ton/2000 lb = 267 tons NOx/yr	
75 % load (2,705 bhp)	1.80 lb NOx/MMBTU	tons NOx/yr = 1800000 gal/yr * 7.043lb fuel/gal * 0.01962 MMBTU/lb fuel * 1.80lb NOx/MMBTU * ton/2000 lb = 224 tons NOx/yr	
50 % load (1,801 bhp)	1.94 lb NOx/MMBTU	tons NOx/yr = 1800000 gal/yr * 7.043lb fuel/gal * 0.01962 MMBTU/lb fuel * 1.94lb NOx/MMBTU * ton/2000 lb = 241 tons NOx/yr	
25 % load (891 bhp)	1.65 lb NOx/MMBTU	tons NOx/yr = 1712000 gal/yr * 7.043lb fuel/gal * 0.01962 MMBTU/lb fuel * 1.65lb NOx/MMBTU * ton/2000 lb = 195 tons NOx/yr	
<b>SO2 (0.05 weight % fuel sulfur content)</b>			tons SO2/yr = gal/yr * lb fuel/gal * 0.0005 lb S/lb fuel * 2 lb SO2/lb S * ton/2000 lb
100 % load (3,603 bhp)	0.05 weight % S	tons SO2/yr = 1800000 gal/yr * 7.043lb fuel/gal * 0.0005 lb S/lb fuel * 2 lb SO2/lb S * ton/2000 lb = 6.3 tons SO2/yr	
75 % load (2,705 bhp)	0.05 weight % S	tons SO2/yr = 1800000 gal/yr * 7.043lb fuel/gal * 0.0005 lb S/lb fuel * 2 lb SO2/lb S * ton/2000 lb = 6.3 tons SO2/yr	
50 % load (1,801 bhp)	0.05 weight % S	tons SO2/yr = 1800000 gal/yr * 7.043lb fuel/gal * 0.0005 lb S/lb fuel * 2 lb SO2/lb S * ton/2000 lb = 6.3 tons SO2/yr	
25 % load (891 bhp)	0.05 weight % S	tons SO2/yr = 1712000 gal/yr * 7.043lb fuel/gal * 0.0005 lb S/lb fuel * 2 lb SO2/lb S * ton/2000 lb = 6.0 tons SO2/yr	
<b>PM-10 (controlled)</b>			tons PM-10/yr = gal/yr * lb fuel/gal * MMBTU/lb fuel * lb PM-10/MMBTU * ton/2000 lb
100 % load (3,603 bhp)	0.057 lb PM-10/MMBTU	tons PM-10/yr = 1800000 gal/yr * 7.043 lb fuel/gal * 0.01962 MMBTU/lb fuel * 0.057 lb PM-10/MMBTU * ton/2000 lb = 7.1 tons PM-10/yr	
75 % load (2,705 bhp)	0.057 lb PM-10/MMBTU	tons PM-10/yr = 1800000 gal/yr * 7.043 lb fuel/gal * 0.01962 MMBTU/lb fuel * 0.057 lb PM-10/MMBTU * ton/2000 lb = 7.1 tons PM-10/yr	
50 % load (1,801 bhp)	0.057 lb PM-10/MMBTU	tons PM-10/yr = 1800000 gal/yr * 7.043 lb fuel/gal * 0.01962 MMBTU/lb fuel * 0.057 lb PM-10/MMBTU * ton/2000 lb = 7.1 tons PM-10/yr	
25 % load (891 bhp)	0.057 lb PM-10/MMBTU	tons PM-10/yr = 1712000 gal/yr * 7.043 lb fuel/gal * 0.01962 MMBTU/lb fuel * 0.057 lb PM-10/MMBTU * ton/2000 lb = 6.8 tons PM-10/yr	
<b>NMHC</b>			tons NMHC/yr = gal/yr * lb fuel/gal * MMBTU/lb fuel * lb NMHC/MMBTU * ton/2000 lb
100 % load (3,603 bhp)	0.08 lb NMHC/MMBTU	tons NMHC/yr = 1800000 gal/yr * 7.043lb fuel/gal * 0.01962 MMBTU/lb fuel * 0.080 lb NMHC/MMBTU * ton/2000 lb = 9.9 tons NMHC/yr	
75 % load (2,705 bhp)	0.08 lb NMHC/MMBTU	tons NMHC/yr = 1800000 gal/yr * 7.043lb fuel/gal * 0.01962 MMBTU/lb fuel * 0.080 lb NMHC/MMBTU * ton/2000 lb = 9.9 tons NMHC/yr	
50 % load (1,801 bhp)	0.08 lb NMHC/MMBTU	tons NMHC/yr = 1800000 gal/yr * 7.043lb fuel/gal * 0.01962 MMBTU/lb fuel * 0.080 lb NMHC/MMBTU * ton/2000 lb = 9.9 tons NMHC/yr	
25 % load (891 bhp)	0.08 lb NMHC/MMBTU	tons NMHC/yr = 1712000 gal/yr * 7.043lb fuel/gal * 0.01962 MMBTU/lb fuel * 0.080 lb NMHC/MMBTU * ton/2000 lb = 9.5 tons NMHC/yr	

**ATTACHMENT B**

FDEP Permit Application Form 62-210.900 (revised pages only)

Draft Permit No. PSD-FL-240

Draft Permit No. 0250476-002-AC

Central District Wastewater Treatment Plant

**Department of  
Environmental Protection**

**DIVISION OF AIR RESOURCES MANAGEMENT  
APPLICATION FOR AIR PERMIT - LONG FORM**

**I. APPLICATION INFORMATION**

**Identification of Facility Addressed in This Application**

1. Facility Owner/Company Name : Miami-Dade Water & Sewer Department	
2. Site Name : Central District Wastewater Treatment Pl	
3. Facility Identification Number :	130476 <span style="float: right;"><input type="checkbox"/> Unknown</span>
4. Facility Location : Central District WWTP  Street Address or Other Locator : Virginia Key City : Miami County : Dade Zip Code : 33146-	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

I. Part 1 - 1

DEP Form No. 62-210.900(1) - Form  
Effective : 3-21-96

**D. EMISSIONS UNIT REGULATIONS  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**      1    
3 Standby Generator Sets (20E4)

**Rule Applicability Analysis**

The Miami-Dade WASD is requesting an emissions increase of <sup>267</sup>~~375~~ tons NOx per year from this emissions unit. This emissions unit constitutes a major source, in of itself. Therefore, PSD new source review applies to this emissions unit (Chapter 62-212.400, FAC)

**D. EMISSIONS UNIT REGULATIONS  
(Regulated Emissions Units Only)**

**Emissions Unit Information Section**      4  
4 Superior 16GTLB Cogeneration Engines

**Rule Applicability Analysis**

The Miami-Dade WASD is requesting a modification to the constuction permit for this source. A large discrepancy exists between current permitted emissions and emissions typically observed from this type of engine (and recommended by the manufacturer). ~~Improved maintenance procedures being implemented by the plant will most likely reduce emissions below requested levels (past actual emissions have varied significantly).~~ This project will result in a decrease in emissions of ~~unquantifiable extent~~. Therefore, general preconstruction review applies to this emissions unit (Chapter 62-212.300, FAC).

115.8 tons per year NO<sub>x</sub>.

III. Part 6a - 4





**F. SEGMENT (PROCESS/FUEL) INFORMATION**

**Emissions Unit Information Section**      1

3 Standby Generator Sets (20E4)

**Segment Description and Rate :**      Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) :	
Diesel fueled internal combustion engines (emissions related to thousand gallons burned or horsepower-hours run)	
2. Source Classification Code (SCC) :      2-02-004-01	
3. SCC Units :      Thousand Gallons Burned (all liquid fuels)	
4. Maximum Hourly Rate :      0.18	5. Maximum Annual Rate : <del>2,486.00</del> 1,800.00
6. Estimated Annual Activity Factor :	
7. Maximum Percent Sulfur :      0.05	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :      132	
10. Segment Comment :	
<del>Maximum hourly and annual fuel rates are based on a brake-specific fuel consumption (BSFC) rate of 0.375 lb/bhp-hr at full load and total power output of 46,410,000 bhp-hr (32,230,000 kW-hr).</del>	

III. Part 8 - 2



**Emissions Unit Information Section**      1  
3 Standby Generator Sets (20E4)

**Pollutant Information Section**      1

**Allowable Emissions**      1

1. Basis for Allowable Emissions Code :	AMBIENT
2. Future Effective Date of Allowable Emissions :	
3. Requested Allowable Emissions and Units :	<del>375.00</del> 267.4 tons/yr
4. Equivalent Allowable Emissions :	58.20 lb/hour <del>375.00</del> 267.4 tons/year
5. Method of Compliance :	Annual stack testing using EPA Method 7 or equivalent
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	PSD increment consumption at highest receptor is <sup>24.</sup> <del>23.8</del> $\mu\text{g}/\text{cu.m.}$ Hourly monitoring of engine operating parameters, daily monitoring of <del>power output.</del> fuel consumption.

III. Part 9c - 1

**Emissions Unit Information Section** 4  
4 Superior 16GTLB Cogeneration Engines

**Pollutant Information Section** 1

**Allowable Emissions** 1

1. Basis for Allowable Emissions Code :	AMBIENT
2. Future Effective Date of Allowable Emissions :	
3. Requested Allowable Emissions and Units :	<del>2.00</del> <del>g4W-hr</del>
4. Equivalent Allowable Emissions :	<del>5.29</del> 7.60 lb/hour <del>92.60</del> 133.2 tons/year
5. Method of Compliance :	Daily monitoring and annual testing by EPA Method 7 or 7E
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	<del>Daily monitoring of power output and engine operating parameters.</del>

III. Part 9c - 2

**ATTACHMENT C**  
Class II Area Air Quality Impact Analysis - NO<sub>2</sub>  
Summary Tables of Corrected ISCST3 Results for PSD Increment Consumption and Ambient  
Concentration  
ISCST3 version 98356 Input File (for year 1987)  
ISCST3 Output Summaries (1987 - 1991)

**Summary of Maximum Predicted PSD Increment Consumption - NO<sub>2</sub>**  
**Run 7: Horizontal Superior Exhaust**  
**Central District WWTP**  
**Miami-Dade Water and Sewer Department**

	Maximum Predicted Offsite Concentration (µg/m3)				
	1987	1988	1989	1990	1991
Maximum Predicted Impact	24.46	24.88	24.12	23.16	22.10
PSD Increment	25.00	25.00	25.00	25.00	25.00
Location	(174 m, 216 deg.)	(447 m, 146 deg.)	(150 m, 317 deg.)	(150 m, 317 deg.)	(150 m, 317 deg.)

$Q_s = 7.706 \text{ g/s NO}_x$       standby generators  
 $Q_s = 3.834 \text{ g/s NO}_x$       superior engines - horizontal exhaust  
 Concentration NO<sub>2</sub> = 0.75\*Concentration NO<sub>x</sub>

\* PM10 emissions do not exceed PSD significant emission rates.

**Summary of Maximum Predicted Ambient NO<sub>2</sub> Concentrations - Annual Average**  
**ISC Run 7: Horizontal Superior Exhaust, No Blowers**  
**Central District WWTP**  
**Miami-Dade Water and Sewer Department**

	<b>Maximum Predicted Offsite Concentration (µg/m<sup>3</sup>)</b>				
	<b>1987</b>	<b>1988</b>	<b>1989</b>	<b>1990</b>	<b>1991</b>
Maximum Predicted Impact	26.51	27.04	25.99	25.32	24.55
1996 Background - Virginia Key	12.00	12.00	12.00	12.00	12.00
Maximum Predicted Concentration	38.51	39.04	37.99	37.32	36.55
NAAQS	100.00	100.00	100.00	100.00	100.00
Location	(174 m, 216 deg)	(447 m, 146 deg)	(150 m, 317 deg)	(150 m, 317 deg)	(150 m, 317 deg)

$Q_s = 7.706 \text{ g/s NO}_x$       standby generators  
 $Q_s = 3.834 \text{ g/s NO}_x$       superior engines - horizontal  
 Concentration NO<sub>2</sub> = 0.75\*Concentration NO<sub>x</sub>

\* PM10 emissions do not exceed significant emission rates.

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NO ECHO
CO STARTING
  TITLEONE Standby Generator Sets - NAAQS & PSD Class II Increment - NO2 - 1987
  TITLETWO Miami-Dade Water and Sewer Department Central District WWTP
  MODELOPT DFAULT CONC RURAL
  TERRHGTS FLAT
  AVERTIME PERIOD
  POLLUTID NO2
  RUNORNOT RUN
CO FINISHED
SO STARTING
** LOCATION SRC-ID TYPE X- Easting (m) Y- Northing (m) Z (m)
** PSD Increment Consuming Sources
  LOCATION CDGENS POINT 584959.1 2847789.6 0.00
  LOCATION CDCOGENS POINT 585116.0 2847661.6 0.00
  LOCATION AOGENS POINT 566590.0 2843380.0 0.00
  LOCATION HPGENS POINT 571492.0 2857105.0 0.00
  LOCATION SBROWRRF POINT 579600.0 2883300.0 0.00
  LOCATION NBROWRRF POINT 583600.0 2907600.0 0.00
  LOCATION TARMAC1 POINT 562900.0 2861700.0 0.00
  LOCATION TARMAC2 POINT 562900.0 2861700.0 0.00
  LOCATION TARMAC3 POINT 562900.0 2861700.0 0.00
  LOCATION DCRRF12 POINT 564390.0 2857390.0 0.00
  LOCATION DCRRF34 POINT 564360.0 2857390.0 0.00
  LOCATION DCRRF5 POINT 564300.0 2857400.0 0.00
  LOCATION FPLF14 POINT 580100.0 2883300.0 0.00
** Baseline Sources
  LOCATION TARMAC3B POINT 562900.0 2861700.0 0.00
  LOCATION DCRRF12B POINT 564390.0 2857390.0 0.00
  LOCATION DCRRF34B POINT 564360.0 2857390.0 0.00
  LOCATION FPLF112 POINT 580100.0 2883300.0 0.00
  LOCATION FPLF1324 POINT 580100.0 2883300.0 0.00
  LOCATION FPLF45B POINT 580100.0 2883300.0 0.00
  LOCATION FPLC5 POINT 570400.0 2834900.0 0.00
  LOCATION FPLC6 POINT 570400.0 2834900.0 0.00
  LOCATION FPLPE12 POINT 587400.0 2875300.0 0.00
  LOCATION FPLPE34 POINT 587400.0 2875300.0 0.00
  LOCATION FPLPE112 POINT 587400.0 2875300.0 0.00
  LOCATION FPLTP12 POINT 567200.0 2831200.0 0.00
  LOCATION RINKER12 POINT 558200.0 2851300.0 0.00
  LOCATION SFCOGEN POINT 580500.0 2850900.0 0.00
** SRCPARAM SRC-ID EMIS Hgt temp,X,sy vel,y,sz dia,ang
** PSD Increment Consuming Sources
  SRCPARAM CDGENS 7.7060 6.40 663.0 16.50 0.91
  SRCPARAM CDCOGENS 3.8340 7.62 741.0 0.10 7.85
  SRCPARAM AOGENS 5.9200 3.50 608.0 0.10 11.32
  SRCPARAM HPGENS 10.6800 8.80 608.0 45.19 0.53
  SRCPARAM SBROWRRF 68.5500 59.44 381.0 17.98 3.96
  SRCPARAM NBROWRRF 64.0000 58.50 381.0 18.01 3.96
  SRCPARAM TARMAC1 21.1400 60.96 465.0 12.80 2.44
  SRCPARAM TARMAC2 12.8900 60.96 422.0 9.11 2.44
  SRCPARAM TARMAC3 68.1800 60.96 450.0 11.03 4.57
  SRCPARAM DCRRF12 35.3800 76.20 405.4 15.86 3.66
  SRCPARAM DCRRF34 35.3800 76.20 405.4 15.86 3.66
  SRCPARAM DCRRF5 13.2400 76.20 399.8 15.74 2.97
  SRCPARAM FPLF14 135.7000 46.00 422.0 14.63 4.27
** Baseline Sources
  SRCPARAM TARMAC3B -60.8000 60.96 472.0 10.78 4.57
  SRCPARAM DCRRF12B -22.5000 45.72 472.0 12.20 2.74
  SRCPARAM DCRRF34B -22.5300 45.72 472.0 12.20 2.74
  SRCPARAM FPLF112 508.0100 13.72 733.0 21.34 5.49
  SRCPARAM FPLF1324 508.0100 13.29 733.0 21.34 5.49
  SRCPARAM FPLF45B -70.6000 46.00 422.0 14.63 4.27

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SO BUILDWID RINKER12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID RINKER12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID RINKER12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID RINKER12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID RINKER12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT SFCOGEN	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT SFCOGEN	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT SFCOGEN	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT SFCOGEN	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT SFCOGEN	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDHGT SFCOGEN	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID SFCOGEN	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID SFCOGEN	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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SO BUILDWID SFCOGEN	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SO BUILDWID SFCOGEN	0.00	0.00	0.00	0.00	0.00	0.00	0.00

SRCGROUP GENS CDGENS  
 SRCGROUP MDWASDCD CDGENS CDCOGENS  
 SRCGROUP PSD2INCR CDGENS CDCOGENS AOGENS HPGENS SBROWRRF NBROWRRF  
 SRCGROUP PSD2INCR TARMAC1 TARMAC2 TARMAC3 TARMAC3B DCRRF12 DCRRF34  
 SRCGROUP PSD2INCR DCRRF12B DCRRF34B DCRRF5 FPLF14 FPLF45B  
 SRCGROUP NAAQS CDGENS CDCOGENS AOGENS HPGENS SBROWRRF  
 SRCGROUP NAAQS NBROWRRF TARMAC1 TARMAC2 TARMAC3 DCRRF12 DCRRF34  
 SRCGROUP NAAQS DCRRF5 FPLF14 FPLF112 FPLF1324 FPLC5 FPLC6  
 SRCGROUP NAAQS FPLPE12 FPLPE34 FPLPE112 FPLTP12 RINKER12 SFCOGEN

SO FINISHED

RE STARTING

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 GRIDPOLR POL1 ORIG 584959.08442548 2847789.56629077  
 GRIDPOLR POL1 DIST 700 800 900 1000 1250  
 GRIDPOLR POL1 DIST 1500 1750 2000 2250 2500  
 GRIDPOLR POL1 DIST 3000 3500 4000 4500 5000  
 GRIDPOLR POL1 DIST 6000 7000 8000  
 GRIDPOLR POL1 GDIR 36 10 10  
 GRIDPOLR POL1 END

\*\* Receptors at fenceline, r = 200 m, 300 m, 400 m, 500 m, and 600 m

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RE DISCCART	585527.5	2847652.5
RE DISCCART	585527.5	2847702.5
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PLOTFILE PERIOD NAAQS CD87ambi.PLT 42  
OU FINISHED

\*\*\* ISCST3 - VERSION 98356 \*\*\*

\*\*\* Standby Generator Sets - NAAQS & PSD Class II Increment - NO2 - 1987 \*\*\*

01/12/99

\*\*\* Miami-Dade Water and Sewer Department Central District WWTP \*\*\*

10:20:41

\*\*MODELOPTs: CONC

RURAL FLAT

DFAULT

\*\*\* THE SUMMARY OF MAXIMUM PERIOD ( 8760 HRS) RESULTS \*\*\*

\*\* CONC OF NO2

IN MICROGRAMS/M\*\*3

\*\*

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
GENS	1ST HIGHEST VALUE IS	8.29481 AT ( 585207.00, 2847417.75, 0.00, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	8.02699 AT ( 585157.00, 2847417.75, 0.00, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	7.60335 AT ( 585209.13, 2847356.50, 0.00, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	7.59907 AT ( 585257.00, 2847417.75, 0.00, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	7.18128 AT ( 585280.50, 2847406.50, 0.00, 0.00)	DC	NA
MDWASDCD	1ST HIGHEST VALUE IS	31.98318 AT ( 584857.00, 2847649.50, 0.00, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	29.61957 AT ( 584857.00, 2847699.50, 0.00, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	29.39866 AT ( 584859.13, 2847616.50, 0.00, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	28.02130 AT ( 584857.00, 2847599.50, 0.00, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	27.35901 AT ( 584830.50, 2847636.50, 0.00, 0.00)	DC	NA
PSD2INCR	1ST HIGHEST VALUE IS	32.61916 AT ( 584857.00, 2847649.50, 0.00, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	30.25495 AT ( 584857.00, 2847699.50, 0.00, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	30.03505 AT ( 584859.13, 2847616.50, 0.00, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	28.65785 AT ( 584857.00, 2847599.50, 0.00, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	27.99541 AT ( 584830.50, 2847636.50, 0.00, 0.00)	DC	NA
NAAQS	1ST HIGHEST VALUE IS	35.34290 AT ( 584857.00, 2847649.50, 0.00, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	32.98147 AT ( 584857.00, 2847699.50, 0.00, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	32.75732 AT ( 584859.13, 2847616.50, 0.00, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	31.37882 AT ( 584857.00, 2847599.50, 0.00, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	30.71460 AT ( 584830.50, 2847636.50, 0.00, 0.00)	DC	NA

\*\*\* ISCST3 - VERSION 98356 \*\*\*

\*\*\* Standby Generator Sets - NAAQS & PSD Class II Increment - NO2 - 1988 \*\*\*

01/12/99

\*\*\* Miami-Dade Water and Sewer Department Central District WWTP \*\*\*

\*\*\*

10:35:55

\*\*MODELOPTs: CONC

RURAL FLAT

DFAULT

\*\*\* THE SUMMARY OF MAXIMUM PERIOD ( 8784 HRS) RESULTS \*\*\*

\*\* CONC OF NO2

IN MICROGRAMS/M\*\*3

\*\*

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)				OF TYPE	NETWORK GRID-ID
GENS	1ST HIGHEST VALUE IS	11.42989 AT (	584857.00,	2847899.50,	0.00,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	10.70758 AT (	585157.00,	2847417.75,	0.00,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	10.40062 AT (	585207.00,	2847417.75,	0.00,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	9.96905 AT (	585209.13,	2847356.50,	0.00,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	8.75889 AT (	585259.13,	2847270.00,	0.00,	0.00)	DC	NA
MDWASDCD	1ST HIGHEST VALUE IS	32.58506 AT (	585207.00,	2847417.75,	0.00,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	31.33990 AT (	584857.00,	2847649.50,	0.00,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	30.23764 AT (	584859.13,	2847616.50,	0.00,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	29.22906 AT (	584857.00,	2847599.50,	0.00,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	28.37215 AT (	584857.00,	2847699.50,	0.00,	0.00)	DC	NA
PSD2INCR	1ST HIGHEST VALUE IS	33.17551 AT (	585207.00,	2847417.75,	0.00,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	31.93721 AT (	584857.00,	2847649.50,	0.00,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	30.83643 AT (	584859.13,	2847616.50,	0.00,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	29.82878 AT (	584857.00,	2847599.50,	0.00,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	28.96697 AT (	584857.00,	2847699.50,	0.00,	0.00)	DC	NA
NAAQS	1ST HIGHEST VALUE IS	36.04779 AT (	585207.00,	2847417.75,	0.00,	0.00)	DC	NA
	2ND HIGHEST VALUE IS	34.79552 AT (	584857.00,	2847649.50,	0.00,	0.00)	DC	NA
	3RD HIGHEST VALUE IS	33.69486 AT (	584859.13,	2847616.50,	0.00,	0.00)	DC	NA
	4TH HIGHEST VALUE IS	32.68711 AT (	584857.00,	2847599.50,	0.00,	0.00)	DC	NA
	5TH HIGHEST VALUE IS	31.82529 AT (	584857.00,	2847699.50,	0.00,	0.00)	DC	NA

\*\*\* ISCST3 - VERSION 98356 \*\*\*

\*\*\* Standby Generator Sets - NAAQS & PSD Class II Increment - NO2 - 1989 \*\*\*

01/12/99

\*\*\* Miami-Dade Water and Sewer Department Central District WWTP \*\*\*

10:52:18

\*\*MODELOPTs: CONC

RURAL FLAT

DFAULT

\*\*\* THE SUMMARY OF MAXIMUM PERIOD ( 8760 HRS) RESULTS \*\*\*

\*\* CONC OF NO2

IN MICROGRAMS/M\*\*3

\*\*

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
GENS	1ST HIGHEST VALUE IS	12.96259 AT ( 584857.00,	2847899.50,	0.00,	0.00) DC NA
	2ND HIGHEST VALUE IS	10.06226 AT ( 584857.00,	2847949.50,	0.00,	0.00) DC NA
	3RD HIGHEST VALUE IS	9.90547 AT ( 584830.50,	2847942.75,	0.00,	0.00) DC NA
	4TH HIGHEST VALUE IS	8.92020 AT ( 585207.00,	2847417.75,	0.00,	0.00) DC NA
	5TH HIGHEST VALUE IS	8.75363 AT ( 585157.00,	2847417.75,	0.00,	0.00) DC NA
MDWASDCD	1ST HIGHEST VALUE IS	31.68472 AT ( 584857.00,	2847899.50,	0.00,	0.00) DC NA
	2ND HIGHEST VALUE IS	28.93282 AT ( 585207.00,	2847417.75,	0.00,	0.00) DC NA
	3RD HIGHEST VALUE IS	25.68176 AT ( 584857.00,	2847849.50,	0.00,	0.00) DC NA
	4TH HIGHEST VALUE IS	25.59011 AT ( 584830.50,	2847942.75,	0.00,	0.00) DC NA
	5TH HIGHEST VALUE IS	25.49984 AT ( 584857.00,	2847949.50,	0.00,	0.00) DC NA
PSD2INCR	1ST HIGHEST VALUE IS	32.16607 AT ( 584857.00,	2847899.50,	0.00,	0.00) DC NA
	2ND HIGHEST VALUE IS	29.41246 AT ( 585207.00,	2847417.75,	0.00,	0.00) DC NA
	3RD HIGHEST VALUE IS	26.16333 AT ( 584857.00,	2847849.50,	0.00,	0.00) DC NA
	4TH HIGHEST VALUE IS	26.07164 AT ( 584830.50,	2847942.75,	0.00,	0.00) DC NA
	5TH HIGHEST VALUE IS	25.98105 AT ( 584857.00,	2847949.50,	0.00,	0.00) DC NA
NAAQS	1ST HIGHEST VALUE IS	34.65335 AT ( 584857.00,	2847899.50,	0.00,	0.00) DC NA
	2ND HIGHEST VALUE IS	31.95226 AT ( 585207.00,	2847417.75,	0.00,	0.00) DC NA
	3RD HIGHEST VALUE IS	28.65263 AT ( 584857.00,	2847849.50,	0.00,	0.00) DC NA
	4TH HIGHEST VALUE IS	28.55490 AT ( 584830.50,	2847942.75,	0.00,	0.00) DC NA
	5TH HIGHEST VALUE IS	28.46661 AT ( 584857.00,	2847949.50,	0.00,	0.00) DC NA

\*\*\* ISCST3 - VERSION 98356 \*\*\*

\*\*\* Standby Generator Sets - NAAQS & PSD Class II Increment - NO2 - 1990 \*\*\*

01/12/99

\*\*\* Miami-Dade Water and Sewer Department Central District WWTP \*\*\*

11:06:49

\*\*MODELOPTs: CONC

RURAL FLAT

DEFAULT

\*\*\* THE SUMMARY OF MAXIMUM PERIOD ( 8760 HRS) RESULTS \*\*\*

\*\* CONC OF NO2 IN MICROGRAMS/M\*\*3

\*\*

GROUP ID		AVERAGE CONC	RECEPTOR	(XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
GENS	1ST HIGHEST VALUE IS	11.44596 AT (	584857.00,	2847899.50,	0.00,	0.00) DC NA
	2ND HIGHEST VALUE IS	8.44277 AT (	584830.50,	2847942.75,	0.00,	0.00) DC NA
	3RD HIGHEST VALUE IS	7.16051 AT (	584857.00,	2847949.50,	0.00,	0.00) DC NA
	4TH HIGHEST VALUE IS	6.91784 AT (	584805.88,	2847918.00,	0.00,	0.00) DC NA
	5TH HIGHEST VALUE IS	6.16620 AT (	584702.00,	2848096.00,	0.00,	0.00) DC NA
MDWASDCD	1ST HIGHEST VALUE IS	30.32534 AT (	584857.00,	2847899.50,	0.00,	0.00) DC NA
	2ND HIGHEST VALUE IS	26.87408 AT (	584857.00,	2847699.50,	0.00,	0.00) DC NA
	3RD HIGHEST VALUE IS	25.63951 AT (	584857.00,	2847749.50,	0.00,	0.00) DC NA
	4TH HIGHEST VALUE IS	25.36486 AT (	584857.00,	2847849.50,	0.00,	0.00) DC NA
	5TH HIGHEST VALUE IS	25.03329 AT (	584857.00,	2847649.50,	0.00,	0.00) DC NA
PSD2INCR	1ST HIGHEST VALUE IS	30.87592 AT (	584857.00,	2847899.50,	0.00,	0.00) DC NA
	2ND HIGHEST VALUE IS	27.43083 AT (	584857.00,	2847699.50,	0.00,	0.00) DC NA
	3RD HIGHEST VALUE IS	26.19470 AT (	584857.00,	2847749.50,	0.00,	0.00) DC NA
	4TH HIGHEST VALUE IS	25.91691 AT (	584857.00,	2847849.50,	0.00,	0.00) DC NA
	5TH HIGHEST VALUE IS	25.59162 AT (	584857.00,	2847649.50,	0.00,	0.00) DC NA
NAAQS	1ST HIGHEST VALUE IS	33.76273 AT (	584857.00,	2847899.50,	0.00,	0.00) DC NA
	2ND HIGHEST VALUE IS	30.31060 AT (	584857.00,	2847699.50,	0.00,	0.00) DC NA
	3RD HIGHEST VALUE IS	29.07644 AT (	584857.00,	2847749.50,	0.00,	0.00) DC NA
	4TH HIGHEST VALUE IS	28.80215 AT (	584857.00,	2847849.50,	0.00,	0.00) DC NA
	5TH HIGHEST VALUE IS	28.46926 AT (	584857.00,	2847649.50,	0.00,	0.00) DC NA

\*\*\* ISCST3 - VERSION 98356 \*\*\*

\*\*\* Standby Generator Sets - NAAQS & PSD Class II Increment - NO2 - 1991 \*\*\*

01/12/99

\*\*\* Miami-Dade Water and Sewer Department Central District WWTP \*\*\*

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11:22:03

\*\*MODELOPTS: CONC

RURAL FLAT

DFAULT

\*\*\* THE SUMMARY OF MAXIMUM PERIOD ( 8760 HRS) RESULTS \*\*\*

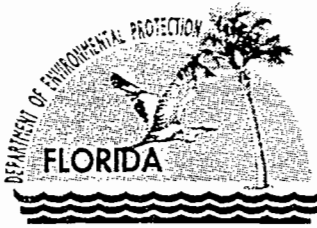
\*\* CONC OF NO2

IN MICROGRAMS/M\*\*3

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GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
GENS	1ST HIGHEST VALUE IS	9.28459 AT ( 584857.00, 2847899.50, 0.00, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	6.81979 AT ( 584830.50, 2847942.75, 0.00, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	6.70707 AT ( 584857.00, 2847949.50, 0.00, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	6.46354 AT ( 584805.88, 2847918.00, 0.00, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	6.01227 AT ( 584859.13, 2847962.75, 0.00, 0.00)	DC	NA
MDWASDCD	1ST HIGHEST VALUE IS	28.88797 AT ( 584857.00, 2847899.50, 0.00, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	25.87196 AT ( 584857.00, 2847849.50, 0.00, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	23.98278 AT ( 584857.00, 2847699.50, 0.00, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	23.91616 AT ( 584857.00, 2847749.50, 0.00, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	23.64334 AT ( 584857.00, 2847799.50, 0.00, 0.00)	DC	NA
PSD2INCR	1ST HIGHEST VALUE IS	29.46374 AT ( 584857.00, 2847899.50, 0.00, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	26.44977 AT ( 584857.00, 2847849.50, 0.00, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	24.56868 AT ( 584857.00, 2847699.50, 0.00, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	24.49898 AT ( 584857.00, 2847749.50, 0.00, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	24.22345 AT ( 584857.00, 2847799.50, 0.00, 0.00)	DC	NA
NAAQS	1ST HIGHEST VALUE IS	32.73771 AT ( 584857.00, 2847899.50, 0.00, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	29.72257 AT ( 584857.00, 2847849.50, 0.00, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	27.83953 AT ( 584857.00, 2847699.50, 0.00, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	27.77040 AT ( 584857.00, 2847749.50, 0.00, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	27.49549 AT ( 584857.00, 2847799.50, 0.00, 0.00)	DC	NA

**ATTACHMENT D**  
**Mark-Up Copy of Draft Permit**  
**Central District Wastewater Treatment Plant**



# Department of Environmental Protection

Jeb Bush  
Governor

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

David B. Struhs  
Secretary

January 28, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert C. Ready, P.E.  
Assistant Director of Treatment Facilities  
Miami-Dade Water and Sewer Department (WASD)  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

Re: DRAFT Permit No. 0250476-002-AC (PSD-FL-240)  
Central District Wastewater Treatment Plant

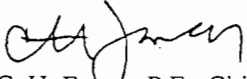
Dear Mr. Ready:

Enclosed is one copy of the revised Draft Air Construction Permit Modification for the Central District Wastewater Treatment Plant's Diesel Generators located at Virginia Key, Miami, Dade County. The Technical Evaluation and Preliminary Determination, Best Available Control Technology, the Department's Intent to Issue Air Construction Permit Modifications and the "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATIONS" are also included.

The "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATIONS" must be published as soon as possible in a newspaper of general circulation in the area affected. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within 7 (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.

Please replace the previously issued Draft Air Construction Permit Modification dated December 31, 1998 with this copy. Because the previously distributed notice was not published and the package was revised based on new information from WASD, we are maintaining the December 31 date as the date on which the Department issued its Intent. Since that time, the permitting clock has been tolled and will remain stopped until 14 days after we receive the proof of publication described above. Please submit any written comments you wish to have considered concerning the Department's proposed action to Mr. Syed Arif, P.E., of the New Source Review Section at the above letterhead address. If you have any other questions, please contact Mr. Arif at 850/921-9528.

Sincerely,

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

CHF/sa

Enclosures

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

Printed on recycled paper.



In the Matter of an  
Application for Permit Modifications by:

Miami-Dade Water and Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

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DEP File No. 0250476-002-AC  
Draft Permit No. PSD-FL-240  
Central District Wastewater Treatment Plant  
Dade County

### INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATIONS

The Department of Environmental Protection (Department) gives notice of its intent to issue air construction permit modifications (copy of draft air construction permit modifications attached) for the proposed action, as detailed in the application specified above, for the reasons stated below.

The applicant, Miami-Dade Water and Sewer Department, applied on July 24, 1997, to the Department for air construction permit modifications to increase the hours of operation of its three existing diesel generators and four existing digester gas generators located in Miami, Dade County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above action is not exempt from permitting procedures. The Department has determined that a review for the Prevention of Significant Deterioration (PSD), a determination of Best Available Control Technology (BACT) and an air construction permit modifications are required to increase the hours of operation for the diesel generators.

The Department intends to issue these air construction permit modifications based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed "Public Notice of Intent to Issue Air Construction Permit Modifications." The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. For the purpose of these rules, "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. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/ 922-6979). You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

The Department will issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of thirty days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit Modifications." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; and (f) A demand for relief.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that 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 such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542 F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of

the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2) F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.



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

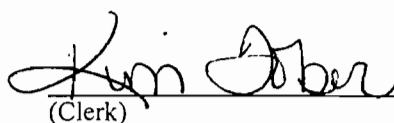
CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Intent to Issue Air Construction and Title V Permit Modifications (including the Public Notice, and Draft permit modifications) was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 1-28-99 to the person(s) listed:

Robert C. Ready, P.E., Miami-Dade Water and Sewer Department \*  
Gregg Worley, EPA  
John Bunyak, NPS  
Isidore Goldman, SED  
Patrick Wong, DERM

Clerk Stamp

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

  
(Clerk)

1-28-99  
(Date)

**PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATIONS**

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 0250476-002-AC (PSD-FL-240)  
Central District Wastewater Treatment Plant  
Dade County

The Department of Environmental Protection (Department) gives notice of its intent to issue air construction permit modifications to Miami-Dade Water and Sewer Department for its facility located in Virginia Key, Miami, Dade County. A Best Available Control Technology (BACT) determination was required for this modification pursuant to Rule 62-212.400, F.A.C. and 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The applicant's name and address are: Miami-Dade Water and Sewer Department (WASD), 4200 Salzedo Street, Coral Gables, Florida 33146-0316.

This existing facility consists of two wastewater treatment trains. WASD plans to increase the hours of operation of the three existing diesel-fired 2.5 megawatt (MW) generators and four existing digester gas-fired 1.2 MW generators. The 2.5 MW diesel generators will burn No. 2 fuel oil with a sulfur content of 0.05 percent or less, by weight and the 1.2 MW generators will burn digester gases only. All diesel generators are allowed to operate continuously at reduced loads and the No. 2 fuel oil usage is limited to 1.8 million gallons per year. Additionally, the hourly and annual emissions of NO<sub>x</sub> for the four 1.2 MW each digester gas generator will be reduced to a level more appropriate for clean burn engines.

An air quality impact analysis was conducted. Emissions from the facility will not cause or contribute to a violation of any state or federal ambient air quality standards. The maximum predicted PSD NO<sub>2</sub> increment consumed by all sources, including this project, in the nearest Class I (Everglades National Park) and Class II areas will be as follows:

<b>Averaging Time and Class</b>	<b>Allowable Increment (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Increment Consumed (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Percent Consumed</b>
Annual - Class I	2.5	0.74	30
Annual - Class II	25	24.9	99

The Department will issue the final permit modifications with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for public meetings concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit Modifications." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit modifications and require, if applicable, another Public Notice.

The Department will issue these permit modifications with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; and (f) A demand for relief.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that 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 such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file 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:

Dept. of Environmental Protection Bureau of Air Regulation 111 S. Magnolia Drive, Suite 4 Tallahassee, Florida 32301 Telephone: 850/488-0114 Fax: 850/922-6979	Dept. of Environmental Protection Southeast District Office 400 North Congress Avenue West Palm Beach, Florida 33401 Telephone: 561/681-6600 Fax: 561/681-6755	Miami-Dade Department of Environmental Resources Mgmt. 33 SE 2nd. Avenue, Suite 900 Miami, Florida 33130-1540 Telephone: 305/372-6925 Fax: 305/372-6954
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The complete project file includes the Draft Permit modifications, the application, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the New Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

**Revised Technical Evaluation  
and  
Preliminary Determination**

**Miami-Dade Water & Sewer Department  
Central District Wastewater Treatment Plant  
Dade County, Florida**

**THREE DIESEL GENERATORS  
(2.5 megawatts each)**

Construction Permit No. 0250476-002-AC  
PSD-FL-240

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

January 28, 1999

## 1. GENERAL INFORMATION

### 1.1 Name and address of applicant

Miami-Dade Water & Sewer Department - WASD  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

Authorized Representative: Mr. Robert C. Ready, P.E., Assistant Director of Treatment Facility

### 1.2 Reviewing and Process Schedule

07-24-97: Date of Receipt of Application  
08-21-97: DEP Completeness Request  
03-09-98: DEP Additional Completeness Request  
03-16-98: WASD's response to DEP's Completeness Requests of 08-21-97 and 03-09-98  
04-15-98: DEP Completeness Request  
10-21-98: WASD's response to DEP's Completeness Request of 04-15-98.  
Application complete  
12-31-98: Issue Intent  
01-xx-99: Issue Revised Intent

## 2 FACILITY INFORMATION

### 2.1 Facility Location

This facility is located at Central District Wastewater Treatment Plant, Virginia Key, Miami, Dade County, Florida. The UTM coordinates are Zone 17, 585.2 km east and 2848.1 km north.

### 2.2 Standard Industrial Classification Code (SIC)

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

Industry Group No. 4952 - Sewerage Systems.

### 2.3 Project Description

The Miami-Dade Water and Sewer Department proposes to increase operation of three existing standby electric generators at its Central District Wastewater Treatment Plant (WWTP) on Virginia Key in Miami, Florida. WASD desires to increase operation of its three generator sets to provide power generation capacity during periods of load-sharing with the local utility, Florida Power and Light; during power failure events; or as needed under other circumstances. WASD also requests to eliminate the hours of operation restriction for the existing four (4) digester gas engine generator sets. Actual emissions are expected to decrease due to improved maintenance procedures.

The three generator set will be noted as Emissions Unit 13, 14 and 15. Each generator is rated to produce 2,500 kilowatts (kW) of electric power at continuous, full load operating conditions. The generators are capable of operating at partial load conditions, and are driven by 3,600-horsepower (hp) diesel engine prime movers. The 3,600-hp engines burn transportation-grade diesel fuel, which has a low sulfur content (0.05 weight percent sulfur). Fuel oil combustion shall be limited to 1.8 million gallons per year for the three generators (which corresponds to 3056 hours of full-load operation per year limit).

The WWTP currently consists of seven (7) engines generators used for peaking power. The three existing emergency diesel generators noted above as Emissions Unit 13, 14 and 15 are 2.5 megawatts (MW) each. Low sulfur (0.05% or less, by weight) No. 2 oil is used as fuel for these units. Additionally four existing digester gas engine generator sets noted as Units 7, 9, 10 and 11 are 1.2 MW each. Digester gas combustion per unit is approximately 312 scfm. Digester gas heating value ranges from 650 to 750 btu/mmcf. Total capacity of the facility with seven (7) units will be 12.3 MW.

## 2.4 Project Emissions

The proposed project will produce maximum emissions of 267 tons per year (TPY) of nitrogen oxides (NO<sub>x</sub>); 9.6 TPY of sulfur dioxide (SO<sub>2</sub>); 37.7 TPY of carbon monoxide (CO); 9.8 TPY of particulate matter (PM/PM<sub>10</sub>) and 14.7 TPY of volatile organic compounds (VOC) based on an annual consumption of 1.8 million gallons of No. 2 fuel oil and 100% capacity factor for the three diesel generator sets. The No. 2 fuel oil will be limited to maximum of 0.05% sulfur content, by weight. The actual emissions for the proposed project will be much less than the numbers represented above based on projected actual operating hours.

## 3 RULE APPLICABILITY

The proposed project, increased operation of three 2.5 MW diesel generator sets, in Dade County, is subject to 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, 1996 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 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 emission units affected by this PSD permit shall comply with all applicable provisions of the Florida Administrative Code and, specifically, the following Chapters and Rules:

Chapter 62-4	Permits.
Rule 62-204.220	Ambient Air Quality Protection
Rule 62-204.240	Ambient Air Quality Standards
Rule 62-204.260	Prevention of Significant Deterioration Increments
Rule 62-204.360	Designation of Prevention of Significant Deterioration Areas
Rule 62-204.800	Federal Regulations Adopted By Reference
Rule 62-210.200	Definitions
Rule 62-210.300	Permits Required
Rule 62-210.350	Public Notice and Comments
Rule 62-210.370	Reports
Rule 62-210.550	Stack Height Policy
Rule 62-210.650	Circumvention
Rule 62-210.700	Excess Emissions



Rule 62-210.900	Forms and Instructions
Rule 62-212.300	General Preconstruction Review Requirements
Rule 62-212.400	Prevention of Significant Deterioration
Rule 62-212.410	Best Available Control Technology (BACT)
Rule 62-213	Operation Permits for Major Sources of Air Pollution
Rule 62-296.320	General Pollutant Emission Limiting Standards
Rule 62-297.310	General Test Requirements
Rule 62-297.401	Compliance Test Methods

#### 4 TECHNICAL EVALUATION

The applicant proposes to increase operation of the three existing standby electric generators with a rated capacity of 2.5 MW each at their existing facility which consists of four additional digester gas generators. This facility is a wastewater treatment plant which generates power only during periods of load-sharing with the local utility, Florida Power and Light; during power failure events; or as needed under other circumstances.

The Central District Wastewater Treatment Plant is located on Virginia Key in Miami, Florida. The facility consists of two parallel wastewater treatment trains, including the following processes and associated structures:

- Liquid processes consisting of identical grit chamber buildings at both plants, aeration tanks at plant 1, oxygenation tanks at plant 2, final settling tanks at both plants, and chlorination buildings at both plants.
- Solids processes consisting of 8 gravity sludge concentration tanks, 24 anaerobic digesters, 2 sludge thickener tanks, a sludge dewatering building, and a dried sludge storage building.
- Other processes and structures, including a maintenance building, a blower and cogeneration building, four scrubber buildings, an electrical switchgear building, an oxygen plant, and the three standby generator enclosures.

PSD is triggered due to the existing Plant being a major facility, and the emissions of NO<sub>x</sub> exceed their respective significance levels.

The diesel generators are EMD Model 20-645E4 with a nominal base load rating of 2.5 MW. All engines are diesel-fueled 20-cylinder, 2-cycle, and turbocharged. The primary fuel to the diesel generator will be No. 2 fuel oil, with a maximum sulfur content of 0.05%, by weight. There will be a fuel oil consumption limit of 1.8 million gallons per year. The emissions of NO<sub>x</sub> represents a significant proportion of the total emissions generated by this project. The facility is subject to PSD and BACT for NO<sub>x</sub> emissions because the proposed increase in annual NO<sub>x</sub> emissions exceeds the significant emission rate. The BACT for NO<sub>x</sub>, as determined by the Department, will be met by using fuel injection timing retardation and cooling of combustion air. Compliance with the NO<sub>x</sub> emission standards will be determined by stack tests.

CO emissions from the diesel engine will be below the PSD significance levels, and, therefore will not be subjected to a BACT analysis.

Particulate matter (PM/PM<sub>10</sub>) emissions from the diesel engine will be below the PSD significance levels, and, therefore will not be subjected to a BACT analysis.

SO<sub>2</sub> emissions will be controlled by the use of low sulfur fuel. The No. 2 fuel oil will be limited to a maximum of 1.8 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<sub>2</sub> emissions, because the proposed increase in annual SO<sub>2</sub> emissions does not exceed the significant emission rate.

The following table summarizes the potential maximum emissions of air pollutants in tpy :

Pollutant	PSD Significance Levels <sup>1</sup>	Maximum Emissions	Subject to PSD Review?
NO <sub>x</sub>	40	267 <sup>2</sup>	Yes
CO	100	37.7 <sup>3</sup>	No
PM/PM <sub>10</sub>	25/15	9.8 <sup>4</sup>	No
SO <sub>2</sub>	40	9.6 <sup>5</sup>	No
VOC	40	14.7 <sup>6</sup>	No

<sup>1</sup> Florida Administrative Code 212.400-2

<sup>2</sup> Maximum emissions based on operation at 3,056 hours per year at full load while firing No. 2 fuel oil (0.05% sulfur by weight).

<sup>3</sup> Maximum emissions based on continuous operation at 25 percent load while firing No. 2 fuel oil (0.05% sulfur by weight).

<sup>4</sup> Maximum emissions based on operation at 8,590 hours per year at 50 percent load while firing No. 2 fuel oil (0.05% sulfur by weight).

<sup>5</sup> Maximum emissions based on operation at 8,590 hours per year at 50 percent load while firing No. 2 fuel oil (0.05% by weight).

<sup>6</sup> Maximum emissions based on operation at 8,590 hours per year at 50 percent load while firing No. 2 fuel oil (0.05% by weight).

## 5 AIR QUALITY IMPACT ANALYSIS

### 5.1 Introduction

The proposed project will increase NO<sub>x</sub> emissions at a level in excess of PSD significant amounts. The air quality impact analyses required by the PSD regulations for this pollutant include:

- \* An analysis of existing air quality;
- \* A significant impact analysis;
- \* A PSD increment analysis;
- \* An Ambient Air Quality Standards (AAQS) analysis, and
- \* An analysis of impacts on soils, vegetation, and visibility and of growth-related air quality modeling impacts.

The analysis of existing air quality generally relies on preconstruction monitoring data collected with EPA-approved methods. The significant impact, 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 significantly 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 required analyses follows.

## 5.2 Analysis of Existing Air Quality

Preconstruction ambient air quality monitoring is required for all pollutants subject to PSD review unless otherwise exempted or satisfied. This monitoring requirement may be satisfied by using previously existing representative monitoring data, if available. An exemption to the monitoring requirement may be obtained if either of the following conditions is met: the maximum predicted air quality impact resulting from the projected emissions increase, as determined by air quality modeling, is less than a pollutant-specific de minimus concentration, or the existing ambient concentrations are less than a pollutant-specific de minimus concentration. If preconstruction ambient monitoring is exempted, determination of background concentrations for PSD significant pollutants with established AAQS may still 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 the 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.

Annual  $\text{NO}_2$  impacts from the project are predicted to be  $13.6 \text{ ug/m}^3$ , which is less than the de minimus level of  $14 \text{ ug/m}^3$ ; therefore, no preconstruction monitoring is required. However, a background concentration was established for use in the required AAQS analysis. There is an  $\text{NO}_2$  monitor located on Virginia Key near the proposed project. This monitor had a measured annual average  $\text{NO}_2$  concentration of  $13 \text{ ug/m}^3$  in 1997.

## 5.3 Models and Meteorological Data Used in Significant Impact, PSD Increment and AAQS Analyses

The EPA-approved Industrial Source Complex Short-Term (ISCST3) dispersion model was used to evaluate the pollutant emissions from the proposed project and other existing major facilities. The model determines ground-level concentrations of inert 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 ISCST3 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. The stacks associated with this project all satisfy the good engineering practice (GEP) stack height criteria.

Meteorological data used in the ISCST3 model consisted of a concurrent 5-year period of hourly surface weather observations and twice-daily upper air soundings from the National Weather Service (NWS) stations at Miami, Florida (surface data) and West Palm Beach, Florida (upper air data). The 5-year period of meteorological data was from 1987 through 1991. These NWS stations were selected for use in the study because they are the closest primary weather stations to the study area and are most representative of the project site. The surface observations included wind direction, wind speed, temperature, cloud cover, and cloud ceiling. For this project, since only the impacts of  $\text{NO}_x$  emissions are being evaluated and since the  $\text{NO}_2$  standards and increments are based on annual averages, the highest predicted annual averages were compared with the significant impact level, the AAQS and the PSD increments.

#### 5.4 Significant Impact Analysis

Initially, the applicant conducted modeling to determine whether the proposed project's NO<sub>x</sub> emissions were predicted to have a significant impact in the vicinity of the facility or in the Class I area. The applicant placed a total of 800 receptors along the site boundary and within eight km of the facility, which is located in a PSD Class II area. A total of 28 receptors were placed along the northern and eastern boundaries of the Everglades National Park (ENP). ENP is a PSD Class I area which is located approximately 30 km from the project at its closest point. The tables below show the results of this modeling. The radius of significant impact is also shown in the first table below.

**Maximum Project Air Quality Impact for Comparison  
to the PSD Class II Significant Impact Level in the Vicinity of the Facility**

Pollutant	Averaging Time	Maximum Predicted Impact (ug/m <sup>3</sup> )	Significant Impact Level (ug/m <sup>3</sup> )	Significant Impact?	Radius of Significant Impact (km)
NO <sub>2</sub>	Annual	13.6	1	YES	8

**Maximum Project Air Quality Impact in the ENP for  
Comparison to the PSD Class I Significant Impact Level**

Pollutant	Averaging Time	Maximum Predicted Impact (ug/m <sup>3</sup> )	Significant Impact?	Significant Impact Level (ug/m <sup>3</sup> )
NO <sub>2</sub>	Annual	0.118	YES	0.1

As shown in the tables the maximum predicted air quality impacts due to NO<sub>x</sub> emissions from the proposed project are greater than the PSD significant impact levels both in the vicinity of the facility and in the ENP. Therefore, the applicant was required to do full impact NO<sub>2</sub> modeling in the vicinity of the facility, within the applicable significant impact area, to determine the impacts of the project along with all other sources in the vicinity of the facility. The significant impact area is based upon the predicted radius of significant impact. Full impact modeling is modeling that considers not only the impact of the project but the impacts of the existing facility and other major sources, including background concentrations, located within the vicinity of the project to determine whether all increments or AAQS or predicted to be met.

#### 5.5 Procedure For Performing PSD Increments And AAQS Analyses

For the PSD and AAQS analyses, receptor grids normally are based on the size of the significant impact area for each pollutant. The size of the significant impact areas for the required NO<sub>2</sub> analyses were based on a 8 km radius of significant impact.

#### 5.6 PSD Increment Analysis

The PSD increment represents the amount that new sources in an area may increase ambient ground level concentrations of a pollutant. The results of the required PSD Class I and II increment analyses presented in the tables below show that all of the maximum predicted impacts are less than the allowable Class II increments.

**PSD Class II Increment Analysis in the Vicinity of the Facility**

Pollutant	Averaging Time	Maximum Predicted Impact (ug/m <sup>3</sup> )	Impact Greater Than Allowable Increment?	Allowable Increment (ug/m <sup>3</sup> )
NO <sub>2</sub>	Annual	24.9	NO	25

**PSD Class I Increment Analysis in the ENP**

Pollutant	Averaging Time	Maximum Predicted Impact (ug/m <sup>3</sup> )	Impact Greater Than Allowable Increment?	Allowable Increment (ug/m <sup>3</sup> )
NO <sub>2</sub>	Annual	0.74	NO	2.5

5.7 AAQS Analysis

The results of the AAQS analysis are summarized in the table below. As shown in this table, emissions from the proposed facility are not expected to cause or significantly contribute to a violation of any AAQS.

**Ambient Air Quality Impacts**

Pollutant	Averaging Time	Maximum Predicted Impact (ug/m <sup>3</sup> )	Predicted Impact Greater Than AAQS?	AAQS (ug/m <sup>3</sup> )
NO <sub>2</sub>	Annual	39	NO	100

5.8 Additional Impacts Analysis

5.8.1 Impacts On Soils, Vegetation, Wildlife, and Visibility

The maximum ground-level concentrations predicted to occur due to NO<sub>x</sub> emissions as a result of the proposed project, including 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. A visibility analysis was done by the Department for the Class I area. This analysis showed no significant impact on visibility in this area.

5.8.2 Growth-Related Air Quality Impacts

There will be no growth associated with this project.

**6 CONCLUSION**

Based on the foregoing technical evaluation of the application and additional information submitted by WASD, the Department has made a preliminary determination that the proposed project will comply with all applicable state air pollution regulations provided the Department's Best Available Control Technology Determination is implemented.

Permit Engineer: Syed Arif, P.E.  
 Meteorologist: Cleve Holladay

**PERMITTEE:**

**Miami-Dade Water and Sewer Department**  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

*Authorized Representative:*

Robert C. Ready, P.E.  
Assistant Director of Treatment Facility

<b>FID No.</b>	0250476
<b>PSD No.</b>	PSD-FL-240
<b>SIC No.</b>	4952
<b>Project:</b>	Diesel Generators
<b>Permit No.</b>	0250476-002-AC
<b>Expires:</b>	December 31, 1999

**PROJECT AND LOCATION:**

Permit for increasing the hours of operation for the three 2.5 megawatt diesel electric generators and four 1.2 megawatt digester gas electric generators at the Central District Wastewater Treatment Plant, Virginia Key, Miami, Dade County. UTM coordinates are Zone 17; 585.2 km E; 2848.1 km N.

**STATEMENT OF BASIS:**

This construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and the Florida Administrative Code (F.A.C.) Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297. The above named permittee is authorized to modify the facility in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department of Environmental Protection (Department).

**Attached appendices are made a part of this permit:**

Appendix BD	BACT Determination
Appendix GC	Construction Permit General Conditions
Appendix CSC	Emission Unit(s) Common Specific Conditions

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Howard L. Rhodes, Director  
Division of Air Resources  
Management

# AIR CONSTRUCTION PERMIT 0250476-002-AC AND PSD-FL-240

## SECTION I. FACILITY INFORMATION

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### SUBSECTION A. FACILITY DESCRIPTION

The Miami-Dade Water and Sewer Department (WASD) Central District Wastewater Treatment Plant presently consists of three nominal 2.5 Megawatt (MW) diesel engine-driven generators, designated as Units 13 and 14 and 15; four nominal 1.2 MW digester gas engine-driven generators, designated as Units 7, 9, 10 and 11; and one wastewater treatment plant, designated as Unit 8. This permit is to increase the hours of operation for the seven generators (Units 7, 9, 10, 11, 13, 14 and 15) and to limit the potential-to-emit of units 7, 9, 10 and 11.

### SUBSECTION B. REGULATORY CLASSIFICATION

The Central District Wastewater Treatment is classified as a Major Source of Air Pollution or Title V Source because it emits or has the potential to emit at least 100 tons per year of nitrogen oxides (NO<sub>x</sub>) and carbon monoxide (CO). It is also a Major Facility with respect to preconstruction review because it emits or has the potential to emit at least 250 tons per year of NO<sub>x</sub>.

### SUBSECTION C. PERMIT SCHEDULE:

- 07-24-97: Date of Receipt of Application
- 10-21-98: Application deemed complete
- 12-31-98: Intent issued
- 01-xx-99: Revised Intent issued

### SUBSECTION D. RELEVANT DOCUMENTS:

The documents listed form the basis of the permit. They are specifically related to this permitting action. These documents are on file with the Department.

- Application received 7-24-97
- Department's letters dated 8-21-97, 3-9-98, and 4-15-98
- Company letters dated 3-16-98, and 10-21-98
- Technical Evaluation and Preliminary Determination dated 12-31-98
- Revised Technical Evaluation and Preliminary Determination dated 01-xx-99
- Best Available Control Technology determination (issued concurrently with permit)

# AIR CONSTRUCTION PERMIT 0250476-002-AC AND PSD-FL-240

## SECTION II. EMISSION UNIT(S) GENERAL REQUIREMENTS

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### SUBSECTION A. ADMINISTRATIVE

- A.1 Regulating Agencies: All documents related to applications for permits to operate, reports, tests, minor modifications and notifications shall be submitted to the Department of Environmental Protection, Southeast District Office located at 400 North Congress Avenue, West Palm Beach, Florida 33401, and phone number (561) 681-6600. All applications for permits to construct or modify an emission unit(s) *subject to the Prevention of Significant Deterioration (PSD)* should be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (FDEP) located at 2600 Blairstone Road, Tallahassee, Florida 32399-2400 and phone number (850)488-0114.
- A.2 General Conditions: The owner and operator is subject to and shall operate under the attached General Permit Conditions G.1 through G.15 listed in *Appendix GC* of this permit. General Permit Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
- A.3 Emission Unit(s) Common Specific Conditions: The owner and operator is subject to and shall operate under the attached Emission Unit(s) Common Specific Conditions listed in *Appendix CSC* of this permit. The Emission Unit(s) Common Specific Conditions are binding and enforceable pursuant to Chapters 62-204 through 62-297 of the Florida Administrative Code.
- A.4 Terminology: The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.
- A.5 Forms and Application Procedures: The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. [Rule 62-210.900, F.A.C.]
- A.6 Expiration: This air construction permit shall expire on **December 31, 1999**. [Rule 62-210.300(1), F.A.C.]. The permittee may, for good cause, request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit. However, the permittee shall promptly notify the permitting authority office of any delays in completion of the project which would affect the startup day by more than 90 days. [Rule 62-4.090, F.A.C.]
- A.7 Applicable Regulations: The facility is subject to the following regulations: Florida Administrative Code Chapters 62-4; 62-103; 62-204; 62-210; 62-212, 62-296, and 62-297. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements or regulations. [Rule 62-210.300, F.A.C.]



AIR CONSTRUCTION PERMIT 0250476-002-AC AND PSD-FL-240

**SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS**

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**SUBSECTION A. LISTING OF EMISSIONS UNITS**

This permit addresses the following emission units.

EMISSIONS UNIT NO.	SYSTEM	EMISSIONS UNITS DESCRIPTION
007	Power	1.2 MW Digester Gas Electric Generator
009	Power	1.2 MW Digester Gas Electric Generator
010	Power	1.2 MW Digester Gas Electric Generator
011	Power	1.2 MW Digester Gas Electric Generator
013	Power	2.5 MW Diesel Electric Generator
014	Power	2.5 MW Diesel Electric Generator
015	Power	2.5 MW Diesel Electric Generator

**SUBSECTION B. SPECIFIC CONDITIONS (UNITS 013, 014 AND 015):**

The following Specific Conditions apply to the following emission unit:

EMISSION UNIT NO.	SYSTEM	EMISSION UNIT DESCRIPTION
013	Power	2.5 MW Diesel Electric Generator
014	Power	2.5 MW Diesel Electric Generator
015	Power	2.5 MW Diesel Electric Generator

**EMISSION LIMITATIONS**

- B.1 The maximum allowable emission rates for NO<sub>x</sub> for Units No. 013, 014 and 015 shall not exceed 58 pounds per hour (lb/hr) each and 267 tons per year (TPY) combined pursuant to the Best Available Control Technology (BACT) Determination. [Rule 62-212.400(6), F.A.C.]
- B.2 Visible emissions shall be less than 20% opacity. [Rule 62-296.320, F.A.C.]
- B.3 In order to minimize excess emissions during startup/shutdown/malfunction this emission unit shall adhere to best operational practices. [Rule 62-210.700, F.A.C.]

**OPERATIONAL LIMITATIONS**

- B.4 The emission unit is allowed to operate continuously (8760 hours/year) at reduced load. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit].
- B.5 Only No. 2 fuel oil can be fired in the diesel generator. The maximum sulfur content of the No. 2 fuel oil shall not exceed 0.05 percent, by weight. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit].
- B.6 The combined maximum heat input rate to Units No. 013, 014 and 015 shall not exceed 81 million Btu per hour (MMBtu/hr) at 100 percent load. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit].

**SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS**

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- B.7 The maximum No. 2 fuel oil consumption allowed to be burned in Units No. 013, 014 and 015 is 1,800,000 gallons per year, which is equivalent to 3056 hours per year of operation at full load for each unit. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit]

**TEST METHODS AND PROCEDURES**

- B.8 Compliance with the allowable emission limiting standards for NO<sub>x</sub> in B.1 shall be determined by using EPA Reference Method 7 (or equivalent) as described in 40 CFR 60, Appendix A (1996, version) adopted by reference in Rule 62-204.800, F.A.C. [Rule 62-297.401, F.A.C.]
- B.9 The fuel shall be monitored for the sulfur content using ASTM D4294 Method (or equivalent), or by maintaining records of fuel sulfur content certifications, as provided by the fuel supplier. [Rule 62-297.440, F.A.C.]
- B.10 The permittee shall maintain daily records of fuel oil consumption for the emission unit. [Rule 62-210.200, F.A.C.]
- B.11 Compliance with the visible emission standard shall be demonstrated with EPA Reference Method 9 as described in 40 CFR 60, Appendix A (1996, version) adopted by reference in Rule 62-204.800, F.A.C. [Rule 62-297.401, F.A.C.]

**RECORDKEEPING AND REPORTING REQUIREMENTS**

- B.12 All measurements, records, and other data required to be maintained by this facility shall be retained for at least five (5) years following the data on which such measurements, records, or data are recorded. These data shall be made available to the Department upon request. [Rule 62-4.070(3), F.A.C.]
- B.13 Two copies of the results of the emission tests for the pollutant listed in Condition B.1 for Units No. 13, 14 and 15 shall be submitted within forty-five days of the last sampling run to the Southeast District office in West Palm Beach. All reports shall be in a format consistent with and shall include the information in accordance with Rule 62-297.310 (8), F.A.C. [Rule 62-297.310(8), F.A.C.]

# AIR CONSTRUCTION PERMIT 0250476-002-AC AND PSD-FL-240

## SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

### SUBSECTION C. SPECIFIC CONDITIONS (UNITS 007, 009, 010 AND 011)

The following Specific Conditions apply to the following emission units:

EMISSIONS UNIT NO.	SYSTEM	EMISSIONS UNITS DESCRIPTION
007	Power	1.2 MW Digester Gas Electric Generator
009	Power	1.2 MW Digester Gas Electric Generator
010	Power	1.2 MW Digester Gas Electric Generator
011	Power	1.2 MW Digester Gas Electric Generator

### EMISSION LIMITATIONS

- C.1 The maximum allowable emission rates for NO<sub>x</sub> for Units No. 007, 009, 010 and 011 shall not exceed 7.6 pounds per hour (lb/hr) each and 133 tons per year (TPY) combined. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit.]
- C.2 Visible emissions shall be less than 20% opacity. [Rule 62-296.320, F.A.C.]
- C.3 In order to minimize excess emissions during startup/shutdown/malfunction this emission unit shall adhere to best operational practices. [Rule 62-210.700, F.A.C.]

### OPERATIONAL LIMITATIONS

- C.4 The existing Units No. 007, 009, 010 and 011 are allowed to operate continuously (8760 hours per year). [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit ]
- C.5 Only digester gas can be fired in the diesel generators 007, 009, 010 and 011. The maximum annual usage rate of the digester gas shall be 656,000,000 cubic feet. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit]

### TEST METHODS AND COMPLIANCE PROCEDURES

- C.6 Compliance with the allowable emission limiting standards for NO<sub>x</sub> in C.1 shall be determined by using EPA Reference Method 7 (or equivalent) as described in 40 CFR 60, Appendix A (1996, version) adopted by reference in Rule 62-204.800, F.A.C. [Rule 62-297.401, F.A.C.]
- C.7 Compliance with the visible emission standard shall be demonstrated with EPA Reference Method 9 as described in 40 CFR 60, Appendix A (1996, version) adopted by reference in 62-204.800, F.A.C. [Rule 62-297.310, F.A.C.]

**APPENDIX BD**  
**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)**

Central District Wastewater Treatment Plant  
 Miami-Dade Water and Sewer Department  
 PSD-FL-240 and 0250476-002-AC  
 Miami, Dade County

The Miami-Dade Water and Sewer Department (WASD) plans to increase the hours of operation of its three existing standby Diesel Engine Generators at Central District Wastewater Treatment Plant (WWTP) in Miami, Dade County. The units are Electro-Motive Diesel generator model 20-645E4 with a nominal base load rating of 2.5 megawatts (MW) each. The units will be fired with No. 2 fuel oil with a sulfur content of 0.05 percent or less, by weight, and a fuel oil consumption limit of 1.800 million gallons per year. The facility additionally consists of four (4) digester gas engine generators used for peaking power. These units are each rated at 1.2 MW burning digester gas. The facility also has two parallel wastewater treatment trains.

WASD has indicated that the maximum annual air pollutant emission rates in tons per year for the three diesel generators, based on consumption of 1.800 million gallons of No. 2 fuel oil, with a maximum sulfur content of 0.05 percent, by weight, will be:

Pollutant	PSD Significance Levels <sup>1</sup>	Maximum Emissions	Subject to PSD Review?
NO <sub>x</sub>	40	267 <sup>2</sup>	Yes
CO	100	37.7 <sup>3</sup>	No
PM/PM <sub>10</sub>	25/15	9.8 <sup>4</sup>	No
SO <sub>2</sub>	40	9.6 <sup>5</sup>	No
VOC	40	14.7 <sup>6</sup>	No

<sup>1</sup> Florida Administrative Code 212.400-2

<sup>2</sup> Maximum emissions based on operation at 3,056 hours per year at full load while firing No. 2 fuel oil (0.05% sulfur by weight).

<sup>3</sup> Maximum emissions based on continuous operation at 25 percent load while firing No. 2 fuel oil (0.05% sulfur by weight).

<sup>4</sup> Maximum emissions based on operation at 8,590 hours per year at 50 percent load while firing No. 2 fuel oil (0.05% sulfur by weight).

<sup>5</sup> Maximum emissions based on operation at 8,590 hours per year at 50 percent load while firing No. 2 fuel oil (0.05% by weight).

<sup>6</sup> Maximum emissions based on operation at 8,590 hours per year at 50 percent load while firing No. 2 fuel oil (0.05% by weight).

Following is the BACT determination proposed by the applicant:

**BACT DETERMINATION REQUESTED BY THE APPLICANT:**

POLLUTANT	EMISSION LIMIT
Nitrogen Oxides	58 lbs/hr each by timing retardation and aftercoolers

The Central District Wastewater Treatment Plant is a major source of air pollution or Title V source. Because emissions of nitrogen oxides are greater than 250 tons per year, it is a major facility with respect to the Prevention of Significant Deterioration (Rule 62-212.400). Because the project will result in a significant increase in nitrogen

**APPENDIX BD**  
**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)**

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oxides emissions per Table 62-212.400-2, F.A.C., "Regulated Air Pollutants - Significant Emissions Rates," a BACT determination is required pursuant to Rule 62-212.410, F.A.C.

**DATE OF RECEIPT OF A BACT APPLICATION:**

July 24, 1997

**REVIEW GROUP MEMBER:**

Syed Arif, P.E., prepared BACT

**BACT DETERMINATION PROCEDURE:**

In accordance with Chapter 62-212, F.A.C., this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department of Environmental Protection (Department), on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that, in making the BACT determination, the Department shall give consideration to:

- Any Environmental Protection Agency determination of BACT pursuant to Section 169, and any emission limitation contained in 40 CFR Part 60 - Standards of Performance for New Stationary Sources or 40 CFR Part 61 - National Emission Standards for Hazardous Air Pollutants.
- All scientific, engineering, and technical material and other information available to the Department.
- The emission limiting standards or BACT determination of any other state.
- The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine, for the emission unit in question, the most stringent control available for a similar or identical emission unit or emission unit category. If it is shown that this level of control is technically or economically unfeasible for the emission unit in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

The air pollutant emissions from this facility can be grouped into categories based upon the control equipment and techniques that are available to control emissions from these emission units. Using this approach, the emissions can be classified as follows:

- **Combustion Products** (e.g., SO<sub>2</sub>, NO<sub>x</sub>, PM). Controlled generally by good combustion of clean fuels, removal in add-on control equipment.
- **Products of Incomplete Combustion** (e.g., CO, VOC). Control is largely achieved by proper combustion techniques.

Grouping the pollutants in this manner facilitates the BACT analysis because it enables the equipment available to control the type or group of pollutants emitted and the corresponding energy, economic, and environmental impacts to be examined on a common basis. Although all of the pollutants addressed in the BACT analysis may be subject to a specific emission limiting standard as a result of PSD review, the control of "non-regulated" air pollutants is

## APPENDIX BD

### BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

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considered in imposing a more stringent BACT limit on a "regulated" pollutant (i.e., PM, SO<sub>2</sub>, H<sub>2</sub>SO<sub>4</sub>, fluorides, etc.), if a reduction in "non-regulated" air pollutants can be directly attributed to the control device selected as BACT for the abatement of the "regulated" pollutants.

#### BACT POLLUTANT ANALYSIS

##### **NITROGEN OXIDES (NO<sub>x</sub>)**

Oxides of nitrogen (NO<sub>x</sub>) are generated during fuel combustion by oxidation of chemically bound nitrogen in the fuel (fuel NO<sub>x</sub>) and by thermal fixation of nitrogen in the combustion air (thermal NO<sub>x</sub>). As flame temperature increases, the amount of thermally generated NO<sub>x</sub> increases. Fuel type affects the quantity and type of NO<sub>x</sub> generated. Generally, natural gas is low in nitrogen. However it causes higher flame temperatures and generates more thermal NO<sub>x</sub> than oil or coal, which have higher fuel nitrogen content, but exhibit lower flame temperatures.

NO<sub>x</sub> emissions represent a significant portion of the total emissions generated by this project, and must be minimized using BACT. A review of EPA BACT/LAER Clearinghouse (BACT Clearinghouse) information indicates that NO<sub>x</sub> emissions at most small facilities are minimized by process control and good combustion practices.

In a diesel engine, injection of fuel into the cylinder starts the combustion process. Retarding the timing of fuel injection until the piston is in its downward motion increases the volume of the combustion chamber, which reduces combustion temperature and pressure, subsequently reducing the formation of NO<sub>x</sub>. However, fuel injection timing retardation (IR) generally increases black smoke and cold smoke (white smoke during start up) emissions, as well as increasing exhaust temperatures. The increase in exhaust temperatures affect turbocharger performance and may be detrimental to exhaust valve life. A small increase in fuel consumption (2 percent) and a significant increase in particulate emissions (25 percent) usually result from the application of IR alone to diesel engines. To counteract this problem, it has been demonstrated that the installation of a device to cool the combustion air upstream of the cylinder alleviates most of the negative side effects of IR.

In large bore diesel engines equipped with a turbocharger, the combustion air precooler consists of a heat exchanger, located downstream of the turbocharger, and is typically referred to as an aftercooler. Cooler air box temperatures reduce bulk combustion temperature, which reduces NO<sub>x</sub> formation. Because cooler air is denser, the cylinders are charged with a greater mass of air that generally helps reduce emissions of unburned hydrocarbons, carbon monoxide, and particulate matter. Manufacturer's test results have shown that installation of four-pass aftercoolers piped to the engine's cooling system reduce uncontrolled emissions of NO<sub>x</sub> and PM<sub>10</sub> by up to 10 percent while slightly lowering fuel consumption (0.5 to 1 percent). Tests have also shown that combining a 4-degree IR with the installation of a four pass aftercooler will reduce NO<sub>x</sub> emissions by 28 percent and PM<sub>10</sub> emissions by 7 percent with a slight decrease in fuel consumption.

The applicant has proposed modification of the combustion process through a combination of fuel injection timing retardation and cooling of combustion air resulting in exhaust temperature reduction. The design specific to WASD's 20-645E4 includes a 4° injection timing retardation and a 4-pass aftercooler circuit. The combination of retarded injection timing and lowered combustion air temperature results in less NO<sub>x</sub> formation. **This combination of NO<sub>x</sub> controls, proper engine design, good combustion practices, and the use of low sulfur fuel should provide effective emissions control.**

#### BACT DETERMINATION BY DEP:

Based on the information provided by the applicant and the information searches conducted by the Department, lower emissions limits can be obtained employing the top-down BACT approach for NO<sub>x</sub>.

## APPENDIX BD

### BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

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#### NO<sub>x</sub> DETERMINATION

The top-down BACT approach for diesel fired internal combustion engines listed in order from most stringent control to least:

1. Selective Catalytic Reduction (SCR)
2. Combined technologies of injection timing retardation, turbocharger with aftercoolers
3. Good combustion design/practices

The following table summarizes the feasibility of using these control technologies with the EMD 20-645E4 as designed for installation in WASD's Central District Wastewater Treatment Plant.

Control Technology	Emission Reduction (%)	Technically Feasible	Cost per ton (\$)	Adverse Environ. Impacts	Adverse Energy Impacts
SCR with ammonia	75-95	No	3,800	Yes	N/A
SCR with urea	80	No	N/A	N/A	N/A
Timing retard; turbo charger aftercoolers	28	Yes	31	No	0.3%
Dry/Low NO <sub>x</sub>	18	No	N/A	N/A	N/A

SCR is more widely used in Japan and Germany than it is in the United States and the technology is being improved such that the hazards and costs have been reduced. It remains, however, a costly technology for small applications and has potential hazards associated with the use and storage of ammonia. SCR is not generally used with diesel engines of this size. The BACT/LAER database lists only a single facility which uses SCR on diesel engines. SCR was selected in that instance because a local ordinance mandated strict limits on emissions without regards to cost. SCR is not technically feasible for this diesel engine because the exhaust temperatures will be below 550°F up to 50 percent of the time. In order for SCR technology to achieve effective reduction of NO<sub>x</sub>, the catalyst temperature must be at least 550°F.

For NO<sub>x</sub> emissions, the Department accepts the applicants proposed use of injection timing retardation and cooling of combustion air as BACT for this project.

The BACT emission levels established by the Department are as follows:

POLLUTANT	EMISSION LIMIT
Nitrogen Oxides (NO <sub>x</sub> )	58 lbs/hr each (267 TPY combined)

#### COMPLIANCE

Compliance with the NO<sub>x</sub> limitations shall be in accordance with the EPA Reference Method 7 or equivalent as contained in 40 CFR 60, Appendix A.

**APPENDIX BD**  
**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)**

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**DETAILS OF THE ANALYSIS MAY BE OBTAINED BY CONTACTING:**

Syed Arif, P.E.  
Department of Environmental Protection  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Recommended By:

Approved By:

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

\_\_\_\_\_  
Howard L. Rhodes, Director  
Division of Air Resources Management

\_\_\_\_\_  
Date:

\_\_\_\_\_  
Date:



**APPENDIX GC**  
GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]

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- G.1 The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
- G.2 This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings or exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
- G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
- G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
- G.5 This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
- G.6 The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
- G.7 The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
- (a) Have access to and copy and records that must be kept under the conditions of the permit;
  - (b) Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
  - (c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

- G.8 If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
- (a) A description of and cause of non-compliance; and
  - (b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

**APPENDIX GC**  
GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]

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The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

- G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.
- G.10 The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
- G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
- G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.
- G.13 This permit also constitutes:
- (a) Determination of Best Available Control Technology (X)
  - (b) Determination of Prevention of Significant Deterioration (X); and
  - (c) Compliance with New Source Performance Standards ( ).
- G.14 The permittee shall comply with the following:
- (a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
  - (b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
  - (c) Records of monitoring information shall include:
    - 1. The date, exact place, and time of sampling or measurements;
    - 2. The person responsible for performing the sampling or measurements;
    - 3. The dates analyses were performed;
    - 4. The person responsible for performing the analyses;
    - 5. The analytical techniques or methods used; and
    - 6. The results of such analyses.
- G.15 When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

## APPENDIX CSC

### EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

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#### SUBSECTION 1.0 CONSTRUCTION REQUIREMENTS

- 1.1 Applicable Regulations: Unless otherwise indicated in this permit, the construction and operation of the subject emission unit(s) shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of Chapter 403, F.S and Florida Administrative Code Chapters 62-4, 62-103, 62-204, 62-210, 62-212, 62-213, 62-296, 62-297; and the applicable requirements of the Code of Federal Regulations Section 40, Part 60, adopted by reference in the Florida Administrative Code regulation [**Rule 62-204.800, F.A.C.**]. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements or regulations. [**Rule 62-210.300, F.A.C.**]

#### SUBSECTION 2.0 EMISSION LIMITING STANDARDS

- 2.1 General Particulate Emission Limiting Standards. General Visible Emissions Standard: Except for emissions units that are subject to a particulate matter or opacity limit set forth or established by rule and reflected by conditions in this permit, no person shall cause, let, permit, suffer, or allow to be discharged into the atmosphere the emissions of air pollutants from any activity, the density of which is equal to or greater than that designated as Number 1 on the Ringelmann Chart (20% opacity). [**Rule 62-296-320(4)(b)1, F.A.C.**]
- 2.2 Unconfined Emissions of Particulate Matter [**Rule 62-296.320(4)(c), F.A.C.**]
- (a) The owner or operators shall not cause, let, permit, suffer or allow the emissions of unconfined particulate matter from any source whatsoever, including, but not limited to, vehicular movement, transportation of materials, construction, alteration, demolition or wrecking, or industrially related activities such as loading, unloading, storing or handling, without taking reasonable precautions to prevent such emission.
- (b) Any permit issued to a facility with emissions of unconfined particulate matter shall specify the reasonable precautions to be taken by that facility to control the emissions of unconfined particulate matter.
- (c) Reasonable precautions include the following:
- Paving and maintenance of roads, parking areas and yards.
  - Application of water or chemicals to control emissions from such activities as demolition of buildings, grading roads, construction, and land clearing.
  - Application of asphalt, water, oil, chemicals or other dust suppressants to unpaved roads, yards, open stock piles and similar activities.
  - Removal of particulate matter from roads and other paved areas under the control of the owner or operator of the facility to prevent reentrainment, and from buildings or work areas to prevent particulate from becoming airborne.
  - Landscaping or planting of vegetation.
  - Use of hoods, fans, filters, and similar equipment to contain, capture and/or vent particulate matter.

## APPENDIX CSC

### EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

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- Confining abrasive blasting where possible.
- Enclosure or covering of conveyor systems.

*NOTE: Facilities that cause frequent, valid complaints may be required by the Permitting Authority to take these or other reasonable precautions. In determining what constitutes reasonable precautions for a particular source, the Department shall consider the cost of the control technique or work practice, the environmental impacts of the technique or practice, and the degree of reduction of emissions expected from a particular technique or practice.*

#### 2.3 General Pollutant Emission Limiting Standards: [Rule 62-296.320, F.A.C.]

- (a) The owner or operator shall not store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems.
- (b) No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor.

*NOTE: An objectionable odor is defined as any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [F.A.C. 62-210.200(198)]*

### SUBSECTION 3.0 OPERATION AND MAINTENANCE

3.1 Changes/Modifications: The owner or operator shall submit to the Permitting Authority(s), for review any changes in, or modifications to: the method of operation; process or pollution control equipment; increase in hours of operation; equipment capacities; or any change which would result in an increase in potential/actual emissions. Depending on the size and scope of the modification, it may be necessary to submit an application for, and obtain, an air construction permit prior to making the desired change. *Routine maintenance of equipment will not constitute a modification of this permit.* [Rule 62-4.030, 62-210.300 and 62-4.070(3), F.A.C.]

3.2 Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the owner or operator shall notify the Permitting Authority as soon as possible, but at least within (1) working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; the steps being taken to correct the problem and prevent future recurrence; and where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit and the regulations. [Rule 62-4.130, F.A.C.]

## APPENDIX CSC

### EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

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- 3.3 Circumvention: The owner or operator shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rules 62-210.650, F.A.C.]
- 3.4 Excess Emissions Requirements [Rule 62-210.700, F.A.C.]
- (a) Excess emissions resulting from start-up, shutdown or malfunction of these emissions units shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized, but in no case exceed two hours in any 24 hour period unless specifically authorized by the Permitting Authority office for longer duration. [Rule 62-210.700(1), F.A.C.]
  - (b) Excess emissions that are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during start-up, shutdown, or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]
  - (c) In case of excess emissions resulting from malfunctions, the owner or operator shall notify Permitting Authority within one (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the problem; and the corrective actions being taken to prevent recurrence. [Rule 62-210.700(6), F.A.C.]
- 3.5 Operating Procedures: Operating procedures shall include good operating practices and proper training of all operators and supervisors. The good operating practices shall meet the guidelines and procedures as established by the equipment manufacturers. All operators (including supervisors) of air pollution control devices shall be properly trained in plant specific equipment. [Rule 62-4.070(3), F.A.C.]

#### SUBSECTION 4.0 MONITORING OF OPERATIONS

- 4.1 Determination of Process Variables
- (a) The permittee shall operate and maintain equipment and/or instruments necessary to determine process variables, such as process weight input or heat input, when such data is needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.
  - (b) Equipment and/or instruments used to directly or indirectly determine such process variables, including devices such as belt scales, weigh hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value. [Rule 62-297.310(5), F.A.C.]

## APPENDIX CSC

### EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

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#### SUBSECTION 5.0 TEST REQUIREMENTS

- 5.1 Test Performance Within 60 days after achieving the maximum production rate at which these emission units will be operated, but not later than 180 days after initial startup and annually thereafter, the owner or operator of this facility shall conduct performance test(s) pursuant to 40 CFR 60.8, Subpart A, General Provisions and 40 CFR 60, Appendix A. No other test method shall be used unless approval from the Department has been received in writing. Unless otherwise stated in the applicable emission limiting standard rule, testing of emissions shall be conducted with the emission unit(s) operating at permitted capacity pursuant to Rule 62-297.310(2), F.A.C. [**Rules 62-204.800, 62-297.310, 62-297.400, 62-297.401, F.A.C.**]
- 5.2 Test Procedures shall meet all applicable requirements of the Florida Administrative Code Chapter 62-297. [**Rule 62-297.310, F.A.C.**]
- 5.3 Test Notification: The owner or operator shall notify the Permitting Authority in writing at least *(30) days* (initial) and *15 days* (annual) prior to each scheduled compliance test to allow witnessing. The notification shall include the compliance test date, place of such test, the expected test time, the facility contact person for the test, and the person or company conducting the test. The (30) or (15) day notification requirement may be waived at the discretion of the Department. Likewise, if circumstances prevent testing during the test window specified for the emission unit, the owner or operator may request an alternate test date before the expiration of this window. [**Rule 62-297.310 and 40 CFR 60.8, F.A.C.**]
- 5.4 Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in Rule 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C. or in a permit issued pursuant to those rules is being violated, it may require the owner or operator of the facility to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions units and to provide a report on the results of said tests to the Permitting Authority. [**Rule 62-297.310(7)(b), F.A.C.**]
- 5.5 Stack Testing Facilities: The owner or operator shall install stack testing facilities in accordance with **Rule 62-297.310(6), F.A.C.**.
- 5.6 Exceptions and Approval of Alternate Procedures and Requirements: An Alternate Sampling Procedure (ASP) may be requested from the Bureau of Air Monitoring and Mobile Sources of the Florida Department of Environmental Protection in accordance with the procedures specified in **Rule 62-297.620, F.A.C.**
- 5.7 Operating Rate During Testing: Unless otherwise stated in the applicable emission limiting standard rule, testing of emissions shall be conducted with the emissions unit operation at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impracticable to test at permitted capacity, an

## APPENDIX CSC

### EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

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emissions unit may be tested at less than the minimum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test load until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. [Rule 62-297.310(2) and (3), F.A.C.]

#### SUBSECTION 6.0 REPORTS AND RECORDS

- 6.1 Duration: All reports and records required by this permit shall be kept for at least (5) years from the date the information was recorded. [Rule 62-4.160(14)(b), F.A.C.]
- 6.2 Emission Compliance Stack Test Reports:
- (a) A *test report* indicating the results of the required compliance tests shall be filed with the Permitting Authority as soon as practical, but no later than 45 days after the last sampling run is completed. [Rule 62-297.310(8), F.A.C.]
  - b) The *test report* shall provide sufficient detail on the tested emission unit and the procedures used to allow the Department to determine if the test was properly conducted and if the test results were properly computed. At a minimum, the test report shall provide the applicable information listed in **Rule 62-297.310(8), F.A.C.**
- 6.3 Excess Emissions Report: If excess emissions occur, the owner or operator shall notify the Permitting Authority within (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the Department may request a written summary report of the incident. Pursuant to the New Source Performance Standards, excess emissions shall also be reported in accordance with 40 CFR 60.7, Subpart A. [Rules 62-4.130 and 62-210.700(6), F.A.C.]
- 6.4 Annual Operating Report for Air Pollutant Emitting Facility: Before March 1st of each year, the owner or operator shall submit to the Permitting Authority this required report [DEP Form No. 62-210.900(5)], which summarizes operations for the previous calendar year. [Rule 62-210.370(3), F.A.C.]

#### SUBSECTION 7.0 OTHER REQUIREMENTS

- 7.1 Waste Disposal: The owner or operator shall treat, store, and dispose of all liquid, solid, and hazardous wastes in accordance with all applicable Federal, State, and Local regulations. This air pollution permit does not preclude the permittee from securing any other types of required permits, licenses, or certifications.


# Memorandum

# Florida Department of Environmental Protection

---

TO: Clair Fancy

THRU: Al Linero

FROM: Syed Arif 

DATE: January 28, 1999

SUBJECT: Miami-Dade Water and Sewer Department / Central District  
Wastewater Treatment Plant / 0250476-002-AC (PSD-FL-240)

Attached is a revised Public Notice package for increasing the hours of operation of three existing 2.5 MW each diesel electric generators and four 1.2 MW each digester gas electric generators at the above referenced facility. The revision incorporates a slight increase in NO<sub>x</sub> emissions (5.3 to 7.6 lb/hr) from the four digester gas generators and a decrease in NO<sub>x</sub> emissions (375 to 267 TPY) from the three diesel generators.

The only pollutant that underwent PSD review was NO<sub>x</sub>. The diesel generator will be fired with No. 2 fuel oil with a sulfur content of 0.05 percent or less, by weight. The NO<sub>x</sub> controls will be timing retardation and turbocharger aftercoolers.

Additionally, the hourly and annual emissions of NO<sub>x</sub> for the four digester gas generators (1.2 MW ea.) will be reduced to a level more appropriate for clean burn engines.

I recommend your approval and signature.

SA

Attachments





SERVE • CONSERVE

February 12, 1999

**RECEIVED**

FEB 18 1999

BUREAU OF  
AIR REGULATION

CERTIFIED: Z 427 642 153  
RETURN RECEIPT

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

RE: Draft Air Construction Permit for Central District WWTP-  
Florida DEP File No. 0250476-002-AC, (PSD-FL-240)

Dear Mr. Arif:

Attached, please find a certified proof of publication of the "Public Notice of the Notice of Intent to Issue Air Construction Permit Modifications" for the cogenerators and standby generator sets at the Central District Wastewater Treatment Facility, as required by Section 403.815, Florida Statutes.

Should you have any questions, please call me at (305) 669-5749.

Sincerely,

Richard M. O'Rourke, P.E.  
Environmental Permits

ro  
Attachment

c: Isidore Goldman, FDEP Southeast District  
Patrick Wong, Miami-Dade County DERM  
David Lindberg, CH2M Hill, San Diego

EPA  
NPS  
File

**PUBLIC NOTICE OF INTENT TO ISSUE AIR  
CONSTRUCTION PERMIT MODIFICATIONS  
STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL  
PROTECTION  
DEP File No. 0250476-002-AC  
(PSD-FL-240)  
CENTRAL DISTRICT WASTEWATER  
TREATMENT PLANT DADE COUNTY**

**MIAMI DAILY BUSINESS REVIEW**

Published Daily except Saturday, Sunday and  
Legal Holidays  
Miami, Dade County, Florida.

STATE OF FLORIDA  
COUNTY OF DADE:

Before the undersigned authority personally appeared Octelma V. Ferbeyre, who on oath says that she is the Supervisor, Legal Notices of the Miami Daily Business Review /k/a Miami Review, a daily (except Saturday, Sunday and Legal Holidays) newspaper, published at Miami in Dade County, Florida; that the attached copy of advertisement, being a Legal Advertisement of Notice in the matter of  
**PUBLIC NOTICE OF INTENT TO ISSUE  
AIR CONSTRUCTION PERMIT MODIFICATIONS  
STATE OF FLORIDA DEP FILE NO.  
0250476-002-AC (PSD-FL-240)  
CENTRAL DISTRICT WASTEWATER  
TREATMENT PLANT DADE COUNTY**

in the .....XXXXX..... Court,  
was published in said newspaper in the issues of  
Feb 8, 1999

Affiant further says that the said Miami Daily Business Review is a newspaper published at Miami in said Dade County, Florida, and that the said newspaper has heretofore been continuously published in said Dade County, Florida, each day (except Saturday, Sunday and Legal Holidays) and has been entered as second class mail matter at the post office in Miami in said Dade County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that she has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

*Octelma V. Ferbeyre*

Sworn to and subscribed before me this  
February 9, 1999

8 day of ..... A.D. 19.....

*Octelma V. Ferbeyre*  
(SEAL)



Octelma V. Ferbeyre personally known to me

The Department of Environmental Protection (Department) gives notice of its intent to issue air construction permit modifications to Miami-Dade Water and Sewer Department for its facility located in Virginia Key, Miami, Dade County. A Best Available Control Technology (BACT) determination was required for this modification pursuant to Rule 62-212.400, F.A.C. and 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The applicant's name and address are: Miami-Dade Water and Sewer Department (WASD), 4200 Salzedo Street, Coral Gables, Florida 33146-0316.

This existing facility consists of two wastewater treatment trains. WASD plans to increase the hours of operation of the three existing diesel-fired 2.5 megawatt (MW) generators and four existing digester gas-fired 1.2 MW generators. The 2.5 MW diesel generators will burn No. 2 fuel oil with a sulfur content of 0.05 percent or less, by weight and the 1.2 MW generators will burn digester gases only. All diesel generators are allowed to operate continuously at reduced loads and the No. 2 fuel oil usage is limited to 1.8 million gallons per year. Additionally, the hourly and annual emissions of NO<sub>x</sub> for the four 1.2 MW each digester gas generator will be reduced to a level more appropriate for clean burn engines.

An air quality impact analysis was conducted. Emissions from the facility will not cause or contribute to a violation of any state or federal ambient air quality standards. The maximum predicted PSD NO<sub>2</sub> increment consumed by all sources, including this project, in the nearest Class I (Everglades National Park) and Class II areas will be as follows:

Averaging Time And Class	Allowable Increment (µg/m <sup>3</sup> )	Increment Consumed (µg/m <sup>3</sup> )	Percent Consumed
Annual - Class I	2.5	0.74	30
Annual - Class II	25	24.9	99

The Department will issue the final permit modifications with the attached conditions unless a response received in accordance with the following procedures results in a different decisions or significant change of terms or conditions.

The Department will accept written comments and requests for public meetings concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit Modifications." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit modifications and require, if applicable, another Public Notice.

The Department will issue these permit modifications with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

following services (for an extra fee):

1.  Addressee's Address
2.  Restricted Delivery

Consult postmaster for fee.

<p>3. Article Addressed to:</p> <p>Robert C. Ready PE Miami-Dade W &amp; S Dept. 4200 Salzedo St. Coral Gables, FL 33146-0316</p>	<p>4a. Article Number Z 333 612 500</p> <p>4b. Service Type</p> <p><input type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified  <input type="checkbox"/> Express Mail <input type="checkbox"/> Insured  <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> COD</p> <p>7. Date of Delivery 2-1-99</p>
<p>5. Received By: (Print Name) L. BAYFIELD</p>	<p>8. Addressee's Address (Only if requested and fee is paid)</p>
<p>6. Signature: (Addressee or Agent) X <i>L. Bayfield</i></p>	

Thank you for using Return Receipt Service.

PS Form 3811, December 1994

102595-97-B-0179 Domestic Return Receipt

Z 333 612 500

US Postal Service  
**Receipt for Certified Mail**  
No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent to	Robert Ready
Street & Number	Miami Dade
Post Office, State, & ZIP Code	Water & Sewer
Postage	Miami, \$ FI
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	Revised
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	0256476-002-AC 1-28-99 PSD-FI-240

PS Form 3800, April 1995

Florida Department of  
Environmental Protection

Memorandum

TO: Howard L. Rhodes  
THRU: Clair Fancy *CAF*  
Al Linero *alg 3/15*  
FROM: Syed Arif *Syed Arif*  
DATE: March 15, 1999  
SUBJECT: Miami-Dade Water & Sewer Department, 0250476-002-AC,  
PSD-FL-240

BAR

RECEIVED

MAR 17 1999

BUREAU OF  
AIR REGULATION

Attached for approval and signature is a construction permit number 0250476-002-AC, PSD-FL-240 for Miami-Dade Water & Sewer Department's Central District Wastewater Treatment Plant in Virginia Key, Dade County, Florida. The facility plans to increase the hours of operation of the three existing diesel-fired 2.5 megawatt (MW) and four existing digester gas fired 1.2 MW generators. A Technical Evaluation and Preliminary Determination was issued, and the facility was required to do a public notice.

The diesel-fired generators are a source of nitrogen oxide emissions which are controlled by timing retardation and aftercoolers. The hourly and annual emissions of NO<sub>x</sub> from the digester gas fired generators will be reduced to a level more appropriate for clean burn engines.

The project modification provides reasonable assurance that all the requirements of the permit and BACT determination will be complied with. I recommend your approval and signature.

**PERMITTEE:**

**Miami-Dade Water and Sewer Department**  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

*Authorized Representative:*

Robert C. Ready, P.E.  
Assistant Director of Treatment Facility

<b>FID No.</b>	0250476
<b>PSD No.</b>	PSD-FL-240
<b>SIC No.</b>	4952
<b>Project:</b>	Diesel Generators
<b>Permit No.</b>	0250476-002-AC
<b>Expires:</b>	December 31, 1999

**PROJECT AND LOCATION:**

Permit for increasing the hours of operation for the three 2.5 megawatt diesel electric generators and four 1.2 megawatt digester gas electric generators at the Central District Wastewater Treatment Plant, Virginia Key, Miami, Dade County. UTM coordinates are Zone 17; 585.2 km E; 2848.1 km N.

**STATEMENT OF BASIS:**

This construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and the Florida Administrative Code (F.A.C.) Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297. The above named permittee is authorized to modify the facility in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department of Environmental Protection (Department).

**Attached appendices are made a part of this permit:**

Appendix BD      BACT Determination  
Appendix GC      Construction Permit General Conditions  
Appendix CSC     Emission Unit(s) Common Specific Conditions

---

Howard L. Rhodes, Director  
Division of Air Resources  
Management

# AIR CONSTRUCTION PERMIT 0250476-002-AC AND PSD-FL-240

## SECTION I. FACILITY INFORMATION

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### SUBSECTION A. FACILITY DESCRIPTION

The Miami-Dade Water and Sewer Department (WASD) Central District Wastewater Treatment Plant presently consists of three nominal 2.5 Megawatt (MW) diesel ~~engine-driven~~ generators designated as Units 13 and 14 and 15, four nominal ~~1.5~~ 1.2 MW ~~diesel~~ digester gas engine-driven generators (Units 7, 9, 10 and 11), and one wastewater treatment plant (Unit 8). This permit is to increase the hours of operation for the ~~seven~~ three diesel and four digester gas generators (Units 7, 9, 10, 11, 13, 14 and 15) and to limit the potential-to-emit of units 7, 9, 10 and 11.

### SUBSECTION B. REGULATORY CLASSIFICATION

The Central District Wastewater Treatment is classified as a Major Source of Air Pollution or Title V Source because it emits or has the potential to emit at least 100 tons per year of nitrogen oxides (NO<sub>x</sub>) and carbon monoxide (CO). It is also a Major Facility with respect to preconstruction review because it emits or has the potential to emit at least 250 tons per year of NO<sub>x</sub>.

### SUBSECTION C. PERMIT SCHEDULE:

- 07-24-97: Date of Receipt of Application
- 10-21-98: Application deemed complete
- 12-xx-98: Intent issued

### SUBSECTION D. RELEVANT DOCUMENTS:

The documents listed form the basis of the permit. They are specifically related to this permitting action. These documents are on file with the Department.

- Application received 7-24-97
- Department's letters dated 8-21-97, 3-9-98, and 4-15-98
- Company letters dated 3-16-98, and 10-21-98
- Technical Evaluation and Preliminary Determination dated 12-xx-98
- Best Available Control Technology determination (issued concurrently with permit)

# AIR CONSTRUCTION PERMIT 0250476-002-AC AND PSD-FL-240

## SECTION II. EMISSION UNIT(S) GENERAL REQUIREMENTS

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### SUBSECTION A. ADMINISTRATIVE

- A.1 Regulating Agencies: All documents related to applications for permits to operate, reports, tests, minor modifications and notifications shall be submitted to the Department of Environmental Protection, Southeast District Office located at 400 North Congress Avenue, West Palm Beach, Florida 33401, and phone number (561) 681-6600. All applications for permits to construct or modify an emission unit(s) *subject to the Prevention of Significant Deterioration (PSD)* should be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (FDEP) located at 2600 Blairstone Road, Tallahassee, Florida 32399-2400 and phone number (850)488-0114.
- A.2 General Conditions: The owner and operator is subject to and shall operate under the attached General Permit Conditions G.1 through G.15 listed in *Appendix GC* of this permit. General Permit Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. **[Rule 62-4.160, F.A.C.]**
- A.3 Emission Unit(s) Common Specific Conditions: The owner and operator is subject to and shall operate under the attached Emission Unit(s) Common Specific Conditions listed in *Appendix CSC* of this permit. The Emission Unit(s) Common Specific Conditions are binding and enforceable pursuant to Chapters 62-204 through 62-297 of the Florida Administrative Code.
- A.4 Terminology: The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.
- A.5 Forms and Application Procedures: The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. **[Rule 62-210.900, F.A.C.]**
- A.6 Expiration: This air construction permit shall expire on **December 31, 1999**. **[Rule 62-210.300(1), F.A.C.]**. The permittee may, for good cause, request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit. However, the permittee shall promptly notify the permitting authority office of any delays in completion of the project which would affect the startup day by more than 90 days. **[Rule 62-4.090, F.A.C.]**
- A.7 Applicable Regulations: The facility is subject to the following regulations: Florida Administrative Code Chapters 62-4; 62-103; 62-204; 62-210; 62-212, 62-296, and 62-297. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements or regulations. **[Rule 62-210.300, F.A.C.]**

**AIR CONSTRUCTION PERMIT 0250476-002-AC AND PSD-FL-240**

**SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS**

---

**SUBSECTION A. LISTING OF EMISSIONS UNITS**

This permit addresses the following emission units.

<b>EMISSIONS UNIT NO.</b>	<b>SYSTEM</b>	<b>EMISSIONS UNITS DESCRIPTION</b>
007	Power	1.2 MW Digester Gas Electric Generator
009	Power	1.2 MW Digester Gas Electric Generator
010	Power	1.2 MW Digester Gas Electric Generator
011	Power	1.2 MW Digester Gas Electric Generator
013	Power	2.5 MW Diesel Electric Generator
014	Power	2.5 MW Diesel Electric Generator
015	Power	2.5 MW Diesel Electric Generator

**SUBSECTION B. SPECIFIC CONDITIONS (UNITS 013, 014 AND 015):**

The following Specific Conditions apply to the following emission unit:

<b>EMISSION UNIT NO.</b>	<b>SYSTEM</b>	<b>EMISSION UNIT DESCRIPTION</b>
013	Power	2.5 MW Diesel Electric Generator
014	Power	2.5 MW Diesel Electric Generator
015	Power	2.5 MW Diesel Electric Generator

**EMISSION LIMITATIONS**

- B.1 The maximum allowable emission rates for NO<sub>x</sub> for Units No. 013, 014 and 015 shall not exceed 58 pounds per hour (lb/hr) each and ~~375~~ **267** tons per year (TPY) combined pursuant to the Best Available Control Technology (BACT) Determination. **[Rule 62-212.400(6), F.A.C.]**
- B.2 Visible emissions shall be less than 20% opacity. **[Rule 62-296.320, F.A.C.]**
- B.3 In order to minimize excess emissions during startup/shutdown/malfunction this emission unit shall adhere to best operational practices. **[Rule 62-210.700, F.A.C.]**

**OPERATIONAL LIMITATIONS**

- B.4 The emission unit is allowed to operate continuously (8760 hours/year). **[Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit].**
- B.5 Only No. 2 fuel oil can be fired in the diesel generator. The maximum sulfur content of the No. 2 fuel oil shall not exceed 0.05 percent, by weight. **[Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit].**
- B.6 The combined maximum heat input rate to Units No. 013, 014 and 015 shall not exceed 81 million Btu per hour (MMBtu/hr) at 100 percent load. **[Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit].**



## AIR CONSTRUCTION PERMIT 0250476-002-AC AND PSD-FL-240

### SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

---

- B.7 The maximum No. 2 fuel oil consumption allowed to be burned in Units No. 013, 014 and 015 is ~~2,486,000~~ **1,800,000** gallons per year, which is equivalent to ~~4290~~ **3056** hours per year of operation at full load for each unit. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit]

#### TEST METHODS AND PROCEDURES

- B.8 Compliance with the allowable emission limiting standards for NO<sub>x</sub> in B.1 shall be determined by using EPA Reference Method 7 (or equivalent) as described in 40 CFR 60, Appendix A (1996, version) adopted by reference in Rule 62-204.800, F.A.C. [Rule 62-297.401, F.A.C.]
- B.9 The fuel shall be monitored for the sulfur content using ASTM D4294 Method (or equivalent), or by maintaining records of fuel sulfur content certifications, as provided by the fuel supplier. [Rule 62-297.440, F.A.C.]
- B.10 The permittee shall maintain daily records of fuel oil consumption for the emission unit. [Rule 62-210.200, F.A.C.]
- B.11 Compliance with the visible emission standard shall be demonstrated with EPA Reference Method 9 as described in 40 CFR 60, Appendix A (1996, version) adopted by reference in Rule 62-204.800, F.A.C. [Rule 62-297.401, F.A.C.]

#### RECORDKEEPING AND REPORTING REQUIREMENTS

- B.12 All measurements, records, and other data required to be maintained by this facility shall be retained for at least five (5) years following the data on which such measurements, records, or data are recorded. These data shall be made available to the Department upon request. [Rule 62-4.070(3), F.A.C.]
- B.13 Two copies of the results of the emission tests for the pollutant listed in Condition B.1 for Units No. 13, 14 and 15 shall be submitted within forty-five days of the last sampling run to the Southeast District office in West Palm Beach. All reports shall be in a format consistent with and shall include the information in accordance with Rule 62-297.310 (8), F.A.C. [Rule 62-297.310(8), F.A.C.]

# AIR CONSTRUCTION PERMIT 0250476-002-AC AND PSD-FL-240

## SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

### SUBSECTION C. SPECIFIC CONDITIONS (UNITS 007, 009, 010 AND 011)

The following Specific Conditions apply to the following emission units:

EMISSIONS UNIT NO.	SYSTEM	EMISSIONS UNITS DESCRIPTION
007	Power	1.2 MW Digester Gas Electric Generator
009	Power	1.2 MW Digester Gas Electric Generator
010	Power	1.2 MW Digester Gas Electric Generator
011	Power	1.2 MW Digester Gas Electric Generator

### EMISSION LIMITATIONS

- C.1 The maximum allowable emission rates for NO<sub>x</sub> for Units No. 007, 009, 010 and 011 shall not exceed ~~5.3~~ **7.6** pounds per hour (lb/hr) each and ~~93~~ **133** tons per year (TPY) combined. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit.]
- C.2 Visible emissions shall be less than 20% opacity. [Rule 62-296.320, F.A.C.]
- C.3 In order to minimize excess emissions during startup/shutdown/malfunction this emission unit shall adhere to best operational practices. [Rule 62-210.700, F.A.C.]

### OPERATIONAL LIMITATIONS

- C.4 The existing Units No. 007, 009, 010 and 011 are allowed to operate continuously (8760 hours per year). [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit ]
- C.5 Only digester gas can be fired in the diesel generators 007, 009, 010 and 011. The maximum annual usage rate of the digester gas shall be 656,000,000 cubic feet. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit]

### TEST METHODS AND COMPLIANCE PROCEDURES

- ~~C.6 The permittee shall maintain daily records of digester gas consumption for the emission units. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit.]~~
- C.7 Compliance with the allowable emission limiting standards for NO<sub>x</sub> in C.1 shall be determined by using EPA Reference Method 7 (or equivalent) as described in 40 CFR 60, Appendix A (1996, version) adopted by reference in Rule 62-204.800, F.A.C. [Rule 62-297.401, F.A.C.]
- C.8 Compliance with the visible emission standard shall be demonstrated with EPA Reference Method 9 as described in 40 CFR 60, Appendix A (1996, version) adopted by reference in 62-204.800, F.A.C. [Rule 62-297.310, F.A.C.]

**Mr. Syed Arif, P.E.**  
**FDEP**  
**New Source Review Section,**  
**Bureau of Air Regulation**  
**Twin Towers Office Building**  
**2600 Blair Stone Road, MS 5505**  
**Tallahassee, FL 32399-2400**

**Mr. Patrick Wong, P.E.**  
**D.E.R.M. Air Section**  
**33 SW 2 Avenue**  
**Miami, FL 33128**

**Mr. David Lindberg, P.E.**  
**CH2M Hill**  
**701 B Street, Suite 700**  
**San Diego, CA 92101**



Jeb Bush  
Governor

# Department of Environmental Protection

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

David B. Struhs  
Secretary

August 26, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert C. Ready, P.E.  
Interim Assistant Director  
Miami-Dade Water and Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146

Re: DEP File No. 0250476-002-AC/PSD-FL-240A  
Central District Wastewater Treatment Plant-Diesel Engines

Dear Mr. Ready:

The Department has reviewed your request of July 14, 1999, for changes to the subject permit. This request is acceptable to the Department. The amendment will clarify the specific conditions that are for informational purposes only, and for which compliance is not required. Construction permit No. 0250476-002-AC is hereby modified as follows:

1. The 1.2 MW Digester Gas Electric Generators found in Section III, Emissions Unit Description, Subsections A and C, should be referred to as "Co-generators".

2. Specific Condition B.6 will read as follows:

The combined maximum heat input rate to Units No. 013, 014 and 015 shall not exceed 81 million Btu per hour (MMBtu/hr) at 100 percent load. The heat input rate is included for informational purposes only. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit]

3. Specific Condition B.7 will read as follows:

The maximum No. 2 fuel oil consumption allowed to be burned in Units 013, 014 and 015 is 1,800,000 gallons per year, which is equivalent to 3056 hours per year of operation at full load for each unit. The equivalent hours of full load operation is included for informational purposes only. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit]

4. Specific Condition C.5 will read as follows:

Only digester gas can be fired in the ~~diesel generators~~ digester gas electric co-generators 007, 009, 010 and 011. The maximum annual usage rate of the digester gas shall be 656,000,000 cubic feet. The digester gas annual usage rate is included for informational purposes only. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit]

A person whose substantial interests are affected by the proposed decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee,

*"Protect, Conserve and Manage Florida's Environment and Natural Resources"*

Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that 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 such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above. Mediation is not available in this proceeding.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542 F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or

temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2) F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

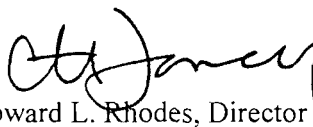
Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

This letter constitutes final agency action unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition which conforms to Rule 62-110.106, F.A.C. Upon timely filing of a petition or a request for an extension of time this Notice will not be effective until further Order of the Department.

If either a petition for administrative hearing or a request for extension of time is not timely filed with the Department, then this letter shall constitute final agency action. Any party to this order would then have the right to seek judicial review pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000; and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice of appeal must be filed within thirty days after this order is filed with the clerk of the Department.

A copy of this letter shall be filed with the referenced permit and shall become part of the permit.

Executed in Tallahassee, Florida.

  
for Howard L. Rhodes, Director  
Division of Air Resources  
Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this PERMIT MODIFICATION was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 8-30-99 to the person(s) listed:

Mr. Robert C. Ready, Miami-Dade Water & Sewer Department \*  
Mr. Isidore Goldman, SED  
Mr. Patrick Wong, DERM  
Mr. Gregg Worley, EPA  
Mr. John Bunyak, NPS

Clerk Stamp

**FILING AND ACKNOWLEDGMENT FILED,**  
on this date, pursuant to §120.52(7), Florida  
Statutes, with the designated Department Clerk,  
receipt of which is hereby acknowledged.

Kari Jober      8-30-99  
(Clerk)                      (Date)

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:  
 Robert C. Ready  
 Miami-Dade W450  
 4200 Salzedo St.  
 Coral Gables, FL  
 33146

4a. Article Number: 2 333 618 131

4b. Service Type:

- Registered  Certified
- Express Mail  Insured
- Return Receipt for Merchandise  COD

7. Date of Delivery: 9-1-99

5. Received By: (Print Name)

6. Signature: (Addressee or Agent)  
 X *Robert C. Ready*

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1994

102595-98-B-0229 Domestic Return Receipt

Thank you for using Return Receipt Service.

US Postal Service  
**Receipt for Certified Mail**  
 No Insurance Coverage Provided.  
 Do not use for International Mail (See reverse)

Sent to: *Robert Ready*

Street & Number: *Miami-Dade*

Post Office, State, ZIP Code: *Coral Gables FL*

Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
<b>TOTAL Postage &amp; Fees</b>	<b>\$</b>

Postmark or Date: *8-30-99*

*0350476-002-AC*

*000-FL-240A*

PS Form 3800 April 1995





SERVE • CONSERVE

July 14, 1999

CERTIFIED: Z 427612 025  
RETURN RECEIPT

**RECEIVED**  
JUL 19 1999  
BUREAU OF AIR REGULATION

Mr. Alvaro A. Linero, P.E.  
Administrator, New Source Review Section  
Florida Department of Environmental Protection  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

Subject: Administrative Permit Corrections, Title V Air Construction Permit Central District WWTP-Diesel Engines, Gas Engines (Permit No. 0250476-002-AC, PSD-FL-240)

Dear Mr. Linero:

The Miami-Dade Water and Sewer Department (MDWASD) received the final air construction permit and requests that the following administrative corrections be made to the subject permit in accordance with Rule 62-210.360(1)(f).

1. The 1.2 MW Digester Gas Electric Generators found in Section III, Subsections A and C, Emissions Unit Descriptions should be correctly referred to as "Co-generators". The collection and transfer of waste heat is a vital component of the overall process, in that the waste heat is utilized in the digesters, which in turn produce the digester (bio-gas) gas to fuel the engines.
2. Condition B.6 was included for informational purposes only and needs to be indicated as such, as there are no requirements found in the test methods and procedures section of the permit to address this.
3. The equivalent hours of full load operation found in condition B.7 was included for informational purposes only and it needs to be noted as such. There are no test methods and procedures found in the permit to address this and it appears to be in conflict with condition B.5 of the permit.
4. The first sentence found in condition C.5 states, "Only digester gas can be fired in the diesel generators 007, 009, 010 and 011." This should be corrected to read, "Only digester gas can be fired in the digester gas electric co-generators 007, 009, 010 and 011."
5. The last sentence found in condition C.5, referring to annual usage rate of digester gas is included for informational purposes only and needs to be indicated as such, with a notation of the assumed heating value of the gas used to make the usage determination. A requirement to maintain daily records of digester gas consumption was removed from the test methods and procedures in the initial draft permit, because the engines were to be permitted for continuous operation at full capacity. The additional notation regarding the heating value of the digester gas (or bio-gas) should be included as it was included in the permit application and was the basis for the annual consumption figure.

Mr. Alvaro A. Linero, P.E., July 14, 1999

Administrative Permit Corrections, Title V Air Construction Permit for Central District WWTP

Page 2

We request that you make the indicated corrections as soon as possible in accordance with Rule 62-210.360 F.A.C. If you have any questions regarding this request, please call Mr. Richard M. O'Rourke, P.E. at (305) 669-5749.

Sincerely,



Robert C. Ready, P.E.  
Interim Assistant Director  
Wastewater

RCR/BMG/rmo

Attachments

cc: Syed Arif, FDEP/TAL  
Isidore Goldman, FDEP/WPB  
Lennon Anderson, FDEP/WPB  
Patrick Wong, Miami-Dade County DERM  
David Lindberg, CH2M HILL

P. 265 659 242

US Postal Service  
**Receipt for Certified Mail**

No Insurance Coverage Provided.  
Do not use for International Mail (See reverse)

Sent to	
Robert Ready	
Street & Number	
Miami Dade Water	
Post Office, State, & ZIP Code	
Coral Gables - FL	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	7-22-97

PS Form 3800, April 1995

Fold at line over top of envelope to the right of the return address

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Robert C. Ready PE  
Assistant Director  
Miami-Dade Water  
Sewer Dept.  
4200 Salzedo St.  
Coral Gables, FL 33146-0316

4a. Article Number

P 265 659 242

4b. Service Type

- Registered  Certified  
 Express Mail  Insured  
 Return Receipt for Merchandise  COD

7. Date of Delivery

7 24 97

5. Received By: (Print Name)

L. Banfield

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)

X L. BANFIELD

Thank you for using Return Receipt Service.

UNITED STATES POSTAL SERVICE



First-Class Mail  
Postage & Fees Paid  
USPS  
Permit No. G-10

• Print your name, address, and ZIP Code in this box •

**RECEIVED**

Department of Environmental Protection  
Division of Air Resources Management  
Bureau of Air Regulation, NSRS  
2600 Blair Stone Road, MS 5505  
Tallahassee, Florida 32399-2400

JUL 28 1997  
BUREAU OF  
AIR REGULATION

32399/2400





# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

July 21, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert C. Ready, P.E.  
Assistant Director of Treatment Facility  
Miami-Dade Water & Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

Re: DRAFT Permit No. 0250476-002-AC, PSD-FL-240  
Central District Wastewater Treatment Plant

Dear Mr. Ready:

The Department has received your application for an air construction/operation permit for Three 3,600-horsepower (hp) Diesel Engine Driven Generator Sets for your Central District Wastewater Treatment Plant. The application was hand delivered to me on June 25, 1997, when I visited the facility. My Secretary contacted your office a few days later requesting additional copies in accordance with our Rule 62-4.050(2), F.A.C., so that Environmental Protection Agency (EPA), National Park Service (NPS), Dade County Department of Environmental Resources Management (DERM) and our Southeast District (SED) office can conduct a simultaneous review. Although we are continuing to review the application, it remains incomplete until we receive some additional technological information and the extra application copies.

We are in contact with CH2M-Hill on these matters. If you have any questions, please call Syed Arif at 904/488-1344.

Sincerely,

A. A. Linero, P.E.  
Administrator  
New Source Review Section

AAL/sa

cc: Mr. Brian Beals, EPA  
Mr. John Bunyak, NPS  
Mr. Isidore Goldman, SED  
Mr. Patrick Wong, DERM  
Mr. David Lindberg, P.E., CH2M-Hill

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

P 265 659 443

US Postal Service  
**Receipt for Certified Mail**

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent to: <i>Robert Ready</i>	
Street & Number: <i>Miami-Dade</i>	
Post Office, State, & ZIP Code: <i>Coral Gables, FL</i>	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date <i>8-22-97</i>	
<i>0250476002-AB</i>	
<i>PSD-FL-240</i>	

PS Form 3800, April 1995

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1.  Addressee's Address
2.  Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:  
*Robert C. Ready, P.E.*  
*Miami-Dade Water & Sewer*  
*4200 Salzedo St.*  
*Coral Gables, FL*  
*33146-0316*

4a. Article Number  
*P 265 659 443*

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

7. Date of Delivery  
*8 25 97*

5. Received By: (Print Name)  
*L. Bonfield*

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)  
*X L. B.*

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SEP 02 1997

BUREAU OF  
AIR REGULATION  
Department of Environmental Protection  
Division of Air Resources Management  
Bureau of Air Regulation, NSRS  
2600 Blair Stone Road, MS 5505  
Tallahassee, Florida 32399-2400





# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

August 21, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert C. Ready, P.E.  
Assistant Director of Treatment Facility  
Miami-Dade Water & Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

Re: DRAFT Permit No. 0250476-002-AC, PSD-FL-240  
Central District Wastewater Treatment Plant

Dear Mr. Ready:

The Department has received your updated application for an air construction/operation permit for Three 3,600-horsepower (hp) Diesel Engine Driven Generator Sets for your Central District Wastewater Treatment Plant. The application was received on July 24, 1997. We need the additional information listed below in order to continue processing this request.

1. Please provide a detailed cost analysis in \$/ton removed based on the vendor information for the chosen control technology (Fuel Injection Timing Retard/Combustion Air Precooling) for NO<sub>x</sub> as well as the technology that is economically and technically infeasible (SCR) for this project.
2. Please provide the heat input rate (MMBtu/hr) for each diesel generator and indicate the method of compliance for that heat input rate.
3. Please verify that the g/bhp-hr factor used for the chosen control technology at 100% load is 7.34 for NO<sub>x</sub>. Provide the factor as well as emission rates for NO<sub>x</sub> if SCR is selected as the control technology.
4. Please indicate if the three diesel generators will be able to comply with the requirements of Chapter 62-297.310(6), F.A.C. If not, how will testing be conducted to show compliance with the NO<sub>x</sub> emission limit.
5. The air quality impact analysis did not address the impacts of downwash on the four cogeneration engines or the three diesel blower engines. The impacts of downwash need to be considered for all sources at your facility in order to determine whether any ambient air quality standards or PSD increments are predicted to be exceeded. Please do the modeling with downwash included for these sources and submit these results to the Department.

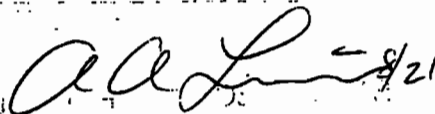
*"Protect, Conserve and Manage Florida's Environment and Natural Resources"*



11/01/17

If you have any questions, please call Syed Arif (engineer) or Cleve Holladay (meteorologist) at 904/488-1344.

Sincerely,



A. A. Linero, P.E.  
Administrator  
New Source Review Section

7-800-1-0000

AAI/sa

- cc: Mr. Brian Beals, EPA
- Mr. John Bunyak, NPS
- Mr. Isidore Goldman, SED
- Mr. Patrick Wong, DERM
- Mr. David Lindberg, P.E., CH2M-Hill

0870004-002-AC



# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

March 9, 1998

## CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert C. Ready, P.E.  
Assistant Director of Treatment Facilities  
Miami-Dade Water & Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

Re: DEP File No. 0250476-002-AC, PSD-FL-240  
PSD Permit for CDWWTP Diesel Generators

Dear Mr. Ready:

The Department sent your office a letter on August 21, 1997 requesting additional information to complete the application for an air construction/operation permit for three 3,600-horsepower (hp) diesel electrical generators for your Central District Wastewater Treatment Plant. We have not received a reply to-date. The generators were constructed some years ago and apparently operated in excess of the hours or emissions triggering the permit requirements for the Prevention of Significant Deterioration of Air Quality (PSD) under Department and Federal regulations.

Please provide the additional information required to complete the application. Otherwise we will initiate procedures leading to the denial of the application. As you are aware, there may be several other diesel engine-driven electric generators at various other installations which may also require additional permitting for the same reasons. We urge you to complete the present application and submit any others required to insure that all comply with the PSD regulations.

If you have any questions regarding this matter, please call Mr. Syed Arif, P.E., at 850/921-8968.

Sincerely,

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

CHF/t.

cc: Carlos Rivero de Aguilar, SED  
John Renfrow, DERM  
Isadore Goldman, SED  
Tom Tittle, SED

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

P 265 659 305

US Postal Service  
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PS Form 3800, April 1995

Sent to <i>Robert Ready</i>	
Street & Number <i>Miami-Dade</i>	
Post Office, State, & ZIP Code <i>Water &amp; Sewer</i>	
Postage <i>Coral Gables, FL</i>	
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$ <i>0</i>
Postmark or Date <i>3-10-98</i>	
<i>0250476-002-AC</i>	
<i>P50-FL-240</i>	

Fold at line over top of envelope to

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1.  Addressee's Address
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3. Article Addressed to:  
*Robert C Ready, PE*  
*Assistant Director of Treatment*  
*Facilities*  
*Miami-Dade Water & Sewer*  
*4200 Salzedo Street*  
*Coral Gables, FL*  
*33146-0316*

4a. Article Number  
*P 265 659 305*

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

7. Date of Delivery  
*3 12 98*

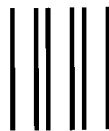
5. Received By: (Print Name)  
*L. Banfield*

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)  
 *L. BANFIELD*

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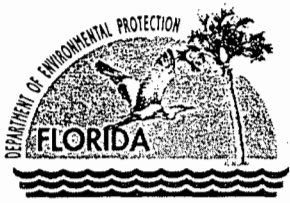
• Print your name, address, and ZIP Code in this box •

Department of Environmental Protection  
Division of Air Resources Management  
Bureau of Air Regulation, NSRS  
2600 Blair Stone Road, MS 5505  
Tallahassee, Florida 32399-2400

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**MAR 16 1998**

**BUREAU OF  
AIR REGULATION**



# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

March 17, 1998

## CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert Ready, P.E.  
Assistant Director of Treatment Facilities  
Miami-Dade Water & Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146

Dear Mr. Ready:

RE: Revised Application - Central District Wastewater Treatment Plant

The Bureau of Air Regulation received your March 10 letter concerning the above referenced facility. The Department is returning your check number 134046 for \$4,500, which was submitted with your request. There is no additional fee required for this revision of a pending application pursuant to our incompleteness letter dated August 21, 1997.

If you have any questions, please call Syed Arif at (850)488-1344.

Sincerely,

A. A. Linero, P.E.  
Administrator  
New Source Review Section

AAL/kt

cc: S. Arif, BAR

P 265 659 315

US Postal Service  
**Receipt for Certified Mail**

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PS Form 3800, April 1995

Sent to	Robert Readey
Street & Number	Miami-Dade
Post Office, State, & ZIP Code	Water & Sewer
Postage	Coral Gables, FL
Certified Fee	
Special Delivery Fee	
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Return Receipt Showing to Whom, Date, & Addressee's Address	
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3. Article Addressed to:  
 Mr. Robert Readey, P.E.  
 Assistant Director of Treat. Fac.  
 Miami-Dade Water & Sewer Dept.  
 4200 Salzedo St.  
 Coral Gables, FL  
 33146

4a. Article Number  
 P265 659 315

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

7. Date of Delivery  
 3/19/98

5 Received By (Print Name)  
 L. BANFIELD

8 Addressee's Address (Only if requested and fee is paid)

6 Signature (Addressee or Agent)

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Department of Environmental Protection  
Division of Air Resources Management  
Bureau of Air Regulation, NSRS  
2600 Blair Stone Road, MS 5505  
Tallahassee, Florida 32399-2400

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MAR 23 1998

BUREAU OF  
AIR REGULATION





# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

April 15, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert C. Ready, P.E.  
Assistant Director of Treatment Facility  
Miami-Dade Water & Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

Re: DRAFT Permit No. 0250476-002-AC, PSD-FL-240  
Central District Wastewater Treatment Plant

Dear Mr. Ready:

The Department has received your response to our August 21, 1997 incompleteness letter regarding air construction/operation permit for Three 3,600-horsepower (hp) Diesel Engine Driven Generator Sets. The response also includes a request for modification to your construction permit (AC13-81285) for Four Superior 16GTLB engines at your Central District Wastewater Treatment Plant. The updated application was received on March 16, 1998. The Department will combine the two projects under the same PSD permit and has therefore returned the fee of \$4,500 that was included with the updated application. We will also coordinate with the District Office in issuing the PSD and the Title V operating permit simultaneously. In order to expedite the application, we need the additional information listed below:

1. The response for the cost analysis for SCR technology for the Three 3,600 hp diesel engines includes cost of three SCR's. Please provide the cost analysis in \$/ton removed if the three stacks are combined and a single SCR system is employed to reduce the NO<sub>x</sub> emissions to 12.1 lb/hr and 78.1 tons/yr.
2. Table 3-1 of the updated application lists a different emission value for CO at 25% load compared to the original application. Please explain the discrepancy.
3. Please provide past actual emissions for criteria pollutants for the four Superior 16GTLB engines. Also, indicate the future potential emissions for the criteria pollutants for these units. What is the operating hour restrictions on these engines based on the current permit. Rule 62-212.300(3)(a)1 and 2 of the General Preconstruction Review mandates submittal of this information.

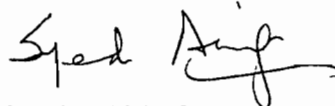
*"Protect, Conserve and Manage Florida's Environment and Natural Resources"*



4. Please indicate if any physical modifications will be done to the four Superior 16GTLB engines. If so, provide in detail what those modifications will be.
5. In your air quality impact analysis section there was no table summarizing the cumulative PSD increment impact from all sources in the area on the PSD Class I Everglades National Park. You provided modeling results which show that you did a cumulative increment impact analysis and that these values are less than the PSD Class I  $\text{NO}_x$  increment of  $2.5 \text{ ug/m}^3$ . Please submit this summary table in order to complete the air quality impact analysis.

If you have any questions, please call me or Cleve Holladay (meteorologist) at 850/488-1344.

Sincerely,



Syed Arif, P.E.  
New Source Review Section

SA/a

cc: Mr. Brian Beals, EPA  
Mr. John Bunyak, NPS  
Mr. Isidore Goldman, SED  
Mr. Patrick Wong, DERM  
Mr. David Lindberg, P.E., CH2M-Hill

P 265 659 335

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Street & Number	Miami Dade
Post Office, State, & ZIP Code	Water & Sew Dept. Coral Gables, FL
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Restricted Delivery Fee	
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Return Receipt Showing to Whom, Date, & Addressee's Address	
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Postmark or Date	4-15-98 0250476-002-AC PSD-FL-240

PS Form 3800, April 1995

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Robert C. Ready, PE.  
Miami Dade Water &  
Sewer Dept.  
4200 Salzedo St.  
Coral Gables, FL  
33146-0316

4a. Article Number  
P 265 659 335

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

7. Date of Delivery  
4 17 98

5. Received By: (Print Name)  
L. Bayard

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)  
X [Signature]

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**BUREAU OF  
AIR REGULATION**

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Department of Environmental Protection  
Division of Air Resources Management  
Bureau of Air Regulation, NSRS  
2600 Blair Stone Road, MS 5505  
Tallahassee, Florida 32399-2400





# Department of Environmental Protection

Lawton Chiles  
Governor

September 22, 1998

Virginia B. Wetherell  
Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert C. Ready, P.E.  
Assistant Director of Treatment Facility  
Miami-Dade Water & Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

Re: Central District Wastewater Treatment Plant  
DEP File 0250476-002-AC (PSD-FL-240)

Dear Mr. Ready:

On April 15, 1998 the Department requested submittal of additional information to process the referenced application request. To-date we have not received additional information. Please note that per Rule 62-~~5~~055(1): <sup>4</sup>

*"The applicant shall have ninety days after the Department mails a timely request for additional information to submit that information to the Department. If an applicant requires more than ninety days in which to respond to a request for additional information, the applicant may notify the Department in writing of the circumstances, at which time the application shall be held in active status for one additional period of up to ninety days. Additional extensions shall be granted for good cause shown by the applicant. A showing that the applicant is making a diligent effort to obtain the requested information shall constitute good cause. Failure of an applicant to provide the timely requested information by the applicable date shall result in denial of the application."*

Over ninety days have transpired since our request for additional information. Because the rule provision was not in-effect when we requested the additional information, it will not be used at this time to deny the permit request. The nature of the information is such that a diligent effort would have yielded it by now and would certainly yield it in the next thirty days. Therefore, we are providing Miami-Dade Water & Sewer Department a period of an additional 30 days from the day this letter is received to provide the requested information or show good cause that an extension is required.

If you have any questions regarding this matter, please call Syed Arif at 850/921-9528.

Sincerely,

A. A. Linero, P.E. Administrator  
New Source Review Section

AAL/sa

cc: Mr. Isidore Goldman, DEP/SED  
Mr. Patrick Wong, DERM  
Mr. David Lindberg, P.E., CH2M-Hill

Z 333 612 515

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Sent to <i>Robert Reedy</i>	
Street & Number <i>Miami Dade Water + Sewer</i>	
Post Office, State, & ZIP Code <i>Coral Gables</i>	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date <i>Z 333 612 515</i>	

PS Form 3800, April 1995

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3. Article Addressed to:  
*Mr. Robert C. Reedy P. E.*  
*asst. Director of Treatment*  
*Facility*  
*Miami-Dade Water + Sewer Dept.*  
*4300 Sabelo St.*  
*Coral Gables, FL 33146*

4a. Article Number  
*Z 333 612 515*

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

7. Date of Delivery  
*9 24 98*

5. Received By: (Print Name)  
*L. BANFIELD*

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)  
*X* *L. Banfield*

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**BUREAU OF  
AIR REGULATION**

Department of Environmental Protection  
Division of Air Resources Management  
Bureau of Air Regulation, NSRS  
2600 Blair Stone Road, MS 5505  
Tallahassee, Florida 32399-2400



Lawton Chiles  
Governor

# Department of Environmental Protection

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

Virginia B. Wetherell  
Secretary

December 31, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert C. Ready, P.E.  
Assistant Director of Treatment Facility  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

Re: DRAFT Permit No. 0250476-002-AC (PSD-FL-240)  
Central District Wastewater Treatment Plant


Dear Mr. Ready:

Enclosed is one copy of the Draft Air Construction Permit Modifications for the Central District Wastewater Treatment Plant's Diesel Generators located at Virginia Key, Miami, Dade County. The Technical Evaluation and Preliminary Determination, Best Available Control Technology, the Department's Intent to Issue Air Construction Permit Modifications and the "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATIONS" are also included.

The "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATIONS" must be published within 30 (thirty) days of receipt of this letter. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within 7 (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.

Please submit any written comments you wish to have considered concerning the Department's proposed action to Mr. Syed Arif, P.E. of the New Source Review Section at the above letterhead address. If you have any other questions, please contact Mr. Arif at 850/921-9528.

Sincerely,

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

CHF/sa

Enclosures

In the Matter of an  
Application for Permit Modifications by:

Miami-Dade Water and Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

DEP File No. 0250476-002-AC  
Draft Permit No. PSD-FL-240  
Central District Wastewater Treatment Plant  
Dade County

### INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATIONS

The Department of Environmental Protection (Department) gives notice of its intent to issue air construction permit modifications (copy of draft air construction permit modifications attached) for the proposed action, as detailed in the application specified above, for the reasons stated below.

The applicant, Miami-Dade Water and Sewer Department, applied on July 24, 1997, to the Department for air construction permit modifications to increase the hours of operation of its three existing diesel generators and four existing digester gas generators located in Miami, Dade County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above action is not exempt from permitting procedures. The Department has determined that a review for the Prevention of Significant Deterioration (PSD), a determination of Best Available Control Technology (BACT) and an air construction permit modifications are required to increase the hours of operation for the diesel generators.

The Department intends to issue these air construction permit modifications based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed "Public Notice of Intent to Issue Air Construction Permit Modifications." The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. For the purpose of these rules, "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. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/922-6979). You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

The Department will issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of thirty days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit Modifications." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.



Z 333 612 580

US Postal Service

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Sent to <b>Robert Ready</b>	
Street & Number <b>Miami Dade</b>	
Post Office, State, & ZIP Code <b>Coral Gables, FL</b>	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
<b>TOTAL Postage &amp; Fees</b>	<b>\$</b>
Postmark or Date	<b>12-31-96</b>
<b>0250476-002-AC</b>	
<b>PSD-FL-240</b>	

PS Form 3800, April 1995

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- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

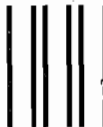
- 1.  Addressee's Address
- 2.  Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to: <b>Robert C. Ready</b> <b>Miami Dade W45 Dept.</b> <b>4200 Salzedo Street</b> <b>Coral Gables, FL</b>  <b>33146-0316</b>	4a. Article Number <b>Z 333 612 580</b>
5. Received By: (Print Name)	4b. Service Type <input type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified <input type="checkbox"/> Express Mail <input type="checkbox"/> Insured <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> COD
6. Signature: (Addressee or Agent) <b>X [Signature]</b>	7. Date of Delivery <b>1-2-97</b>
	8. Addressee's Address (Only if requested and fee is paid)

Thank you for using Postal Service.

UNITED STATES POSTAL SERVICE



First-Class Mail  
Postage & Fees Paid  
USPS  
Permit No. G-10

• Print your name, address, and ZIP Code in this box •

Department of Environmental Protection  
Division of Air Resources Management  
Bureau of Air Regulation, NSRS  
2600 Blair Stone Road, MS 5505  
Tallahassee, Florida 32399-2400

**RECEIVED**

JAN 07 1999

BUREAU OF  
AIR REGULATION



# Department of Environmental Protection

Jeb Bush  
Governor

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

David B. Struhs  
Secretary

January 28, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert C. Ready, P.E.  
Assistant Director of Treatment Facilities  
Miami-Dade Water and Sewer Department (WASD)  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

Re: DRAFT Permit No. 0250476-002-AC (PSD-FL-240)  
Central District Wastewater Treatment Plant

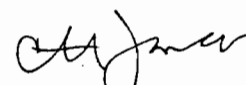
Dear Mr. Ready:

Enclosed is one copy of the revised Draft Air Construction Permit Modification for the Central District Wastewater Treatment Plant's Diesel Generators located at Virginia Key, Miami, Dade County. The Technical Evaluation and Preliminary Determination, Best Available Control Technology, the Department's Intent to Issue Air Construction Permit Modifications and the "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATIONS" are also included.

The "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATIONS" must be published as soon as possible in a newspaper of general circulation in the area affected. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within 7 (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.

Please replace the previously issued Draft Air Construction Permit Modification dated December 31, 1998 with this copy. Because the previously distributed notice was not published and the package was revised based on new information from WASD, we are maintaining the December 31 date as the date on which the Department issued its Intent. Since that time, the permitting clock has been tolled and will remain stopped until 14 days after we receive the proof of publication described above. Please submit any written comments you wish to have considered concerning the Department's proposed action to Mr. Syed Arif, P.E., of the New Source Review Section at the above letterhead address. If you have any other questions, please contact Mr. Arif at 850/921-9528.

Sincerely,

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

CHF/sa

Enclosures

In the Matter of an  
Application for Permit Modifications by:

Miami-Dade Water and Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

DEP File No. 0250476-002-AC  
Draft Permit No. PSD-FL-240  
Central District Wastewater Treatment Plant  
Dade County

### INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATIONS

The Department of Environmental Protection (Department) gives notice of its intent to issue air construction permit modifications (copy of draft air construction permit modifications attached) for the proposed action, as detailed in the application specified above, for the reasons stated below.

The applicant, Miami-Dade Water and Sewer Department, applied on July 24, 1997, to the Department for air construction permit modifications to increase the hours of operation of its three existing diesel generators and four existing digester gas generators located in Miami, Dade County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above action is not exempt from permitting procedures. The Department has determined that a review for the Prevention of Significant Deterioration (PSD), a determination of Best Available Control Technology (BACT) and an air construction permit modifications are required to increase the hours of operation for the diesel generators.

The Department intends to issue these air construction permit modifications based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed "Public Notice of Intent to Issue Air Construction Permit Modifications." The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. For the purpose of these rules, "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. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/922-6979). You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

The Department will issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of thirty days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit Modifications." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

Z 333 612 500

US Postal Service

**Receipt for Certified Mail**

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent to	Robert Ready
Street & Number	Miami Dade
Post Office, State, & ZIP Code	Water & Sewer
Postage	Miami \$ FI
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	Revised
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	0250476-002-AC 1-28-99 PSD-FI-240

PS Form 3800, April 1995

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1.  Addressee's Address
2.  Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:  
Robert C. Ready, PE  
Miami-Dade W & S Dept.  
4200 Salzedo St.  
Coral Gables, FL  
33146-0316

4a. Article Number  
Z 333 612 500

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

7. Date of Delivery  
2-1-99

5. Received By: (Print Name)  
L. BANFIELD

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)  
X L. Banfield

Thank you for using Return Receipt Service.

UNITED STATES POSTAL SERVICE



**RECEIVED**  
First Class Mail  
Postage & Fees Paid  
USPS  
Permit No. 4-10

FFB 04

1999

• Print your name, address, and ZIP Code in this box

**BUREAU OF  
AIR REGULATION**

Department of Environmental Protection  
Division of Air Resources Management  
Bureau of Air Regulation, NSRS  
2600 Blair Stone Road, MS 5505  
Tallahassee, Florida 32399-2400

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
NOTICE OF FINAL PERMIT

In the Matter of an  
Application for Permit

Mr. Robert C. Ready, P.E.  
Miami-Dade Water & Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146-0316

DEP File No. 0250476-002-AC  
PSD-FL-240

Enclosed is the FINAL Permit Number PSD-FL-240 for increasing the hours of operation for the three 2.5 megawatt diesel electric generators and four 1.2 megawatt digester gas electric generators at the Central District Wastewater Treatment Plant, Dade County. This permit is issued pursuant to Chapter 403, Florida Statutes and in accordance with Rule 62-212.400., F.A.C. - Prevention of Significant Deterioration(PSD).

Any party to this order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, F.S., by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Legal Office; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 (thirty) days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF FINAL PERMIT (including the FINAL permit) was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 3-17-99 to the person(s) listed:

Mr. Robert C. Ready, Miami-Dade Water & Sewer Department \*  
Mr. Gregg Worley, EPA  
Mr. John Bunyak, NPS  
Mr. Isidore Goldman, SED  
Mr. Patrick Wong, DERM

Clerk Stamp

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

Kuni Jober 3-17-99  
(Clerk) (Date)

## **FINAL DETERMINATION**

### **Miami-Dade Water and Sewer Department**

**Permit No. 0250476-002-AC, PSD-FL-240**

### **Central District Wastewater Treatment Plant**

An Intent to Issue an air construction permit to Miami-Dade Water and Sewer Department to increase the hours of operation of its three existing diesel generators and four existing digester gas generators at Central District Wastewater Treatment Plant in Dade County, was distributed on January 28, 1999. The Notice of Intent was published in the Miami Daily Business Review on February 8, 1999. Copies of the draft construction permit were available for public inspection at the Department's offices in West Palm Beach and Tallahassee and the Air Program Office of the Miami-Dade Department of Environmental Resources Management.

No comments were submitted by the National Park Service, the U.S. Environmental Protection Agency or the public.

The final action of the Department is to issue the permit as proposed.



Z 333 618 084

US Postal Service

**Receipt for Certified Mail**

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent to Robert Ready	
Street & Number MD W + 50	
Post Office, State, & ZIP Code Coral Gables, FL	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	3-17-99
0250476-002-AC PSO-FL-240	

PS Form 3800, April 1995

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1.  Addressee's Address
2.  Restricted Delivery

Consult postmaster for fee.

## 3. Article Addressed to:

Robert C. Ready, PE  
Miami - Dade Water 4 50  
4700 Salzedo St.  
Coral Gables, FL

3346-0316

## 4a. Article Number

Z 333 618 084

## 4b. Service Type

- |   |   |
|---|---|
| <input type="checkbox"/> Registered                     | <input checked="" type="checkbox"/> Certified |
| <input type="checkbox"/> Express Mail                   | <input type="checkbox"/> Insured              |
| <input type="checkbox"/> Return Receipt for Merchandise | <input type="checkbox"/> COD                  |

## 7. Date of Delivery

3/22

## 5. Received By: (Print Name)

L - BANFIELD

## 6. Signature: (Addressee or Agent)

X L - Banfield

## 8. Addressee's Address (Only if requested and fee is paid)

Thank you for using Return Receipt Service.

UNITED STATES POSTAL SERVICE



First-Class Mail  
Postage & Fees Paid  
USPS  
Permit No. G-10

• Print your name, address, and ZIP Code in this box •

Department of Environmental Protection  
Division of Air Resources Management  
Bureau of Air Regulation, NSRS  
2600 Blair Stone Road, MS 5505  
Tallahassee, Florida 32399-2400

**RECEIVED**

**MAR 26 1999**

**BUREAU OF  
AIR REGULATION**



Jeb Bush  
Governor

# Department of Environmental Protection

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

David B. Struhs  
Secretary

August 26, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert C. Ready, P.E.  
Interim Assistant Director  
Miami-Dade Water and Sewer Department  
4200 Salzedo Street  
Coral Gables, Florida 33146

Re: DEP File No. 0250476-002-AC/PSD-FL-240A  
Central District Wastewater Treatment Plant-Diesel Engines

Dear Mr. Ready:

The Department has reviewed your request of July 14, 1999, for changes to the subject permit. This request is acceptable to the Department. The amendment will clarify the specific conditions that are for informational purposes only, and for which compliance is not required. Construction permit No. 0250476-002-AC is hereby modified as follows:

1. The 1.2 MW Digester Gas Electric Generators found in Section III, Emissions Unit Description, Subsections A and C, should be referred to as "Co-generators".
2. Specific Condition B.6 will read as follows:

The combined maximum heat input rate to Units No. 013,014 and 015 shall not exceed 81 million Btu per hour (MMBtu/hr) at 100 percent load. The heat input rate is included for informational purposes only. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit]

3. Specific Condition B.7 will read as follows:

The maximum No. 2 fuel oil consumption allowed to be burned in Units 013, 014 and 015 is 1,800,000 gallons per year, which is equivalent to 3056 hours per year of operation at full load for each unit. The equivalent hours of full load operation is included for informational purposes only. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit]

4. Specific Condition C.5 will read as follows:

Only digester gas can be fired in the ~~diesel generators~~ digester gas electric co-generators 007, 009, 010 and 011. The maximum annual usage rate of the digester gas shall be 656,000,000 cubic feet. The digester gas annual usage rate is included for informational purposes only. [Rule 62-210.200, F.A.C., Definitions: Potential-to-Emit]

A person whose substantial interests are affected by the proposed decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee,

*"Protect, Conserve and Manage Florida's Environment and Natural Resources"*

Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that 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 such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above. Mediation is not available in this proceeding.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542 F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or

Z 333 618 131

US Postal Service

**Receipt for Certified Mail**

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent to <i>Robert Ready</i>	
Street & Number <i>Miami-Dade</i>	
Post Office, State, ZIP Code <i>Coral Gables FL</i>	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date <i>8-30-99</i>	
<i>0250476-002-AC</i>	
<i>DSD-FI-240A</i>	

PS Form 3800, April 1995

Is your RETURN ADDRESS completed on the reverse side?

**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- 1.  Addressee's Address
- 2.  Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

*Robert C. Ready*  
*Miami-Dade W45D*  
*4200 Selzedo St.*  
*Coral Gables, FL*

*33146*

4a. Article Number

*Z 333 618 131*

4b. Service Type

- Registered  Certified
- Express Mail  Insured
- Return Receipt for Merchandise  COD

7. Date of Delivery

*9-1-99*

5. Received By: (Print Name)

6. Signature: (Addressee or Agent)

*X [Signature]*

8. Addressee's Address (Only if requested and fee is paid)

Thank you for using Return Receipt Service.

UNITED STATES POSTAL SERVICE



First-Class Mail  
Postage & Fees Paid  
USPS  
Permit No. G-10

RECEIVED

SEP 07 1999

BUREAU OF AIR REGULATION

• Put your name, address, and ZIP Code in this box •

Department of Environmental Protection  
Division of Air Resources Management  
Bureau of Air Regulation, NSRS  
2600 Blair Stone Road, MS 5505  
Tallahassee, Florida 32399-2400

**PUBLIC NOTICE OF INTENT TO ISSUE AIR  
CONSTRUCTION PERMIT MODIFICATIONS  
STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL  
PROTECTION  
DEP File No. 0250476-002-AC  
(PSD-FL-240)  
CENTRAL DISTRICT WASTEWATER  
TREATMENT PLANT DADE COUNTY**

The Department of Environmental Protection (Department) gives notice of its intent to issue air construction permit modifications to Miami-Dade Water and Sewer Department for its facility located in Virginia Key, Miami, Dade County. A Best Available Control Technology (BACT) determination was required for this modification pursuant to Rule 62-212.400, F.A.C. and 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The applicant's name and address are: Miami-Dade Water and Sewer Department (WASD), 4200 Salzedo Street, Coral Gables, Florida 33146-0316.

This existing facility consists of two wastewater treatment trains. WASD plans to increase the hours of operation of the three existing diesel-fired 2.5 megawatt (MW) generators and four existing digester gas-fired 1.2 MW generators. The 2.5 MW diesel generators will burn No. 2 fuel oil with a sulfur content of 0.05 percent or less, by weight and the 1.2 MW generators will burn digester gases only. All diesel generators are allowed to operate continuously at reduced loads and the No. 2 fuel oil usage is limited to 1.8 million gallons per year. Additionally, the hourly and annual emissions of NO<sub>x</sub> for the four 1.2 MW each digester gas generator will be reduced to a level more appropriate for clean burn engines.

An air quality impact analysis was conducted. Emissions from the facility will not cause or contribute to a violation of any state or federal ambient air quality standards. The maximum predicted PSD NO<sub>2</sub> increment consumed by all sources, including this project, in the nearest Class I (Everglades National Park) and Class II areas will be as follows:

Averaging Time And Class	Allowable Increment (µg/m <sup>3</sup> )	Increment Consumed (µg/m <sup>3</sup> )	Percent Consumed
Annual - Class I	2.5	0.74	30
Annual - Class II	25	24.9	99

The Department will issue the final permit modifications with the attached conditions unless a response received in accordance with the following procedures results in a different decisions or significant change of terms or conditions.

The Department will accept written comments and requests for public meetings concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit Modifications." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit modifications and require, if applicable, another Public Notice.

The Department will issue these permit modifications with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

**MIAMI DAILY BUSINESS REVIEW**

Published Daily except Saturday, Sunday and  
Legal Holidays  
Miami, Dade County, Florida.

STATE OF FLORIDA  
COUNTY OF DADE:

Before the undersigned authority personally appeared Octelma V. Ferbeyre, who on oath says that she is the Supervisor, Legal Notices of the Miami Daily Business Review f/k/a Miami Review, a daily (except Saturday, Sunday and Legal Holidays) newspaper, published at Miami in Dade County, Florida; that the attached copy of advertisement, being a Legal Advertisement of Notice in the matter of

**PUBLIC NOTICE OF INTENT TO ISSUE  
AIR CONSTRUCTION PERMIT MODIFICATIONS  
STATE OF FLORIDA DEP FILE NO.  
0250476-002-AC (PSD-FL-240)  
CENTRAL DISTRICT WASTEWATER  
TREATMENT PLANT DADE COUNTY**

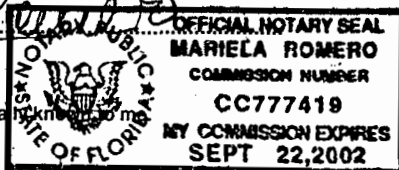
in the XXXXXX Court,  
was published in said newspaper in the issues of  
Feb 8, 1999

Affiant further says that the said Miami Daily Business Review is a newspaper published at Miami in said Dade County, Florida, and that the said newspaper has heretofore been continuously published in said Dade County, Florida, each day (except Saturday, Sunday and Legal Holidays) and has been entered as second class mail matter at the post office in Miami in said Dade County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that she has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

*Octelma V. Ferbeyre*  
Sworn to and subscribed before me this  
February 9, 1999

8 day of February, A.D. 1999

*Mariela Romero*  
(SEAL)



Octelma V. Ferbeyre personally known to me

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; and (f) A demand for relief.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that 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 such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file 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:

Dept. of Environmental Protection Bureau of Air Regulation 111 S. Magnolia Drive, Suite 4 Tallahassee, Florida 32301 Telephone: 850/488-0114 Fax: 850/922-6979	Dept. of Environmental Protection Southeast District Office 400 North Congress Avenue West Palm Beach, Florida 33401 Telephone: 561/681-6600 Fax: 561/681-6755	Miami-Dade Department of Environmental Resources Mgmt. 33 SE 2nd Avenue, Suite 900 Miami, Florida 33130-1540 Telephone: 305/372-6925 Fax: 305/372-6954
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The complete project file includes the Draft Permit modifications, the application, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the New Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.



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MIAMI - DADE  
WATER AND SEWER DEPARTMENT

RECEIVED  
FEB 11 1999  
PLANNING

Check Sheet

Company Name: Miami Dade W4SD - Central District  
Permit Number: 0250476-002-AC  
PSD Number: 240 + 240A  
Permit Engineer: Syed Arif

**Application:**

- Initial Application
- Incompleteness Letters
- Responses
- Waiver of Department Action
- Department Response
- Other EISA Disk

**Cross References:**

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- 
- 

**Intent:**

- Intent to Issue
- Notice of Intent to Issue
- Technical Evaluation
- BACT Determination
- Unsigned Permit

Correspondence with:

- EPA
- Park Services
- Other
- Proof of Publication
  - Petitions - (Related to extensions, hearings, etc.)
  - Waiver of Department Action
  - Other

**Final Determination:**

- Final Determination
- Signed Permit
- BACT Determination
- Other

**Post Permit Correspondence:**

- Extensions/Amendments/Modifications
- Other

Is your RETURN ADDRESS completed on the reverse side

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1.  Addressee's Address

2.  Restricted Delivery

Consult postmaster for fee.

<p>3. Article Addressed to:</p> <p>Robert C. Ready, PE Miami-Dade Water 4 50 4200 Salzedo St. Coral Gables, FL 33146-0316</p>	<p>4a. Article Number Z 333 618 084</p> <p>4b. Service Type</p> <p><input type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified</p> <p><input type="checkbox"/> Express Mail <input type="checkbox"/> Insured</p> <p><input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> COD</p> <p>7. Date of Delivery 3/22</p>
<p>5. Received By: (Print Name) L. DANFIELD</p>	<p>8. Addressee's Address (Only if requested and fee is paid)</p>
<p>6. Signature: (Addressee or Agent) X <i>L. Danfield</i></p>	

PS Form 3811, December 1984 102595-97-B-0179 Domestic Return Receipt

Thank you for using Return Receipt Service.

Z 333 618 084

US Postal Service  
**Receipt for Certified Mail**  
No Insurance Coverage Provided.  
Do not use for International Mail (See reverse)

Sent to	Robert Ready
Street Number	M D W + 50
Post Office, State, & ZIP Code	Coral Gables, FL
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	3-17-99
0350476-002-AC PSD-FI-240	

PS Form 3800, April 1995

Application for Air Construction Permit for  
*Three Diesel Engine-Driven Generator  
Sets at the Central District  
Wastewater Treatment Plant  
Miami, Florida*

Prepared for:



*Miami-Dade Water and  
Sewer Department*

Prepared by:

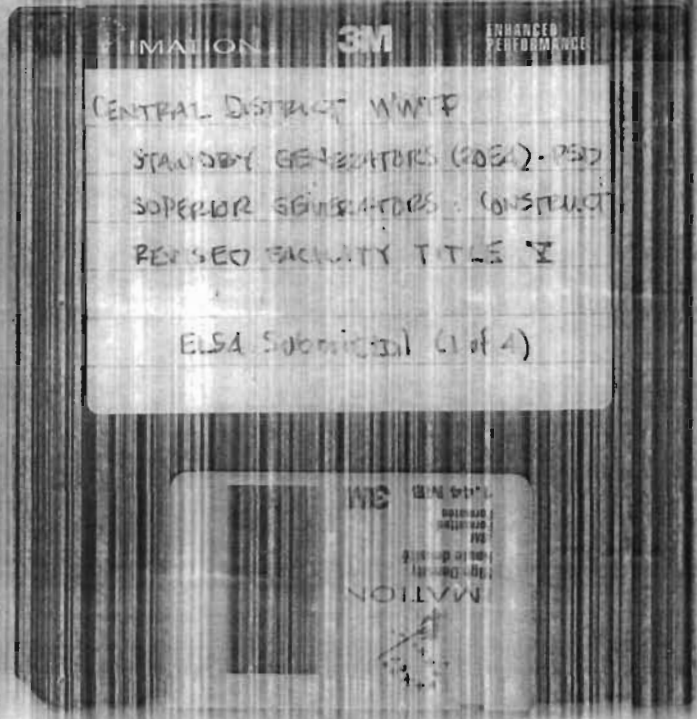
**CH2MHILL**

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June 1997

Disk # \_\_\_\_\_

File Ready  
for Scanner



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Disk # \_\_\_\_\_

