MIAMI-DADE WATER AND SEWER DEPARTMENT
4200 Salzedo Street, Coral Gables, Florida 33146 • Tel: 305-669-3700 • Fax: 669-3788

SERVE • CONSERVE

April 22, 1998

CERTIFIED: Z 427 642 049
RETURN RECEIPT

RECEIVED
APR 27 1998
BUREAU OF
AIR REGULATION

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

RE: Application for Air Construction Permit for Four Diesel Engine-Driven Generator Sets at the Alexander Orr, Jr. Water Treatment Plant, Miami, Florida - Facility ID No. 0250314

Dear Mr. Linero: 0250314-002-AC
PSD-FL-249

Enclosed, please find our application to obtain a Prevention of Significant Deterioration (PSD) air construction permit for four standby generators at the above-referenced facility and includes:

1) One (1) signed and sealed filled 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.
4) Check in amount of $7,500 for the application.

We request that all permits 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 of CH2M Hill at (619) 687-0110.

Sincerely,

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

RECEIVED
APR 27 1998
BUREAU OF
AIR REGULATION

c: Isidore Goldman, FDEP Southeast District
Patrick Wong, Dade County DERM
David Lindberg, CH2M HILL
EPA
NPS
C. Holladay
S. Devore-Fillmore

L9826dep.wpd

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

CHECK NO.
132918

DATE	PAYEE NAME
02/11/98	STATE OF FLORIDA DEPARTMENT OF

INVOICE DATE	INVOICE NUMBER	AMOUNT	PURCHASE ORDER NUMBER	DESCRIPTION
08-15-97	DP000439	7,500.00	DP000439	
	TOTAL	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

METRO·DADE

METROPOLITAN DADE COUNTY, FLORIDA 132918 63-643/670
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
02/11/98	00132918	$7,500.00

To The Order Of

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

METROPOLITAN DADE COUNTY
MAYOR
CLERK

⑈132918⑈ ⑆067006432⑆ 2696 206503470⑈

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, Treatment Facilities

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

Organization/Firm : Miami-Dade Water & Sewer Dept.
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)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.*

RC Ready
Signature

4-22-98
Date

* Attach letter of authorization if not currently on file.

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, Treatment Facilities

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

Organization/Firm : Miami-Dade Water & Sewer Dept.
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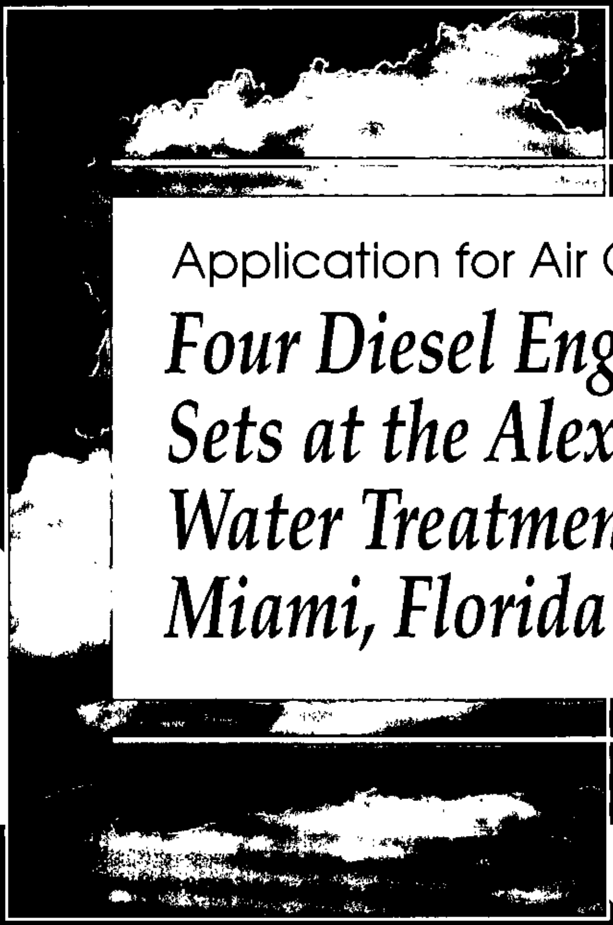

Application for Air Construction Permit for

Four Diesel Engine-Driven Generator Sets at the Alexander Orr, Jr. Water Treatment Plant Miami, Florida

Prepared fo

Miami-Dade Water an
Sewer Department

Prepared by:

CH2MHILL

March 1998

Contents

Contents, continued

Acronyms

acfm	actual cubic feet per minute
ARC	ambient reference concentration
BACT	Best Achievable Control Technology
bhp	brake horsepower
BSFC	brake-specific fuel consumption
CAA	Clean Air Act
CO	carbon monoxide
EPA	Environmental Protection Agency
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FLM	Federal Land Manager
FP&L	Florida Power & Light Company
fps	feet per second
ft	foot (or feet)
g/s	gram(s) per second
GEP	good engineering practice
H_2SO_4	sulfuric acid
HAP	hazardous air pollutant
HC	hydrocarbon
HNO_3	nitric acid
IC	internal combustion
IR	fuel injection timing retard
ISC	Industrial Source Complex
°K	degrees Kelvin
km	kilometer(s)
kW	kilowatt
kW-hr	kilowatt-hour
$\mu g/m^3$	microgram(s) per cubic meter
m	meter
m^3/s	cubic meter(s) per second
MIA	Miami International Airport
m/s	meter(s) per second

Acronyms, continued

NAAQS	National Ambient Air Quality Standards
NH_3	ammonia
NO	nitric oxide
NO_x	nitrogen oxides
NO_2	nitrogen dioxide
PAH	polycyclic aromatic hydrocarbon
PEC	purchased equipment cost
PM-10	particulate matter less than 10 microns in diameter
ppm	parts per million
PSD	Prevention of Significant Deterioration
RACT	Reasonably Available Control Technology
RBLC	RACT/BACT/LAER Clearinghouse
rpm	revolutions per minute
SCR	selective catalytic reduction
SO_2	sulfur dioxide
SO_3	sulfite
SO_4	sulfate
UTM	Universal Transverse Mercator
VOC	volatile organic compound
WASD	Water and Sewer Department (Miami-Dade)
WTP	water treatment plant

Rec'd: April 27, 1998
AIRS ID #: 0250314-002-AC
PSD-FL-249

SECTION 1

Introduction

The Miami-Dade Water and Sewer Department (WASD) is proposing to increase operation of four existing (and previously exempt) standby electricity generators at its Alexander Orr, Jr. Water Treatment Plant (WTP) in Miami, Florida. Increased operation of the generator sets will be used to provide power generation capacity as needed to ensure uninterrupted Miami water supply and pressure to the South Dade County population.

Each generator set is rated to produce 2,865 kilowatts (kW) of electric power at continuous full load operating conditions, and is driven by a 4,000-brake horsepower (bhp) diesel engine prime mover. The generators are capable of operating at load conditions ranging from 20 percent to 110 percent (peaking duty for durations not to exceed 2 hours). The engines burn transportation grade diesel fuel, which has a sulfur content of 0.05 weight percent.

The air quality impact analysis conducted in support of this application has determined that maximum allowable 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, Prevention of Significant Deterioration (PSD) increments, or visibility in the Everglades National Park Class I area. 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 form is provided as Appendix A.

SECTION 2

Facility Description

2.1 General

Facility Name:	Alexander Orr, Jr. Water 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 Telephone (305) 669-5711 FAX (305) 669-5717

2.2 Site Description

The Alexander Orr, Jr. WTP is located at 6800 S.W. 87th Avenue in Miami, Florida. The area immediately surrounding the Alexander Orr, Jr. WTP consists of a mixture of residential, commercial, and light industrial uses. The plant is bound to the south by the intersection of the Don Shula Expressway and Sunset Drive, and to the east by 87th Avenue. The plant is located approximately 7 miles south of the Miami International Airport, and is approximately 10 miles southwest of downtown Miami.

There are two sources of emissions at the plant: the lime kiln and several diesel engine-driven pumps. The lime plant produces lime (CaO) by pyrolysis of $CaCO_3$ (precipitate from the water treatment process) in a lime kiln. The diesel engine-driven pumps provide high pressure service directly to the distribution system. The location of these facilities is shown in Figure 2-1.

The layout of the Alexander Orr, Jr. WTP is shown in Figure 2-2. The Alexander Orr, Jr. WTP is a lime softening plant that consists of a lime plant (sludge thickening tanks, lime kiln, and lime silos), lime softening tanks, a filter gallery, chlorine contact basins, two chemical addition buildings, a generator switchgear building, two pump rooms (east and west), fuel storage tanks, and a railcar ammonia unloading rack.

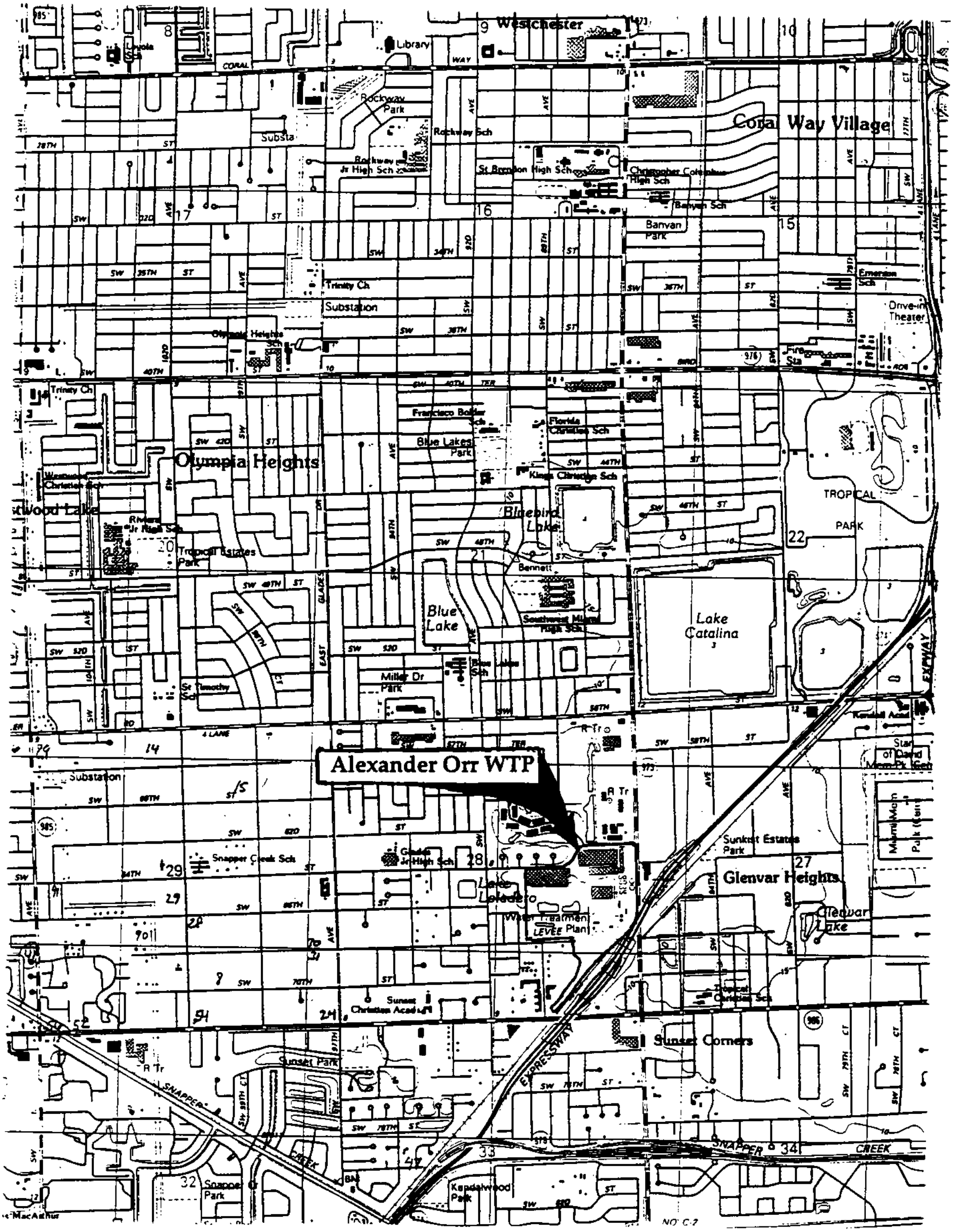

Figure 2-1
Site Location Map

CH2MHILL

04-08-98

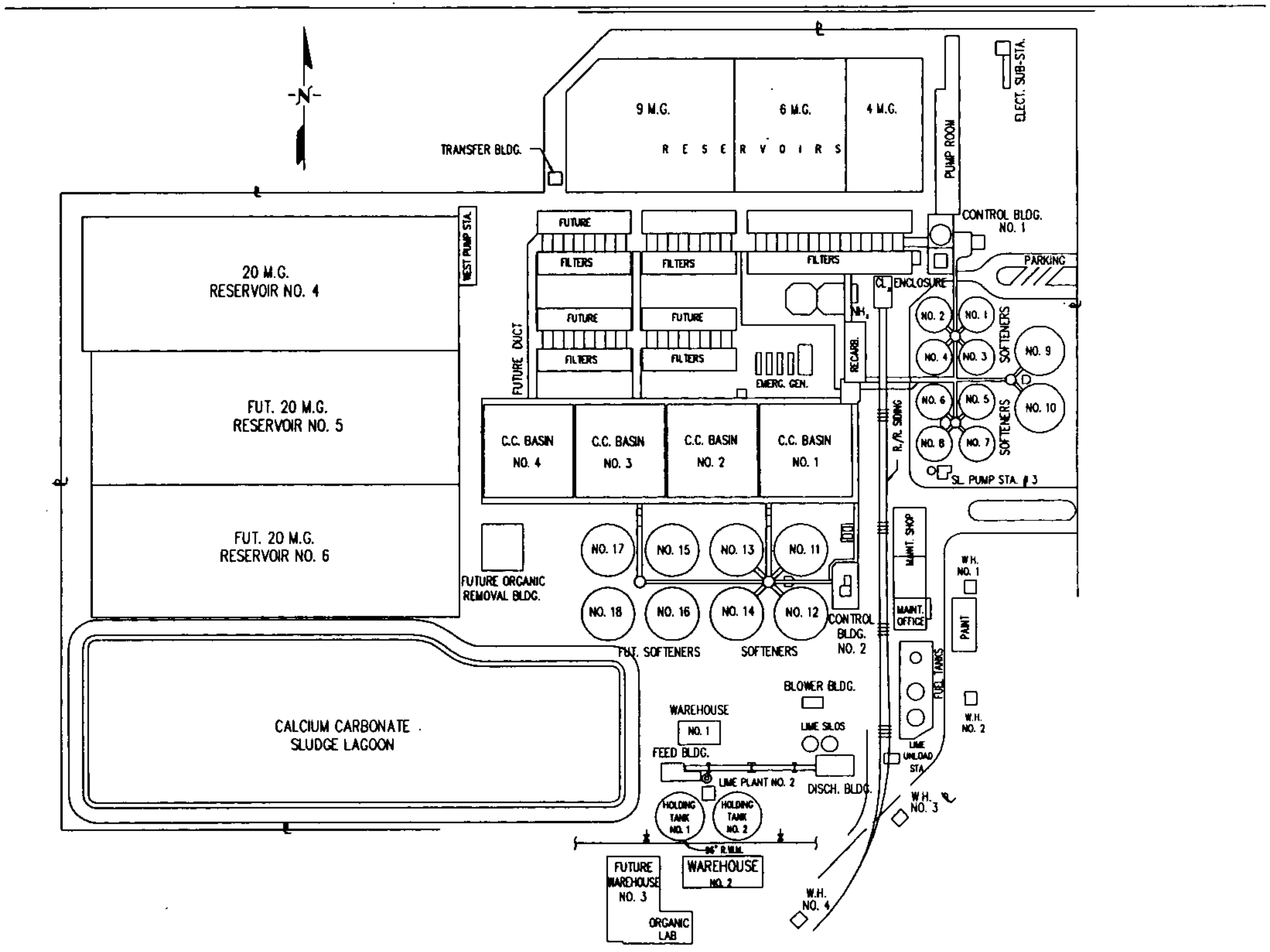

Figure 2-2

Site Layout Map
Alexander Orr, Jr. WTP

CH2M HILL

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2.3 Description of the Standby Generators

The standby generator sources include four 4,000-bhp EMD Model 20-645F4B (20F4B) internal combustion (IC) engines, each coupled to a 2,865-kW continuous-rated electric generator. All engines are diesel-fueled, 20-cylinder, 2-cycle, and turbocharged. The 20F4B generator sets were installed in 1987 and, at that time, were intended for emergency standby use only.

Exhaust emissions will be controlled using Best Achievable Control Technology (BACT) for nitrogen oxides (NO_X), 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 %) diesel fuel, which is representative of BACT for sulfur dioxide (SO_2). The combination of low-sulfur diesel fuel and combustion modifications is representative of BACT for particulate matter with a diameter less than 10 micrometers (PM-10). Use of BACT will reduce emissions of NO_X in the engine exhaust by approximately 28 percent from uncontrolled (pre-BACT) levels.

2.4 Operation

Table 2-1 summarizes the operating characteristics of each generator set. Table 2-1 shows that brake-specific fuel consumption (BSFC) increases as the engine loads are decreased.

This analysis conservatively includes an assessment of air quality impacts based on production of 40,110,000 kilowatt-hour (kW-hr) of electricity by the 20F4B standby generators. This level of operation corresponds to approximately 14,000 hours of 20F4B operation per year at full load conditions, and has been calculated based on application of BACT to historical emissions testing of the uncontrolled engines.

All four standby generator sets are located within individual enclosure structures. Exhaust silencers and stacks are mounted horizontally on top of each enclosure structure. The stacks have a 21-inch inside diameter and terminate approximately 15.5 feet above ground level.

Table 2-1
Summary of Exhaust and Operating Characteristics
EMD Model 20F4B Standby Generators
Miami-Dade WASD Alexander Orr, Jr. WTP

EMD Model 20F4B Generator Sets	
Number of Units	4
Generator Capacity	
Peaking (110% load–2 hours max)	3,150 kW, each
Continuous (full load–100%)	2,865 kW, each
Brake Specific Fuel Consumption (lb/bhp-hr)	
Peaking–110%	0.346, each
Full Load–100%	0.346, each
Partial Load–75%	approx. 0.363, each
Partial Load–50%	approx. 0.381, each
Minimum Load–20%	approx. 0.432, each
Operating Speed	900 rpm
Exhaust Characteristics–Horizontal Exhaust	
Height	4.72 m 15.5 ft
Diameter	0.533 m 1.75 ft
Flow	604.5 m^3/s 45.1 ms 21,350 acfm 148 fps
Temperature	608°K 635°F

Notes:
m = meter
ft = feet
m^3/s = cubic meters per second
m/s = meters per second
acfm = actual cubic feet per minute
fps = feet per second
rpm = revolutions per minute

SECTION 3

Emission Source Information

3.1 Standby Generator Set Emissions

3.1.1 Regulated Pollutants

A summary of the annual emissions from all three 20F4B 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 and maintenance testing.

The estimates of emission rates were determined on the basis of the following assumptions:

- Uncontrolled NO_x emissions of 9.08 g/bhp-hr (based on historical stack test results)
- Reduction of NO_x emissions by 28 percent from uncontrolled levels and PM-10 emissions by 25 percent from uncontrolled levels using IR plus aftercoolers
- Reduction of SO_2 emissions by using low-sulfur diesel fuel (0.05 weight percent)
- All particulate emissions are less than or equal to 10 microns (PM-10)
- Annual power output of 40,110,000 kW-hr by all generator sets

Table 3-1
Comparison of Proposed Annual Emissions with PSD-Significant Emission Rates
EMD Model 20F4B Standby Generators

		Emissions (tons/yr)[1]			Significant Emission
Pollutant	**25% load**	**50% load**	**75% load**	**100% load**	**Rate (tons/yr)**
CO	24.3	19.7	18.5	17.3	100
NO_x	***151***	***310***	***339***	***403***	***40***
SO_2	4.4	9.8	9.8	9.8	40
PM/PM-10	4.5	10.0	10.0	10.0	25/15
VOC	6.7	15.0	15.0	15.0	40

[1] Annual power output of 40,110,000 kW-hr by all generators.
CO = carbon monoxide
VOC = volatile organic compound

Emissions data provided by the equipment manufacturer indicate that maximum power-specific emissions occur at minimum (25 percent) load conditions for CO and maximum load conditions for NO_X. No power-specific emissions data were provided for PM-10 or VOCs. Power-specific emissions of SO_2 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 except NO_x, maximum emissions are noted to occur when operating at minimum load. Maximum emissions of NO_x occur at full load conditions. Because no power-specific emissions data are available for PM-10 and VOCs, maximum emissions are assumed to coincide with minimum load operation.

As shown in Table 3-1, only emissions of NO_X are expected to exceed the corresponding PSD-significant emission rates. Detailed emissions calculations for the standby generators are provided in Attachment 11 of the Air Permit Application (see Appendix A).

Because NO_X emissions exceed PSD thresholds, the project is a major source 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 U.S. Environmental Protection Agency (EPA) 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 polycyclic aromatic hydrocarbons (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 Alexander Orr, Jr. WTP, 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 Miami-Dade Counties, was screened to identify sources with the potential to interact with emissions from the standby generators at the Alexander Orr, Jr. WTP. Based on FDEP guidance, all sources having an annual emission rate (in tons) less than 20 times their distance (in kilometers [km]) from the Alexander Orr, Jr. WTP 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 competing sources is provided in Table 3-2, and the relative location 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 NO_2 at all receptors impacted by the standby generators will be below NAAQS. Sources installed or modified after the baseline date for NO_2 (March 28, 1988) were identified as "baseline" sources. Emissions from baseline sources were excluded from evaluation of PSD increment consumption because (by definition) they do not consume increment. Emissions from the 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

	Location (UTM)			Stack Parameters				
Source	Northing (km)	Easting (km)	Emission Rate (g/s)	Height (m)	Temp (°K)	Velocity (m/s)	Diameter (m)	Baseline?
MDWASD Alexander Orr, Jr. WTP Pump Nos. 1, 3, & 4	2843.53	566.60	0.70	8.50	735	7.77	0.18	Yes
MDWASD Alexander Orr, Jr. WTP Pump Nos. 5 & 6	2843.57	566.60	2.30	8.50	735	5.97	0.24	Yes
MDWASD Alexander Orr, Jr. Lime Plant	2843.21	566.47	0.84	0.00	327	7.17	1.74	Yes
MDWASD Preston WTP Standby Generators	2857.11	571.49	10.68	3.5	608	45.2	0.53	No
MDWASD Central District WWTP Standby Gens	2847.79	584.95	10.81	6.40	663	16.52	0.91	No
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
Lee County Resource Recovery Facility (Class I only)	2946.0	424.0	30.37	83.8	389	19.81	1.88	Yes
Bechtel Indiantown (Class I only)	2991.5	454.6	82.00	150.90	333	30.5	4.88	Yes
Okeelanta (Class I only)	2939.4	525.0	24.81	60.67	450	21.25	2.44	Yes
Osceola (Class I only)	2968.0	544.2	12.22	54.9	449	21.28	2.13	Yes

Notes:
UTM = Universal Transverse Mercator
g/s = grams per second
°K = degrees Kelvin

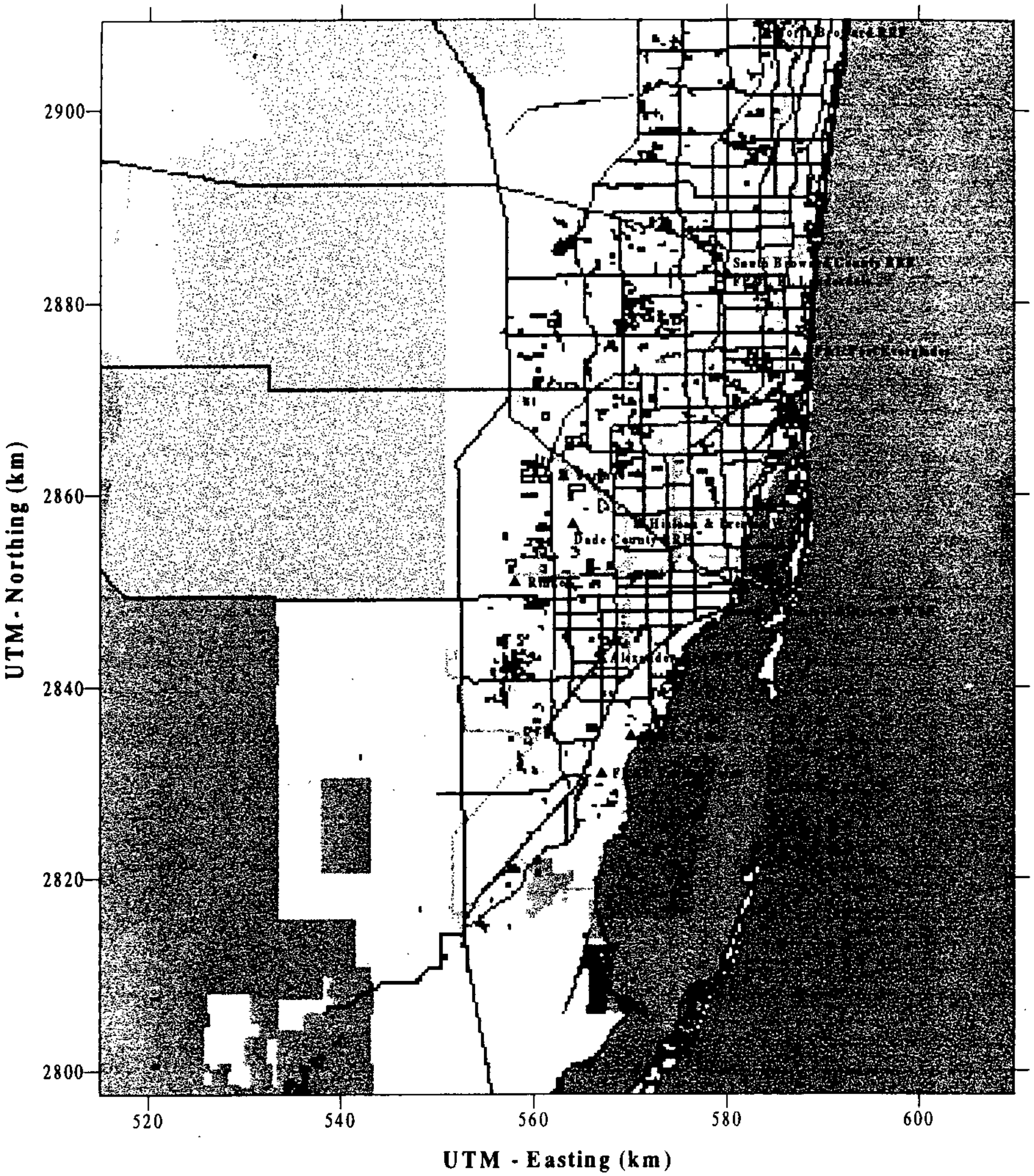

Figure 3-1
Map of Regional Emissions Sources

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SECTION 4

Applicable Regulations

4.1 Applicable Pollutants

Total allowable emissions of NO_x from the Alexander Orr, Jr. WTP are above the PSD trigger level of 250 tons/year. However, the standby generators by themselves constitute a major source of NO_x emissions under the regulations governing PSD (see Table 3-1). As a result, an ambient air quality impact analysis and demonstration of BACT are required for NO_x.

4.2 Air Quality Impact Analysis Requirements

Air quality regulations for which the proposed project must comply are the NAAQS for NO_2 (40 CFR 50 and Chapter 62-204.240(5), Florida Administrative Code [FAC]); and the PSD Class II and Class I increments for NO_2 (40 CFR 52 and Chapter 62-204.260, FAC). These limits are summarized in Table 4-1 along with the corresponding limits for SO_2 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.

Table 4-1
Ambient Air Quality Standards and Significant Impact Levels[a]

	NAAQS		PSD Increments		Significant Impact Levels	
Pollutant and Averaging Period	**Primary**	**Secondary**	**Class II**	**Class I**	**Class II**	**Class I[b]**
SO_2						
3-hour	-	1,300[c]	512[c]	25[c]	25	1.0
24-hour	365[c]	-	91[c]	5[c]	5	0.2
Annual	80	-	20	2	1	0.1
NO_2						
Annual	100	100	25	2.5	1	0.1
PM-10						
24-hour	150[c]	150[c]	30	8	5	0.3
Annual	50	50	17	4	1	0.2

Notes:
Concentrations in micrograms per cubic meter ($\mu g/m^3$)
[a] 43 FR 26398
[b] Proposed by the National Park Service, July 23, 1996.
[c] Concentrations not to be exceeded more than once per year, on an average basis.

Also listed in Table 4-1 are the significant impact levels for each pollutant. The area of significant impact for the Alexander Orr, Jr. WTP consists of the area covered by all receptors having predicted concentrations in excess of the significant impact level of 1 $\mu g/m^3$ for NO_2. Where the ambient concentration of NO_2 at any receptor attributable to the standby generators is below 1 $\mu g/m^3$, the impact of the standby generators on that receptor is considered to be insignificant.

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 given in Section 5.

4.4 Monitoring Requirements

4.4.1 Pre-construction Monitoring

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

Background levels of NO_2 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 NAAQS.

4.4.2 Operational Monitoring

The Alexander Orr, Jr. WTP 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_x. 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.

SECTION 5

Demonstration of BACT

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_x 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 as described 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_x.

5.2 Nitrogen Oxides

NO_x 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: nitric oxide (NO), nitrogen peroxide (NO_2), nitrogen trioxide (NO_3), nitrous oxide (N_2O), nitrogen anhydride (N_2O_3), N_2O_4, and N_2O_5. Only NO and NO_2 are formed in significant quantities, and NO accounts for approximately 95 percent of total NO_x emissions. NO is eventually converted to NO_2 in the atmosphere.

5.2.1 Selective Catalytic Reduction

The RBLC database indicates that the top method of controlling emissions of NO_x 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-0096 and 0097 in Table 5-1).

Table 5-1
Summary of NO_x Control Technology Determinations for Diesel Engines as of 7/6/97

RBLC ID	Permit Date	Process	Pollutant	Primary Emissions	Control Description	% Effic	Basis
AK-0026	7/26/93	Generator, Wartsilla #2 & #6	NO_2	135 lb/hr	3 Degree Timing IR	66	BACT-PSD
AK-0026	7/26/93	Generator, Transportable	NO_x	26.3 lb/hr	Restricted to 3,000 Hrs/Yr	0	BACT-PSD
AK-0026	7/26/93	Generator, Caterpillar #1, #2 & #3	NO_x	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_2	632.6 tons/yr	Limit Operating Hours; Aftercoolers	0	BACT-PSD
AK-0029	6/27/96	3.4 mW Power Generation, Diesel	NO_2	427 tons/yr	Aftercoolers	0	BACT-PSD
CA-0417	12/2/91	410 hp Diesel Generator, Emergency	NO_x	0.0	Turbo/Aftercooler, 4 Deg. Timing IR	40	BACT-PSD
CA-0422	1/6/92	211 bhp @ 1800 Rpm Diesel Generator	NO_x	2.88 lb/hr	Timing IR, Turbo/Water Injection	64	BACT-PSD
CA-0453	12/2/91	410 hp Diesel Engine	NO_x	0.0	Turbo/Aftercooler	40	BACT-PSD
CA-0562	6/18/93	953 bhp Engine	NO_x	6.6 g/bhp-hr	Turbo/Aftercooler, 4 Deg Timing IR	40	BACT-OTH
CA-0586	6/15/93	Generator, Diesel	NO_x	4.0 degrees IR	4 Degree Timing IR	0	BACT-OTH
HI-0011	11/25/91	7.86 mW Diesel Engine Generators (4)	NO_x	590 ppmvd	Variable IR, Turbo/Aftercooler	18.6	BACT-PSD
HI-0016	11/8/95	2.2 mW Diesel Engine Generators (3)	NO_x	656 ppmvd	Timing IR; Intake Air Cooling	0	BACT-PSD
HI-0017	5/4/96	2.2 mW Diesel Engine Generators (3)	NO_x	656 ppmvd	Timing IR; Intake Air Cooling	0	BACT-PSD
MN-0022	3/1/95	2.7 MMBtu/Hr Diesel Fire Pump	NO_x	5.0 lb/hr	Timing IR; Turbo/Aftercooling	0	BACT-PSD
NY-0044	6/6/95	3000 kW Generator, Emergency	NO_x	2.6 lb/MMBtu		0	LAER
NY-0047	9/1/92	1.3 MMBtu/Hr Diesel Fire Pump	NO_x	1.3 lb/MMBtu	Lean Burn Engine	0	BACT-OTH
NY-0047	9/1/92	1.5 MMBtu/Hr Nat. Gas Emgcy Gen.	NO_x	1.3 lb/MMBtu	Lean Burn Engine	0	BACT-OTH
NY-0072	12/10/94	22.00 MMBtu/Hr Diesel Generator	NO_x	1.166 lb/MMBtu	No Controls	0	BACT-OTH
NY-0072	12/10/94	1.5 MMBtu/Hr Fire Pump	NO_x	4.25 lb/MMBtu	No Controls	0	BACT-OTH
PA-0083	5/3/91	1135 kW Diesel Generators (2)	NO_x	36 lb/hr each		0	OTHER
PA-0096	10/15/92	1156 kW Diesel Engines (11)	NO_x	2.0 g/bhp-hr	Selective Catalytic Reduction	80	BACT-OTH
PA-0097	10/15/92	1635 kW Diesel Engines (7)	NO_x	2.0 g/bhp-hr	Selective Catalytic Reduction	80	BACT-OTH
SC-0027	7/15/92	400 kW Diesel Generator, Emergency	NO_x	13.1 lb/hr		0	BACT
VA-0191	1/28/93	1200 kW Diesel Generators (3)	NO_x	137.3 lb/hr	Turbo/Aftercooler	0	BACT-OTH
VA-0207	7/30/93	748,000 Gal/Yr Diesel Generators (6)	NO_x	33.2 lb/hr	5 Degree Timing IR	21.7	NSPS
WI-0083	11/23/94	Diesel Generator, Back-Up	NO_x	67.5 lb/hr	Low Sulfur (0.05%) Diesel Fuel	0	BACT-PSD

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

SCR process reduces NO_x emissions by injecting ammonia (NH_3) into the exhaust stream, where the NH_3 and NO_x react in the presence of a catalyst to form water and nitrogen:

$$NH_3 + NO_x \text{ -----> } N_2 + H_2O \text{ (unbalanced)}$$

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_x emission reduction levels from SCR typically range from 75 percent to 95 percent without any corresponding increase in hydrocarbon (HC) or CO emissions. NH_3 concentrations in the exhaust typically range 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 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_2 during combustion, is oxidized to sulfite (SO_3) in some catalysts and reacts with NH_3 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 NO_x emissions are a function of engine power output, variable load applications may also cause exhaust temperatures and NO_x concentrations that pose a problem for SCR. Under varying load situations, off-stoichiometric quantities of NH_3 are injected into the exhaust, leading to either reduced NO_x reduction efficiency or the release of unreacted NH_3 in the exhaust (commonly called "ammonia slip"). The Alexander

Orr, Jr. WTP standby generators will accommodate fluctuations in load, which may result in exhaust temperatures outside the 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 NO_x is a combination of IR and precooling of combustion air. As shown in Table 5-1, this combination of 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 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 2 percent increase in BSFC and a 25 percent increase in particulate emissions 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_x 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 20F4B-series engines have shown that installation of four-pass aftercoolers piped to the engine's cooling system reduce uncontrolled emissions of NO_x 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_x emissions by 28 percent and PM-10 emissions by

7 percent with a slight decrease in BSFC. Documentation of the aftercooler technology is included in Attachment 11 of the Air Permit Application (Appendix A).

5.2.3 Cost-Effectiveness Analysis

A cost-effectiveness comparison analysis of SCR and Fuel Injection Timing Retard/ Combustion Air Precooling has been performed for this application. Total annual costs of each technology have been determined in accordance with procedures outlined in the *EPA Office of Air Quality Planning & Standards Cost Control Manual*. Purchased equipment cost (PEC) information and estimated NO_x reduction efficiencies were obtained from vendors of each type of technology.

Total capital cost estimates are summarized in Table 5-2. The estimates have been scaled up from the PEC proposals for each technology. The total capital costs are $87,400 for proposed BACT, and $2,610,000 for SCR. Total annual costs are summarized in Table 5-3. These costs include various operating (direct annual) costs and capital recovery (indirect annual) costs, and are estimated to be $23,000 for proposed BACT and $773,000 for SCR.

The cost-effectiveness of each technology is summarized in Table 5-4. Cost-effectiveness establishes a monetary value for each technology in terms of cost per ton of pollutant removed that facilitates the ranking and selection of technologies. Emissions calculations are summarized in Table 5-5. The cost-effectiveness of SCR at $1,585 per ton is approximately 11 times higher than the cost-effectiveness of proposed BACT ($143 per ton).

Because of the technical problems associated with the use of SCR for this application, as discussed in Section 5.2.1, and the relatively high cost-effectiveness of this technology in comparison to combustion modifications, as discussed above, retarded fuel injection timing and combustion air precooling is proposed as BACT.

Table 5-2
Total Capital Cost Estimates
Alexander Orr, Jr. WTP Standby Generators
Miami-Dade Water and Sewer Department

	4 deg IR + Combustion Air Precoolers	SCR
Direct costs		
Purchased equipment cost (PEC)[1]	$ 44,137.93	$ 1,320,000.00
Control device and auxilary equipment		
Instrumentation		
Sales Taxes (3% of PEC)		
Freight (5% of PEC)		
Direct installation cost[2]	$ 19,862.07	$ 594,000.00
Foundations and supports		
Handling and erection		
Electrical		
Piping		
Insulation for ductwork		
Painting		
Total direct cost	**$ 64,000.00**	**$ 1,914,000.00**
Indirect costs		
Indirect installation costs[3]	$ 14,565.52	$ 435,600.00
Engineering		
Construction and field expenses		
Contractor fees		
Start up		
Performance test		
Model study		
Training		
Contingencies[4]	$ 8,827.59	$ 264,000.00
Equipment redesign and modifications		
Cost escalations		
Delays in start up		
Total Indirect Cost	**$ 23,393.10**	**$ 699,600.00**
Total Capital Cost	**$ 87,393.10**	**$ 2,613,600.00**

[1] Includes four SCR systems, four Continuous Emissions Monitoring Systems, and a 17,000-gallon anhydrous ammonia tank.

[2] Direct installation cost assumed equal to 45% of PEC.

[3] Indirect installation cost assumed equal to 33% of PEC.

[4] Contingency costs assumed equal to 20% of PEC.

Table 5-3
Total Annual Cost Estimates
Alexander Orr, Jr. WTP Standby Generators
Miami-Dade Water and Sewer Department

	Cost	Unit	4 deg IR + Combustion Air Precoolers	SCR
Total Operating Hours (all four engines)			14,349	14,349
Direct annual costs				
Utilities				
Electricity @ 20 kW[1]	$ 0.06	kW-hr	$ -	$ 17,218.80
Diesel fuel[2]	$ 0.77	gallon	$ -	$ 9,881.08
Anhydrous ammonia @ 23 lb/hr each	$ 275.00	ton	$ -	$ 45,378.71
Operating labor				
Operating labor[3]	$ 30.39	hr	$ -	$ 4,964.75
Supervising labor[4]			$ -	$ 744.71
Maintenance[5]			$ 1,807.46	$ 54,054.45
Annual compliance test (one engine)			$ 3,000.00	$ 3,000.00
Catalyst replacement[6]			$ -	$ 90,090.75
Catalyst disposal[7]	$ 0.15	lb	$ -	$ 3,840.00
Total direct annual costs			**$ 4,807.46**	**$ 229,173.26**
Indirect annual costs				
Overhead[8]			$ 1,084.48	$ 32,432.67
Property tax[9]			$ 873.93	$ 26,136.00
Insurance[10]			$ 873.93	$ 26,136.00
Administrative charges[11]			$ 1,747.86	$ 52,272.00
Capital recovery[12]	0.15582009		$ 13,617.60	$ 407,251.39
Total Indirect Annual Costs			**$ 18,197.80**	**$ 544,228.06**
Total Annual Cost			**$ 23,005.27**	**$ 773,401.32**

[1] Vaporizer and instrumentation electrical requirement, 14,350 total hours of operation.

[2] No fuel penalty for IR; fuel penalty of 0.5% for SCR based on 5-inch water backpressure, 14,350 total. hours of operation, and BSFC = 0.346 lb/bhp-hr.

[3] Assumes 3 hrs per 8-hr shift for SCR, 14,350 hours operation per year. No labor for IR.

[4] Supervisor labor is 15% of operator labor.

[5] Maintenance costs are 10% of Purchased Equipment Costs, prorated by the number of hours of operation.

[6] Catalyst replacement every 8,760 hours of operation per engine.

[7] Assume catalyst density 100 lb/cf. Total weight = (4 modules/engine)(1,600 lb/module)(4 engines) = 25,600 lb.

[8] Overhead charge rate is 60% of maintenance costs.

[9] Property tax is estimated to be 1% of total capital costs.

[10] Insurance is estimated to be 1% of total capital costs.

[11] Administrative costs are estimated to be 1% of total capital costs.

[12] Capital recovery cost is calculated at an interest rate of 9% for a lifetime of 10 years.

Table 5-4

Cost-Effectiveness Comparison

Alexander Orr, Jr. WTP Standby Generators

Miami-Dade Water and Sewer Department

			4 deg IR + Combustion Air Precoolers		SCR
NOx Emissions					
Uncontrolled	tons/yr		574		574
% Reduction			28%		85%
Controlled	tons/yr		413		86
Reduction	tons/yr		161		488
Total Annual Cost	$000/yr	$	23.0	$	773
Cost Effectiveness		**$**	**143**	**$**	**1,585**

Table 5-5

NO$_x$ Emissions from Four 20F4B Standby Generators

Alexander Orr, Jr. WTP Standby Generators

Miami-Dade Water and Sewer Department

		Uncontrolled Emissions				Controlled Emissions		
Control Technology	**Reference**	**Factor (g/bhp-hr)**	**lb/hr**	**tons/yr**	**Efficiency**	**Factor (g/bhp-hr)**	**lb/hr**	**tons/yr**
SCR	Historical Data	9.08	80.0	574	85%	1.4	12.0	86
Combustion Modifications	Historical Data	9.08	80.0	574	28%	6.5	57.6	413

SECTION 6

Air Quality Impact Analysis

The dispersion modeling analyses documented herein were designed to assess the potential impact on air quality of the standby generator sets at the Alexander Orr, Jr. WTP 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. A copy of the modeling protocol approved by FDEP is included in Appendix B. The dispersion models, meteorological data, modeling methodology, and results of the air quality impact analyses are discussed in the following subsections. Selected sections of the dispersion modeling input and output files are contained in Appendix C.

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, as NO_2 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 to 1991) of surface observations from Miami International Airport (MIA), and upper air data from West Palm Beach, Florida, as recommended by FDEP. The south end of MIA is approximately 10 km north of the proposed project site. These data were processed by EPA's meteorological data preprocessor program PCRAMMET.

6.3 Receptor Grids

A polar-based receptor grid with a radial spacing of 10 degrees (i.e., 10°, 20°, 30°, etc.) was used for all analyses. Initial modeling was performed with a coarsely-defined receptor grid. The coarse grid consists of receptors located at 50-meter (m) spacings along the property fenceline, and along each of the 36 radials at the following distances:

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

In addition, 28 receptors along the northern and eastern boundaries of the Everglades National Park Class I area and 4 receptors located within the northeast corner of the park were included in the modeling analysis.

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

- 100 m spacings from r = 200 m to r = 1,000 m
- 250 m spacings from r = 1,000 m to r = 2,500 m
- 500 m spacings from r = 2,500 m to r = 5,000 m
- 1,000 m spacings from r = 5,000 m to r = 9,000 m

There were no offsite receptors located within 100 m 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 the four identical 15.5-foot 20F4B exhaust stacks approximately 25 feet apart. For modeling purposes, the standby generators were modeled as a single point source with all emissions occurring at the geometric center of the four stacks. Based on the dimensions of adjacent structures, these stacks are influenced by downwash effects from the switchgear building and the adjacent softening tanks. The 20F4B stacks are within good engineering practice (GEP) stack height. The dispersion modeling incorporates the effects of building wake and downwash attributable to these buildings.

Emissions from five engine-driven pumps in the East Pump Room were also included in the refined modeling as baseline sources. These engines operate under FDEP operating permit AO13-177245, which does not define limits on emissions of any pollutants. The physical characteristics of these engines are listed below:

- Engine No. 1–Worthington 825-bhp diesel engine
- Engine No. 2–out of service
- Engine No. 3–Worthington 825- bhp diesel engine
- Engine No. 4–Worthington 825- bhp diesel engine
- Engine No. 5–Worthington 1,500- bhp diesel engine
- Engine No. 6–Enterprise 2,115- bhp dual fuel engine

All five engines are equipped with vertical exhaust stacks on the exterior of the East Pump Room west wall. The stacks terminate a few feet above the building rooftop, and emissions from all five are influenced by building downwash effects from the East Pump Room.

The Alexander Orr, Jr. WTP operates the pump engines according to the following policy: continuous operation of *either* Pump No. 5 *or* Pump No. 6, *and* operation of one smaller pump (Nos. 1, 3, or 4) approximately 50 percent of the time. A construction permit application for the engine-driven pumps has been prepared and submitted with this application for the standby generators to establish emissions limits consistent with this level of operation. Emissions from the engine-driven pumps modeled in the air quality impact analysis also reflect this level operation. Pump Nos. 5 and 6 have been modeled as a single source, as the engines are close to each other and one limit is proposed for both engines. Emissions from Pump Nos. 1, 3, and 4 have also been modeled as a single source for the same reasons.

Because the exhaust stacks are along the East Pump Room exterior walls and the stacks terminate slightly above the building rooftop, building wake and downwash effects have a significant effect on model-predicted concentrations at short-distance receptor locations. As such, the dispersion modeling was designed to incorporate such effects. As stated in the *User's Guide for the Industrial Source Complex (ISC3) Dispersion Models, Volume II–Description of Model Algorithms*, the ISCST3 models are not appropriate for estimating concentrations within the highly turbulent and generally recirculating building cavity region. According to the user's guide, this region extends for a distance of three times the building height for squat buildings (buildings that have a larger horizontal dimension than vertical dimension).

Because the height of East Pump Room is 8.4 m (28 feet), any receptors located within 25 m (82 feet) of the building are within this wake zone.

Emissions from the Alexander Orr, Jr. Lime Plant were also included in the refined modeling as a baseline source. Emission point characteristics for the lime kiln are given in Table 3-2.

6.5 Dispersion Modeling Methodology and Results

The dispersion modeling results reported in this section are based on the exhaust and operating characteristics for the 20F4B engine presented in Table 2-1, emissions data for full load 20F4B operation presented in Table 3-1, and exhaust and emissions data from regional sources presented in Table 3-2. It is noted that emissions from the 20F4B standby generators also are representative of BACT as demonstrated in Section 5.

The modeling analyses described in this report were performed to satisfy 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) compliance with 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 because of the operation of the proposed sources are found to be less than the EPA-defined significant impacts, 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 g/s. The results were adjusted to the annual average NO_x emission rate of 11.6 g/s to obtain conservative estimates of predicted concentrations. In accordance with the *Multi-Tiered Screening Approach for Estimating Annual NO_2 Concentrations from Point Sources* (60 FR 40469), total conversion of NO_x-to-NO_2 was assumed for the initial or "tier 1" screening. However, subsequent refined modeling revealed that this assumption resulted in exceedance of PSD Class II increment. Therefore, an empirically-derived NO_x-to-NO_2 conversion of 75 percent was used for the "tier 2" screening to adjust the model results. Using this assumption, model-predicted NO_x concentrations were multiplied by 0.75 to obtain NO_2 concentrations at each receptor.

6.5.1 Maximum Impact and Radius of Significant Impact

The maximum impact and radii of significant impact for NO_x emissions from the proposed sources was determined by modeling the maximum expected emissions under full load as presented in Table 3-1. After installation of BACT, it is estimated that each generator will emit a maximum of 57.6 lb/hr (7.26 g/s) NO_x. Because the generator sets will be limited to 40,110,000 kW-hr power output annually, which corresponds to 3,500 hours per year (each) at full load, the equivalent annual-average emissions are 11.6 g/s NO_x (total).

The results of the screening analysis are summarized in Table 6-1. Using 1987 through 1991 meteorological data, predicted offsite concentrations attributable to the standby generators exceeded the significant impact levels up to a maximum radius of 7,000 m. The highest offsite NO_2 concentration is predicted to be 23.7 micrograms per cubic meter ($\mu g/m^3$). The maximum NO_2 concentration associated with emissions from the standby generators in the Class I area, as predicted in the screening analysis, is 0.34 $\mu g/m^3$.

Table 6-1
Summary of Initial NO_2 Dispersion Modeling Results–Annual Average
EMD Model 20F4B Standby Generators

	Significant	Maximum Predicted				
	Impact	1987	1988	1989	1990	1991
Everglades National Park Class I Area ($\mu g/m^3$)	0.1	0.28	0.22	0.27	0.34	0.25
Class II Area ($\mu g/m^3$)	1.0	15.1	21.0	23.7	20.8	17.7
Radius of Significant Impact (m)	-	5000	6000	7000	6000	5000

Notes:
Q_s = 11.6 g/s NO_x
$NO_2:NO_x = 0.75$
Total annual power output 40,110,000 kW-hr

6.5.2 PSD Increment Consumption

Federal regulations (40 CFR 52) specify that the air quality of an area cannot deteriorate by more than a specified amount by establishing "PSD increments." A PSD increment is an acceptable 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_2, SO_2, 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.

Along with the standby generators, 11 increment-consuming sources were modeled to determine increment consumption in the Everglades National Park Class I area and surrounding Class II area (see Table 3-2). The maximum predicted NO_2 increment consumption results were compared to the allowable increment consumption criteria for receptors in each respective area. Results of the dispersion modeling analysis for increment consumption in the Everglades Class I area and the surrounding Class II area are presented in Table 6-2.

The analysis illustrates that the maximum predicted consumption of NO_2 increment in the Class I area is 0.86 $\mu g/m^3$, which is less than the 2.5 $\mu g/m^3$ allowable PSD Class I increment consumption limit. The highest increment consumption is observed near the northeast corner of the Everglades National Park Class I boundary, approximately 17 km west of the Alexander Orr, Jr. WTP.

The maximum predicted consumption of NO_2 increment in the Class II area is 24.1 $\mu g/m^3$, which is observed along the property fenceline approximately 204 m northwest of the standby generators. Predicted increment consumption decreases rapidly with increasing distance from the source.

At the receptor with the highest increment consumption, the standby generators consume 98 percent of the increment, and offsite baseline sources consume 2 percent of the increment. The maximum predicted increment consumption at this receptor is below the PSD Class II criteria of 25 $\mu g/m^3$.

6.5.3 Compliance with NAAQS

The proposed facility must comply with NAAQS for NO_2, SO_2, 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 only evaluated NO_2, as it was the only pollutant emitted in significant quantities. The approach used to demonstrate compliance with NAAQS in the area impacted by the standby generators at the Alexander Orr, Jr. WTP was to assess the combined impact of 1)

Table 6-2
NO_2 Increment Consumption in Everglades National Park Class I and Surrounding Class II Areas
EMD Model 20F4B Standby Generators

	PSD Increment Consumption ($\mu g/m^3$)				
	1987	**1988**	**1989**	**1990**	**1991**
Everglades National Park Class I Area Increment Consumption					
20F4B Standby Generators	0.30	0.23	0.29	0.38	0.27
Other Sources	0.31	0.36	0.22	0.48	0.48
Class I Area Total	0.61	0.60	0.51	0.86	0.75
Location	(17,019 m, 288 deg)	(17,019 m, 288 deg)	(16,020 m, 268 deg)	(17,019 m, 288 deg)	(17,019 m, 288 deg)
Allowable PSD Class I Limit	2.50	2.50	2.50	2.50	2.50
Class II Area Increment Consumption					
20F4B Standby Generators	15.7	20.9	23.7	20.7	17.6
Other Sources	0.5	0.5	0.4	0.6	0.7
Class II Area Total	16.2	21.4	24.1	21.3	18.3
Location	(200 m, 300 deg)	(204 m, 317 deg)	(204 m, 317 deg)	(204 m, 317 deg)	(201 m, 304 deg)
Allowable PSD Class II Limit	25.0	25.0	25.0	25.0	25.0

Notes:
Q_e = 11.6 g/s NO_2
NO_2:NO_x = 0.75
Total annual power output 40,110,000 kW-hr

the proposed facility, 2) all existing emission sources in the area as identified by FDEP, and 3) existing background air quality.

Along with the standby generators, 27 sources were modeled to determine the ambient concentration of NO_2 in the Class II area (see Table 3-2). An additional four sources were modeled to determine the ambient concentration of NO_2 in the Everglades National Park Class I area. A summary of the dispersion modeling results for all existing and permitted sources of emissions 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, the maximum predicted impact of all other regional sources, and the background levels of NO_2 in the Miami area.

The maximum predicted annual average NO_2 concentration in the Everglades National Park Class I area is 16.4 $\mu g/m^3$, most of which is associated with background NO_2 (72 percent). Offsite permitted sources account for 26 percent of the concentration, and the standby generators account for approximately 2 percent.

The maximum predicted annual average NO_2 concentration in the surrounding Class II area is 99.5 $\mu g/m^3$, which is slightly below the NAAQS of 100 $\mu g/m^3$. This concentration occurs on the property fenceline 195 m north of the standby generators along S.W. 64th Street (Hardee Road). The relatively high concentration at this receptor is primarily caused by the engine-driven pumps, which account for approximately 80 percent of the concentration at this receptor. The standby generators account for only 4.5 percent of the concentration at this receptor. Offsite sources and background account for 3.5 percent and 12 percent of the concentration at this receptor, respectively. Background NO_2 concentration data were obtained using the 1997 ALLSUM database entry for the Rosenstiel School-Virginia Key monitoring station.

6.5.4 Air Toxics Impact Assessment

EPA guidance on the assessment of non-regulated "toxic pollutants" requires that permit applicants evaluate emissions of toxic air pollutants that could be emitted 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 PAHs.

Table 6-3
Comparison of Ambient NO_2 Concentrations with NAAQS
EMD Model 20F4B Standby Generators

	Ambient Concentration (μg/m³)				
	1987	1988	1989	1990	1991
Everglades National Park Class I Area					
Alexander Orr, Jr. WTP	0.40	0.32	0.40	0.53	0.36
Offsite Sources	3.37	3.12	2.46	3.87	3.76
All Sources	3.37	3.44	2.86	4.40	4.13
Background Concentration	12.0	12.0	12.0	12.0	12.0
Maximum Predicted Concentration	15.4	15.4	14.9	16.4	16.1
Location	(17,019 m, 288 deg)	(17,019 m, 288 deg)	(17,019 m, 288 deg)	(16,020 m, 268 deg)	(17,019 m, 288 deg)
Class II Areas					
Alexander Orr, Jr. WTP	68.1	65.5	77.6	79.2	84.2
Offsite Sources	2.5	2.6	2.4	2.7	3.3
All Sources	70.6	68.1	80.0	82.0	87.5
Background Concentration	12.0	12.0	12.0	12.0	12.0
Maximum Predicted Concentration	82.6	80.1	92.0	94.0	99.5
Location	(195 m, 6 deg)	(195 m, 6 deg)	(195 m, 6 deg)	(195 m, 6 deg)	(195 m, 6 deg)
NAAQS - NO_2	100.0	100.0	100.0	100.0	100.0

Notes:

[1] Includes standby generators, cogeneration engines, and diesel blower engines

Q_s = 11.6 g/s NO_x

NO_2:NO_x = 0.75

Annual power output 40,110,000 kW-hr

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. The 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 and maximum predicted concentrations 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 and concentrations predicted by the ISCST3 model.

In addition to calculation of annual average concentrations, initial modeling of emissions from the standby generators were also calculated for 1-hour and 24-hour averaging periods. This was done to facilitate determination of short-term toxic pollutant concentrations for comparison to the Florida ARCs. Maximum 8-hour average concentrations were calculated by adjusting the maximum 1-hour model-predicted concentration by a factor of 0.7. To calculate 24-hour average and annual average concentrations, the model-predicted concentration was directly scaled to the emission rate of each specific pollutant.

Estimated maximum impacts presented 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 operation of the standby generators does not present any significant threat to offsite receptors.

Table 6-4
Summary of Toxic Pollutant Impacts[1]
EMD 20F4B Standby Generators

	Emission Rate (mg/s)		Maximum Predicted Concentration (µg/m^3)			Florida Ambient Reference Concentration (µg/m^3)		
Pollutant	Max Hourly[2]	Annual Average[3]	8-Hour Average[4]	24-Hour Average[4]	Annual Average[5]	8-Hour Average	24-Hour Average	Annual Average
Benzene	2.622	1.999	6.90	3.94	0.006	30	7	0.12
Toluene	0.949	0.715	2.50	1.43	0.002	1880	448	400
Xylenes	0.652	0.494	1.72	0.981	0.001	4340	1033	80
Formaldehyde	0.267	0.202	0.702	0.401	<0.001	3.7	0.9	0.077
Acetaldehyde	0.085	0.064	0.224	0.128	0.002	450	107	0.5
Acrolein	0.027	0.020	0.070	0.040	<0.001	2.3	0.5	0.02
Naphthalene	0.439	0.333	1.16	0.661	<0.001	50	119	-
Flourene	0.043	0.033	0.114	0.065	<0.001	2.0	0.5	50
Benz(a)anthracene	0.002	0.002	0.006	0.003	4.66e-6	-	-	0.0011
Chrysene	0.005	0.004	0.013	0.008	1.15e-5	2.0	0.5	-
Benzo(a)pyrene	0.001	0.001	0.002	0.001	1.92e-6	-	-	0.0003
Dibenz(a,h)anthracene	0.001	0.001	0.003	0.002	2.59e-6	-	-	0.000071

Notes:

[1] Maximum Unit Risk Factors obtained from model: 1-hour = 3761, annual = 2.93
8-hour Unit Risk Factor = 0.7(1-hour Unit Risk Factor) = 2,633

[2] Max hourly emission rate = (lb pollutant/MMBtu)(26.79 MMBtu/hr-gen)(1 gen)(454 g/lb)(hr/3,600 s)

[3] Max annual average emission rate = (max hourly emission rate)(annual capacity factor) where annual capacity factor = (19,000,000 kW-hr)/((8,760 hr)(2865 kW)) = 0.757

[4] 8-hour average concentration = (max hourly emission rate)(8-hour Unit Risk Factor) 24-hour average concentration = (max hourly emission rate)(24-hour Unit Risk Factor)

[5] Annual average concentration = (annual avg emission rate)(annual Unit Risk Factor)

SECTION 7

Additional Impact Analyses

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

The Federal Land Managers (FLM) has requested that air emissions associated with the proposed modification be evaluated with respect to visibility impact. The PSD and visibility guidelines of EPA require evaluating a type of visibility impairment known as "plume blight," which can be traced to a single source or small groups of sources. Sources of air pollution can cause visible plumes if emissions of particulate and NO_x are sufficiently large. A plume will be visible if its constituents scatter or absorb sufficient light so that the plume is brighter or darker than its viewing background. The Plume Visual Impact Screening Model (VISCREEN) was used to perform the plume blight visibility analysis according to methodology in the VISCREEN manual (EPA, 1992). VISCREEN is an EPA-approved screening model for visibility that makes use of conservative (i.e., visibility-protective) assumptions that may not accurately represent site-specific conditions. The VISCREEN output files are included in Appendix D.

7.2 VISCREEN Analysis of Plume Visual Impacts

7.2.1 Model Overview

The objective of plume visual impact screening and analysis is to determine whether a plume is visible as an object itself. VISCREEN makes the determination by calculating the contrast and color difference parameter (Δ E) of the plume against a sky background and against a terrain background. The results are compared to contrast and Δ E perception screening criteria values. For this project, VISCREEN calculated these parameters for emission rates of NO_x and PM-10. Emissions from the standby generators were assumed to create an infinitely long, straight plume whose position was specified by the user.

The visibility analysis involved determination of worst-case, site-specific dispersion conditions using 5 years of sequential, hourly meteorological data. Wind frequency distributions were constructed based on stability class, wind direction, wind speed, and time of day. It was assumed unlikely that steady-state plume conditions could persist for more than 12 hours. Therefore, wind speeds that result in a transport time beyond 12 hours from the source to the observer were not considered. This approach is consistent with EPA's guidance recommendations (EPA, 1992).

7.2.2 Modeling Approach

The VISCREEN model was run to assess the impact of the standby generators on visibility inside and outside of the Everglades National Park.

7.2.3 Input Parameters

Impacts on visibility from the standby generators will be most affected by NO_x and PM-10. The maximum potential emission rates for these pollutants will be 29.0 g/s and 0.7 g/s, respectively. The emission rates are based on the maximum hourly emissions from all four 20F4B generators at the Alexander Orr, Jr. WTP (see emission calculations in Attachment 5 of the Air Permit Application [Appendix A]). No soot or primary sulfate (SO_4) emission increases were estimated from the proposed modification.

VISCREEN requires inputs of emission rates for PM-10 and NO_x, observer distance, minimum and maximum viewing distances from the source to the Class I area boundaries, standard visual ranges, and background ozone concentrations. The observer distance is the distance from the Alexander Orr, Jr. WTP to the Shark Valley Lookout Tower, which is 43 km. Two plume center lines offset by 11.25 degrees on either side of the observer line were drawn to determine the minimum and maximum viewing distances. The minimum viewing distance is the shortest distance from the standby generators to the park boundary along either viewing line. In this case, the minimum viewing distance is 16.75 km. The maximum viewing distance is the longest distance from the standby generators to the farthest park boundary along either viewing line. In this case, the maximum viewing distance is 110.5 km.

The 90th percentile standard visual ranges were obtained from FLM. Standard visual ranges and background ozone concentrations provided for each season were used in the analysis

(Morse, 1997). Default particle size information and plume offset angles (plume-source observer angles) were selected as recommended by the model.

Site-specific meteorological data were used in the VISCREEN modeling analysis. The joint frequency distribution of dispersion conditions, calculated from stability, wind speed, and plume offset angle measured near the emission source, is an important requirement for the plume visual impact analysis. A table was constructed that ranked combinations of stability class and wind speed from worst to best in terms of dispersion condition (see Appendix D).

Five years of meteorological data from MIA (1987–1991) were used to determine relative frequencies of various wind speeds. Stability class/wind speed combinations were determined for all daylight hours when the wind was blowing from the east toward the Everglades Class I area (i.e., from the source to the observer). The worst-case meteorological condition was then selected by determining the frequency of occurrence of each wind speed/stability combination and identifying a condition such that the frequency of worse dispersion conditions totaled 1 percent (cumulative frequency of all dispersion conditions exceeds 1 percent). This means that if the wind seldom blows toward the Class I area, more unstable conditions will need to be considered before 1 percent of the annual winds can be accounted for (this implies lower visual impact potential). At the direction of the National Park Service, only daylight hours, including the hour before sunrise and the hour after sunset, were used for this analysis. Based on this analysis, worst-case meteorological conditions are stability category E with a wind speed of 2 m/s. A summary of the input parameters for the visibility analysis are provided in Table 7-1.

The visual impact inside and outside of an area for observers on the boundaries of an area are characterized by two parameters: Δ E and plume contrast. Δ E is perhaps the most appropriate plume perceptibility parameter because it is based on the human eye-brain system's relative sensitivity to all wavelengths in the visible spectrum. Contrast is the parameter most commonly used in the published literature to describe the overall sensitivity of the human eye-brain system. Contrast is also the most easily calculated plume visibility parameter. EPA recommends default acceptance criteria for Δ E and contrast of 2.00 and ±0.05, respectively. These criteria were used in the model.

Table 7-1
VISCREEN Input Parameters
Alexander Orr, Jr. WTP

Input Parameter	Value
Emission Rate (g/s)	
NO_x	29.00
PM-10	0.70
Mass Median Diameters (µm)	Default
Density (g/cm^3)	Default
Background Ozone (ppm)–Everglades National Park	
Spring	0.061
Summer	0.040
Autumn	0.047
Winter	0.045
Wind Speed (m/s)	2.00
Stability Class	E
Plume Offset Angle (degrees)	11.25
Background Visual Range (km)–Everglades National Park	
Spring	47
Summer	59
Autumn	63
Winter	43

7.2.4 Modeling Results

The VISCREEN results for each season inside and outside the Class I area are summarized in Table 7-2. Maximum visibility impacts are predicted to occur during the autumn months. Autumn Δ E and contrast values of 0.968 and -0.005, respectively, predicted inside the Class I area and autumn Δ E and contrast values of 0.560 and -0.005, respectively, predicted outside the Class I area were all within acceptable criteria. The analysis shows that this project will not cause visibility criteria to be exceeded in Everglades National Park or in any of the surrounding Class II areas.

7.3 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 NO_2 is the same as the primary standard (100 µg/m^3). Because it has been shown that 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.

Table 7-2
VISCREEN Results—Everglades National Park
Alexander Orr, Jr. WTP

Season	ΔE	Contrast
Inside Class I Area		
Spring	0.743	-0.003
Summer	0.914	-0.004
Autumn	0.968	-0.005
Winter	0.681	-0.003
Outside Class I Area		
Spring	0.246	-0.002
Summer	0.476	-0.005
Autumn	0.560	-0.005
Winter	0.182	-0.002

[a] Indicates plume impacts that exceed screening criteria

Vegetation and soils are also affected by acid deposition. Acid deposition is caused by the conversion of SO_2 and NO_2 in exhaust gases to sulfuric and nitric acids (H_2SO_4 and HNO_3, respectively) in the presence of water in the air. The acids are the deposited onto vegetation and soils by fog, rain, or snow (snow is an extremely rare occurrence in the Everglades). The maximum ambient concentration of 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 HNO_3 deposition in the Class I area. The calculation was performed assuming all NO_x emissions were converted to HNO_3.

Calculations of acid deposition within the Everglades Class I Area are summarized in Table 7-3. These acid deposition rates have been calculated according to the method provided in the *Interagency Workgroup on Air Quality Modeling (IWAQM) Phase I Report: Interim Recommendation for Modeling Long Range Transport Impacts on Regional Visibility, April 1993.* The maximum NO_x concentration at any receptor in the Everglades Class I Area associated with sources at the Alexander Orr, Jr. WTP, as predicted by the ISC3 model, is 0.70 $\mu g/m^3$. The standby generators account for 0.51 $\mu g/m^3$ at this receptor. The resulting HNO_3 deposition rates are 0.96 $\mu g/m^3$ and 0.70 $\mu g/m^3$ for the plant and generators, respectively. Conversion of units gives HNO_3 deposition rates of 106.3 kg/hectare-year (plant) and 76.8 kg/hectare-year (generators).

Table 7-3
Acid Deposition in the Everglades National Park Class I Area
Alexander Orr, Jr. WTP

Source	Highest Predicted Conc. ($\mu g/m^3$)		Accumulation Rate (μg-s/m^3-yr)[3]	HNO_3 Deposition Rate[4]	
	NO_x[1]	HNO_3[2]		($\mu g/m^2$-yr)	(kg/hectare-yr)
20F4B Generators	0.508	0.696	2.19E+07	1.10E+06	76.8
Entire Plant	0.703	0.963	3.04E+07	1.52E+06	106.3

[1] Predicted by ISCST3 model for year 1990 to occur on the eastern park boundary.
[2] Assumes complete conversion of NO_x to HNO_3.
[3] Obtained by multiplying the annual average HNO_3 concentration by 3.1536E+7 seconds/yr.
[4] Obtained by multiplying the accumulation rate by the deposition velocity of HNO_3, which is 0.05 m/s.

7.4 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 produce water. Because it is the capacity of the plant to produce water that is linked to growth, the standby generators will not have any significant impact on growth in the area. In addition, employment at the Alexander Orr, Jr. WTP for the purpose of maintaining the standby generators is not expected to increase. Therefore, no significant impact on local air quality conditions is expected.

7.5 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 Alexander Orr, Jr. WTP. Miami-Dade County is classified as an attainment area for ozone. The facility is not expected to impact any nonattainment areas based on the air quality impact analysis performed.

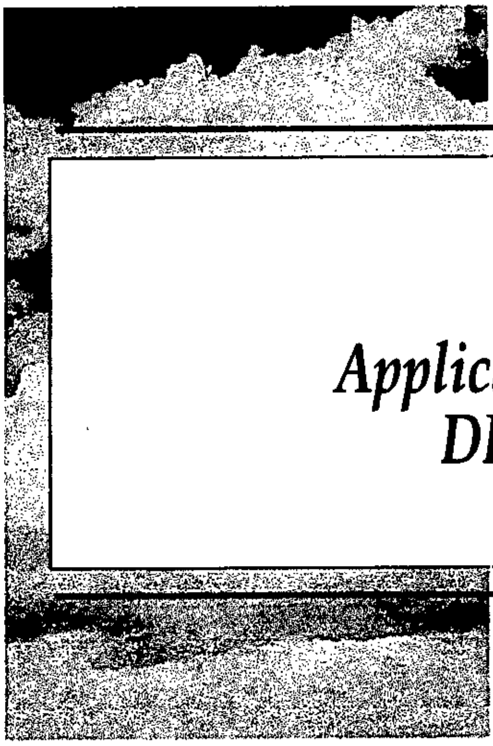
References

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_2 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.



APPENDIX A

Application for Air Permit-- DEP Form 62-210.900(1)

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 Dept.

2. Site Name :
Alexander Orr, Jr. WTP

3. Facility Identification Number : 50WPB13 [ ] Unknown

4. Facility Location :
Alexander Orr, Jr. Water Treatment Plant
Miami-Dade Water & Sewer Dept.

Street Address or Other Locator : 6800 S.W. 87th Avenue
City : Miami County : Miami-Dade Zip Code : 33133 0316

5. Relocatable Facility?
[ ] Yes [X] No

6. Existing Permitted Facility?
[X] Yes [ ] No

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, Treatment Facilities

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

Organization/Firm : Miami-Dade Water & Sewer Dept.
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)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.*

RC Ready 4-22-98
Signature Date

* Attach letter of authorization if not currently on file.

Scope of Application

Emissions Unit ID	Description of Emissions Unit	Permit Type
001-004	Pump Engine Nos. 1, 3, & 4 (Diesel)	AC1E
005	Pump Engine No. 5 (Diesel)	AC1C
006	Pump Engine No. 6 (Dual Fuel)	AC1C
009-012	4 Generator Sets (20F4B)	AC1A

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 Fule 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).

Current operation permit number(s), if any :

[X] 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) :
AO13-177245

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

Application Processing Fee

Check one :

[X] Attached - Amount : $13000.00 [ ] Not Applicable.

Construction/Modification Information

1. Description of Proposed Project or Alterations :

Construction permits are requested for 3 existing permitted 825 bhp diesel engine-driven pumps, 1 existing permitted 1500 bhp diesel engine-driven pump, 1 existing permitted 2115 bhp dual fuel engine-driven pump, and 4 existing unpermitted generator sets. All 3 825 bhp engines are proposed in this application as a single, collectively regulated emissions unit. All 4 generator sets are proposed in this application as a single, collectively regulated emissions unit. The 1500 bhp and 2115 bhp engines are proposed in this application as a single, collectively regulated emissions unit.

The engine-driven pumps are covered under FDEP operating permit no AO13-177245. This application for construction permit is to establish enforceable emissions limitations to minimize impact on ambient air quality. No actual increase or decrease in emissions is anticipated to result from issuance of this permit.

The Miami-Dade Water & Sewer Dept request a construction permit to allow increased operation of these generator sets. This project will result in a new major source of emissions.

2. Projected or Actual Date of Commencement of Construction : 01-May-1998

3. Projected Date of Completion of Construction : 01-Jul-1998

Professional Engineer Certification

1. Professional Engineer Name : David E. Lindberg, P.E.
Registration Number : 50036

2. Professional Engineer Mailing Address :

Organization/Firm : CH2M HILL
Street Address : 800 Fairway Drive, Suite 350
City : Deerfield Beach State : FL Zip Code : 33441-1831

3. Professional Engineer Telephone Numbers :
Telephone : (954)426-4008 Fax : (954)698-6010

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 Lindsay
Signature

24 March 1998
Date

* Attach any exception to certification statement.

David Lindsay
3/24/98

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 & Sewer Dept.
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 construction permits for 5 engine-driven pumps and 4 generator sets.

The application fee of $13000 submitted for this application consists of $7500 for the generator sets (403 tpy NOx emissions - PSD review), $4500 for engine-driven pump nos. 5 & 6 (79.8 tpy NOx emissions), and $1,000 for engine-driven pump nos. 1, 3, & 4 (24.5 tpy NOx emissions). A single emissions limit is requested for pump engine nos. 5 & 6. The Miami-Dade Water & Sewer Dept. requests that one application fee of $4500 be applied to both engines.

The total emissions increase associated with this project is greater than 250 tons per year NOx. Information included in these construction permit applications should be assimilated into the Title V operating permit application submitted to the Department.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility, Location, and Type

1. Facility UTM Coordinates :
Zone : 17 East (km) : 566.60 North (km) : 2843.50

2. Facility Latitude/Longitude :
Latitude (DD/MM/SS) : 25 42 30 Longitude (DD/MM/SS) : 80 20 10

3. Governmental Facility Code : 3	4. Facility Status Code : A	5. Facility Major Group SIC Code : 49	6. Facility SIC(s) : 4941

7. Facility Comment :

The facility is a water treatment plant.

Facility Contact

1. Name and Title of Facility Contact :
Tom Segars
Superintendent of Water Production

2. Facility Contact Mailing Address :
Organization/Firm : Miami-Dade Water & Sewer Dept.
Street Address : 700 W. Second Ave.
City : Hialeah State : FL Zip Code : 33010-0006

3. Facility Contact Telephone Numbers :
Telephone : (305)888-2522 Fax : (305)889-0156

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

The Alexander Orr, Jr. WTP is a major source of air pollution and is required to obtain a Title V operating permit (Chapter 62-213, FAC). An application has been submitted to the Department.

Current actual emissions are below major PSD source levels. This application requests a permit to construct a new major source, and a permit to modify an existing minor source. General Preconstruction Review applies to the minor modification (Chapter 62-212.300, FAC) and PSD Preconstruction Reveiw applies to the major new source (Chapter 62-212.400, FAC).

B. FACILITY REGULATIONS

List of Applicable Regulations

Chapter 62-204.240, FAC: Ambient Air Quality Standards

62-296.320, FAC: General Pollutant Emissions Limiting Standards

C. FACILITY POLLUTANTS

Facility Pollutant Information

1. Pollutant Emitted	2. Pollutant Classification
PM	B
NOX	A
CO	A

D. FACILITY POLLUTANT DETAIL INFORMATION

Facility Pollutant Information Pollutant 4

1. Pollutant Emitted : PM

2. Requested Emissions Cap :
(lbs/hour) (tons/year)

3. Basis for Emissions Cap Code :

4. Facility Pollutant Comment :

No emissions cap is requested for PM.

D. FACILITY POLLUTANT DETAIL INFORMATION

Facility Pollutant Information Pollutant 1

1. Pollutant Emitted : NOX

2. Requested Emissions Cap : (lbs/hour) (tons/year)

3. Basis for Emissions Cap Code :

4. Facility Pollutant Comment :

No emissions cap is requested for NOx.

D. FACILITY POLLUTANT DETAIL INFORMATION

Facility Pollutant Information Pollutant 2

1. Pollutant Emitted :	CO
2. Requested Emissions Cap :	(lbs/hour) (tons/year)
3. Basis for Emissions Cap Code :	
4. Facility Pollutant Comment : No emissions cap is requested for CO.	

D. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements for All Applications

1. Area Map Showing Facility Location :	Attachment 1
2. Facility Plot Plan :	Attachment 2
3. Process Flow Diagram(s) :	NA
4. Precautions to Prevent Emissions of Unconfined Particulate Matter :	NA
5. Fugitive Emissions Identification :	NA
6. Supplemental Information for Construction Permit Application :	Attachment 3

Additional Supplemental Requirements for Category I Applications Only

7. List of Proposed Exempt Activities :	NA
8. List of Equipment/Activities Regulated under Title VI :	NA
9. Alternative Methods of Operation :	NA
10. Alternative Modes of Operation (Emissions Trading) :	NA
11. Identification of Additional Applicable Requirements :	NA
12. Compliance Assurance Monitoring Plan :	NA
13. Risk Management Plan Verification :	NA
14. Compliance Report and Plan :	NA
15. Compliance Certification (Hard-copy Required) :	NA

III. EMISSIONS UNIT INFORMATION

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

Emissions Unit Information Section 1

Pump Engine Nos. 1, 3, & 4 (Diesel)

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. EMISSIONS UNIT INFORMATION

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

Emissions Unit Information Section 2

Pump Engine No. 5 (Diesel)

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. EMISSIONS UNIT INFORMATION

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

Emissions Unit Information Section 3

Pump Engine No. 6 (Dual Fuel)

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. EMISSIONS UNIT INFORMATION

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

Emissions Unit Information Section 4

4 Generator Sets (20F4B)

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.

Emissions Unit Information Section 1

B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section :

Pump Engine Nos. 1, 3, & 4 (Diesel)

2. Emissions Unit Identification Number : 001-004
[ ] No Corresponding ID [ ] Unknown

3. Emissions Unit Status Code : A	4. Acid Rain Unit? [ ] Yes [X] No	5. Emissions Unit Major Group SIC Code : 49

6. Emissions Unit Comment :

Pump engine no. 2 has been permanently removed from service. Pump engine nos. 1, 3, & 4 each drive a 15 mgd pump.

Emissions Unit Information Section 2

B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section : Pump Engine No. 5 (Diesel)		
2. Emissions Unit Identification Number : 005 [ ] No Corresponding ID [ ] Unknown		
3. Emissions Unit Status Code : A	4. Acid Rain Unit? [ ] Yes [X] No	5. Emissions Unit Major Group SIC Code : 49
6. Emissions Unit Comment : Pump engine no. 5 drives a 40 mgd pump.		

Emissions Unit Information Section 3

B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section :

Pump Engine No. 6 (Dual Fuel)

2. Emissions Unit Identification Number : 006

[ ] No Corresponding ID [ ] Unknown

3. Emissions Unit Status Code : A	4. Acid Rain Unit? [ ] Yes [X] No	5. Emissions Unit Major Group SIC Code : 49

6. Emissions Unit Comment :

Pump engine no. 6 drives a 50 mgd pump.

Emissions Unit Information Section 4

B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section :

4 Generator Sets (20F4B)

2. Emissions Unit Identification Number :
[X] No Corresponding ID [ ] Unknown

3. Emissions Unit Status Code : C

4. Acid Rain Unit? [ ] Yes [X] No

5. Emissions Unit Major Group SIC Code : 49

6. Emissions Unit Comment :

Emission unit consists of four 4,000 hp diesel fueled and turbocharged internal combustion engine prime movers, each coupled to a 2,865 kW electrical generator.

Emissions Unit Information Section 4

4 Generator Sets (20F4B)

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 : 99

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 1
Pump Engine Nos. 1, 3. & 4 (Diesel)

Emissions Unit Details

1. Initial Startup Date : 01-Aug-1951

2. Long-term Reserve Shutdown Date :

3. Package Unit :
Manufacturer : Worthington
Model Number : VO-3242

4. Generator Nameplate Rating : MW

5. Incinerator Information :
Dwell Temperature : Degrees Fahrenheit
Dwell Time : Seconds
Incinerator Afterburner Temperature : Degrees Fahrenheit

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate : mmBtu/hr

2. Maximum Incinerator Rate : lb/hr tons/day

3. Maximum Process or Throughput Rate :

4. Maximum Production Rate : 825 bhp

5. Operating Capacity Comment :
Engine rpm and fuel consumption are indicators of operating capacity.

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :
hours/day
days/week
weeks/year
4,380 hours/year

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 2

Pump Engine No. 5 (Diesel)

Emissions Unit Details

1. Initial Startup Date : 01-Sep-1956

2. Long-term Reserve Shutdown Date :

3. Package Unit :
   Manufacturer : Worthington Model Number : VO-3451 (SDR)

4. Generator Nameplate Rating : MW

5. Incinerator Information :
   Dwell Temperature : Degrees Fahrenheit
   Dwell Time : Seconds
   Incinerator Afterburner Temperature : Degrees Fahrenheit

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate : mmBtu/hr

2. Maximum Incinerator Rate : lb/hr tons/day

3. Maximum Process or Throughput Rate :

4. Maximum Production Rate : 1500 bhp

5. Operating Capacity Comment :
   Engine rpm and fuel consumption are indicators of operating capacity. Power output limit of 18,520,000 bhp-hr for engine nos. 5 & 6 requested.

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :
hours/day days/week
weeks/year 4,866 hours/year

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 3

Pump Engine No. 6 (Dual Fuel)

Emissions Unit Details

1. Initial Startup Date : 01-May-1961

2. Long-term Reserve Shutdown Date :

3. Package Unit :
Manufacturer : Enterprise Model Number : VO-61001

4. Generator Nameplate Rating : MW

5. Incinerator Information :
Dwell Temperature : Degrees Fahrenheit
Dwell Time : Seconds
Incinerator Afterburner Temperature : Degrees Fahrenheit

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate : mmBtu/hr

2. Maximum Incinerator Rate : lb/hr tons/day

3. Maximum Process or Throughput Rate :

4. Maximum Production Rate : 2113 hp

5. Operating Capacity Comment :
Engine rpm and fuel consumption are indicators of operating capacity. Power output limit of 18,520,000 bhp-hr for engine nos. 5 & 6 requested.

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :
hours/day days/week
weeks/year 8,760 hours/year

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 4

4 Generator Sets (20F4B)

Emissions Unit Details

1. Initial Startup Date : 01-May-1998

2. Long-term Reserve Shutdown Date :

3. Package Unit :
   Manufacturer : Electro-Motive Division of General Motor Model Number : 20-645F4B

4. Generator Nameplate Rating : 3 MW (2.865 MW)

5. Incinerator Information :
   Dwell Temperature : Degrees Fahrenheit
   Dwell Time : Seconds
   Incinerator Afterburner Temperature : Degrees Fahrenheit

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate : mmBtu/hr

2. Maximum Incinerator Rate : lb/hr tons/day

3. Maximum Process or Throughput Rate :

4. Maximum Production Rate : 2865 KW

5. Operating Capacity Comment :
   Generator nameplate rating and maximum production rate listed above are for a single generator set.

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :
hours/day days/week
weeks/year 8,760 hours/year

D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

Emissions Unit Information Section 1

Pump Engine Nos. 1, 3, & 4 (Diesel)

Rule Applicability Analysis

No change in actual emissions is being requested for this emissions unit. Emissions limits are being requested to minimize ambient pollutant concentrations predicted by the air quality impact analysis performed for the 20F4B generator sets. General Preconstruction Review (Chapter 62-212.300, FAC) applies to the application for this emissions unit.

D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

Emissions Unit Information Section 2
Pump Engine No. 5 (Diesel)

Rule Applicability Analysis

No change in actual emissions is being requested for this emissions unit. Emissions limits are being requested to minimize ambient pollutant concentrations predicted by the air quality impact analysis performed for the 20F4B generator sets. General Preconstruction Review (Chapter 62-212.300, FAC) applies to the application for this emissions unit.

D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

Emissions Unit Information Section 3
Pump Engine No. 6 (Dual Fuel)

Rule Applicability Analysis

No change in actual emissions is being requested for this emissions unit. Emissions limits are being requested to minimize ambient pollutant concentrations predicted by the air quality impact analysis performed for the 20F4B generator sets. General Preconstruction Review (Chapter 62-212.300, FAC) applies to the application for this emissions unit.

D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

Emissions Unit Information Section 4
4 Generator Sets (20F4B)

Rule Applicability Analysis

The increase in emissions of NOx associated with proposed operation of the standby generators constitues 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 ______

List of Applicable Regulations

E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 1

Pump Engine Nos. 1, 3, & 4 (Diesel)

Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram :	#1CC, #3CC, #4CC	
2. Emission Point Type Code :	3	
3. Descriptions of Emission Points Comprising this Emissions Unit : CC Engine No. 1 (south end): vertical stack outside building with silencer.		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :		
5. Discharge Type Code :	V	
6. Stack Height :	31	feet
7. Exit Diameter :	0.67	feet
8. Exit Temperature :	735	°F
9. Actual Volumetric Flow Rate :	1,392	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) : 566.598 North (km) : 2,843.531		
14. Emission Point Comment :		

E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 1 .

Pump Engine Nos. 1, 3, & 4 (Diesel)

Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram : #1CC, #3CC, #4CC

2. Emission Point Type Code : 3

3. Descriptions of Emission Points Comprising this Emissions Unit :

   CC Engine No. 3 (2nd from south end): vertical stack outside building with silencer.

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :

5. Discharge Type Code : V

6. Stack Height : 31 feet

7. Exit Diameter : 0.67 feet

8. Exit Temperature : 735 °F

9. Actual Volumetric Flow Rate : 1,392 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) : 566.598 North (km) : 2,843.531

14. Emission Point Comment :

E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 1

Pump Engine Nos. 1, 3, & 4 (Diesel)

Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram : #1CC, #3CC, #4CC

2. Emission Point Type Code : 3

3. Descriptions of Emission Points Comprising this Emissions Unit :

CC Engine No. 4 (3rd from south end): vertical stack outside building with silencer.

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :

5. Discharge Type Code : V

6. Stack Height : 31 feet

7. Exit Diameter : 0.67 feet

8. Exit Temperature : 735 °F

9. Actual Volumetric Flow Rate : 1,392 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) : 566.598 North (km) : 2,843.531

14. Emission Point Comment :

E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 2

Pump Engine No. 5 (Diesel)

Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram : #5SDR

2. Emission Point Type Code : 1

3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking :
(limit to 100 characters per point)
SDR #5 (2nd from north end): vertical stack located outside the building with silencer.

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :

5. Discharge Type Code : V

6. Stack Height : 31 feet

7. Exit Diameter : 0.8 feet

8. Exit Temperature : 735 °F

9. Actual Volumetric Flow Rate : 3712 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) : 566.598 North (km) : 2843.550

14. Emission Point Comment :

E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 3

Pump Engine No. 6 (Dual Fuel)

Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram : #6 Enterprise

2. Emission Point Type Code : 1

3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking :
(limit to 100 characters per point)
Enterprise #6 (north end): vertical stack with silencer outside of the building.

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :

5. Discharge Type Code : V

6. Stack Height : 31 feet

7. Exit Diameter : 1.0 feet

8. Exit Temperature : 735 °F

9. Actual Volumetric Flow Rate : 1392 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) : 566.598 North (km) : 2843.570

14. Emission Point Comment :

E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 4

4 Generator Sets (20F4B)

Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram : Gen #1 - Gen #4

2. Emission Point Type Code : 3

3. Descriptions of Emission Points Comprising this Emissions Unit :

Generator No. 1 (east end): vertical stack located on top of the enclosure structure.

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :

5. Discharge Type Code : V

6. Stack Height : 29 feet

7. Exit Diameter : 1.75 feet

8. Exit Temperature : 635 °F

9. Actual Volumetric Flow Rate : 21,350 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) : 566.509 North (km) : 2,843.411

14. Emission Point Comment :

E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 4

4 Generator Sets (20F4B)

Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram : Gen #1 - Gen #4

2. Emission Point Type Code : 3

3. Descriptions of Emission Points Comprising this Emissions Unit :

   Generator No. 2 (2nd from east end): vertical stack located on top of the enclosure structure.

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :

5. Discharge Type Code : V

6. Stack Height : 29 feet

7. Exit Diameter : 1.75 feet

8. Exit Temperature : 635 °F

9. Actual Volumetric Flow Rate : 21,350 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) : 566.509 North (km) : 2,843.411

14. Emission Point Comment :

E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 4

4 Generator Sets (20F4B)

Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram : Gen #1 - Gen #4

2. Emission Point Type Code : 3

3. Descriptions of Emission Points Comprising this Emissions Unit :

   Generator No. 3 (3rd from east end): vertical stack located on top of the enclosure structure.

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :

5. Discharge Type Code : V

6. Stack Height : 29 feet

7. Exit Diameter : 1.75 feet

8. Exit Temperature : 635 °F

9. Actual Volumetric Flow Rate : 21,350 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) : 566.509 North (km) : 2,843.411

14. Emission Point Comment :

E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 4

4 Generator Sets (20F4B)

Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram : Gen #1 - Gen #4

2. Emission Point Type Code : 3

3. Descriptions of Emission Points Comprising this Emissions Unit :

Generator No. 4 (west end): vertical stack located on top of the enclosure structure.

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common :

5. Discharge Type Code : V

6. Stack Height : 29 feet

7. Exit Diameter : 1.75 feet

8. Exit Temperature : 635 °F

9. Actual Volumetric Flow Rate : 21,350 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) : 566.509 North (km) : 2,843.411

14. Emission Point Comment :

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

Pump Engine Nos. 1, 3, & 4 (Diesel)

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)	
2. Source Classification Code (SCC) : 2-02-004-01	
3. SCC Units : Thousand Gallons Burned (all liquid fuels)	
4. Maximum Hourly Rate : 0.03	5. Maximum Annual Rate : 131.40
6. Estimated Annual Activity Factor : 0.17	
7. Maximum Percent Sulfur : 0.05	8. Maximum Percent Ash :
9. Million Btu per SCC Unit : 132	
10. Segment Comment : Each unit consumes approximately 30 gal/hr diesel fuel at full capacity.	

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 2

Pump Engine No. 5 (Diesel)

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)

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

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

4. Maximum Hourly Rate : 0.08

5. Maximum Annual Rate : 657.00

6. Estimated Annual Activity Factor : 0.10

7. Maximum Percent Sulfur : 0.05

8. Maximum Percent Ash :

9. Million Btu per SCC Unit : 132

10. Segment Comment :

    Pump Engine No. 5 consumes approximately 75 gallons/hr diesel fuel at full capacity and serves as a backup to Pump Engine No. 6.

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 3

Pump Engine No. 6 (Dual Fuel)

Segment Description and Rate : Segment 1

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

Dual fuel internal combustion engines (emissions related to million cubic feet burned)

2. Source Classification Code (SCC) : 2-02-002-01

3. SCC Units : Million Cubic Feet Burned (all gaseous fuels)

4. Maximum Hourly Rate : 0.01

5. Maximum Annual Rate : 122.60

6. Estimated Annual Activity Factor : 0.90

7. Maximum Percent Sulfur : 0.05

8. Maximum Percent Ash :

9. Million Btu per SCC Unit : 1,050

10. Segment Comment :

Pump Engine No. 6 consumes 14,000 scf/hr natural gas and 15 gal/hr diesel fuel at full capacity

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 4

4 Generator Sets (20F4B)

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 kilowatt-hours power output)

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

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

4. Maximum Hourly Rate : 0.20

5. Maximum Annual Rate : 2,770.00

6. Estimated Annual Activity Factor : 0.50

7. Maximum Percent Sulfur : 0.05

8. Maximum Percent Ash :

9. Million Btu per SCC Unit : 132

10. Segment Comment :

Maximum hourly and annual fuel rates are based on a brake-specific fuel consumption (BSFC) of 0.346 lb/bhp-hr diesel fuel (density = 7.0 lb/gal) and 3500 hours per year operation, each. Total fuel consumption by all generators is 2,770,000 gallons (14,000 hours at full load).

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

Emissions Unit Information Section 1

Pump Engine Nos. 1, 3, & 4 (Diesel)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 - NOX			EL
2 - CO			NS

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

Emissions Unit Information Section 2
Pump Engine No. 5 (Diesel)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 - NOX			EL
2 - CO			NS

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

Emissions Unit Information Section 3

Pump Engine No. 6 (Dual Fuel)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 - NOX			EL
2 - CO			NS

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

Emissions Unit Information Section 4

4 Generator Sets (20F4B)

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			WP
5 - VOC			NS

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 2

Pump Engine No. 5 (Diesel)

Pollutant Potential/Estimated Emissions : Pollutant 1

1. Pollutant Emitted : **NOX**

2. Total Percent Efficiency of Control : %

3. Potential Emissions :
36.00 lb/hour 79.80 tons/year

4. Synthetically Limited?
[X] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:
to tons/year

6. Emissions Factor :
Reference : AP-42, Table 3.4-1

7. Emissions Method Code :

8. Calculations of Emissions :

(36 lb/hr NOx)(4433 hr/yr)(ton/2,000 lb) = 79.8 tpy

9. Pollutant Potential/Estimated Emissions Comment :

Potential emissions are based on burning diesel fuel only.

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 3
Pump Engine No. 6 (Dual Fuel)

Pollutant Potential/Estimated Emissions : Pollutant 1

1. Pollutant Emitted : **NOX**

2. Total Percent Efficiency of Control : %

3. Potential Emissions :
18.20 lb/hour 79.80 tons/year

4. Synthetically Limited?
[X] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:
to tons/year

6. Emissions Factor :
Reference : Historical Tests

7. Emissions Method Code : 1

8. Calculations of Emissions :

Based on source test results: 18.2 lb/hr NOx
(18.2 lb/hr NOx)(8,760 hr/yr)(ton/2,000 lb) = 79.8 tpy

9. Pollutant Potential/Estimated Emissions Comment :

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 4
4 Generator Sets (20F4B)

Pollutant Potential/Estimated Emissions : Pollutant 2

1. Pollutant Emitted : **NOX**

2. Total Percent Efficiency of Control : 28.00 %

3. Potential Emissions :
57.60 lb/hour 403.00 tons/year

4. Synthetically Limited?
[X] Yes [ ] No

5. Range of Estimated Fugitive/Other Emissions:
to tons/year

6. Emissions Factor :
Reference : Historical Tests

7. Emissions Method Code : 1

8. Calculations of Emissions :

lb/hr = (80 lb/hr uncontrolled)(0.72) = 57.6 lb/hr BACT
tons/year = (57.6 lb/hr)(14000 hrs/year)(ton/2,000 lb) = 403 tons/year

9. Pollutant Potential/Estimated Emissions Comment :

Power output = (14000 hrs/yr)(2865 kW) = 40,110,000 kW-hrs/yr.

Emissions Unit Information Section 2
Pump Engine No. 5 (Diesel)

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 :	36.00	lb/hr		
4. Equivalent Allowable Emissions :	36.00	lb/hour	79.80	tons/year
5. Method of Compliance : Annual stack testing for NOx-EPA Method 7 (or equivalent)				
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) : Limit proposed to reduce ambient concentration at fenceline. Highest predicted offsite ambient concentration is 99.5 µg/cu.m (including background).				

Emissions Unit Information Section 3

Pump Engine No. 6 (Dual Fuel)

Pollutant Information Section 1

Allowable Emissions 1

1. Basis for Allowable Emissions Code :	RULE			
2. Future Effective Date of Allowable Emissions :				
3. Requested Allowable Emissions and Units :	18.20	lb/hr		
4. Equivalent Allowable Emissions :	18.20	lb/hour	79.80	tons/year
5. Method of Compliance : Annual stack testing for NOx-EPA Method 7 (or equivalent)				
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) : Limit power output from engine nos 5 & 6 to 18,520,000 bhp-hr. Proposed to reduce ambient concentration at fenceline. Highest predicted offsite ambient concentration is 99.5 µg/cu.m (including background).				

Emissions Unit Information Section 4
4 Generator Sets (20F4B)

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 : 9.13 g/kW-hr

4. Equivalent Allowable Emissions :

   57.60 lb/hour 403.00 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 40,110,000 kW-hr. Highest offsite PSD increment consumption is 24.1 μg/cu.m.

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 1
Pump Engine Nos. 1, 3, & 4 (Diesel)

Visible Emissions Limitation : Visible Emissions Limitation 1

1. Visible Emissions Subtype :	VE
2. Basis for Allowable Opacity :	RULE
3. Requested Allowable Opacity : Normal Conditions : 20 % Exceptional Conditions : 40 % Maximum Period of Excess Opacity Allowed : 2 min/hour	
4. Method of Compliance : Perform annual VE Compliance monitoring using EPA Method 9.	
5. Visible Emissions Comment :	

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 2
Pump Engine No. 5 (Diesel)

Visible Emissions Limitation : Visible Emissions Limitation 1

1. Visible Emissions Subtype : VE

2. Basis for Allowable Opacity : RULE

3. Requested Allowable Opacity :

Normal Conditions :	20	%
Exceptional Conditions :	40	%
Maximum Period of Excess Opacity Allowed :	2	min/hour

4. Method of Compliance :

Perform annual VE Compliance monitoring using EPA Method 9.

5. Visible Emissions Comment :

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 3
Pump Engine No. 6 (Dual Fuel)

Visible Emissions Limitation : Visible Emissions Limitation 1

1. Visible Emissions Subtype : VE

2. Basis for Allowable Opacity : RULE

3. Requested Allowable Opacity :

Normal Conditions :	20	%
Exceptional Conditions :	40	%
Maximum Period of Excess Opacity Allowed :	2	min/hour

4. Method of Compliance :

Perform annual VE Compliance monitoring using EPA Method 9.

5. Visible Emissions Comment :

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 4
4 Generator Sets (20F4B)

Visible Emissions Limitation : Visible Emissions Limitation 1

1. Visible Emissions Subtype : 20

2. Basis for Allowable Opacity : RULE

3. Requested Allowable Opacity :

Normal Conditions :	20	%
Exceptional Conditions :	40	%
Maximum Period of Excess Opacity Allowed :	2	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 4

4 Generator Sets (20F4B)

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 :		0.0000 tons/year

5. PSD Comment :

The 20F4B generator sets were installed in 1987 as emergency standby generators and are unpermitted.

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

Emissions Unit Information Section 4

4 Generator Sets (20F4B)

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 :			0.0000	tons/year

5. PSD Comment :

The 20F4B generator sets were installed in 1987 as emergency generators and are unpermitted.

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

Emissions Unit Information Section 1

Pump Engine Nos. 1, 3, & 4 (Diesel)

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.

[ ] 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.

[X] 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?

[ ] 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.

[**X**] 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 : U SO2 : U NO2 : U

4. Baseline Emissions :

PM : lb/hour tons/year
SO2 : lb/hour tons/year
NO2 : tons/year

5. PSD Comment :

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

Emissions Unit Information Section 2

Pump Engine No. 5 (Diesel)

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.

[ ] 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.

[X] 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?

[ ] 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.

[X] 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 : U   SO2 : U   NO2 : U

4. Baseline Emissions :

PM :	lb/hour	tons/year
SO2 :	lb/hour	tons/year
NO2 :		tons/year

5. PSD Comment :

L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 1

Pump Engine Nos. 1, 3, & 4 (Diesel)

Supplemental Requirements for All Applications

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

Additional Supplemental Requirements for Category I Applications Only

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

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.)

L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 2

Pump Engine No. 5 (Diesel)

Supplemental Requirements for All Applications

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

Additional Supplemental Requirements for Category I Applications Only

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

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.)

L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 3

Pump Engine No. 6 (Dual Fuel)

Supplemental Requirements for All Applications

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

Additional Supplemental Requirements for Category I Applications Only

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

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.)

L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 4

4 Generator Sets (20F4B)

Supplemental Requirements for All Applications

1. Process Flow Diagram :	NA
2. Fuel Analysis or Specification :	Attachment 4
3. Detailed Description of Control Equipment :	Attachment 5
4. Description of Stack Sampling Facilities :	Attachment 6
5. Compliance Test Report :	Attachment 7
6. Procedures for Startup and Shutdown :	Attachment 8
7. Operation and Maintenance Plan :	NA
8. Supplemental Information for Construction Permit Application :	See 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. Alterntive Modes of Operation (Emissions Trading) :	NA

12. Identification of Additional Applicable Requirements :	NA
13. Compliance Assurance Monitoring Plan :	NA

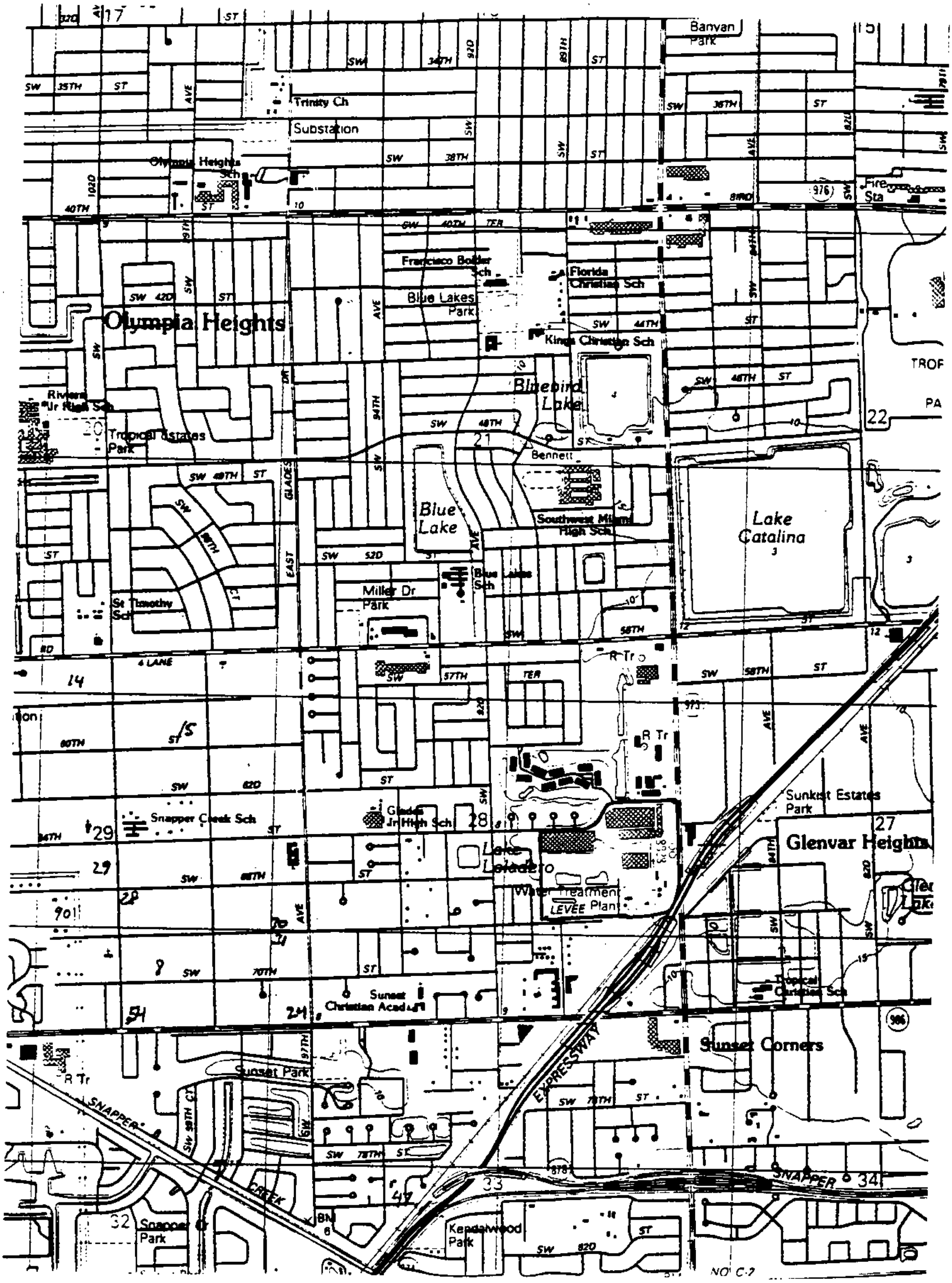
14. Acid Rain Application (Hard-copy Required) :

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.)

Attachment 1

Area Map (USGS)

South Miami, Florida



Banyan Park
Trinity Ch
Substation
Olympia Heights Sch
Fire Sta
Francisco Bolder Sch
Florida Christian Sch
Blue Lakes Park
Kings Christian Sch
Olympia Heights
Riviera Jr High Sch
Tropical Estates Park
Bluebird Lake
Bennett
Blue Lake
Southwest Miami High Sch
Lake Catalina
St Timothy Sch
Miller Dr Park
Blue Lakes Sch
R Tr
Snapper Creek Sch
Glades Jr High Sch
Lake Loladeto
Water Treatment Plant
LEVEE
Sunkist Estates Park
Glenvar Heights
Tropical Christian Sch
Sunset Christian Acad
Sunset Corners
EXPRESSWAY
Sunset Park
SNAPPER CREEK
Snapper Park
Kendalwood Park
GLADES
EAST
TROF
SW 35TH ST
SW 34TH ST
SW 36TH ST
SW 38TH ST
40TH
SW 40TH TER
SW 42D ST
SW 44TH ST
SW 48TH ST
SW 49TH ST
SW 52D
56TH
SW 57TH TER
SW 58TH ST
60TH
SW 62D
SW 66TH
SW 70TH ST
SW 78TH ST
SW 82D
4 LANE
973
976
986
878
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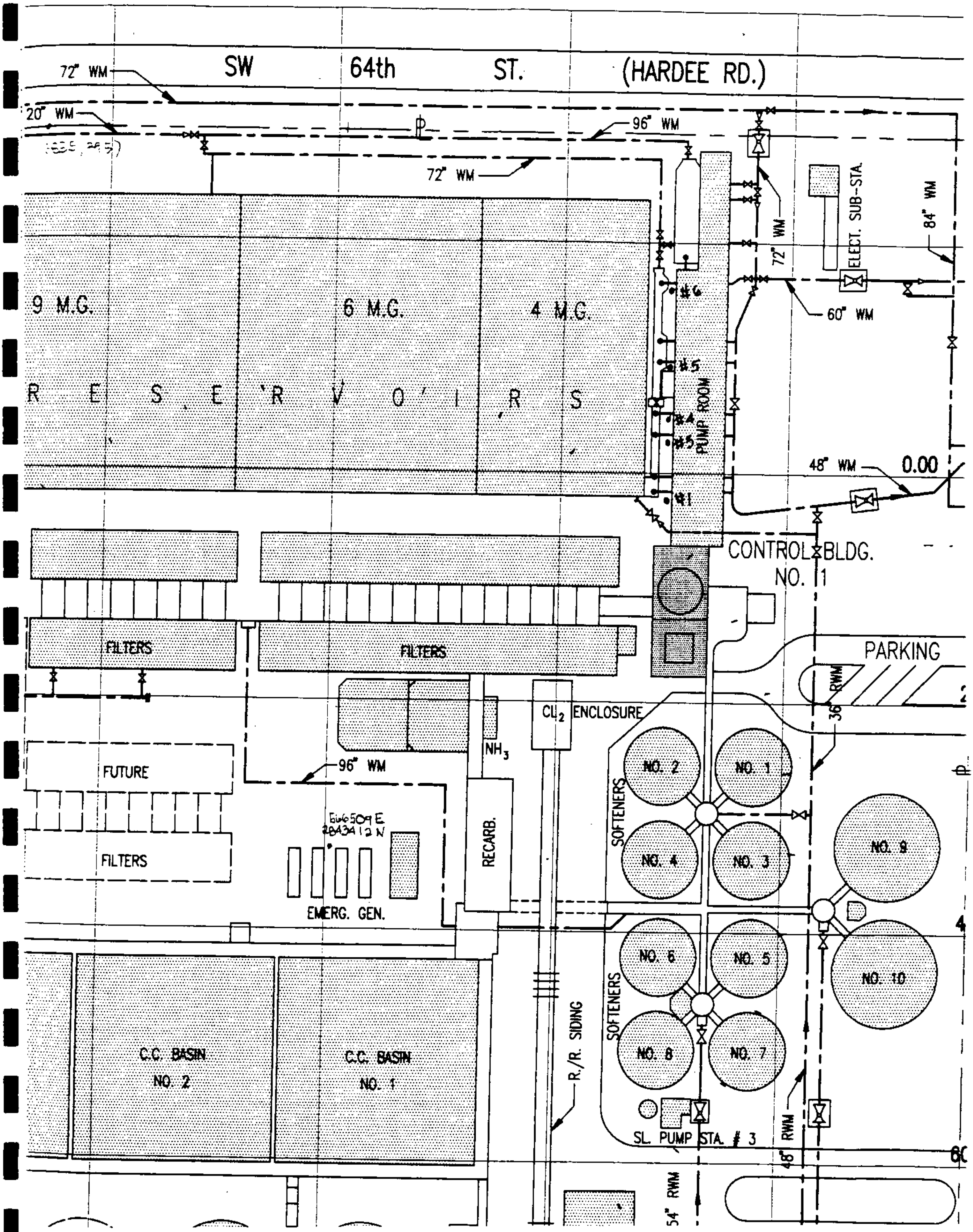
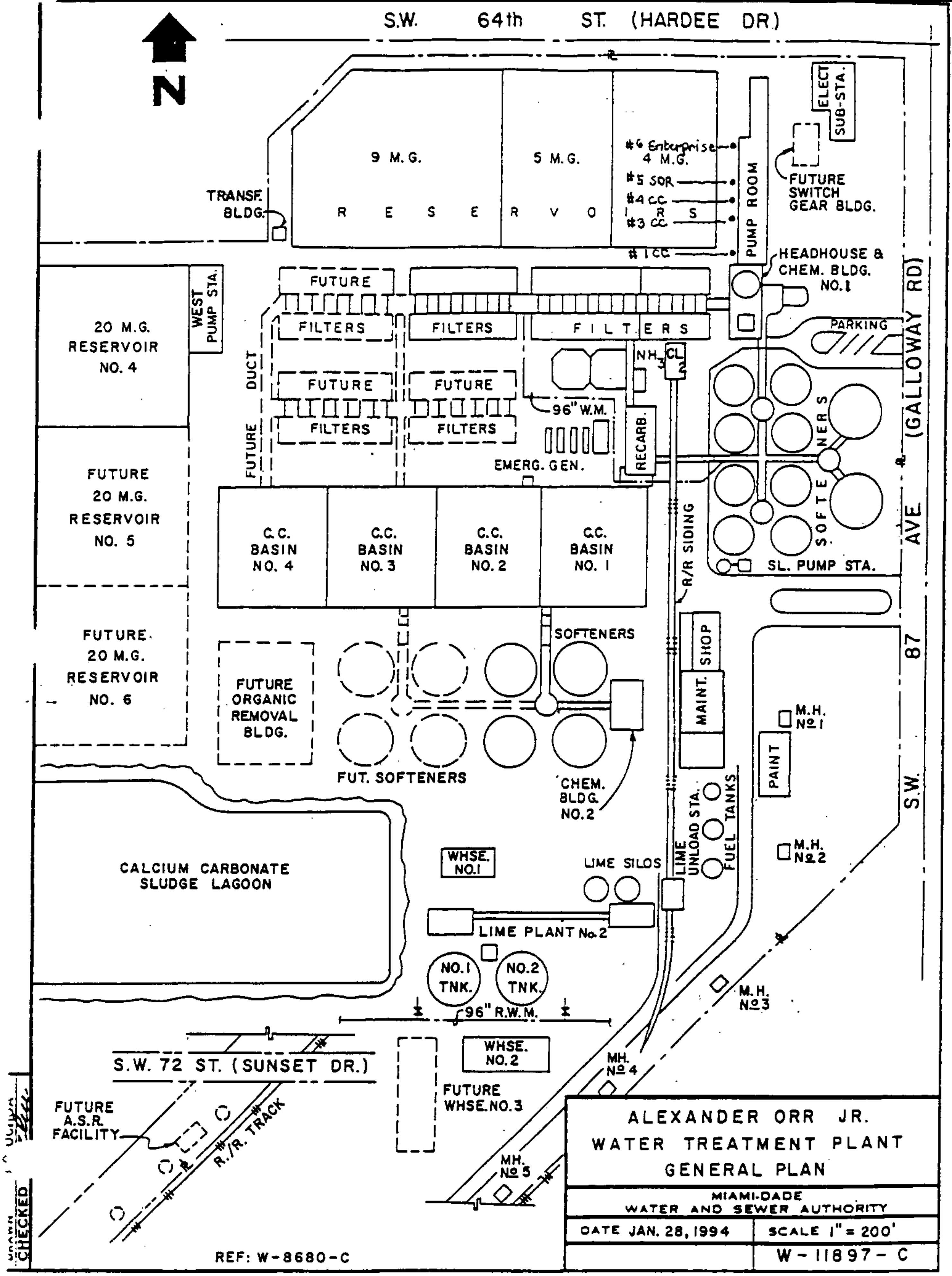
901
54
NO C-2

Attachment 2

Site Map

Alexander Orr, Jr. Water Treatment Plant


SW 64th ST. (HARDEE RD.)
72" WM
20" WM
(835,265)
96" WM
72" WM
72" WM
ELECT. SUB-STA.
84" WM
60" WM
9 M.G.
6 M.G.
4 M.G.
R E S E R V O I R S
#6
#5
#4
#3
#1
PUMP ROOM
48" WM
0.00
CONTROL BLDG.
NO. 1
FILTERS
FILTERS
PARKING
RWM
36"
CL$_2$ ENCLOSURE
NH$_3$
FUTURE
96" WM
SOFTENERS
NO. 2
NO. 1
NO. 4
NO. 3
NO. 9
646509 E
2843412 N
FILTERS
RECARB.
EMERG. GEN.
SOFTENERS
NO. 6
NO. 5
NO. 10
NO. 8
NO. 7
C.C. BASIN
NO. 2
C.C. BASIN
NO. 1
R./R. SIDING
SL. PUMP STA. # 3
RWM
48"
54" RWM



ALEXANDER ORR JR.
WATER TREATMENT PLANT
GENERAL PLAN

MIAMI-DADE
WATER AND SEWER AUTHORITY

DATE JAN. 28, 1994 | SCALE 1" = 200'

W - 11897 - C

Attachment 3

Emissions Calculations - NOx Emitting Sources

Alexander Orr, Jr. Water Treatment Plant

Emissions from 20F4B Standby Generators
Alexander Orr, Jr. Water Treatment Plant
Miami-Dade Water and Sewer Department

			Controlled Emissions											
			25% Load*			50% Load			75% Load			100% Load		
Compound	Reference	Units	Factor	lb/hr	tons/yr	Factor	lb/hr	tons/yr	Factor	lb/hr	tons/yr	Factor	lb/hr	tons/yr
CO	Manufacturer's Data[1]	g/hp-hr	0 88	1.94	24.3	0.32	1.41	19.7	0.30	1.98	18.5	0.28	2.47	17.3
NOx	Manufacturer's Data[1]	g/hp-hr	5.46	12 0	151	5.03	22.18	310	5.50	36.3	339	6.54	57.6	403
SO_2	Mass balance[2]	lb/10^{3}gal	7.10	0 43	5.5	7.10	0 76	10.8	7.10	1.09	10.3	7.10	1.38	9.8
PM_{10}	AP-42, Table 3.4-2[3]	lb/mmbtu	0.05	0.43	5.6	0.05	0.75	11.0	0.05	1.08	10.5	0.05	1.37	10 0
VOCs	AP-42, Table 3.4-3[3]	lb/mmbtu	0 08	0 64	8.4	0 08	1.13	16.5	0.08	1.62	15 7	0.08	2 06	15.0
Benzene	AP-42, Table 3.4-3[3]	lb/mmbtu	7.76E-04	0.01	0.1	7.76E-04	0.01	0.2	7.76E-04	0.02	0.2	7.76E-04	0.02	0.1
Toluene	AP-42, Table 3.4-3[3]	lb/mmbtu	2.81E-04	0.00	0.0	2.81E-04	0.00	0.1	2.81E-04	0.01	0 1	2.81E-04	0.01	0.1
Xylenes	AP-42, Table 3.4-3[3]	lb/mmbtu	1 93E-04	0 00	0 0	1.93E-04	0 0	0.0	1.93E-04	0.00	0.0	1.93E-04	0 01	0.0
Formaldeyde	AP-42, Table 3.4-3[3]	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[3]	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[3]	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[3]	lb/mmbtu	2.79E-03	0.02	0.3	2.79E-03	0.04	0.6	2.79E-03	0.06	0.5	2.79E-03	0.08	0.5
Total PAH	AP-42, Table 3.4-4[3]	lb/mmbtu	1.55E-03	0.01	0.2	1.55E-03	0.02	0.3	1.55E-03	0.03	0.3	1.55E-03	0 04	0.3

1 NOx emissions @ 15% O_2 for EMD Model 20-645F4B generator set with BACT applied (fuel injection timing retard + turbocharger/aftercooler).
NOx reduction using BACT is 28%.

2 SO_2 emissions are calculated using a mass balance approach based on a fuel sulfur content of 0 05 wt% (BACT).

3 Emissions for large bore diesel engines assume a diesel fuel density of 7.1 lb/gal and a gross heating value 0f 0.132 mmbtu/gal. PM_{10} reduction using BACT is 7%.

* Maximum potential power output is 25,100,000 kW-hr/hr at 25% load.

Pollutant	**BACT**	**Reduction**
NOx	FITR + aftercooler	28%
SO_2	0 05 wt% S fuel content	90%
PM_{10}	Efficient combustion + Low-S fuel	7%

% Load	BSFC (lb/bhp-hr)	gal/hr	Fuel Penalty
100%	0.346	195	0%
75%	0.363	154	5%
50%	0.381	107	10%
25%	0.433	61	25%

20-645F4B

Prime Mover Power Output (bhp):	4,000		
Generator Capacity (kW):	2,865	hours @ full load	
Allowable power output, each (bhp-hr):	56,000,000	14,000	
Allowable power output, each (kW-hr):	40,110,000		

2 OF 4 B STANDBY GENERATORS

Measured Emissions + safety factor : 80 lb/hr, uncontrolled

Requested Emissions Limitation : 57.6 lb/hr @ full load, BACTed.

$$\left(\frac{57.6\,lb}{hr}\right)\left(\frac{454\,g}{lb}\right)\left(\frac{engine}{4000\,bhp}\right) = \boxed{\frac{6.53\,g\,NOx}{bhp\text{-}hr}\ \text{BACT ed}}$$

Annual Average (total)

$$\left(\frac{6.53\,g}{bhp\text{-}hr}\right)\left(\frac{4000\,bhp}{2865\,kW}\right)\left(\frac{40{,}110{,}000\,kW\text{-}hr}{yr}\right)\left(\frac{yr}{3.153\times10^{7}\,s}\right) = \boxed{\frac{11.6\,g}{s}\ NOx}$$

Short-Term

$$\left(\frac{6.53\,g}{bhp\text{-}hr}\right)\left(\frac{4000\,bhp}{engine}\right)\left(\frac{hr}{3600\,s}\right) = \boxed{\begin{array}{l}7.26\ g/s\ \text{each}\\ = 29.0\ g/s\ \text{total}\end{array}}$$

PM-10 Emissions (Short-Term)

$$\left(\frac{0.0533\,lb}{mmBTU}\right)\left(\frac{0.346\,lb}{bhp\text{-}hr}\right)\left(\frac{gal}{7.6\,lb}\right)\left(\frac{0.132\,MMBTU}{gal}\right)\left(\frac{454\,g}{lb}\right)\left(\frac{hr}{3600\,s}\right)$$

$$= \boxed{\begin{array}{l}0.175\ g/s\ \text{each}\\ = 0.70\ g/s\ \text{total}\end{array}}$$

$\rightarrow$ for visibility analysis.

WORTHINGTON 825 bhp DIESEL ENGINE (PUMP NOS. 1, 3, & 4)

Measured Emissions + safety factor : 11.1 lb/hr NOx

Short-Term Emissions

$$\left(\frac{11.1\ \text{lb}}{\text{hr}}\right)\left(\frac{454\ \text{g}}{\text{lb}}\right)\left(\frac{\text{hr}}{3600\ \text{s}}\right) = \boxed{1.40\ \text{g/s each}}$$

Annual Average Emission Rate Modeled

$$\left(\frac{1.40\ \text{g}}{\text{s}}\right)\left(\frac{4380\ \text{hrs}}{8760\ \text{hrs}}\right) = \boxed{0.70\ \text{g/s total}}$$

WORTHINGTON 1500 bhp DIESEL ENGINE (PUMP No. 5)

Requested Emissions Limit : 36 lb/hr NOx (11.0 g/bhp-hr)

Short-Term Emissions

$$\left(\frac{36\ \text{lb}}{\text{hr}}\right)\left(\frac{454\ \text{g}}{\text{lb}}\right)\left(\frac{\text{hr}}{3600\ \text{s}}\right) = \boxed{4.54\ \text{g/s}\ NO_x}$$

Annual Average Emissions

$$\left(\frac{4.54\ \text{g}}{\text{s}}\right)\left(\frac{4380\ \text{hrs}}{8760\ \text{hrs}}\right) = \boxed{2.27\ \text{g/s}\ NO_x}$$

CH2MHILL SUBJECT EMISSIONS CALCULATIONS

ALEXANDER ORR WTP

BY D. LINDBERG

SHEET 3 OF 3 DATE 2/23/98

PROJECT 139633.AP

ENTERPRISE 2115 bhp DUAL-FUEL ENGINE (PUMP NO. 6)

Measured Emissions + Safety Factor : 18.2 lb/hr NOx

Short-Term Emissions

$$\left(\frac{18.2\ \text{lb}}{\text{hr}}\right)\left(\frac{454\ \text{g}}{\text{lb}}\right)\left(\frac{\text{hr}}{3600\ \text{s}}\right) = \boxed{2.30\ \text{g/s}\ \text{NO}_x}$$

Annual Average Emission Rate Modeled

Total Emissions from 20F4B Standby Generators
Alexander Orr, Jr. Water Treatment Plant
Miami-Dade Water and Sewer Department

Compound	Reference	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[1]	g/bhp-hr	0.88	1.94	54.9	0.32	1.41	20.0	0.30	1.98	18.7	0.28	2.47	17.5
NOx	1996 Stack Tests	g/bhp-hr	5.46	12.0	340	5.03	22.2	314	5.49	36.3	342	6.54	58	408
SO_2	Mass balance[2]	lb/10^3gal	7.00	0.43	12.2	7.00	0.76	10.8	7.00	1.09	10.3	7.00	1.38	9.8
PM_{10}	AP-42, Table 3.4-2[3]	lb/mmbtu	0.05	0.43	12.6	0.05	0.76	11.1	0.05	1.10	10.6	0.05	1.39	10.1
VOCs	AP-42, Table 3.4-3[3]	lb/mmbtu	0.08	0.65	19.0	0.08	1.15	16.7	0.08	1.64	15.9	0.08	2.18	15.2
Benzene	AP-42, Table 3.4-3[3]	lb/mmbtu	7.76E-04	0.01	0.2	7.76E-04	0.01	0.2	7.76E-04	0.02	0.2	7.76E-04	0.02	0.1
Toluene	AP-42, Table 3.4-3[3]	lb/mmbtu	2.81E-04	0.00	0.1	2.81E-04	0.00	0.1	2.81E-04	0.01	0.1	2.81E-04	0.01	0.1
Xylenes	AP-42, Table 3.4-3[3]	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
Formaldeyde	AP-42, Table 3.4-3[3]	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[3]	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[3]	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[3]	lb/mmbtu	2.79E-03	0.02	0.7	2.79E-03	0.04	0.6	2.79E-03	0.06	0.6	2.79E-03	0.07	0.5
Total PAH	AP-42, Table 3.4-4[3]	lb/mmbtu	1.55E-03	0.01	0.4	1.55E-03	0.02	0.3	1.55E-03	0.03	0.3	1.55E-03	0.04	0.3

1 NOx emissions @ 15% O_2 for EMD Model 20-645F4B generator set with BACT applied (fuel injection timing retard + turbocharger/aftercooler).
NOx reduction using BACT is 28%. Uncontrolled NOx emissions 9.08 g/bhp-hr based on 1996 test results.

2 SO_2 emissions are calculated using a mass balance approach based on a fuel sulfur content of 0.05 wt% (BACT).

3 Emissions for large bore diesel engines assume a diesel fuel density of 7.0 lb/gal and a gross heating value Of 0.132 mmbtu/gal. PM_{10} reduction using BACT is 7%.

* Maximum potential power output at 25% load is 25,100,000 kW-hr/yr.

Pollutant	**BACT**	**Reduction**
NOx	retarded timing + aftercooler	28%
SO_2	0.05 wt% S fuel content	90%
PM_{10}	Eff combustion + Low-S fuel	7%

20-645F4B

Prime Mover Power Output (hp):	4,000	
Generator Capacity (kW):	2,865	hours @ full load
Allowable power output, each (hp-hr):	56,000,000	14,000
Allowable power output, each (kW-hr):	40,110,000	

% Load	BSFC (lb/bhp-hr)	gal/hr	Fuel Penalty
100%	0.346	198	0%
75%	0.363	156	5%
50%	0.381	109	10%
25%	0.433	62	25%

Attachment 4

Diesel Fuel Purchase Records (Specification)

Alexander Orr, Jr. Water Treatment Plant

CC: Booth G
File

MIAMI-DADE
WATER AND SEWER DEPARTMENT
RECEIVED
AUG 2 [illegible]
Treatment Facilities

AWARD SHEET
ADDENDUM NO. 1

[illegible] changes effective July 1, 1996:

[illegible]	[illegible]SOLINE	LO-SULPHUR CLEAR DIESEL	HI-SULPHUR DYED DIESEL
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 ALL 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

From R L Cauty [illegible] Aug 9

To: Greg Lane
Dallon

We must continue to buy low sulfur diesel fuel until we can determine [illegible] permits

From OLINDA
Co. WASD - Hialeah WTP
Phone # (305) 883-6613
Fax # 889-0156

He H Mel
619 687 0111

CUSTOMER COPY - 2

EMERGENCY NUMBER CHEMTREC 1-800-424-9

Coastal Refining & Marketing, In
A SUBSIDIARY OF THE COASTAL CORPORATION
The Energy People

INSERT FOLLOWING WHEN REQUIRED BY FEDERAL OR STATE LAWS OR REGULATIONS

IT	STATE PERMIT OR LICENSE	VEHICLE LICENSE NO.	STATE MRT 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 Department of Transportation."

is to also certify that the above-named materials are property, classified, described, packaged, ked, and labeled according to the applicable regulations of the Federal Trade Commission and the ironmental Protection Agency."

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

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

NOS.

ED FOR COASTAL BY

DATE 11-27-96

EIVED BY TRUCK DRIVER

DATE

SHIPMENTS REQUIRE RAILROAD BILL OF LADING

GOODS RECEIVED: David R.

PURCHASER:

SHIPPER

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 c 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 car 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 TRANSPORTATIO

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

AMI1		PORT EVERGLADES	11-27-96	14:05:33	BOCO	00103463

st Code

Meth Del CU

FOB

Order

Card Reference Numbers

Customer	Exchange	Carrier	DR/VI
023312		03547	0130

Charge To:

rrier COASTAL REF & MKTG INC

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

d	Description	Unit	Gross	Temp.	API	Net
	IESEL FUEL, 3, NA1993 PGIII					
	LS DIESEL 0.05%S MAX	GALS	07501.00	078.6	34.9	07436.30
	HIS DIESEL FUEL DOES NOT CONTAIN VISIBLE EVIDENCE OF DYE.					

19' – ~~20~~ 0¼

ISE ADDRESS
RESPONDENCE TO
…STAL REFINING AND MARKETING, INC. E.P.A. REGISTRATION #4116
GREENWAY PLAZA HOUSTON, TX 77046

COASTAL REFINING & MARKETING

astal
rgy People

CUSTOMER NO.	INVOICE DATE	INVOICE NO.
MIAMID	12/02/96	D40579

SHIP TO:
MIAMI DADE WATER AND SEWR
PRESTON PLANT
1100 W 2 AVE PO J01428B
HIALEAH FL 33010

METHOD OF DELIVERY
COMPANY TRUCK

SOLD TO:

MIAMI DADE WATER SEWER
ATTN: ACCOUNTS PAYABLE
PO BOX 330316
MIAMI FL 33233-0316

REFERENCE NO. 0361-MIAMID-D40579 MIAMI1

TERMS: NET 30 DAYS DOT

BILLING INQUIRIES: CALL CUST SERVICE AT 1-800-(FL) 432-3691, (NAT'L) 327-2495

SALES/P.O. NUMBER: 808135B

TICKET NUMBER	TICKET DATE	LOC CODE	DESCRIPTION	DS ST	QUANTITY	UM	UNIT PRICE	AMOUNT
00103463	112796	PORT	DIESEL - 0.05 S MAX DSLS	FL	7436.30	GAL	.7865 ~~.791500~~	~~5885.63~~ 5848.64 ~~5885.63~~
			SUBTOTAL		7436.30			
			COUNTY ROAD TAX - DIESEL	FL	7436.30	GAL	.117000	870.05
			DIESEL FUEL TAX - UNDYED	FL	7436.30	GAL	.125000	929.54
			COASTAL PROTECTION TAX	FL	7436.30	GAL	.000476	3.54
			WATER QUALITY TAX	FL	7436.30	GAL	.001190	8.85
			INLAND PROTECTION TAX	FL	7436.30	GAL	.019047	141.64

CAR # RECEIVED	DATE	✓
00103463	11/27/96	✓
CHARGE TO ACCOUNT	POSTED	
6494487-5201	a	
APPROVED BY:	1996	

DATE 12/5/96

PLEASE CODE AND ACKNOWLEDGE RECEIPT OF GOODS/SERVICES

UG

A/P

FEIN: 84-0429897

CASH DISCOUNT	IF PAID BY	PAY THIS AMOUNT	INVOICE TOTAL
		7,839.45	7802.26 ~~7,839.45~~

IF PAYMENT IS MADE VIA WIRE TRANSFER, PLEASE WIRE FUNDS TO
CITIBANK NA, NY,NY ACCT #4056-8303 ABA #021000089

The buyer agrees to a late payment charge of 1.00 % per month, 12.00 % per annum or the maximum permitted by law from the invoice due date and agrees to pay any collection or attorney fees if incurred in the collection of this invoice.

COMP	CUSTOMER	INVOICE NO
0361	MIAMID	D40579

AMOUNT PAID

PLEASE DETACH AND RETURN THIS PORTION WITH PAYMENT

REMIT TO:
COASTAL REFINING & MARKETING
P.O. BOX 65776, CHARLOTTE, N.C. 28265

0361 MIAMID D40579 000000 000000783945 000000783945

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.

rm 50605-A REV. 9/95

SEE REVERSE SIDE FOR HAZARD WARNING INFORMATION & NOTES

RIVER SIGNATURE:

ALL ITEMS SUBJECT TO CONDITIONS ON REVERSE SIDE HEREOF.

UCK SEAL NUMBERS:

SHIPMENT RECEIVED BY:

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

COPY 6

RATHON OIL COMPANY 'TRANSFEROR' - 539 S. MAIN ST., FINDLAY, OH - EPA-RFG REG #5045
* CONVENTIONAL GASOLINES - THESE PRODUCTS DO NOT MEET THE REQUIREMENTS FOR REFORMULATED GASOLINES (RFG) AND MAY NOT B
ED IN ANY RFG COVERED AREA. *** SHIPPED FROM: 1601 S.E. 20TH STREET, FT. LAUDERDALE, FL 33316

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

DATE 02/25/97
NUMBER 540748-036
TIME IN 0501
TIME OUT 0511

SOLD TO (CONSIGNEE)	SHIPPED FROM	LOC CODE
PETRA REFINING & MARKETING EX IELD OIL COMPANY ON FL	FT. LAUDERDALE	3000897449

DATE SHIPPED	SHIPPED VIA
02/25/97	BILL FREIGHT UNKNOWN 3747 PENN TANK LINES

DESTINATION	CUSTOMER NUMBER	ITEM NUMBER
UNKNOWN FL	913031900000006	

DRIVER	TRAILER	COMPANY	CUSTOMER P.O. AND RELEASE NUMBER	TRANSMITTED CUSTOMER AND RELEASE NUMBER
5430	31158	0556		
S KROUSTAT/PENN TK				

ARGO TANK COMPARTMENT PRODUCT DESCRIPTIONS	GROSS GAL.	NET GAL.	TEMP./API GR.	COMMENTS
ONVENTIONAL GASOLINES - THESE PRODUCTS DO NOT MEET THE REQUIREMENTS FOR REFORMULATED				
IN ANY RFG COVERED AREA. *** SHIPPED FROM: 1601 S.E. 20TH STREET, FT. LAUDERDALE, FL 3				
L, 3, NA1993, PG III . 2 LOW SULFUR FUEL OIL, UNDYED **.05% MAXIMUM SULFUR,** 40 CETANE MINIMUM*	5201	5165	075.0/036.2	
L, 3, NA1993, PG III . 2 LOW SULFUR FUEL OIL, UNDYED **.05% MAXIMUM SULFUR,** 40 CETANE MINIMUM*	2500	2284	074.5/036.2	

PA DETERGENT ADDITIVE REQUIREMENTS

Attachment 5

Description of Control Equipment for Generators

Alexander Orr, Jr. Water Treatment Plant

MKW POWER SYSTEMS, Inc.

AUTHORIZED ELECTRO MOTIVE DISTRIBUTOR

EMD Unit

Information

EMD Model 20-645F4B Diesel Engine

4000 BHP/2865 KW Continuous Rating

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

Orr WTP (4)
Preston WTP (3 New)

ENGINE DATA

UNIT MODEL	S8E4C		S12F4B		S16F4B		S20F4B	
ENGINE MODEL	8-645E4C		12-645F4B		16-645F4B		20-645F4B	
Rated RPM	750	900	750	900	750	900	750	900
BHP - continuous	1200	1525	2140	2550	2850	3400	3600	4000
KW - continuous	865*	1090*	1530*	1825*	2040*	2435*	2580**	2865*
BMEP - nominal PSI	123	130	146	145	146	145	147	136
Torque @ cont. BHP lb.-ft.	8400	8900	14985	14880	19960	19840	25210	23342
Piston speed ft./min.	1250	1500	1250	1500	1250	1500	1250	1500
LUBRICATING OIL SYSTEMS								
Lube pressure flow GPM	88	105	131	157	154	185	191	229
Lube piston cooling flow GPM	41	48	55	66	77	92	91	109
Lube scavenging flow GPM	171	205	232	279	325	390	325	390
FUEL OIL SYSTEMS								
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
AIR AND EXHAUST SYSTEMS								
Intake air at 14.7 psi-90° F CFM	3100	4250	6525	7640	8000	9225	10100	10725
Exhaust temperature °F	740	665	680	650	680	685	620	635
Exhaust volume @ exh. temp. CFM	6800	8650	13520	15430	16550	19200	19825	21350
Exhaust back pressure (total system) maximum allowable in. H^2O	5	5	5	5	5	5	5	5
Air intake (total system) suction-max. clean filters in. H^2O	6	6	6	6	6	6	6	6
COOLING WATER SYSTEMS								
Total engine water flow GPM	440	525	665	800	890	1070	980	1100
Pressure rise across engine water pump (Total system pressure drop) PSI	29±2	42±2	30±3	43±4	37±2	53±3	41±2	52±2
Allowable pressure drop for external piping & cooling equipment PSI	8	8	8	8	8	8	8	8
Raw water flow (with EMD available extra heat exchangers) Min. Flow — 100° F max. GPM	165	320	365	550	500	600	795	975
Min. Flow — 90° F max. GPM	130	240	280	415	400	600	580	740
Min. Flow — 80° F max. GPM	110	185	225	360	300	500	465	560
Max. raw water flow GPM	650	650	590	590	600	600	975	975
Heat exchanger raw water Δ P @ max. flow PSI	5.0	5.0	5.3	5.3	3.4	3.4	5.4	5.4

*With EMD AB21-24 Generator

**Based on Generator at 96% efficiency

Brake Specific Fuel Consumption and Lube Oil Use

MODEL S

750 RPM Continuous Rating
100% Load

UNIT	8E1	12E1	16E1	8E4C	12F4B	16F4B	20F4B
Fuel LB/BHP-HR	0.378	0.378	0.377	0.360	0.345	0.342	0.341
Lube Oil GAL/HR	0.26	0.39	0.52	0.26	0.39	0.52	0.66

MODEL S

900 RPM Continuous Rating
100% Load

UNIT	8E1	12E1	16E1	8E4C	12F4B	16F4B	20F4B
Fuel LB/BHP-HR	0.395	0.393	0.393	0.350	0.339	0.342	0.346
Lube Oil GAL/HR	0.43	0.64	0.85	0.43	0.64	0.85	1.06

Rating Condition:
90°F intake air temperature
28.25 in. Hg barometric pressure
19,620 BTU/LB HHV fuel [API 36]

Specific or guaranteed BSFC should be requested from EMD stating:
Fuel Heating Value
Altitude
Maximum Temperature
Penalty
Method of Testing
If maximum deadload pick-up is involved
If chrome liners are to be applied

ENGINE MODEL 20-645FB PM&I DATA

LAB REPORT REFERENCE NO. 82-9-4 DATE: 16-FEB-83
FUEL SULFUR CONTENT 0.22%

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	4398	90.0	17.92	0.32	0.18	0.69	12.3	78812	1407	792	3056
100	900	4008	89.8	17.62	0.28	0.15	0.69	12.6	70621	1122	601	2780
75	900	3001	89.2	14.81	0.30	0.14	0.71	12.9	44445	900	420	2119
50	900	2000	90.5	13.57	0.32	0.18	0.75	14.8	27140	640	360	1495
25	900	999	89.4	14.72	0.88	0.39	0.93	17.3	14705	879	390	932

NOx measurement method - Chemiluminesence
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).

ELECTRO-MOTIVE

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)* 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 retrofitable 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 it's 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.

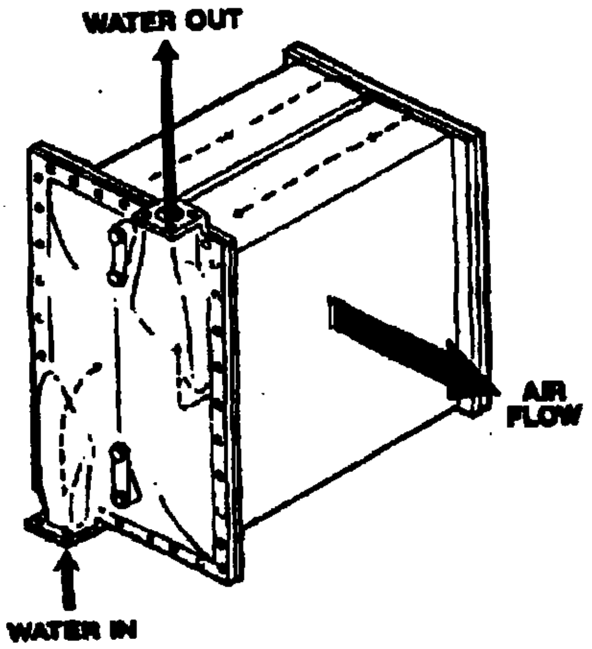
CONCLUSION

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.

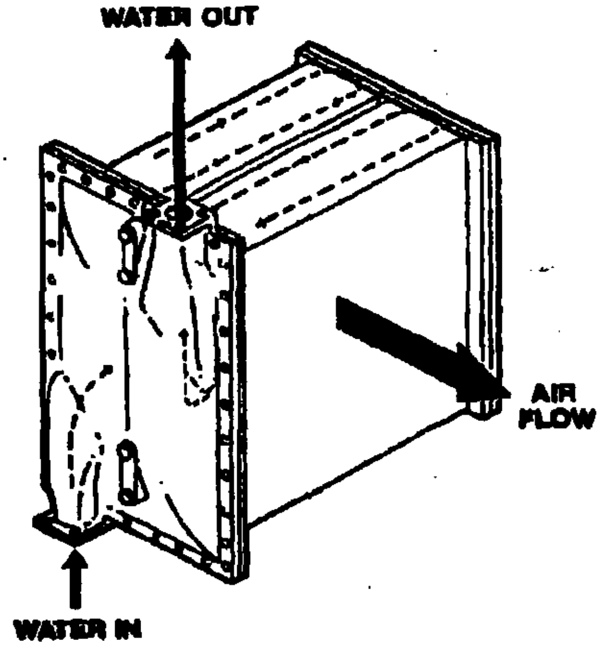
ELECTRO-MOTIVE

2-PASS AFTERCOOLER



4-PASS AFTERCOOLER

(Baffles not shown for clarity)



ELECTRO-MOTIVE

Electro-Motive Division
General Motors Corporation
LaGrange, IL [illegible]
Telex: 270041 McCook, IL USA
Telephone: [illegible]
Fax: [illegible]

Diesel Division
General Motors of Canada Limited
Box 5160, London, Ontario [illegible]
Telex: [illegible] Canada
Telephone: [illegible]
Fax: [illegible]

4-PASS-992

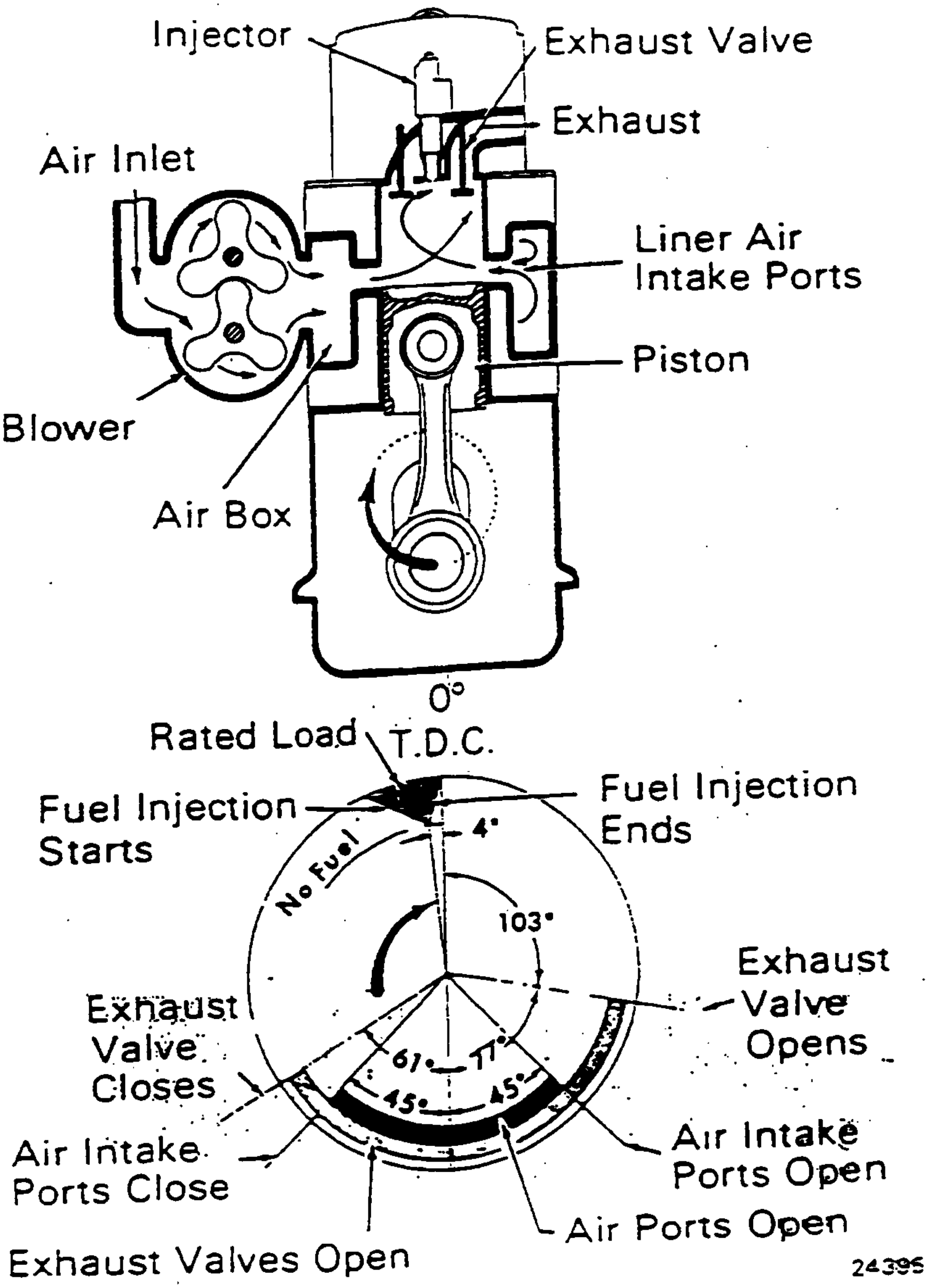


Fig.0-1 – Schematic Illustration Of

ESI

ENGINE SYSTEMS, INC.
1220 S. Washington St.
Rocky Mount, NC 27801

TELEFAX

Date: 12/3/97
To: Dave Lindberg
Company: CH2M Hill
Phone Number:
Fax Number: (305)443-8856

From: Michael Thiel
Phone Number: (919)407-8228
Fax Number: (919)446-3830
Total Pages: 3

Reference: **Miami-Dade (EMD 20-645F4B)**

Best Regards,

Michael J. Thiel

Michael J. Thiel
Sales Support Engineer

Engine Systems, Inc.
1220 S. Washington St.
Rocky Mount, NC 27801

Tel: (919)407-8228
Fax: (919)446-3830

October 24, 1997

Attn: Deborah Donovan
New England Power - Brayton Point
Tel: (508)389-2590
Fax: (508)646-5401

RE: EMD 20-645E4 Diesel Engines

Dear Deborah:

Regarding your request for information pertaining to exhaust back pressure limits, I have the following information to offer:

A) EMD strongly recommends that total system exhaust back pressure not exceed 5 in H_2O for turbocharged engines. This design requirement is based upon protecting the turbocharger and other engine components from catastrophic failure.

B) Catastrophic failure of the turbocharger may result from an overspeed condition. An overspeed condition will occur from overheating as a result of a flash fire in the engine. A flash fire may occur due to heavy carbon deposits in the airbox. The carbon deposits are a result of incomplete fuel combustion in the power pack assemblies due to restricted breathing across the packs. The restricted air flow is a direct result of high exhaust back pressure.

C) Electronic monitoring of the engine will most likely be ineffective in preventing catastrophic failure of the turbocharger. In the event of a flash fire, an overheat/overspeed condition will be almost instantaneous. In this case, shutting the engine down immediately would be "too little, too late". Frequent visual inspections to check for heavy carbon deposits and manual cleanouts of the airbox would be more effective preventive measures.

D) EMD has stated that intermittent (e.g., short infrequent durations) maximum total system exhaust back pressure not exceed 15 in H_2O for turbocharged engines. This design requirement is intended for special critical applications requiring increased back pressure.

Attachment 7

Compliance Test Results

Alexander Orr, Jr. Water Treatment Plant

ATTACHMENT 7

Compliance Test Results

Testing was conducted September 23–October 2, 1997, on all four standby generators, and on Pump Nos. 1, 3, 4, 5, and 6. The final emissions testing report was subsequently submitted to FDEP Southeast District.

Reported emissions from the standby generators represent operation without installation of BACT. Following installation of BACT, the standby generators will be tested to demonstrate compliance with the emissions limits proposed in this application. Emissions test results from Pump Nos. 1, 3, 4, and 5 complied with the proposed emissions limits. It is believed that improper engine tuning caused emissions test results from Pump No. 6 to exceed the proposed emissions limits. Miami-Dade WASD is planning to reschedule testing of Pump No. 6 to demonstrate compliance with the proposed emissions limits.

Attachment 8

Procedures for Startup and Shutdown

Alexander Orr, Jr. Water Treatment Plant

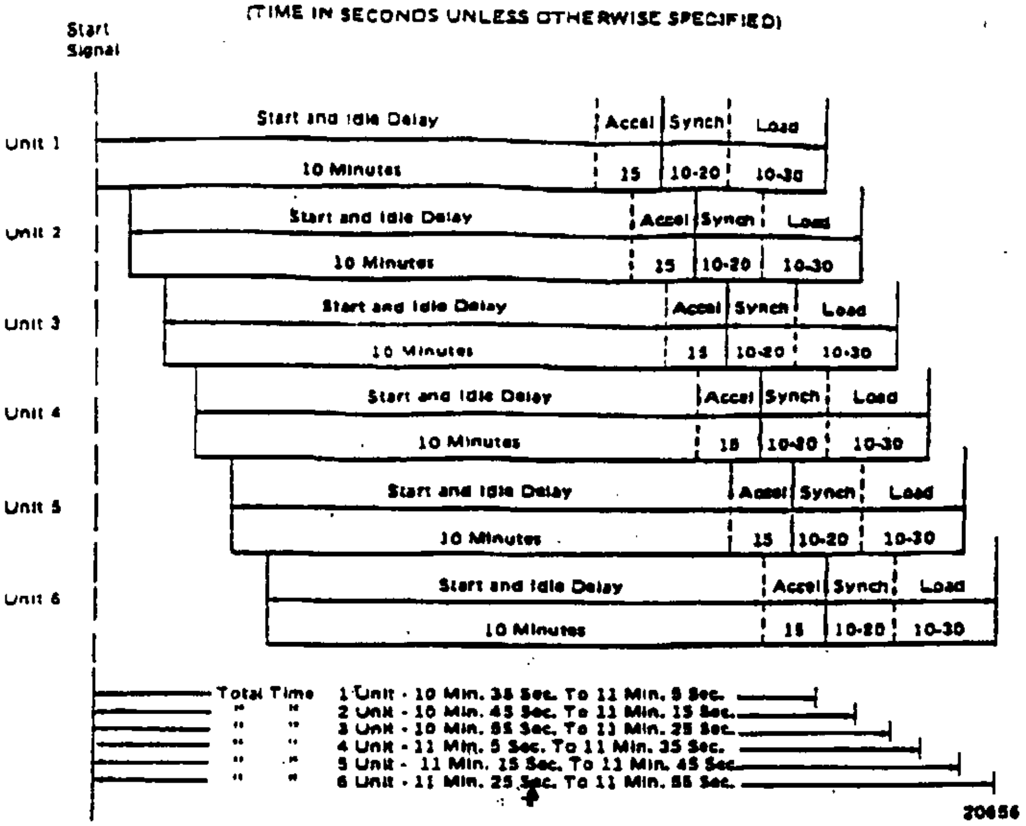
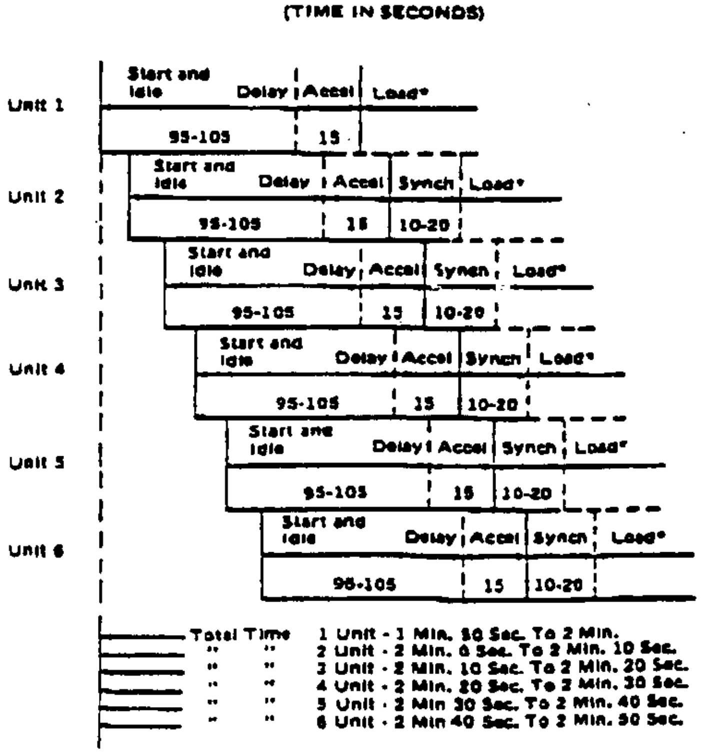


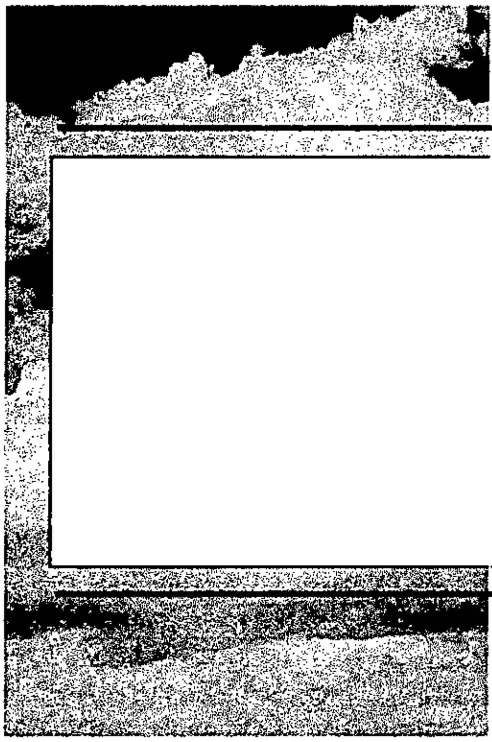
Fig. 1-3 – Starting Time Of Power Plant (Normal Start Peaking Duty)



*Load breaker closes after last unit has synchronized to bus.

20657

Fig. 1-4 – Starting Time Of Power Plant (Deadline Start)



APPENDIX B

Modeling Protocol

Description of Stack Sampling Facilities
Alexander Orr, Jr. Water Treatment Plant
Miami-Dade Water and Sewer Department

4 Standby Generator Sets (20F4B)

Inside Diameter: 21 inches

Orientation: Vertical

Height Above Grade: 16 ft

Means of Access: ladder to rooftop.

Sampling Ports: The presence of exhaust silencers prevent the installation of sampling ports. The applicant proposes to conduct sampling through a rake probe, which composites exhaust gas collected at several points across the stack diameter. The rake probe can be inserted into end of stack.

Diesel Engine-Driven Pump Nos. 1, 3, & 4

Inside Diameter: 7 inches

Orientation: Vertical

Height Above Grade: 28 ft

Means of Access: Staircase inside building leads to rooftop.

Sampling Ports: The applicant proposes to conduct sampling through a rake probe, which composites exhaust gas collected at several points across the stack diameter. The rake probe can be inserted into end of stack.

Note: plans are being made to replace these engines with new spark ignition gas engines. A construction permit application for the new engine will be submitted upon completion of the design.

Diesel Engine-Driven Pump No. 5

Inside Diameter: 10 inches

Orientation: Vertical

Height Above Grade: 31 ft

Means of Access: Staircase inside building leads to rooftop.

Sampling Ports: The presence of an exhaust silencer prevents the installation of sampling ports. The applicant proposes to conduct sampling through a rake probe, which composites exhaust gas collected at several points across the stack diameter. The rake probe can be inserted into end of stack.

Note: plans are being made to replace this engine with a new spark ignition gas engine. A construction permit application for the new engine will be submitted upon completion of the design.

Description of Stack Sampling Facilities
Alexander Orr, Jr. Water Treatment Plant
Miami-Dade Water and Sewer Department

Dual Fuel Engine-Driven Pump No. 6

Inside Diameter: 10 inches

Orientation: Vertical

Height Above Grade: 28 ft

Means of Access: Staircase inside building leads to rooftop.

Sampling Ports: The presence of an exhaust silencer prevents the installation of sampling ports. The applicant proposes to conduct sampling through a rake probe, which composites exhaust gas collected at several points across the stack diameter. The rake probe can be inserted into end of stack.

E) The Oxidation Catalyst Test System described indicates the total system back pressure will increase from 4.3 in H_2O baseline to approximately 7-11 in H_2O. This system will drastically reduce the design safety factor of the engine and increase the potential for catastrophic failure.

F) Increasing the exhaust back pressure will also result in the following adverse conditions:

- Engine performance will decrease resulting in the inability to quickly adjust to dynamic load conditions.
- Engine efficiency will decrease resulting in increased fuel consumption.
- Engine emissions will increase based upon incomplete fuel combustion.
- Maximum engine horsepower will decrease slightly.

G) For your specific test scenario, Engine Systems, Inc. and/or Electro-Motive Division of General Motors can not be held responsible for any problems or failures that may arise. Final risk assessment, design review and test monitoring of this particular test system will be the sole responsibility of New England Power.

Sincerely,

Michael J. Thiel

Michael J. Thiel
Sales Support Engineer

Attachment 6

Description of Stack Sampling Facilities

Alexander Orr, Jr. Water Treatment Plant

CH2MHILL

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 NOx, sulfur dioxide (SO_2), and particulate matter (PM_{10}) 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 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 generators 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 (NOx, SO_2, and PM_{10}) 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.

Best Available Control Technology Demonstration (BACT)

BACT will be utilized for all pollutants that will be emitted in significant quantities (NOx, SO_2, and PM_{10}). BACT will be determined by obtaining information from EPAs 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 NOx emissions will consist of combustion air precooling plus fuel injection timing retard (FITR) technology. BACT for SO2 and PM10 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 EPAs 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 EPAs 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.

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

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.

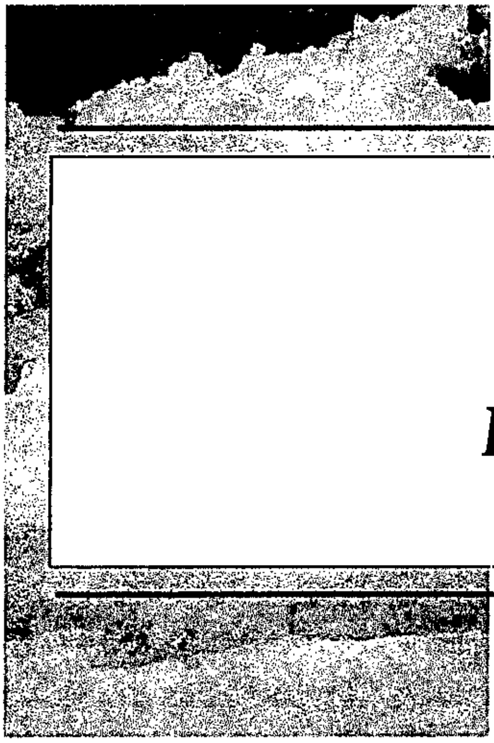
Sincerely,

CH2M HILL

David Lindberg

David Lindberg, P.E.
Project Engineer

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



APPENDIX C

Dispersion Modeling Input and Output Files

Appendix C

Initial (Screening) Dispersion Model Input and Output Summaries

Alexander Orr, Jr. Water Treatment Plant

Summary of Dispersion Modeling Results (Full Load)
Alexander Orr, Jr. WTP Standby Generators with Vertical Stacks
Miami-Dade Water and Sewer Department

		Significant Impact Level			Maximum Predicted Offsite NO_2 Concentration ($\mu g/m^3$)					
Pollutant	**Averaging Period**	**Class II**	**Class I**		**1987**	**1988**	**1989**	**1990**	**1991**	**Maximum Radius of Significant Impact (m)**
NO_2	Annual	1		High Conc - Class II ($\mu g/m^3$)	15.1	21.0	23.7	20.8	17.7	
				Maximum ROI (m)	5,000	6,000	7,000	6,000	5,000	7,000
			0.1	High Conc - Class I ($\mu g/m^3$)	0.28	0.22	0.27	0.34	0.25	

PM_{10} emissions are insignificant for operation less than 20,980 hours per year (total).

NO_2/NO_x =	0.75
Q_s =	11.61 g/s NOx (total)
Allowable Operation	14,000 hours/year (total)
Allowable Power Output	40,110,000 kW-hrs (total)

```
NO ECHO
CO STARTING
  TITLEONE Standby Generator Sets - Significant Impacts - 1987
  TITLETWO Miami-Dade Water and Sewer Department Alexander Orr WTP
  MODELOPT DFAULT CONC RURAL
  TERRHGTS FLAT
  AVERTIME 1  24  period
  POLLUTID ALL
  RUNORNOT RUN
CO FINISHED
SO STARTING
** LOCATION SRC-ID TYPE UTM X (m) UTM Y (m) Z (m)
  LOCATION AOGENS POINT 566509.4  2843411.8 0.00
** SRCPARAM SRC-ID EMIS Hgt temp,X,sy vel,y,sz dia,ang
  SRCPARAM AOGENS 1.0000  4.72  608.0  45.19 0.53
SO BUILDHGT AOGENS     7.00   7.00   7.00   7.00   7.00   7.00
SO BUILDHGT AOGENS     7.00   7.00   7.00   7.00   7.00   7.00
SO BUILDHGT AOGENS     7.00   7.00   7.00   7.00   7.00   7.00
SO BUILDHGT AOGENS     7.00   7.00   7.00   7.00  20.60  20.60
SO BUILDHGT AOGENS     7.00   7.00   7.00   7.00   7.00   7.00
SO BUILDHGT AOGENS     7.00   7.00   7.00   7.00   7.00   7.00
SO BUILDWID AOGENS    10.80  12.18   7.90   9.11  10.05  10.68
SO BUILDWID AOGENS    10.99  10.96  10.60  10.96  10.99  10.73
SO BUILDWID AOGENS    10.11   9.19   7.98  12.18  10.80   9.10
SO BUILDWID AOGENS    10.80  12.18   7.90   9.11  21.56  20.90
SO BUILDWID AOGENS    10.99  10.96  10.60  10.96  10.99  10.73
SO BUILDWID AOGENS    10.11   9.19   7.98  12.18  10.80   9.10
  SRCGROUP ALL
SO FINISHED
RE STARTING
** Polar Receptor Grid
  GRIDPOLR POL1 STA
  GRIDPOLR POL1 ORIG  566509.43  2843411.75
  GRIDPOLR POL1 DIST  500  750  1000  1250  1500
  GRIDPOLR POL1 DIST  1750  2000  2250  2500  3000
  GRIDPOLR POL1 DIST  3500  4000  4500  5000  6000
  GRIDPOLR POL1 DIST  7000  8000  9000  10000  11000
  GRIDPOLR POL1 DIST  12000  13000  14000  15000  16000
  GRIDPOLR POL1 GDIR  36  10  10
  GRIDPOLR POL1 END
** Receptors at fenceline, r = 250 m, and Everglades NP
RE DISCCART   566509.4  2843661.8
RE DISCCART   566552.8  2843658.0
RE DISCCART   566594.9  2843646.7
RE DISCCART   566634.4  2843628.3
RE DISCCART   566670.1  2843603.3
RE DISCCART   566700.9  2843572.4
RE DISCCART   566725.9  2843536.8
RE DISCCART   566744.4  2843497.3
RE DISCCART   566755.6  2843455.2
RE DISCCART   566759.4  2843411.8
RE DISCCART   566755.6  2843368.3
RE DISCCART   566744.4  2843326.2
RE DISCCART   566725.9  2843286.8
RE DISCCART   566700.9  2843251.1
RE DISCCART   566292.9  2843536.8
RE DISCCART   566317.9  2843572.4
RE DISCCART   566348.7  2843603.3
```

RE DISCCART	566384.4	2843628.3
RE DISCCART	566423.9	2843646.7
RE DISCCART	566466.0	2843658.0
RE DISCCART	566087.3	2843507.8
RE DISCCART	566137.3	2843507.8
RE DISCCART	566187.3	2843507.8
RE DISCCART	566237.3	2843507.8
RE DISCCART	566287.2	2843507.8
RE DISCCART	566296.1	2843507.8
RE DISCCART	566343.3	2843524.5
RE DISCCART	566370.8	2843561.1
RE DISCCART	566392.1	2843591.6
RE DISCCART	566430.2	2843605.3
RE DISCCART	566480.2	2843605.3
RE DISCCART	566530.2	2843605.3
RE DISCCART	566580.1	2843605.3
RE DISCCART	566630.1	2843605.3
RE DISCCART	566680.1	2843605.3
RE DISCCART	566680.1	2843555.3
RE DISCCART	566680.1	2843505.3
RE DISCCART	566680.1	2843455.3
RE DISCCART	566680.1	2843405.3
RE DISCCART	566680.1	2843355.4
RE DISCCART	566680.1	2843305.4
RE DISCCART	566680.1	2843255.4
RE DISCCART	566680.1	2843221.3
RE DISCCART	566644.1	2843185.9
RE DISCCART	566608.2	2843150.5
RE DISCCART	566572.2	2843115.2
RE DISCCART	566536.3	2843079.8
RE DISCCART	566500.3	2843044.5
RE DISCCART	566464.3	2843009.1
RE DISCCART	566428.4	2842973.8
RE DISCCART	566392.4	2842938.4
RE DISCCART	566356.4	2842903.1
RE DISCCART	566320.5	2842867.7
RE DISCCART	566284.5	2842832.4
RE DISCCART	566248.5	2842797.0
RE DISCCART	566212.6	2842761.6
RE DISCCART	566176.6	2842726.3
RE DISCCART	566140.6	2842690.9
RE DISCCART	566140.6	2842724.5
RE DISCCART	566176.6	2842759.8
RE DISCCART	566212.6	2842795.2
RE DISCCART	566248.5	2842830.5
RE DISCCART	566284.5	2842865.9
RE DISCCART	566290.0	2842923.2
RE DISCCART	566290.0	2842973.2
RE DISCCART	566290.0	2843023.1
RE DISCCART	566290.0	2843073.1
RE DISCCART	566290.0	2843123.1
RE DISCCART	566240.0	2843123.7
RE DISCCART	566190.0	2843123.7
RE DISCCART	566140.0	2843123.7
RE DISCCART	566090.0	2843123.7
RE DISCCART	566087.3	2843173.7
RE DISCCART	566087.3	2843223.7
RE DISCCART	566087.3	2843273.7

```
RE DISCCART  566087.3  2843323.7
RE DISCCART  566087.3  2843373.7
RE DISCCART  566087.3  2843423.6
RE DISCCART  566087.3  2843473.6
RE DISCCART  557000.0  2789000.0
RE DISCCART  556600.0  2792000.0
RE DISCCART  556000.0  2796000.0
RE DISCCART  553000.0  2796500.0
RE DISCCART  548000.0  2796500.0
RE DISCCART  542700.0  2796500.0
RE DISCCART  542700.0  2800000.0
RE DISCCART  542700.0  2805000.0
RE DISCCART  542700.0  2810000.0
RE DISCCART  542000.0  2811000.0
RE DISCCART  541300.0  2814000.0
RE DISCCART  542700.0  2816000.0
RE DISCCART  544100.0  2820000.0
RE DISCCART  543500.0  2824600.0
RE DISCCART  545000.0  2829000.0
RE DISCCART  545700.0  2832200.0
RE DISCCART  546200.0  2835700.0
RE DISCCART  548600.0  2837500.0
RE DISCCART  550300.0  2839000.0
RE DISCCART  545000.0  2839000.0
RE DISCCART  540000.0  2839000.0
RE DISCCART  550500.0  2844000.0
RE DISCCART  545000.0  2844000.0
RE DISCCART  540000.0  2844000.0
RE DISCCART  550300.0  2848600.0
RE DISCCART  545000.0  2848600.0
RE DISCCART  540000.0  2848600.0
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
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  24  ALL FIRST AO87-1D.PLT  35
  PLOTFILE PERIOD ALL AO87-1A.PLT  37
OU FINISHED
```

```
 *** MODELING OPTIONS USED:  CONC                  RURAL  FLAT        DFAULT
*** POINT SOURCE DATA ***

NUMBER EMISSION RATE               BASE    STACK  STACK   STACK     STACK   BUILDING EMISSION RATE
  SOURCE   PART. (GRAMS/SEC)    X       Y    ELEV.   HEIGHT  TEMP.  EXIT VEL. DIAMETER  EXISTS  SCALAR VARY
   ID     CATS.          (METERS) (METERS) (METERS) (METERS) (DEG.K)  (M/SEC)  (METERS)           BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

  AOGENS      0  0.10000E+01  566509.4 2843411.8    0.0     4.72   608.00    45.19     0.53      YES
```

```
*** ISCST3 - VERSION 96113 ***   *** Standby Generator Sets - Significant Impacts - 1987          ***    2-DEC-97
                   *** Miami-Dade Water and Sewer Department Alexander Orr WTP         ***    15:22:38
                                                                    PAGE 31
 *** MODELING OPTIONS USED:  CONC                  RURAL  FLAT      DFAULT
*** THE SUMMARY OF MAXIMUM PERIOD ( 8760 HRS) RESULTS ***
** CONC OF ALL     IN MICROGRAMS/M**3                 **

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

ALL     1ST HIGHEST VALUE IS      1.72925 AT (  566343.31,  2843524.50,    0.00,     0.00) DC     NA
        2ND HIGHEST VALUE IS      1.64261 AT (  566087.31,  2843173.75,    0.00,     0.00) DC     NA
        3RD HIGHEST VALUE IS      1.58877 AT (  566076.38,  2843161.75,    0.00,     0.00) GP   POL1
        4TH HIGHEST VALUE IS      1.58493 AT (  566370.81,  2843561.00,    0.00,     0.00) DC     NA
        5TH HIGHEST VALUE IS      1.44886 AT (  566087.31,  2843223.75,    0.00,     0.00) DC     NA
        6TH HIGHEST VALUE IS      1.44661 AT (  566296.13,  2843507.75,    0.00,     0.00) DC     NA

*** THE SUMMARY OF HIGHEST  1-HR RESULTS ***
** CONC OF ALL     IN MICROGRAMS/M**3                 **

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

ALL     HIGH  1ST HIGH VALUE IS     198.28949  ON 87031503: AT (  566190.00,  2843123.75,     0.00,     0.00) DC     NA

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***
** CONC OF ALL     IN MICROGRAMS/M**3                 **

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

ALL     HIGH  1ST HIGH VALUE IS      35.20385  ON 87022824: AT (  566370.81,  2843561.00,     0.00,     0.00) DC     NA
```

```
*** ISCST3 - VERSION 96113 ***   *** Standby Generator Sets - Significant Impacts - 1988          ***     2-DEC-97
                   *** Miami-Dade Water and Sewer Department Alexander Orr WTP           ***      15:20:01
                                                                      PAGE  31
 *** MODELING OPTIONS USED:  CONC                  RURAL  FLAT       DFAULT
*** THE SUMMARY OF MAXIMUM PERIOD (  8784 HRS) RESULTS ***
** CONC OF ALL      IN MICROGRAMS/M**3                    **

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

ALL     1ST HIGHEST VALUE IS       2.41045 AT (  566370.81,  2843561.00,      0.00,       0.00)  DC      NA
       2ND HIGHEST VALUE IS       2.13832 AT (  566343.31,  2843524.50,      0.00,       0.00)  DC      NA
       3RD HIGHEST VALUE IS       1.95393 AT (  566392.13,  2843591.50,      0.00,       0.00)  DC      NA
       4TH HIGHEST VALUE IS       1.66759 AT (  566348.69,  2843603.25,      0.00,       0.00)  DC      NA
       5TH HIGHEST VALUE IS       1.60719 AT (  566317.88,  2843572.50,      0.00,       0.00)  DC      NA
       6TH HIGHEST VALUE IS       1.51237 AT (  566087.31,  2843223.75,      0.00,       0.00)  DC      NA

*** THE SUMMARY OF HIGHEST  1-HR RESULTS ***
** CONC OF ALL      IN MICROGRAMS/M**3                    **

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

ALL      HIGH  1ST HIGH VALUE IS     182.07993  ON 88061624: AT (  566190.00,  2843123.75,      0.00,       0.00)  DC       NA

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***
** CONC OF ALL      IN MICROGRAMS/M**3                    **

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

ALL      HIGH  1ST HIGH VALUE IS      40.33925  ON 88112224: AT (  566370.81,  2843561.00,      0.00,       0.00)  DC       NA
```

```
*** ISCST3 - VERSION 96113 ***   *** Standby Generator Sets - Significant Impacts - 1989          ***     2-DEC-97
                   *** Miami-Dade Water and Sewer Department Alexander Orr WTP          ***     15:25:22
                                                                          PAGE  31
 *** MODELING OPTIONS USED:  CONC                 RURAL  FLAT      DFAULT
*** THE SUMMARY OF MAXIMUM PERIOD (  8760 HRS) RESULTS ***
** CONC OF ALL     IN MICROGRAMS/M**3                **

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

ALL    1ST HIGHEST VALUE IS      2.72307 AT (  566370.81,  2843561.00,     0.00,      0.00)  DC      NA
       2ND HIGHEST VALUE IS      2.48507 AT (  566392.13,  2843591.50,     0.00,      0.00)  DC      NA
       3RD HIGHEST VALUE IS      2.24467 AT (  566343.31,  2843524.50,     0.00,      0.00)  DC      NA
       4TH HIGHEST VALUE IS      1.98035 AT (  566348.69,  2843603.25,     0.00,      0.00)  DC      NA
       5TH HIGHEST VALUE IS      1.77674 AT (  566317.88,  2843572.50,     0.00,      0.00)  DC      NA
       6TH HIGHEST VALUE IS      1.74048 AT (  566430.19,  2843605.25,     0.00,      0.00)  DC      NA

*** THE SUMMARY OF HIGHEST  1-HR RESULTS ***
** CONC OF ALL     IN MICROGRAMS/M**3                **

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

ALL     HIGH  1ST HIGH VALUE IS    206.97986  ON 89012824: AT (  566190.00,  2843123.75,     0.00,      0.00)  DC      NA

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***
** CONC OF ALL     IN MICROGRAMS/M**3                **

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

ALL     HIGH  1ST HIGH VALUE IS     44.69877  ON 89061524: AT (  566370.81,  2843561.00,     0.00,      0.00)  DC      NA
```

```
*** ISCST3 - VERSION 96113 ***   *** Standby Generator Sets - Significant Impacts - 1990          ***     2-DEC-97
                                 *** Miami-Dade Water and Sewer Department Alexander Orr WTP      ***     15:27:53
                                                                                PAGE  31
 *** MODELING OPTIONS USED:  CONC                RURAL  FLAT      DFAULT
*** THE SUMMARY OF MAXIMUM PERIOD (  8760 HRS) RESULTS ***
** CONC OF ALL      IN MICROGRAMS/M**3                   **

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

ALL     1ST HIGHEST VALUE IS      2.39027 AT (  566370.81,  2843561.00,      0.00,      0.00)  DC      NA
        2ND HIGHEST VALUE IS      2.01389 AT (  566343.31,  2843524.50,      0.00,      0.00)  DC      NA
        3RD HIGHEST VALUE IS      1.80685 AT (  566087.31,  2843173.75,      0.00,      0.00)  DC      NA
        4TH HIGHEST VALUE IS      1.77289 AT (  566076.38,  2843161.75,      0.00,      0.00)  GP   POL1
        5TH HIGHEST VALUE IS      1.72844 AT (  566392.13,  2843591.50,      0.00,      0.00)  DC      NA
        6TH HIGHEST VALUE IS      1.70903 AT (  566090.00,  2843123.75,      0.00,      0.00)  DC      NA

*** THE SUMMARY OF HIGHEST  1-HR RESULTS ***
** CONC OF ALL      IN MICROGRAMS/M**3                   **

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

ALL     HIGH  1ST HIGH VALUE IS     206.90305  ON 90041601: AT (  566190.00,  2843123.75,      0.00,      0.00)  DC      NA

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***
** CONC OF ALL      IN MICROGRAMS/M**3                   **

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

ALL     HIGH  1ST HIGH VALUE IS      35.59268  ON 90022224: AT (  566370.81,  2843561.00,      0.00,      0.00)  DC      NA
```

```
*** ISCST3 - VERSION 96113 ***   *** Standby Generator Sets - Significant Impacts - 1991          ***     2-DEC-97
                  *** Miami-Dade Water and Sewer Department Alexander Orr WTP          ***     15:16:55
                                                                             PAGE  31
 *** MODELING OPTIONS USED:  CONC                 RURAL  FLAT        DFAULT
*** THE SUMMARY OF MAXIMUM PERIOD (  8760 HRS) RESULTS ***
** CONC OF ALL      IN MICROGRAMS/M**3                    **

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

ALL     1ST HIGHEST VALUE IS      2.03499 AT (  566370.81,  2843561.00,      0.00,      0.00)  DC      NA
        2ND HIGHEST VALUE IS      1.98835 AT (  566343.31,  2843524.50,      0.00,      0.00)  DC      NA
        3RD HIGHEST VALUE IS      1.72168 AT (  566392.13,  2843591.50,      0.00,      0.00)  DC      NA
        4TH HIGHEST VALUE IS      1.69225 AT (  566140.00,  2843123.75,      0.00,      0.00)  DC      NA
        5TH HIGHEST VALUE IS      1.67981 AT (  566090.00,  2843123.75,      0.00,      0.00)  DC      NA
        6TH HIGHEST VALUE IS      1.56064 AT (  566190.00,  2843123.75,      0.00,      0.00)  DC      NA

*** THE SUMMARY OF HIGHEST  1-HR RESULTS ***
** CONC OF ALL      IN MICROGRAMS/M**3                    **

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

ALL     HIGH  1ST HIGH VALUE IS     206.49405  ON 91050203: AT (  566190.00,  2843123.75,      0.00,      0.00)  DC      NA

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***
** CONC OF ALL      IN MICROGRAMS/M**3                    **

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

ALL     HIGH  1ST HIGH VALUE IS      31.66023  ON 91032924: AT (  566392.13,  2843591.50,      0.00,      0.00)  DC      NA
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Summary of Maximum Predicted PSD Increment Consumption in Everglades National Park Class I Area - NO_2
Vertical Generator Stacks and Site-Specific Emissions
Alexander Orr, Jr. WTP
Miami-Dade Water and Sewer Department

	Maximum Predicted Offsite Increment Consumption (µg/m3)				
	1987	**1988**	**1989**	**1990**	**1991**
Maximum Predicted Impact	0.61	0.60	0.51	0.86	0.75
PSD Increment	2.50	2.50	2.50	2.50	2.50
Location	(17019 m, 288 deg)	(17019 m, 288 deg)	(16020 m, 268 deg)	(17019 m, 288 deg)	(17019 m, 288 deg)

Q_s = 11.61 g NOx/s standby gens hrs/yr = 14,000 (total) 40,110,000 kW-hr (total)

* PM10 emissions do not exceed PSD significant emission rates.

Appendix C

Class I Area Dispersion Model Input and Output Summaries

Alexander Orr, Jr. Water Treatment Plant

Summary of Maximum Predicted Ambient NO2 Concentrations in Everglades National Park Class I Area - Annual Average
ISC Run 10: Vertical Generator, Pump 5, and Pump 6 Stacks (Site-Specific Emissions) and Diesel Pump Engines ("Reduced "Site-Specific Emissions)
Alexander Orr, Jr. WTP
Miami-Dade Water and Sewer Department

	Maximum Predicted Offsite Concentration (µg/m3)				
	1987	**1988**	**1989**	**1990**	**1991**
Maximum Predicted Impact - Class I Area	3.4	3.4	2.9	4.4	4.1
1996 Background[1]	12.0	12.0	12.0	12.0	12.0
Maximum Predicted Concentration	15.4	15.4	14.9	16.4	16.1
NAAQS	100.0	100.0	100.0	100.0	100.0
Location	(17019 m, 288 deg)	(17019 m, 288 deg)	(17019 m, 288 deg)	(16020 m, 268 deg)	(17019 m, 288 deg)

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1 Background concentration for 1997 at Virginia Key monitoring station.

standby gens Q_s = 11.61 g NOx/s	hrs/yr = 14,000 (total)	site-specific emissions	40,110,000 kW-hr (total)
Worthington #6 Q_s = 2.30 g NOx/s	continuous	site-specific emissions	
Diesel Pumps 1, 3 & 4 Q_s = 0.70 g NOx/s	one @ 50% operation	site-specific emissions	

* PM10 emissions do not exceed significant emission rates.

```
NO ECHO
CO STARTING
  TITLEONE Standby Generator Sets - NAAQS & PSD Class I Increment - NO2 - 1987
  TITLETWO Miami-Dade Water and Sewer Department Alexander Orr WTP Standby Generators
  MODELOPT DFAULT CONC RURAL
  TERRHGTS FLAT
  AVERTIME PERIOD
  POLLUTID NO2
  RUNORNOT RUN
CO FINISHED
SO STARTING
** LOCATION SRC-ID TYPE UTM X (m) UTM Y (m) Z (m)
** PSD Increment Consuming Sources
  LOCATION AOGENS POINT 566509.0  2843411.0 0.00
  LOCATION HPGENS POINT 571491.6  2857105.1 0.00
  LOCATION CDGENS POINT 584959.0  2847790.0 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 AOLIME POINT 566466.7  2843216.5 0.00
  LOCATION AOPUMP6 POINT 566598.0  2843570.0 0.00
  LOCATION AOPUMP1 POINT 566598.0  2843531.0 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 LCRRF POINT 424000.0  2946000.0 0.00
  LOCATION BECHTEL POINT 545600.0  2991500.0 0.00
  LOCATION OKEELANT POINT 525000.0  2939400.0 0.00
  LOCATION OSCEOLA POINT 544200.0  2968000.0 0.00
** SRCPARAM SRC-ID EMIS Hgt temp,X,sy vel,y,sz dia,ang
** PSD Increment Consuming Sources
  SRCPARAM AOGENS 11.6100  3.50  608.0  0.10 11.32
  SRCPARAM HPGENS 10.6800  8.80  608.0  45.19 0.53
  SRCPARAM CDGENS 10.8100  6.40  663.0  16.50 0.91
  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
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   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 AOPUMP6 2.3000  8.50  735.0  5.97 0.24
   SRCPARAM AOPUMP1 0.7000  8.50  735.0  7.77 0.18
   SRCPARAM AOLIME 0.8419  0.00  327.0  7.17 1.74
   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 LCRRF 30.3700  83.80  388.5  19.81 1.88
   SRCPARAM BECHTEL 82.0000  150.90  333.2  30.50 4.88
   SRCPARAM OKEELANT 24.8100  60.67  449.8  21.25 2.44
   SRCPARAM OSCEOLA 12.2200  54.90  449.0  21.38 2.13
SO BUILDHGT AOGENS     7.00   7.00   7.00   7.00   7.00   7.00
SO BUILDHGT AOGENS     7.00   7.00   7.00   7.00   7.00   7.00
SO BUILDHGT AOGENS     7.00   7.00   7.00   7.00   7.00   7.00
SO BUILDHGT AOGENS     7.00   7.00   7.00   7.00  20.60  20.60
SO BUILDHGT AOGENS     7.00   7.00   7.00   7.00   7.00   7.00
SO BUILDHGT AOGENS     7.00   7.00   7.00   7.00   7.00   7.00
SO BUILDWID AOGENS    10.80  12.18   7.90   9.11  10.05  10.68
SO BUILDWID AOGENS    10.99  10.96  10.60  10.96  10.99  10.68
SO BUILDWID AOGENS    10.11   9.19   7.98  12.18  10.80   9.10
SO BUILDWID AOGENS    10.80  12.18   7.90   9.11  21.56  20.90
SO BUILDWID AOGENS    10.99  10.96  10.60  10.96  10.99  10.68
SO BUILDWID AOGENS    10.11   9.19   7.98  12.18  10.80   9.10
SO BUILDHGT HPGENS     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT HPGENS     0.00   0.00   0.00   0.00   0.00   0.00
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SO BUILDWID DCRRF5   0.00  0.00  0.00  0.00  0.00  0.00
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SO BUILDHGT FPLF14   0.00  0.00  0.00  0.00  0.00  0.00
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SO BUILDWID AOLIME   0.00  0.00  0.00  0.00  0.00  0.00
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SO BUILDWID AOLIME    0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID AOLIME    0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT AOPUMP6    6.25   6.25   6.25   6.25   6.25   6.25
SO BUILDHGT AOPUMP6    6.25   6.25   6.25   6.25   6.25   6.25
SO BUILDHGT AOPUMP6    6.25   6.25   6.25   6.25   6.25   6.25
SO BUILDHGT AOPUMP6    6.25   6.25   6.25   6.25   6.25   6.25
SO BUILDHGT AOPUMP6    6.25   6.25   6.25   6.25   6.25   6.25
SO BUILDHGT AOPUMP6    6.25   6.25   6.25   6.25  15.00  15.00
SO BUILDWID AOPUMP6   31.58  48.40  63.75  77.16  88.23  96.62
SO BUILDWID AOPUMP6  102.07 104.42 103.60 104.42 102.07  96.62
SO BUILDWID AOPUMP6   88.23  77.16  63.75  48.40  31.58  13.80
SO BUILDWID AOPUMP6   31.58  48.40  63.75  77.16  88.23  96.62
SO BUILDWID AOPUMP6  102.07 104.42 103.60 104.42 102.07  96.62
SO BUILDWID AOPUMP6   88.23  77.16  63.75  48.40  18.77  15.30
SO BUILDHGT AOPUMP1   20.60  15.00   6.25   6.25   6.25   6.25
SO BUILDHGT AOPUMP1    6.25   6.25   6.25   6.25   6.25   6.25
SO BUILDHGT AOPUMP1    6.25   6.25   6.25   6.25   6.25   6.25
SO BUILDHGT AOPUMP1    6.25  15.00   6.25   6.25   6.25   6.25
SO BUILDHGT AOPUMP1    6.25   6.25   6.25   6.25   6.25   6.25
SO BUILDHGT AOPUMP1    6.25   6.25   6.25  20.60  20.60  20.60
SO BUILDWID AOPUMP1   17.72  21.66  63.75  77.16  88.23  96.62
SO BUILDWID AOPUMP1  102.07 104.42 103.60 104.42 102.07  96.62
SO BUILDWID AOPUMP1   88.23  77.16  63.75  48.40  31.58  13.80
SO BUILDWID AOPUMP1   31.58  21.66  63.75  77.16  88.23  96.62
SO BUILDWID AOPUMP1  102.07 104.42 103.60 104.42 102.07  96.62
SO BUILDWID AOPUMP1   88.23  77.16  63.75  17.89  17.72  15.30
SO BUILDHGT TARMAC3B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT TARMAC3B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT TARMAC3B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT TARMAC3B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT TARMAC3B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT TARMAC3B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID TARMAC3B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID TARMAC3B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID TARMAC3B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID TARMAC3B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID TARMAC3B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID TARMAC3B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF12B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF12B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF12B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF12B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF12B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF12B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID DCRRF12B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID DCRRF12B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID DCRRF12B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID DCRRF12B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID DCRRF12B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID DCRRF12B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF34B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF34B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF34B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF34B   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF34B   0.00   0.00   0.00   0.00   0.00   0.00
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SO BUILDHGT DCRRF34B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID DCRRF34B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID DCRRF34B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID DCRRF34B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID DCRRF34B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID DCRRF34B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID DCRRF34B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC5    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC5    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC5    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC5    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC5    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC5    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC5    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC5    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC5    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC5    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC5    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC5    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC6    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC6    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC6    0.00  0.00  0.00  0.00  0.00  0.00
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SO BUILDHGT FPLC6    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC6    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC6    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC6    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC6    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC6    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC6    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC6    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC6    0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE112   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE112   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE112   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE112   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE112   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE112   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE112   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE112   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE112   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE112   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE112   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE112   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT RINKER12   0.00  0.00  0.00  0.00  0.00  0.00
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```
SO BUILDHGT RINKER12  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT RINKER12  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT RINKER12  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT RINKER12  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT RINKER12  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
SO BUILDWID RINKER12  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
SO BUILDWID RINKER12  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
SO BUILDWID RINKER12  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT LCRRF  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT LCRRF  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT LCRRF  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT LCRRF  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT LCRRF  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT LCRRF  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID LCRRF  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID LCRRF  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID LCRRF  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID LCRRF  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID LCRRF  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID LCRRF  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT BECHTEL  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT BECHTEL  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT BECHTEL  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT BECHTEL  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT BECHTEL  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT BECHTEL  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID BECHTEL  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID BECHTEL  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID BECHTEL  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID BECHTEL  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID BECHTEL  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID BECHTEL  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT OKEELANT  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT OKEELANT  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT OKEELANT  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT OKEELANT  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT OKEELANT  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT OKEELANT  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID OKEELANT  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID OKEELANT  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID OKEELANT  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID OKEELANT  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID OKEELANT  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID OKEELANT  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT OSCEOLA  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT OSCEOLA  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT OSCEOLA  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT OSCEOLA  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT OSCEOLA  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT OSCEOLA  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID OSCEOLA  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID OSCEOLA  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID OSCEOLA  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID OSCEOLA  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID OSCEOLA  0.00  0.00  0.00  0.00  0.00  0.00
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SO BUILDWID OSCEOLA    0.00   0.00   0.00   0.00   0.00   0.00
  SRCGROUP GENS AOGENS
  SRCGROUP MDWASDAO AOGENS AOLIME AOPUMP6 AOPUMP1
  SRCGROUP PSD1INCR AOGENS HPGENS CDGENS SBROWRRF NBROWRRF
  SRCGROUP PSD1INCR TARMAC1 TARMAC2 TARMAC3 TARMAC3B DCRRF12 DCRRF34
  SRCGROUP PSD1INCR DCRRF12B DCRRF34B DCRRF5 FPLF14 FPLF45B
  SRCGROUP NAAQS AOGENS HPGENS CDGENS AOLIME AOPUMP6 AOPUMP1
  SRCGROUP NAAQS SBROWRRF NBROWRRF TARMAC1 TARMAC2 TARMAC3 DCRRF12
  SRCGROUP NAAQS DCRRF34 DCRRF5 FPLF14 FPLF112 FPLF1324 FPLC5
  SRCGROUP NAAQS FPLC6 FPLPE12 FPLPE34 FPLPE112 FPLTP12 RINKER12
  SRCGROUP NAAQS LCRRF BECHTEL OKEELANTA OSCEOLA
SO FINISHED
RE STARTING
  DISCCART 557000.0  2789000.0
  DISCCART 556600.0  2792000.0
  DISCCART 556000.0  2796000.0
  DISCCART 553000.0  2796500.0
  DISCCART 548000.0  2796500.0
  DISCCART 542700.0  2796500.0
  DISCCART 542700.0  2800000.0
  DISCCART 542700.0  2805000.0
  DISCCART 542700.0  2810000.0
  DISCCART 542000.0  2811000.0
  DISCCART 541300.0  2814000.0
  DISCCART 542700.0  2816000.0
  DISCCART 544100.0  2820000.0
  DISCCART 543500.0  2824600.0
  DISCCART 545000.0  2829000.0
  DISCCART 545700.0  2832200.0
  DISCCART 546200.0  2835700.0
  DISCCART 548600.0  2837500.0
  DISCCART 550300.0  2839000.0
  DISCCART 545000.0  2839000.0
  DISCCART 540000.0  2839000.0
  DISCCART 550500.0  2844000.0
  DISCCART 545000.0  2844000.0
  DISCCART 540000.0  2844000.0
  DISCCART 550300.0  2848600.0
  DISCCART 545000.0  2848600.0
  DISCCART 540000.0  2848600.0
  DISCCART 535600.0  2848600.0
  DISCCART 530600.0  2848600.0
  DISCCART 525600.0  2848600.0
  DISCCART 520600.0  2848600.0
  DISCCART 515600.0  2848600.0
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 PSD1INCR AO87C1I.PLT  33
  PLOTFILE PERIOD NAAQS AO87C1A.PLT  34
OU FINISHED
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*** ISCST3 - VERSION 96113 ***    *** Standby Generator Sets - NAAQS & PSD Class I Increment - NO2 - 1987  ***      02/23/98
                   *** Miami-Dade Water and Sewer Department Alexander Orr WTP Standby Gene ***      10:41:56
**MODELOPTs: CONC                RURAL  FLAT       DFAULT
*** POINT SOURCE DATA ***
      NUMBER EMISSION RATE               BASE    STACK   STACK    STACK     STACK   BUILDING EMISSION RATE
 SOURCE    PART. (GRAMS/SEC)    X       Y     ELEV.   HEIGHT  TEMP.   EXIT VEL. DIAMETER   EXISTS   SCALAR VARY
  ID     CATS.            (METERS) (METERS) (METERS) (METERS) (DEG.K)  (M/SEC)  (METERS)              BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 AOGENS      0  0.11610E+02  566509.0 2843411.0    0.0     3.50   608.00    0.10   11.32      YES
 HPGENS      0  0.10680E+02  571491.6 2857105.0    0.0     8.80   608.00   45.19    0.53      NO
 CDGENS      0  0.10810E+02  584959.0 2847790.0    0.0     6.40   663.00   16.50    0.91      NO
 SBROWRRF    0  0.68550E+02  579600.0 2883300.0    0.0    59.44   381.00   17.98    3.96      NO
 NBROWRRF    0  0.64000E+02  583600.0 2907600.0    0.0    58.50   381.00   18.01    3.96      NO
 TARMAC1     0  0.21140E+02  562900.0 2861700.0    0.0    60.96   465.00   12.80    2.44      NO
 TARMAC2     0  0.12890E+02  562900.0 2861700.0    0.0    60.96   422.00    9.11    2.44      NO
 TARMAC3     0  0.68180E+02  562900.0 2861700.0    0.0    60.96   450.00   11.03    4.57      NO
 DCRRF12     0  0.35380E+02  564390.0 2857390.0    0.0    76.20   405.40   15.86    3.66      NO
 DCRRF34     0  0.35380E+02  564360.0 2857390.0    0.0    76.20   405.40   15.86    3.66      NO
 DCRRF5      0  0.13240E+02  564300.0 2857400.0    0.0    76.20   399.80   15.74    2.97      NO
 FPLF14      0  0.13570E+03  580100.0 2883300.0    0.0    46.00   422.00   14.63    4.27      NO
 AOLIME      0  0.84190E+00  566466.7 2843216.5    0.0     0.00   327.00    7.17    1.74      NO
 AOPUMP6     0  0.23000E+01  566598.0 2843570.0    0.0     8.50   735.00    5.97    0.24      YES
 AOPUMP1     0  0.70000E+00  566598.0 2843531.0    0.0     8.50   735.00    7.77    0.18      YES
 TARMAC3B    0  -.60800E+02  562900.0 2861700.0    0.0    60.96   472.00   10.78    4.57      NO
 DCRRF12B    0  -.22500E+02  564390.0 2857390.0    0.0    45.72   472.00   12.20    2.74      NO
 DCRRF34B    0  -.22530E+02  564360.0 2857390.0    0.0    45.72   472.00   12.20    2.74      NO
 FPLF112     0  0.50801E+03  580100.0 2883300.0    0.0    13.72   733.00   21.34    5.49      NO
 FPLF1324    0  0.50801E+03  580100.0 2883300.0    0.0    13.29   733.00   21.34    5.49      NO
 FPLF45B     0  -.70600E+02  580100.0 2883300.0    0.0    46.00   422.00   14.63    4.27      NO
 FPLC5       0  0.51150E+02  570400.0 2834900.0    0.0    45.72   408.00   11.58    4.57      NO
 FPLC6       0  0.86820E+02  570400.0 2834900.0    0.0    45.72   408.00   14.33    4.57      NO
 FPLPE12     0  0.31378E+03  587400.0 2875300.0    0.0   104.85   416.00   18.59    4.27      NO
 FPLPE34     0  0.50827E+03  587400.0 2875300.0    0.0   104.55   408.00   19.20    5.52      NO
 FPLPE112    0  0.49895E+03  587400.0 2875300.0    0.0    15.54   733.00   21.34    5.49      NO
 FPLTP12     0  0.47524E+03  567200.0 2831200.0    0.0   121.92   408.00   19.20    5.52      NO
 RINKER12    0  0.20190E+02  558200.0 2851300.0    0.0    41.76   400.00    7.62    4.57      NO
 LCRRF       0  0.30370E+02  424000.0 2946000.0    0.0    83.80   388.50   19.81    1.88      NO
 BECHTEL     0  0.82000E+02  545600.0 2991500.0    0.0   150.90   333.20   30.50    4.88      NO
 OKEELANT    0  0.24810E+02  525000.0 2939400.0    0.0    60.67   449.80   21.25    2.44      NO
 OSCEOLA     0  0.12220E+02  544200.0 2968000.0    0.0    54.90   449.00   21.38    2.13      NO
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**MODELOPTs: CONC                RURAL  FLAT        DFAULT
                       *** SOURCE IDs DEFINING SOURCE GROUPS ***
GROUP ID                        SOURCE IDs
GENS     AOGENS  ,
MDWASDAO  AOGENS  , AOLIME  , AOPUMP6 , AOPUMP1 ,
PSDIINCR  AOGENS  , HPGENS  , CDGENS  , SBROWRRF, NBROWRRF, TARMAC1 , TARMAC2 , TARMAC3 , DCRRF12 , DCRRF34 , DCRRF5  , FPLF14  ,
          TARMAC3B, DCRRF12B, DCRRF34B, FPLF45B ,
NAAQS     AOGENS  , HPGENS  , CDGENS  , SBROWRRF, NBROWRRF, TARMAC1 , TARMAC2 , TARMAC3 , DCRRF12 , DCRRF34 , DCRRF5  , FPLF14  ,
          AOLIME  , AOPUMP6 , AOPUMP1 , FPLF112 , FPLF1324, FPLC5   , FPLC6   , FPLPE12 , FPLPE34 , FPLPE112, FPLTP12 , RINKER12,
          LCRRF   , BECHTEL , OKEELANT, OSCEOLA ,
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*** ISCST3 - VERSION 96113 ***   *** Standby Generator Sets - NAAQS & PSD Class I Increment - NO2 - 1987 ***      02/23/98
                *** Miami-Dade Water and Sewer Department Alexander Orr WTP Standby Gene ***       10:41:56
                                                    PAGE 12
**MODELOPTs: 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      0.39663 AT (  550500.00,  2844000.00,      0.00,      0.00)  DC      NA
         2ND HIGHEST VALUE IS      0.26803 AT (  545000.00,  2844000.00,      0.00,      0.00)  DC      NA
         3RD HIGHEST VALUE IS      0.25362 AT (  550300.00,  2839000.00,      0.00,      0.00)  DC      NA
         4TH HIGHEST VALUE IS      0.22695 AT (  550300.00,  2848600.00,      0.00,      0.00)  DC      NA
         5TH HIGHEST VALUE IS      0.20238 AT (  540000.00,  2844000.00,      0.00,      0.00)  DC      NA
         6TH HIGHEST VALUE IS      0.19697 AT (  548600.00,  2837500.00,      0.00,      0.00)  DC      NA

MDWASDAO 1ST HIGHEST VALUE IS      0.53689 AT (  550500.00,  2844000.00,      0.00,      0.00)  DC      NA
         2ND HIGHEST VALUE IS      0.36124 AT (  545000.00,  2844000.00,      0.00,      0.00)  DC      NA
         3RD HIGHEST VALUE IS      0.34205 AT (  550300.00,  2839000.00,      0.00,      0.00)  DC      NA
         4TH HIGHEST VALUE IS      0.31045 AT (  550300.00,  2848600.00,      0.00,      0.00)  DC      NA
         5TH HIGHEST VALUE IS      0.27217 AT (  540000.00,  2844000.00,      0.00,      0.00)  DC      NA
         6TH HIGHEST VALUE IS      0.26614 AT (  548600.00,  2837500.00,      0.00,      0.00)  DC      NA

PSD1INCR 1ST HIGHEST VALUE IS      0.81235 AT (  550300.00,  2848600.00,      0.00,      0.00)  DC      NA
         2ND HIGHEST VALUE IS      0.80505 AT (  550500.00,  2844000.00,      0.00,      0.00)  DC      NA
         3RD HIGHEST VALUE IS      0.70659 AT (  545000.00,  2848600.00,      0.00,      0.00)  DC      NA
         4TH HIGHEST VALUE IS      0.67961 AT (  545000.00,  2844000.00,      0.00,      0.00)  DC      NA
         5TH HIGHEST VALUE IS      0.67362 AT (  540000.00,  2848600.00,      0.00,      0.00)  DC      NA
         6TH HIGHEST VALUE IS      0.62113 AT (  535600.00,  2848600.00,      0.00,      0.00)  DC      NA

NAAQS    1ST HIGHEST VALUE IS      4.49094 AT (  550300.00,  2848600.00,      0.00,      0.00)  DC      NA
         2ND HIGHEST VALUE IS      4.45714 AT (  545000.00,  2848600.00,      0.00,      0.00)  DC      NA
         3RD HIGHEST VALUE IS      4.21200 AT (  550500.00,  2844000.00,      0.00,      0.00)  DC      NA
         4TH HIGHEST VALUE IS      4.20751 AT (  540000.00,  2848600.00,      0.00,      0.00)  DC      NA
         5TH HIGHEST VALUE IS      3.87524 AT (  540000.00,  2844000.00,      0.00,      0.00)  DC      NA
         6TH HIGHEST VALUE IS      3.83787 AT (  550300.00,  2839000.00,      0.00,      0.00)  DC      NA
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*** ISCST3 - VERSION 96113 ***   *** Standby Generator Sets - NAAQS & PSD Class I Increment - NO2 - 1988 ***        02/23/98
                     *** Miami-Dade Water and Sewer Department Alexander Orr WTP Standby Gene ***        10:42:50
                                                                   PAGE  12
**MODELOPTs: CONC                  RURAL  FLAT       DFAULT
*** THE SUMMARY OF MAXIMUM PERIOD ( 8784 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       0.31174 AT (  550500.00,  2844000.00,       0.00,       0.00)  DC      NA
   2ND HIGHEST VALUE IS       0.25158 AT (  550300.00,  2839000.00,       0.00,       0.00)  DC      NA
   3RD HIGHEST VALUE IS       0.22588 AT (  548600.00,  2837500.00,       0.00,       0.00)  DC      NA
   4TH HIGHEST VALUE IS       0.20879 AT (  545000.00,  2839000.00,       0.00,       0.00)  DC      NA
   5TH HIGHEST VALUE IS       0.20738 AT (  545000.00,  2844000.00,       0.00,       0.00)  DC      NA
   6TH HIGHEST VALUE IS       0.20551 AT (  550300.00,  2848600.00,       0.00,       0.00)  DC      NA

MDWASDAO 1ST HIGHEST VALUE IS       0.42313 AT (  550500.00,  2844000.00,       0.00,       0.00)  DC      NA
   2ND HIGHEST VALUE IS       0.34430 AT (  550300.00,  2839000.00,       0.00,       0.00)  DC      NA
   3RD HIGHEST VALUE IS       0.30956 AT (  548600.00,  2837500.00,       0.00,       0.00)  DC      NA
   4TH HIGHEST VALUE IS       0.28307 AT (  545000.00,  2839000.00,       0.00,       0.00)  DC      NA
   5TH HIGHEST VALUE IS       0.28087 AT (  545000.00,  2844000.00,       0.00,       0.00)  DC      NA
   6TH HIGHEST VALUE IS       0.27855 AT (  550300.00,  2848600.00,       0.00,       0.00)  DC      NA

PSD1INCR 1ST HIGHEST VALUE IS       0.79420 AT (  550300.00,  2848600.00,       0.00,       0.00)  DC      NA
   2ND HIGHEST VALUE IS       0.71175 AT (  550500.00,  2844000.00,       0.00,       0.00)  DC      NA
   3RD HIGHEST VALUE IS       0.66112 AT (  545000.00,  2848600.00,       0.00,       0.00)  DC      NA
   4TH HIGHEST VALUE IS       0.62756 AT (  540000.00,  2848600.00,       0.00,       0.00)  DC      NA
   5TH HIGHEST VALUE IS       0.61698 AT (  545000.00,  2844000.00,       0.00,       0.00)  DC      NA
   6TH HIGHEST VALUE IS       0.57513 AT (  535600.00,  2848600.00,       0.00,       0.00)  DC      NA

NAAQS    1ST HIGHEST VALUE IS       4.59152 AT (  550300.00,  2848600.00,       0.00,       0.00)  DC      NA
   2ND HIGHEST VALUE IS       4.15783 AT (  545000.00,  2848600.00,       0.00,       0.00)  DC      NA
   3RD HIGHEST VALUE IS       4.08824 AT (  550500.00,  2844000.00,       0.00,       0.00)  DC      NA
   4TH HIGHEST VALUE IS       3.95220 AT (  540000.00,  2848600.00,       0.00,       0.00)  DC      NA
   5TH HIGHEST VALUE IS       3.81653 AT (  525600.00,  2848600.00,       0.00,       0.00)  DC      NA
   6TH HIGHEST VALUE IS       3.74292 AT (  546200.00,  2835700.00,       0.00,       0.00)  DC      NA
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*** ISCST3 - VERSION 96113 ***   *** Standby Generator Sets - NAAQS & PSD Class I Increment - NO2 - 1989 ***      02/23/98
                    *** Miami-Dade Water and Sewer Department Alexander Orr WTP Standby Gene ***      10:43:44
                                                          PAGE 12
**MODELOPTs: 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      0.39117 AT ( 550500.00, 2844000.00,     0.00,     0.00) DC     NA
    2ND HIGHEST VALUE IS      0.26701 AT ( 545000.00, 2844000.00,     0.00,     0.00) DC     NA
    3RD HIGHEST VALUE IS      0.25134 AT ( 550300.00, 2839000.00,     0.00,     0.00) DC     NA
    4TH HIGHEST VALUE IS      0.24419 AT ( 550300.00, 2848600.00,     0.00,     0.00) DC     NA
    5TH HIGHEST VALUE IS      0.20816 AT ( 545000.00, 2839000.00,     0.00,     0.00) DC     NA
    6TH HIGHEST VALUE IS      0.20337 AT ( 540000.00, 2844000.00,     0.00,     0.00) DC     NA

MDWASDAO 1ST HIGHEST VALUE IS      0.53640 AT ( 550500.00, 2844000.00,     0.00,     0.00) DC     NA
    2ND HIGHEST VALUE IS      0.36475 AT ( 545000.00, 2844000.00,     0.00,     0.00) DC     NA
    3RD HIGHEST VALUE IS      0.33957 AT ( 550300.00, 2839000.00,     0.00,     0.00) DC     NA
    4TH HIGHEST VALUE IS      0.33238 AT ( 550300.00, 2848600.00,     0.00,     0.00) DC     NA
    5TH HIGHEST VALUE IS      0.28223 AT ( 545000.00, 2839000.00,     0.00,     0.00) DC     NA
    6TH HIGHEST VALUE IS      0.27733 AT ( 540000.00, 2844000.00,     0.00,     0.00) DC     NA

PSD1INCR 1ST HIGHEST VALUE IS      0.68237 AT ( 550500.00, 2844000.00,     0.00,     0.00) DC     NA
    2ND HIGHEST VALUE IS      0.66263 AT ( 550300.00, 2848600.00,     0.00,     0.00) DC     NA
    3RD HIGHEST VALUE IS      0.60225 AT ( 545000.00, 2848600.00,     0.00,     0.00) DC     NA
    4TH HIGHEST VALUE IS      0.56007 AT ( 540000.00, 2848600.00,     0.00,     0.00) DC     NA
    5TH HIGHEST VALUE IS      0.55102 AT ( 545000.00, 2844000.00,     0.00,     0.00) DC     NA
    6TH HIGHEST VALUE IS      0.52132 AT ( 535600.00, 2848600.00,     0.00,     0.00) DC     NA

NAAQS    1ST HIGHEST VALUE IS      3.81673 AT ( 550300.00, 2848600.00,     0.00,     0.00) DC     NA
    2ND HIGHEST VALUE IS      3.75180 AT ( 545000.00, 2848600.00,     0.00,     0.00) DC     NA
    3RD HIGHEST VALUE IS      3.68789 AT ( 550500.00, 2844000.00,     0.00,     0.00) DC     NA
    4TH HIGHEST VALUE IS      3.26835 AT ( 540000.00, 2848600.00,     0.00,     0.00) DC     NA
    5TH HIGHEST VALUE IS      3.26058 AT ( 550300.00, 2839000.00,     0.00,     0.00) DC     NA
    6TH HIGHEST VALUE IS      3.10008 AT ( 530600.00, 2848600.00,     0.00,     0.00) DC     NA
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*** ISCST3 - VERSION 96113 ***   *** Standby Generator Sets - NAAQS & PSD Class I Increment - NO2 - 1990  ***      02/23/98
            *** Miami-Dade Water and Sewer Department Alexander Orr WTP Standby Gene ***      10:44:33
                                                PAGE 12
**MODELOPTs: 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     0.50796 AT (  550500.00,  2844000.00,     0.00,     0.00)  DC     NA
     2ND HIGHEST VALUE IS     0.37336 AT (  550300.00,  2848600.00,     0.00,     0.00)  DC     NA
     3RD HIGHEST VALUE IS     0.34810 AT (  545000.00,  2844000.00,     0.00,     0.00)  DC     NA
     4TH HIGHEST VALUE IS     0.33085 AT (  550300.00,  2839000.00,     0.00,     0.00)  DC     NA
     5TH HIGHEST VALUE IS     0.30742 AT (  545000.00,  2848600.00,     0.00,     0.00)  DC     NA
     6TH HIGHEST VALUE IS     0.26714 AT (  540000.00,  2844000.00,     0.00,     0.00)  DC     NA

MDWASDAO 1ST HIGHEST VALUE IS     0.70338 AT (  550500.00,  2844000.00,     0.00,     0.00)  DC     NA
     2ND HIGHEST VALUE IS     0.52382 AT (  550300.00,  2848600.00,     0.00,     0.00)  DC     NA
     3RD HIGHEST VALUE IS     0.47931 AT (  545000.00,  2844000.00,     0.00,     0.00)  DC     NA
     4TH HIGHEST VALUE IS     0.45072 AT (  550300.00,  2839000.00,     0.00,     0.00)  DC     NA
     5TH HIGHEST VALUE IS     0.42570 AT (  545000.00,  2848600.00,     0.00,     0.00)  DC     NA
     6TH HIGHEST VALUE IS     0.36657 AT (  540000.00,  2844000.00,     0.00,     0.00)  DC     NA

PSD1INCR 1ST HIGHEST VALUE IS     1.14372 AT (  550300.00,  2848600.00,     0.00,     0.00)  DC     NA
     2ND HIGHEST VALUE IS     1.11476 AT (  550500.00,  2844000.00,     0.00,     0.00)  DC     NA
     3RD HIGHEST VALUE IS     0.98626 AT (  545000.00,  2848600.00,     0.00,     0.00)  DC     NA
     4TH HIGHEST VALUE IS     0.92666 AT (  540000.00,  2848600.00,     0.00,     0.00)  DC     NA
     5TH HIGHEST VALUE IS     0.89930 AT (  545000.00,  2844000.00,     0.00,     0.00)  DC     NA
     6TH HIGHEST VALUE IS     0.85989 AT (  540000.00,  2844000.00,     0.00,     0.00)  DC     NA

NAAQS    1ST HIGHEST VALUE IS     5.86099 AT (  550500.00,  2844000.00,     0.00,     0.00)  DC     NA
     2ND HIGHEST VALUE IS     5.83961 AT (  550300.00,  2848600.00,     0.00,     0.00)  DC     NA
     3RD HIGHEST VALUE IS     5.64335 AT (  545000.00,  2848600.00,     0.00,     0.00)  DC     NA
     4TH HIGHEST VALUE IS     5.19584 AT (  540000.00,  2848600.00,     0.00,     0.00)  DC     NA
     5TH HIGHEST VALUE IS     4.97338 AT (  550300.00,  2839000.00,     0.00,     0.00)  DC     NA
     6TH HIGHEST VALUE IS     4.90050 AT (  540000.00,  2844000.00,     0.00,     0.00)  DC     NA
```

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*** ISCST3 - VERSION 96113 ***   *** Standby Generator Sets - NAAQS & PSD Class I Increment - NO2 - 1991 ***      02/23/98
                  *** Miami-Dade Water and Sewer Department Alexander Orr WTP Standby Gene ***      10:45:28
                                                   PAGE 12
**MODELOPTs: 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      0.35369 AT (  550300.00,  2848600.00,      0.00,      0.00)  DC      NA
         2ND HIGHEST VALUE IS      0.34372 AT (  550500.00,  2844000.00,      0.00,      0.00)  DC      NA
         3RD HIGHEST VALUE IS      0.26406 AT (  550300.00,  2839000.00,      0.00,      0.00)  DC      NA
         4TH HIGHEST VALUE IS      0.25652 AT (  545000.00,  2848600.00,      0.00,      0.00)  DC      NA
         5TH HIGHEST VALUE IS      0.24044 AT (  545000.00,  2844000.00,      0.00,      0.00)  DC      NA
         6TH HIGHEST VALUE IS      0.20808 AT (  545000.00,  2839000.00,      0.00,      0.00)  DC      NA

MDWASDAO 1ST HIGHEST VALUE IS      0.48377 AT (  550300.00,  2848600.00,      0.00,      0.00)  DC      NA
         2ND HIGHEST VALUE IS      0.47063 AT (  550500.00,  2844000.00,      0.00,      0.00)  DC      NA
         3RD HIGHEST VALUE IS      0.35848 AT (  550300.00,  2839000.00,      0.00,      0.00)  DC      NA
         4TH HIGHEST VALUE IS      0.34916 AT (  545000.00,  2848600.00,      0.00,      0.00)  DC      NA
         5TH HIGHEST VALUE IS      0.32730 AT (  545000.00,  2844000.00,      0.00,      0.00)  DC      NA
         6TH HIGHEST VALUE IS      0.28489 AT (  545000.00,  2839000.00,      0.00,      0.00)  DC      NA

PSD1INCR 1ST HIGHEST VALUE IS      1.00032 AT (  550300.00,  2848600.00,      0.00,      0.00)  DC      NA
         2ND HIGHEST VALUE IS      0.86538 AT (  550500.00,  2844000.00,      0.00,      0.00)  DC      NA
         3RD HIGHEST VALUE IS      0.85684 AT (  545000.00,  2848600.00,      0.00,      0.00)  DC      NA
         4TH HIGHEST VALUE IS      0.73561 AT (  540000.00,  2848600.00,      0.00,      0.00)  DC      NA
         5TH HIGHEST VALUE IS      0.72889 AT (  545000.00,  2844000.00,      0.00,      0.00)  DC      NA
         6TH HIGHEST VALUE IS      0.69752 AT (  550300.00,  2839000.00,      0.00,      0.00)  DC      NA

NAAQS    1ST HIGHEST VALUE IS      5.49998 AT (  550300.00,  2848600.00,      0.00,      0.00)  DC      NA
         2ND HIGHEST VALUE IS      5.20527 AT (  545000.00,  2848600.00,      0.00,      0.00)  DC      NA
         3RD HIGHEST VALUE IS      5.12932 AT (  550500.00,  2844000.00,      0.00,      0.00)  DC      NA
         4TH HIGHEST VALUE IS      4.57407 AT (  545000.00,  2844000.00,      0.00,      0.00)  DC      NA
         5TH HIGHEST VALUE IS      4.49774 AT (  540000.00,  2844000.00,      0.00,      0.00)  DC      NA
         6TH HIGHEST VALUE IS      4.46144 AT (  550300.00,  2839000.00,      0.00,      0.00)  DC      NA
```

Appendix C

Class II Area Dispersion Model Input and Output Summaries

Alexander Orr, Jr. Water Treatment Plant

Summary of Maximum Predicted PSD Increment Consumption - NO_2
Vertical Generator Stacks and Site-Specific Emissions
Alexander Orr, Jr. WTP
Miami-Dade Water and Sewer Department

	Maximum Predicted Offsite Increment Consumption (µg/m3)				
	1987	**1988**	**1989**	**1990**	**1991**
Maximum Predicted Impact	16.16	21.35	24.09	21.30	18.28
PSD Increment	25.00	25.00	25.00	25.00	25.00
Location	(200 m, 300 deg)	(204 m, 317 deg)	(204 m, 317 deg)	(204 m, 317 deg)	(201 m, 304 deg)

Q_s = 11.61 g NOx/s standby gens hrs/yr = 14,000 (total) 40,110,000 kW-hr (total)

* PM10 emissions do not exceed PSD significant emission rates.

Summary of Maximum Predicted Ambient NO2 Concentrations - Annual Average
ISC Run 10: Vertical Generator, Pump 5, and Pump 6 Stacks (Site-Specific Emissions) and Diesel Pump Engines ("Reduced "Site-Specific Emissions)
Alexander Orr, Jr. WTP
Miami-Dade Water and Sewer Department

	Maximum Predicted Offsite Concentration (µg/m3)				
	1987	**1988**	**1989**	**1990**	**1991**
Maximum Predicted Impact	70.6	68.1	80.0	82.0	87.5
1996 Background[1]	12.0	12.0	12.0	12.0	12.0
Maximum Predicted Concentration	82.6	80.1	92.0	94.0	99.5
NAAQS	100.0	100.0	100.0	100.0	100.0
Location	(195 m, 6 deg)	(195 m, 6 deg)	(195 m, 6 deg)	(195 m, 6 deg)	(195 m, 6 deg)

[1] Background concentration for 1997 at Virginia Key monitoring station.

standby gens Q_s = 11.61 g NOx/s	hrs/yr = 14,000 (total)	site-specific emissions	40,110,000 kW-hr (total)
Worthington #6 Q_s = 2.30 g NOx/s	continuous	site-specific emissions	
Diesel Pumps 1, 3 & 4 Q_s = 0.70 g NOx/s	one @ 50% operation	site-specific emissions	

* 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 - 1988
  TITLETWO Miami-Dade Water and Sewer Department Alexander Orr WTP Standby Generators
  MODELOPT DFAULT CONC RURAL
  TERRHGTS FLAT
  AVERTIME 1 PERIOD
  POLLUTID NO2
  RUNORNOT RUN
CO FINISHED
SO STARTING
** LOCATION SRC-ID TYPE UTM X (m) UTM Y (m) Z (m)
** PSD Increment Consuming Sources
  LOCATION AOGENS POINT 566509.0  2843411.0 0.00
  LOCATION HPGENS POINT 571491.6  2857105.1 0.00
  LOCATION CDGENS POINT 584959.0  2847790.0 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 AOLIME POINT 566466.7  2843216.5 0.00
  LOCATION AOPUMP6 POINT 566598.0  2843570.0 0.00
  LOCATION AOPUMP1 POINT 566598.0  2843531.0 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
** SRCPARAM SRC-ID EMIS Hgt temp,X,sy vel,y,sz dia,ang
** PSD Increment Consuming Sources
  SRCPARAM AOGENS 11.609  4.72  608.0  45.19 0.53
  SRCPARAM HPGENS 10.6800  8.80  608.0  45.19 0.53
  SRCPARAM CDGENS 10.8100  6.40  663.0  16.50 0.91
  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 AOPUMP6 2.300  8.50  735.0  5.97 0.24
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  SRCPARAM AOPUMP1 0.700  8.50  735.0  7.77 0.18
  SRCPARAM AOLIME 0.8419  0.00  327.0  7.17 1.74
  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
SO BUILDHGT AOGENS     7.00   7.00   7.00   7.00   7.00   7.00
SO BUILDHGT AOGENS     7.00   7.00   7.00   7.00   7.00   7.00
SO BUILDHGT AOGENS     7.00   7.00   7.00   7.00   7.00   7.00
SO BUILDHGT AOGENS     7.00   7.00   7.00   7.00  20.60  20.60
SO BUILDHGT AOGENS     7.00   7.00   7.00   7.00   7.00   7.00
SO BUILDHGT AOGENS     7.00   7.00   7.00   7.00   7.00   7.00
SO BUILDWID AOGENS    10.80  12.18   7.90   9.11  10.05  10.68
SO BUILDWID AOGENS    10.99  10.96  10.60  10.96  10.99  10.73
SO BUILDWID AOGENS    10.11   9.19   7.98  12.18  10.80   9.10
SO BUILDWID AOGENS    10.80  12.18   7.90   9.11  21.56  20.90
SO BUILDWID AOGENS    10.99  10.96  10.60  10.96  10.99  10.73
SO BUILDWID AOGENS    10.11   9.19   7.98  12.18  10.80   9.10
SO BUILDHGT HPGENS     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT HPGENS     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT HPGENS     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT HPGENS     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT HPGENS     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT HPGENS     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID HPGENS     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID HPGENS     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID HPGENS     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID HPGENS     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID HPGENS     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID HPGENS     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT CDGENS     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT CDGENS     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT CDGENS     0.00   0.00   0.00   0.00   0.00   0.00
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SO BUILDWID CDGENS     0.00   0.00   0.00   0.00   0.00   0.00
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SO BUILDWID CDGENS     0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT SBROWRRF   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT SBROWRRF   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT SBROWRRF   0.00   0.00   0.00   0.00   0.00   0.00
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SO BUILDHGT SBROWRRF   0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID SBROWRRF   0.00   0.00   0.00   0.00   0.00   0.00
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SO BUILDWID SBROWRRF  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID SBROWRRF  0.00  0.00  0.00  0.00  0.00  0.00
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SO BUILDWID SBROWRRF  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT NBROWRRF  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT NBROWRRF  0.00  0.00  0.00  0.00  0.00  0.00
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SO BUILDWID NBROWRRF  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT TARMAC1  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT TARMAC1  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT TARMAC1  0.00  0.00  0.00  0.00  0.00  0.00
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SO BUILDHGT TARMAC2  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT TARMAC2  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT TARMAC2  0.00  0.00  0.00  0.00  0.00  0.00
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SO BUILDWID TARMAC2  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT TARMAC3  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT TARMAC3  0.00  0.00  0.00  0.00  0.00  0.00
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SO BUILDWID TARMAC3  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT DCRRF12  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT DCRRF12  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT DCRRF12  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT DCRRF12  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT DCRRF12  0.00  0.00  0.00  0.00  0.00  0.00
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SO BUILDHGT DCRRF12  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID DCRRF12  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID DCRRF12  0.00  0.00  0.00  0.00  0.00  0.00
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SO BUILDWID DCRRF12  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT DCRRF34  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT DCRRF34  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT DCRRF34  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT DCRRF34  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT DCRRF34  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT DCRRF34  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID DCRRF34  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID DCRRF34  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID DCRRF34  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID DCRRF34  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID DCRRF34  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID DCRRF34  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT DCRRF5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT DCRRF5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT DCRRF5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT DCRRF5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT DCRRF5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT DCRRF5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID DCRRF5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID DCRRF5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID DCRRF5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID DCRRF5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID DCRRF5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID DCRRF5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF14  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF14  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF14  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF14  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF14  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF14  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF14  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF14  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF14  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF14  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF14  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF14  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT AOLIME   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT AOLIME   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT AOLIME   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT AOLIME   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT AOLIME   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT AOLIME   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID AOLIME   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID AOLIME   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID AOLIME   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID AOLIME   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID AOLIME   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID AOLIME   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT AOPUMP6   6.25   6.25   6.25   6.25   6.25   6.25
SO BUILDHGT AOPUMP6   6.25   6.25   6.25   6.25   6.25   6.25
SO BUILDHGT AOPUMP6   6.25   6.25   6.25   6.25   6.25   6.25
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SO BUILDHGT AOPUMP6   6.25   6.25   6.25   6.25   6.25   6.25
SO BUILDHGT AOPUMP6   6.25   6.25   6.25   6.25   6.25   6.25
SO BUILDHGT AOPUMP6   6.25   6.25   6.25   6.25  15.00  15.00
SO BUILDWID AOPUMP6  31.58  48.40  63.75  77.16  88.23  96.62
SO BUILDWID AOPUMP6 102.07 104.42 103.60 104.42 102.07  96.62
SO BUILDWID AOPUMP6  88.23  77.16  63.75  48.40  31.58  13.80
SO BUILDWID AOPUMP6  31.58  48.40  63.75  77.16  88.23  96.62
SO BUILDWID AOPUMP6 102.07 104.42 103.60 104.42 102.07  96.62
SO BUILDWID AOPUMP6  88.23  77.16  63.75  48.40  18.77  15.30
SO BUILDHGT AOPUMP1  20.60  15.00   6.25   6.25   6.25   6.25
SO BUILDHGT AOPUMP1   6.25   6.25   6.25   6.25   6.25   6.25
SO BUILDHGT AOPUMP1   6.25   6.25   6.25   6.25   6.25   6.25
SO BUILDHGT AOPUMP1   6.25  15.00   6.25   6.25   6.25   6.25
SO BUILDHGT AOPUMP1   6.25   6.25   6.25   6.25   6.25   6.25
SO BUILDHGT AOPUMP1   6.25   6.25   6.25  20.60  20.60  20.60
SO BUILDWID AOPUMP1  17.72  21.66  63.75  77.16  88.23  96.62
SO BUILDWID AOPUMP1 102.07 104.42 103.60 104.42 102.07  96.62
SO BUILDWID AOPUMP1  88.23  77.16  63.75  48.40  31.58  13.80
SO BUILDWID AOPUMP1  31.58  21.66  63.75  77.16  88.23  96.62
SO BUILDWID AOPUMP1 102.07 104.42 103.60 104.42 102.07  96.62
SO BUILDWID AOPUMP1  88.23  77.16  63.75  17.89  17.72  15.30
SO BUILDHGT TARMAC3B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT TARMAC3B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT TARMAC3B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT TARMAC3B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT TARMAC3B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT TARMAC3B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID TARMAC3B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID TARMAC3B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID TARMAC3B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID TARMAC3B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID TARMAC3B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID TARMAC3B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF12B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF12B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF12B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF12B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF12B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF12B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID DCRRF12B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID DCRRF12B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID DCRRF12B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID DCRRF12B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID DCRRF12B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID DCRRF12B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF34B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF34B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF34B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF34B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF34B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT DCRRF34B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID DCRRF34B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID DCRRF34B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID DCRRF34B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID DCRRF34B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID DCRRF34B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDWID DCRRF34B  0.00   0.00   0.00   0.00   0.00   0.00
SO BUILDHGT FPLF112   0.00   0.00   0.00   0.00   0.00   0.00
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SO BUILDHGT FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF1324  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLF45B  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC5  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC6  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC6  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC6  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC6  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC6  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLC6  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC6  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC6  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC6  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC6  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLC6  0.00  0.00  0.00  0.00  0.00  0.00
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SO BUILDWID FPLC6     0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE34   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLPE112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLPE112  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDWID FPLTP12   0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT RINKER12  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT RINKER12  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT RINKER12  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT RINKER12  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT RINKER12  0.00  0.00  0.00  0.00  0.00  0.00
SO BUILDHGT RINKER12  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
SO BUILDWID RINKER12  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
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SO BUILDWID RINKER12  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
SO BUILDWID RINKER12  0.00  0.00  0.00  0.00  0.00  0.00
  SRCGROUP GENS AOGENS
  SRCGROUP MDWASDAO AOGENS AOLIME AOPUMP6 AOPUMP1
  SRCGROUP PSD2INCR AOGENS HPGENS CDGENS SBROWRRF NBROWRRF
  SRCGROUP PSD2INCR TARMAC1 TARMAC2 TARMAC3 TARMAC3B DCRRF12 DCRRF34
  SRCGROUP PSD2INCR DCRRF12B DCRRF34B DCRRF5 FPLF14 FPLF45B
  SRCGROUP NAAQS AOGENS HPGENS CDGENS AOLIME AOPUMP6 AOPUMP1
  SRCGROUP NAAQS SBROWRRF NBROWRRF TARMAC1 TARMAC2 TARMAC3 DCRRF12
  SRCGROUP NAAQS DCRRF34 DCRRF5 FPLF14 FPLF112 FPLF1324 FPLC5
  SRCGROUP NAAQS FPLC6 FPLPE12 FPLPE34 FPLPE112 FPLTP12 RINKER12
SO FINISHED
RE STARTING
** Polar Receptor Grid
  GRIDPOLR POL1 STA
  GRIDPOLR POL1 ORIG  566509  2843411
  GRIDPOLR POL1 DIST  500  600  700  800  900
  GRIDPOLR POL1 DIST  1000  1250  1500  1750  2000
  GRIDPOLR POL1 DIST  2250  2500  3000  3500  4000
  GRIDPOLR POL1 DIST  4500  5000  6000  7000  8000
  GRIDPOLR POL1 DIST  9000
  GRIDPOLR POL1 GDIR  36  10  10
  GRIDPOLR POL1 END
RE DISCCART   566509.0  2843611.0
RE DISCCART   566682.2  2843511.0
RE DISCCART   566696.9  2843479.4
RE DISCCART   566706.0  2843445.7
RE DISCCART   566709.0  2843411.0
RE DISCCART   566706.0  2843376.3
RE DISCCART   566696.9  2843342.6
RE DISCCART   566682.2  2843311.0
RE DISCCART   566335.8  2843511.0
RE DISCCART   566509.0  2843711.0
RE DISCCART   566561.1  2843706.4
RE DISCCART   566611.6  2843692.9
RE DISCCART   566659.0  2843670.8
RE DISCCART   566701.8  2843640.8
RE DISCCART   566738.8  2843603.8
RE DISCCART   566768.8  2843561.0
RE DISCCART   566790.9  2843513.6
RE DISCCART   566804.4  2843463.1
RE DISCCART   566809.0  2843411.0
RE DISCCART   566804.4  2843358.9
RE DISCCART   566790.9  2843308.4
RE DISCCART   566768.8  2843261.0
RE DISCCART   566738.8  2843218.2
RE DISCCART   566701.8  2843181.2
RE DISCCART   566659.0  2843151.2
RE DISCCART   566611.6  2843129.1
RE DISCCART   566227.1  2843513.6
RE DISCCART   566249.2  2843561.0
RE DISCCART   566279.2  2843603.8
RE DISCCART   566316.2  2843640.8
RE DISCCART   566359.0  2843670.8
RE DISCCART   566406.4  2843692.9
RE DISCCART   566456.9  2843706.4
RE DISCCART   566509.0  2843811.0
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RE DISCCART	566578.5	2843804.9
RE DISCCART	566645.8	2843786.9
RE DISCCART	566709.0	2843757.4
RE DISCCART	566766.1	2843717.4
RE DISCCART	566815.4	2843668.1
RE DISCCART	566855.4	2843611.0
RE DISCCART	566884.9	2843547.8
RE DISCCART	566902.9	2843480.5
RE DISCCART	566909.0	2843411.0
RE DISCCART	566902.9	2843341.5
RE DISCCART	566884.9	2843274.2
RE DISCCART	566855.4	2843211.0
RE DISCCART	566815.4	2843153.9
RE DISCCART	566766.1	2843104.6
RE DISCCART	566709.0	2843064.6
RE DISCCART	566645.8	2843035.1
RE DISCCART	566578.5	2843017.1
RE DISCCART	566509.0	2843011.0
RE DISCCART	566251.9	2843104.6
RE DISCCART	566133.1	2843547.8
RE DISCCART	566162.6	2843611.0
RE DISCCART	566202.6	2843668.1
RE DISCCART	566251.9	2843717.4
RE DISCCART	566309.0	2843757.4
RE DISCCART	566372.2	2843786.9
RE DISCCART	566439.5	2843804.9
RE DISCCART	566087.3	2843507.8
RE DISCCART	566137.3	2843507.8
RE DISCCART	566187.3	2843507.8
RE DISCCART	566237.3	2843507.8
RE DISCCART	566287.3	2843507.8
RE DISCCART	566296.1	2843507.8
RE DISCCART	566343.3	2843524.5
RE DISCCART	566370.8	2843561.1
RE DISCCART	566392.1	2843591.6
RE DISCCART	566430.2	2843605.3
RE DISCCART	566480.2	2843605.3
RE DISCCART	566530.2	2843605.3
RE DISCCART	566580.2	2843605.3
RE DISCCART	566630.1	2843605.3
RE DISCCART	566680.1	2843605.3
RE DISCCART	566680.1	2843555.3
RE DISCCART	566680.1	2843505.3
RE DISCCART	566680.1	2843455.4
RE DISCCART	566680.1	2843405.4
RE DISCCART	566680.1	2843355.4
RE DISCCART	566680.1	2843305.4
RE DISCCART	566680.1	2843255.4
RE DISCCART	566680.1	2843221.3
RE DISCCART	566644.2	2843185.9
RE DISCCART	566608.2	2843150.6
RE DISCCART	566572.2	2843115.2
RE DISCCART	566536.3	2843079.9
RE DISCCART	566500.3	2843044.5
RE DISCCART	566464.3	2843009.2
RE DISCCART	566428.4	2842973.8
RE DISCCART	566392.4	2842938.4
RE DISCCART	566356.5	2842903.1

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RE DISCCART  566320.5  2842867.7
RE DISCCART  566284.5  2842832.4
RE DISCCART  566248.6  2842797.0
RE DISCCART  566212.6  2842761.7
RE DISCCART  566176.6  2842726.3
RE DISCCART  566140.7  2842691.0
RE DISCCART  566140.7  2842724.5
RE DISCCART  566176.6  2842759.8
RE DISCCART  566212.6  2842795.2
RE DISCCART  566248.6  2842830.5
RE DISCCART  566284.5  2842865.9
RE DISCCART  566290.0  2842923.2
RE DISCCART  566290.0  2842973.2
RE DISCCART  566290.0  2843023.2
RE DISCCART  566290.0  2843073.2
RE DISCCART  566290.0  2843123.1
RE DISCCART  566240.0  2843123.8
RE DISCCART  566190.0  2843123.8
RE DISCCART  566140.1  2843123.8
RE DISCCART  566090.1  2843123.8
RE DISCCART  566087.3  2843173.7
RE DISCCART  566087.3  2843223.7
RE DISCCART  566087.3  2843273.7
RE DISCCART  566087.3  2843323.7
RE DISCCART  566087.3  2843373.7
RE DISCCART  566087.3  2843423.7
RE DISCCART  566087.3  2843473.6
RE FINISHED
ME STARTING
  INPUTFIL 1283988.met
  ANEMHGHT  10  METERS
  SURFDATA  12839  1988
  UAIRDATA  12844  1988
ME FINISHED
OU STARTING
  RECTABLE ALLAVE FIRST
  MAXTABLE ALLAVE  50
  PLOTFILE PERIOD PSD2INCR AO88INCR.PLT  33
  PLOTFILE PERIOD NAAQS AO88AMBI.PLT  34
OU FINISHED
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*** ISCST3 - VERSION 96113 ***   *** Standby Generator Sets - NAAQS & PSD Class II Increment - NO2 - 1988 ***      02/23/98
              *** Miami-Dade Water and Sewer Department Alexander Orr WTP Standby Gene ***      09:15:47
                                                                  PAGE  2
**MODELOPTs: CONC                RURAL  FLAT       DFAULT
*** POINT SOURCE DATA ***

         NUMBER EMISSION RATE              BASE    STACK   STACK    STACK     STACK   BUILDING EMISSION RATE
 SOURCE    PART. (GRAMS/SEC)     X       Y     ELEV.   HEIGHT  TEMP.  EXIT VEL. DIAMETER  EXISTS  SCALAR VARY
   ID     CATS.            (METERS) (METERS) (METERS) (METERS) (DEG.K)  (M/SEC)  (METERS)              BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 AOGENS      0  0.11609E+02  566509.0 2843411.0   0.0    4.72  608.00   45.19    0.53     YES
 HPGENS      0  0.10680E+02  571491.6 2857105.0   0.0    8.80  608.00   45.19    0.53     NO
 CDGENS      0  0.10810E+02  584959.0 2847790.0   0.0    6.40  663.00   16.50    0.91     NO
 SBROWRRF    0  0.68550E+02  579600.0 2883300.0   0.0   59.44  381.00   17.98    3.96     NO
 NBROWRRF    0  0.64000E+02  583600.0 2907600.0   0.0   58.50  381.00   18.01    3.96     NO
 TARMAC1     0  0.21140E+02  562900.0 2861700.0   0.0   60.96  465.00   12.80    2.44     NO
 TARMAC2     0  0.12890E+02  562900.0 2861700.0   0.0   60.96  422.00    9.11    2.44     NO
 TARMAC3     0  0.68180E+02  562900.0 2861700.0   0.0   60.96  450.00   11.03    4.57     NO
 DCRRF12     0  0.35380E+02  564390.0 2857390.0   0.0   76.20  405.40   15.86    3.66     NO
 DCRRF34     0  0.35380E+02  564360.0 2857390.0   0.0   76.20  405.40   15.86    3.66     NO
 DCRRF5      0  0.13240E+02  564300.0 2857400.0   0.0   76.20  399.80   15.74    2.97     NO
 FPLF14      0  0.13570E+03  580100.0 2883300.0   0.0   46.00  422.00   14.63    4.27     NO
 AOLIME      0  0.84190E+00  566466.7 2843216.5   0.0    0.00  327.00    7.17    1.74     NO
 AOPUMP6     0  0.23000E+01  566598.0 2843570.0   0.0    8.50  735.00    5.97    0.24     YES
 AOPUMP1     0  0.70000E+00  566598.0 2843531.0   0.0    8.50  735.00    7.77    0.18     YES
 TARMAC3B    0  -.60800E+02  562900.0 2861700.0   0.0   60.96  472.00   10.78    4.57     NO
 DCRRF12B    0  -.22500E+02  564390.0 2857390.0   0.0   45.72  472.00   12.20    2.74     NO
 DCRRF34B    0  -.22530E+02  564360.0 2857390.0   0.0   45.72  472.00   12.20    2.74     NO
 FPLF112     0  0.50801E+03  580100.0 2883300.0   0.0   13.72  733.00   21.34    5.49     NO
 FPLF1324    0  0.50801E+03  580100.0 2883300.0   0.0   13.29  733.00   21.34    5.49     NO
 FPLF45B     0  -.70600E+02  580100.0 2883300.0   0.0   46.00  422.00   14.63    4.27     NO
 FPLC5       0  0.51150E+02  570400.0 2834900.0   0.0   45.72  408.00   11.58    4.57     NO
 FPLC6       0  0.86820E+02  570400.0 2834900.0   0.0   45.72  408.00   14.33    4.57     NO
 FPLPE12     0  0.31378E+03  587400.0 2875300.0   0.0  104.85  416.00   18.59    4.27     NO
 FPLPE34     0  0.50827E+03  587400.0 2875300.0   0.0  104.55  408.00   19.20    5.52     NO
 FPLPE112    0  0.49895E+03  587400.0 2875300.0   0.0   15.54  733.00   21.34    5.49     NO
 FPLTP12     0  0.47524E+03  567200.0 2831200.0   0.0  121.92  408.00   19.20    5.52     NO
 RINKER12    0  0.20190E+02  558200.0 2851300.0   0.0   41.76  400.00    7.62    4.57     NO
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*** ISCST3 - VERSION 96113 ***   *** Standby Generator Sets - NAAQS & PSD Class II Increment - NO2 - 1988 ***     02/23/98
                 *** Miami-Dade Water and Sewer Department Alexander Orr WTP Standby Gene ***        09:15:47
                                                                    PAGE  3
**MODELOPTs: CONC                            RURAL  FLAT        DFAULT

                           *** SOURCE IDs DEFINING SOURCE GROUPS ***

 GROUP ID                                   SOURCE IDs

 GENS     AOGENS  ,
 MDWASDAO  AOGENS  , AOLIME  , AOPUMP6 , AOPUMP1 ,
 PSD2INCR  AOGENS  , HPGENS  , CDGENS  , SBROWRRF, NBROWRRF, TARMAC1 , TARMAC2 , TARMAC3 , DCRRF12 , DCRRF34 , DCRRF5  , FPLF14  ,
           TARMAC3B, DCRRF12B, DCRRF34B, FPLF45B ,
 NAAQS     AOGENS  , HPGENS  , CDGENS  , SBROWRRF, NBROWRRF, TARMAC1 , TARMAC2 , TARMAC3 , DCRRF12 , DCRRF34 , DCRRF5  , FPLF14  ,
           AOLIME  , AOPUMP6 , AOPUMP1 , FPLF112 , FPLF1324, FPLC5   , FPLC6   , FPLPE12 , FPLPE34 , FPLPE112, FPLTP12 , RINKER12,
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**MODELOPTs: 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     20.98438 AT ( 566335.81, 2843511.00,     0.00,     0.00)  DC     NA
         2ND HIGHEST VALUE IS     20.01304 AT ( 566343.31, 2843524.50,     0.00,     0.00)  DC     NA
         3RD HIGHEST VALUE IS     19.08038 AT ( 566087.31, 2843173.75,     0.00,     0.00)  DC     NA
         4TH HIGHEST VALUE IS     18.44399 AT ( 566076.00, 2843161.00,     0.00,     0.00)  GP   POL1
         5TH HIGHEST VALUE IS     18.32905 AT ( 566370.81, 2843561.00,     0.00,     0.00)  DC     NA
         6TH HIGHEST VALUE IS     16.80939 AT ( 566087.31, 2843223.75,     0.00,     0.00)  DC     NA

MDWASDAO 1ST HIGHEST VALUE IS     90.73807 AT ( 566530.19, 2843605.25,     0.00,     0.00)  DC     NA
         2ND HIGHEST VALUE IS     75.41781 AT ( 566509.00, 2843611.00,     0.00,     0.00)  DC     NA
         3RD HIGHEST VALUE IS     67.94016 AT ( 566480.19, 2843605.25,     0.00,     0.00)  DC     NA
         4TH HIGHEST VALUE IS     64.33329 AT ( 566580.19, 2843605.25,     0.00,     0.00)  DC     NA
         5TH HIGHEST VALUE IS     62.05401 AT ( 566370.81, 2843561.00,     0.00,     0.00)  DC     NA
         6TH HIGHEST VALUE IS     58.01125 AT ( 566392.13, 2843591.50,     0.00,     0.00)  DC     NA

PSD2INCR 1ST HIGHEST VALUE IS     21.54760 AT ( 566335.81, 2843511.00,     0.00,     0.00)  DC     NA
         2ND HIGHEST VALUE IS     20.57691 AT ( 566343.31, 2843524.50,     0.00,     0.00)  DC     NA
         3RD HIGHEST VALUE IS     19.62263 AT ( 566087.31, 2843173.75,     0.00,     0.00)  DC     NA
         4TH HIGHEST VALUE IS     18.98523 AT ( 566076.00, 2843161.00,     0.00,     0.00)  GP   POL1
         5TH HIGHEST VALUE IS     18.89526 AT ( 566370.81, 2843561.00,     0.00,     0.00)  DC     NA
         6TH HIGHEST VALUE IS     17.35596 AT ( 566296.13, 2843507.75,     0.00,     0.00)  DC     NA

NAAQS    1ST HIGHEST VALUE IS     94.06667 AT ( 566530.19, 2843605.25,     0.00,     0.00)  DC     NA
         2ND HIGHEST VALUE IS     78.74450 AT ( 566509.00, 2843611.00,     0.00,     0.00)  DC     NA
         3RD HIGHEST VALUE IS     71.26543 AT ( 566480.19, 2843605.25,     0.00,     0.00)  DC     NA
         4TH HIGHEST VALUE IS     67.66631 AT ( 566580.19, 2843605.25,     0.00,     0.00)  DC     NA
         5TH HIGHEST VALUE IS     65.37670 AT ( 566370.81, 2843561.00,     0.00,     0.00)  DC     NA
         6TH HIGHEST VALUE IS     61.33327 AT ( 566392.13, 2843591.50,     0.00,     0.00)  DC     NA
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**MODELOPTs: CONC                   RURAL  FLAT        DFAULT
*** THE SUMMARY OF MAXIMUM PERIOD (  8784 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       27.91221 AT (  566370.81,  2843561.00,      0.00,      0.00)  DC      NA
     2ND HIGHEST VALUE IS       24.91000 AT (  566343.31,  2843524.50,      0.00,      0.00)  DC      NA
     3RD HIGHEST VALUE IS       23.44207 AT (  566335.81,  2843511.00,      0.00,      0.00)  DC      NA
     4TH HIGHEST VALUE IS       22.47340 AT (  566392.13,  2843591.50,      0.00,      0.00)  DC      NA
     5TH HIGHEST VALUE IS       17.56635 AT (  566087.31,  2843223.75,      0.00,      0.00)  DC      NA
     6TH HIGHEST VALUE IS       17.43072 AT (  566296.13,  2843507.75,      0.00,      0.00)  DC      NA

MDWASDAO 1ST HIGHEST VALUE IS       87.37891 AT (  566530.19,  2843605.25,      0.00,      0.00)  DC      NA
     2ND HIGHEST VALUE IS       74.43353 AT (  566509.00,  2843611.00,      0.00,      0.00)  DC      NA
     3RD HIGHEST VALUE IS       73.40788 AT (  566580.19,  2843605.25,      0.00,      0.00)  DC      NA
     4TH HIGHEST VALUE IS       71.18641 AT (  566480.19,  2843605.25,      0.00,      0.00)  DC      NA
     5TH HIGHEST VALUE IS       70.53777 AT (  566370.81,  2843561.00,      0.00,      0.00)  DC      NA
     6TH HIGHEST VALUE IS       66.05083 AT (  566392.13,  2843591.50,      0.00,      0.00)  DC      NA

PSD2INCR 1ST HIGHEST VALUE IS       28.46415 AT (  566370.81,  2843561.00,      0.00,      0.00)  DC      NA
     2ND HIGHEST VALUE IS       25.45852 AT (  566343.31,  2843524.50,      0.00,      0.00)  DC      NA
     3RD HIGHEST VALUE IS       23.98943 AT (  566335.81,  2843511.00,      0.00,      0.00)  DC      NA
     4TH HIGHEST VALUE IS       23.02832 AT (  566392.13,  2843591.50,      0.00,      0.00)  DC      NA
     5TH HIGHEST VALUE IS       18.09120 AT (  566087.31,  2843223.75,      0.00,      0.00)  DC      NA
     6TH HIGHEST VALUE IS       17.97602 AT (  566296.13,  2843507.75,      0.00,      0.00)  DC      NA

NAAQS    1ST HIGHEST VALUE IS       90.85085 AT (  566530.19,  2843605.25,      0.00,      0.00)  DC      NA
     2ND HIGHEST VALUE IS       77.90646 AT (  566509.00,  2843611.00,      0.00,      0.00)  DC      NA
     3RD HIGHEST VALUE IS       76.87899 AT (  566580.19,  2843605.25,      0.00,      0.00)  DC      NA
     4TH HIGHEST VALUE IS       74.66084 AT (  566480.19,  2843605.25,      0.00,      0.00)  DC      NA
     5TH HIGHEST VALUE IS       74.02288 AT (  566370.81,  2843561.00,      0.00,      0.00)  DC      NA
     6TH HIGHEST VALUE IS       69.53291 AT (  566392.13,  2843591.50,      0.00,      0.00)  DC      NA
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*** ISCST3 - VERSION 96113 ***   *** Standby Generator Sets - NAAQS & PSD Class II Increment - NO2 - 1989 ***      02/23/98
              *** Miami-Dade Water and Sewer Department Alexander Orr WTP Standby Gene ***      09:31:27
                                                      PAGE  62
**MODELOPTs: 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      31.62092 AT (  566370.81,  2843561.00,      0.00,      0.00)  DC      NA
         2ND HIGHEST VALUE IS      28.59088 AT (  566392.13,  2843591.50,      0.00,      0.00)  DC      NA
         3RD HIGHEST VALUE IS      26.23422 AT (  566343.31,  2843524.50,      0.00,      0.00)  DC      NA
         4TH HIGHEST VALUE IS      23.33452 AT (  566335.81,  2843511.00,      0.00,      0.00)  DC      NA
         5TH HIGHEST VALUE IS      19.98215 AT (  566430.19,  2843605.25,      0.00,      0.00)  DC      NA
         6TH HIGHEST VALUE IS      19.41023 AT (  566316.19,  2843640.75,      0.00,      0.00)  DC      NA

MDWASDAO 1ST HIGHEST VALUE IS     103.44646 AT (  566530.19,  2843605.25,      0.00,      0.00)  DC      NA
         2ND HIGHEST VALUE IS      90.37400 AT (  566580.19,  2843605.25,      0.00,      0.00)  DC      NA
         3RD HIGHEST VALUE IS      84.34653 AT (  566509.00,  2843611.00,      0.00,      0.00)  DC      NA
         4TH HIGHEST VALUE IS      76.69328 AT (  566480.19,  2843605.25,      0.00,      0.00)  DC      NA
         5TH HIGHEST VALUE IS      70.44548 AT (  566392.13,  2843591.50,      0.00,      0.00)  DC      NA
         6TH HIGHEST VALUE IS      70.25420 AT (  566370.81,  2843561.00,      0.00,      0.00)  DC      NA

PSD2INCR 1ST HIGHEST VALUE IS      32.12523 AT (  566370.81,  2843561.00,      0.00,      0.00)  DC      NA
         2ND HIGHEST VALUE IS      29.09702 AT (  566392.13,  2843591.50,      0.00,      0.00)  DC      NA
         3RD HIGHEST VALUE IS      26.73641 AT (  566343.31,  2843524.50,      0.00,      0.00)  DC      NA
         4TH HIGHEST VALUE IS      23.83594 AT (  566335.81,  2843511.00,      0.00,      0.00)  DC      NA
         5TH HIGHEST VALUE IS      20.48968 AT (  566430.19,  2843605.25,      0.00,      0.00)  DC      NA
         6TH HIGHEST VALUE IS      19.91731 AT (  566316.19,  2843640.75,      0.00,      0.00)  DC      NA

NAAQS    1ST HIGHEST VALUE IS     106.70565 AT (  566530.19,  2843605.25,      0.00,      0.00)  DC      NA
         2ND HIGHEST VALUE IS      93.63195 AT (  566580.19,  2843605.25,      0.00,      0.00)  DC      NA
         3RD HIGHEST VALUE IS      87.60663 AT (  566509.00,  2843611.00,      0.00,      0.00)  DC      NA
         4TH HIGHEST VALUE IS      79.95459 AT (  566480.19,  2843605.25,      0.00,      0.00)  DC      NA
         5TH HIGHEST VALUE IS      73.71237 AT (  566392.13,  2843591.50,      0.00,      0.00)  DC      NA
         6TH HIGHEST VALUE IS      73.52253 AT (  566370.81,  2843561.00,      0.00,      0.00)  DC      NA
```

```
**MODELOPTs: 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     27.69213 AT (  566370.81,  2843561.00,     0.00,     0.00)  DC     NA
      2ND HIGHEST VALUE IS     23.50769 AT (  566343.31,  2843524.50,     0.00,     0.00)  DC     NA
      3RD HIGHEST VALUE IS     21.27429 AT (  566335.81,  2843511.00,     0.00,     0.00)  DC     NA
      4TH HIGHEST VALUE IS     20.96180 AT (  566087.31,  2843173.75,     0.00,     0.00)  DC     NA
      5TH HIGHEST VALUE IS     20.58141 AT (  566076.00,  2843161.00,     0.00,     0.00)  GP  POL1
      6TH HIGHEST VALUE IS     19.90578 AT (  566090.13,  2843123.75,     0.00,     0.00)  DC     NA

MDWASDAO 1ST HIGHEST VALUE IS    105.65733 AT (  566530.19,  2843605.25,     0.00,     0.00)  DC     NA
      2ND HIGHEST VALUE IS     87.20940 AT (  566509.00,  2843611.00,     0.00,     0.00)  DC     NA
      3RD HIGHEST VALUE IS     78.04527 AT (  566480.19,  2843605.25,     0.00,     0.00)  DC     NA
      4TH HIGHEST VALUE IS     77.57221 AT (  566580.19,  2843605.25,     0.00,     0.00)  DC     NA
      5TH HIGHEST VALUE IS     68.33600 AT (  566370.81,  2843561.00,     0.00,     0.00)  DC     NA
      6TH HIGHEST VALUE IS     66.91864 AT (  566430.19,  2843605.25,     0.00,     0.00)  DC     NA

PSD2INCR 1ST HIGHEST VALUE IS     28.39977 AT (  566370.81,  2843561.00,     0.00,     0.00)  DC     NA
      2ND HIGHEST VALUE IS     24.21428 AT (  566343.31,  2843524.50,     0.00,     0.00)  DC     NA
      3RD HIGHEST VALUE IS     21.98047 AT (  566335.81,  2843511.00,     0.00,     0.00)  DC     NA
      4TH HIGHEST VALUE IS     21.64938 AT (  566087.31,  2843173.75,     0.00,     0.00)  DC     NA
      5TH HIGHEST VALUE IS     21.26795 AT (  566076.00,  2843161.00,     0.00,     0.00)  GP  POL1
      6TH HIGHEST VALUE IS     20.59098 AT (  566090.13,  2843123.75,     0.00,     0.00)  DC     NA

NAAQS    1ST HIGHEST VALUE IS    109.26910 AT (  566530.19,  2843605.25,     0.00,     0.00)  DC     NA
      2ND HIGHEST VALUE IS     90.82682 AT (  566509.00,  2843611.00,     0.00,     0.00)  DC     NA
      3RD HIGHEST VALUE IS     81.67031 AT (  566480.19,  2843605.25,     0.00,     0.00)  DC     NA
      4TH HIGHEST VALUE IS     81.17086 AT (  566580.19,  2843605.25,     0.00,     0.00)  DC     NA
      5TH HIGHEST VALUE IS     71.98673 AT (  566370.81,  2843561.00,     0.00,     0.00)  DC     NA
      6TH HIGHEST VALUE IS     70.55707 AT (  566430.19,  2843605.25,     0.00,     0.00)  DC     NA
```

```
*** ISCST3 - VERSION 96113 ***    *** Standby Generator Sets - NAAQS & PSD Class II Increment - NO2 - 1991 ***      02/23/98
               *** Miami-Dade Water and Sewer Department Alexander Orr WTP Standby Gene ***      10:01:16
                                                       PAGE  62
**MODELOPTs: CONC                 RURAL  FLAT        DFAULT
*** THE SUMMARY OF MAXIMUM PERIOD (  8760 HRS) RESULTS ***
                ** CONC OF NO2     IN MICROGRAMS/M**3                 **

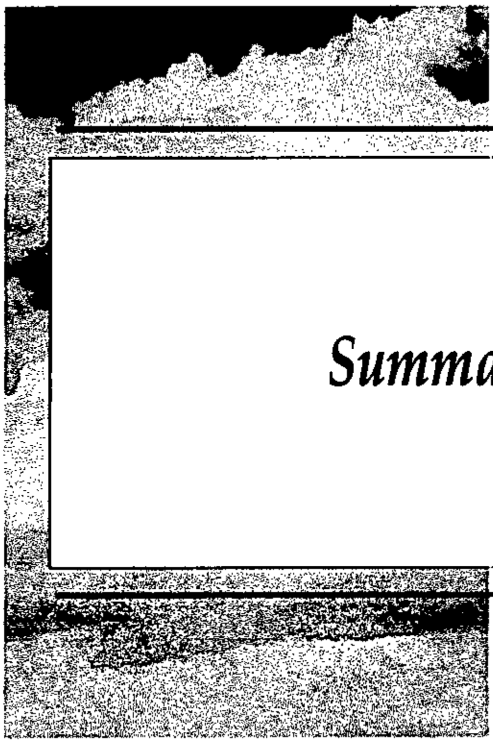
                                                      NETWORK
GROUP ID              AVERAGE CONC         RECEPTOR  (XR, YR, ZELEV, ZFLAG)  OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

GENS     1ST HIGHEST VALUE IS      23.50998 AT (  566370.81,  2843561.00,      0.00,      0.00)  DC      NA
     2ND HIGHEST VALUE IS      23.19258 AT (  566343.31,  2843524.50,      0.00,      0.00)  DC      NA
     3RD HIGHEST VALUE IS      21.16960 AT (  566335.81,  2843511.00,      0.00,      0.00)  DC      NA
     4TH HIGHEST VALUE IS      19.87491 AT (  566392.13,  2843591.50,      0.00,      0.00)  DC      NA
     5TH HIGHEST VALUE IS      19.70750 AT (  566140.13,  2843123.75,      0.00,      0.00)  DC      NA
     6TH HIGHEST VALUE IS      19.53875 AT (  566090.13,  2843123.75,      0.00,      0.00)  DC      NA

MDWASDAO 1ST HIGHEST VALUE IS     112.26685 AT (  566530.19,  2843605.25,      0.00,      0.00)  DC      NA
     2ND HIGHEST VALUE IS      94.52594 AT (  566509.00,  2843611.00,      0.00,      0.00)  DC      NA
     3RD HIGHEST VALUE IS      89.95372 AT (  566580.19,  2843605.25,      0.00,      0.00)  DC      NA
     4TH HIGHEST VALUE IS      81.39127 AT (  566480.19,  2843605.25,      0.00,      0.00)  DC      NA
     5TH HIGHEST VALUE IS      65.55358 AT (  566430.19,  2843605.25,      0.00,      0.00)  DC      NA
     6TH HIGHEST VALUE IS      60.44089 AT (  566392.13,  2843591.50,      0.00,      0.00)  DC      NA

PSD2INCR 1ST HIGHEST VALUE IS      24.36688 AT (  566370.81,  2843561.00,      0.00,      0.00)  DC      NA
     2ND HIGHEST VALUE IS      24.04783 AT (  566343.31,  2843524.50,      0.00,      0.00)  DC      NA
     3RD HIGHEST VALUE IS      22.02442 AT (  566335.81,  2843511.00,      0.00,      0.00)  DC      NA
     4TH HIGHEST VALUE IS      20.73294 AT (  566392.13,  2843591.50,      0.00,      0.00)  DC      NA
     5TH HIGHEST VALUE IS      20.53791 AT (  566140.13,  2843123.75,      0.00,      0.00)  DC      NA
     6TH HIGHEST VALUE IS      20.36423 AT (  566090.13,  2843123.75,      0.00,      0.00)  DC      NA

NAAQS    1ST HIGHEST VALUE IS     116.70085 AT (  566530.19,  2843605.25,      0.00,      0.00)  DC      NA
     2ND HIGHEST VALUE IS      98.96281 AT (  566509.00,  2843611.00,      0.00,      0.00)  DC      NA
     3RD HIGHEST VALUE IS      94.37961 AT (  566580.19,  2843605.25,      0.00,      0.00)  DC      NA
     4TH HIGHEST VALUE IS      85.83397 AT (  566480.19,  2843605.25,      0.00,      0.00)  DC      NA
     5TH HIGHEST VALUE IS      70.00428 AT (  566430.19,  2843605.25,      0.00,      0.00)  DC      NA
     6TH HIGHEST VALUE IS      64.89906 AT (  566392.13,  2843591.50,      0.00,      0.00)  DC      NA
```



APPENDIX D

Summary of Level I Visibility Screening Analysis

Total	1663
Calms	1

Dispersion Condition	Sigmaz*u (m/s)	Transport time (hrs)	# of Hours	Frequency	Cumulative Freqncy
F, 1	64.85569763	6.9444	2	0.00120	0.00120
E, 1	118.8731308	6.9444	2	0.00120	0.00241
F, 2	129.7113953	3.4722	1	0.00060	0.00301
F, 3	194.5670929	2.3148	1	0.00060	0.00361
D, 1	226.5448761	6.9444	9	0.00541	0.00902
E, 2	237.7462616	3.4722	8	0.00481	0.01383
E, 3	356.6193848	2.3148	6	0.00361	0.01744
D, 2	453.0897522	3.4722	34	0.02044	0.03788
E, 4	475.4925232	1.7361	3	0.00180	0.03969
E, 5	594.3656616	1.3889	1	0.00060	0.04029
D, 3	679.6346436	2.3148	74	0.04450	0.08479
D, 4	906.1795044	1.7361	112	0.06735	0.15213
D, 5	1132.724365	1.3889	211	0.12688	0.27901
C, 1	1161.33728	6.9444	12	0.00722	0.28623
D, 6	1359.269287	1.1574	273	0.16416	0.45039
D, 7	1585.814087	0.9921	216	0.12989	0.58028
D, 8	1812.359009	0.8681	119	0.07156	0.65183
D, 9	2038.903931	0.7716	54	0.03247	0.68431
D, 10	2265.44873	0.6944	39	0.02345	0.70776
C, 2	2322.674561	3.4722	27	0.01624	0.72399
C, 3	3484.011719	2.3148	48	0.02886	0.75286
B, 1	3735.082031	6.9444	9	0.00541	0.75827
C, 4	4645.349121	1.7361	133	0.07998	0.83824
C, 5	5806.686523	1.3889	115	0.06915	0.90740
C, 6	6968.023438	1.1574	27	0.01624	0.92363
B, 2	7470.164063	3.4722	25	0.01503	0.93867
C, 7	8129.36084	0.9921	11	0.00661	0.94528
C, 8	9290.698242	0.8681	4	0.00241	0.94768
B, 3	11205.24609	2.3148	49	0.02946	0.97715
C, 10	11613.37305	0.6944	1	0.00060	0.97775
B, 4	14940.32813	1.7361	23	0.01383	0.99158
B, 5	18675.41016	1.3889	3	0.00180	0.99339
A, 1	412849.875	6.9444	1	0.00060	0.99399
A, 2	825699.75	3.4722	9	0.00541	0.99940

```
            Visual Effects Level 2 Analysis
             Source: Alexander Orr Gens
             Class I Area: Everglades NP


 *** User-selected Screening Scenario Results ***
 . Input Emissions for
    Particulates              .70   g/s
    NOx (as NO2)            29.00   g/s
    Primary NO2               .00   g/s
    Soot                      .00   g/s
    Primary SO4               .00   g/s


   **** Default Particle Characteristics Assumed

         Transport Scenario Specifications:
    Background Ozone                        .06   ppm   Spring
    Background Visual Range:              47.00   km    Spring
    Source-Observer Distance:             43.00   km
    Min. Source-Class I Distance:         16.75   km
    Max. Source-Class I Distance:        110.50   km
    Plume-Source-Observer Angle:          11.25   degrees
    Stability:                                5
    Wind Speed:                            2.00   m/s

                   R E S U L T S

  Asterisks (*) indicate plume impacts that exceed screening criteria

       Maximum Visual Impacts INSIDE  Class I Area
        Screening Criteria ARE NOT Exceeded
                                                   Delta E         Contrast
                                                 ===========     ============
  Backgrnd   Theta   Azi  Distance    Alpha     Crit  Plume     Crit  Plume
  ========   =====   ===  =======     =====     ====  =====     ====  =====
  SKY          10.   50.    37.6       119.     2.00   .743      .05  -.003
  SKY         140.   50.    37.6       119.     2.00   .281      .05  -.003
  TERRAIN      10.   40.    35.4       129.     2.00   .209      .05   .001
  TERRAIN     140.   40.    35.4       129.     2.00   .081      .05   .001


       Maximum Visual Impacts OUTSIDE Class I Area
        Screening Criteria ARE NOT Exceeded
                                                   Delta E         Contrast
                                                 ===========     ============
  Backgrnd   Theta   Azi  Distance    Alpha     Crit  Plume     Crit  Plume
  ========   =====   ===  =======     =====     ====  =====     ====  =====
  SKY          10.    5.    13.4       164.     2.00   .246      .05  -.002
  SKY         140.    5.    13.4       164.     2.00   .091      .05  -.003
  TERRAIN      10.    0.     1.0       168.     2.00   .162      .05   .002
  TERRAIN     140.    0.     1.0       168.     2.00   .050      .05   .002
```

```
Visual Effects Level 2 Analysis
 Source: Alexander Orr Gens
 Class I Area: Everglades NP


*** User-selected Screening Scenario Results ***
 Input Emissions for
   Particulates               .70  g/s
   NOx (as NO2)             29.00  g/s
   Primary NO2                .00  g/s
   Soot                       .00  g/s
   Primary SO4                .00  g/s


    **** Default Particle Characteristics Assumed

         Transport Scenario Specifications:
    Background Ozone                         .04  ppm  Summer
    Background Visual Range:               59.00  km   Summer
    Source-Observer Distance:              43.00  km
    Min. Source-Class I Distance:          16.75  km
    Max. Source-Class I Distance:         110.50  km
    Plume-Source-Observer Angle:           11.25  degrees
    Stability:                                 5
    Wind Speed:                             2.00  m/s

               R E S U L T S

 Asterisks (*) indicate plume impacts that exceed screening criteria

      Maximum Visual Impacts INSIDE  Class I Area
       Screening Criteria ARE NOT Exceeded
                                                     Delta E         Contrast
                                                  ===========      ============
 Backgrnd   Theta   Azi  Distance    Alpha       Crit   Plume      Crit   Plume
 ========  =====   ===  =======     =====       ====   =====      ====   =====
  SKY        10.    35.    34.1      134.        2.00    .914       .05    -.003
  SKY       140.    35.    34.1      134.        2.00    .369       .05    -.004
  TERRAIN    10.    30.    32.6      139.        2.00    .300       .05     .002
  TERRAIN   140.    30.    32.6      139.        2.00    .125       .05     .002


      Maximum Visual Impacts OUTSIDE Class I Area
       Screening Criteria ARE NOT Exceeded
                                                     Delta E         Contrast
                                                  ===========      ============
 Backgrnd   Theta   Azi  Distance    Alpha       Crit   Plume      Crit   Plume
 ========  =====   ===  =======     =====       ====   =====      ====   =====
  SKY        10.     5.    13.4      164         2.00    .476       .05    -.004
  SKY       140.     5.    13.4      164.        2.00    .188       .05    -.005
  TERRAIN    10.     0.     1.0      168.        2.00    .285       .05     .004
  TERRAIN   140.     0.     1.0      168.        2.00    .091       .05     .004
```

Visual Effects Level 2 Analysis

Source: Alexander Orr Gens
Class I Area: Everglades NP

```
*** User-selected Screening Scenario Results ***
Input Emissions for
  Particulates            .70  g/s
  NOx (as NO2)          29.00  g/s
  Primary NO2             .00  g/s
  Soot                    .00  g/s
  Primary SO4             .00  g/s

 **** Default Particle Characteristics Assumed

     Transport Scenario Specifications:
  Background Ozone                          .05  ppm  Autumn
  Background Visual Range:                63.00  km   Autumn
  Source-Observer Distance:               43.00  km
  Min. Source-Class I Distance:           16.75  km
  Max. Source-Class I Distance:          110.50  km
  Plume-Source-Observer Angle:            11.25  degrees
  Stability:                                  5
  Wind Speed:                              2.00  m/s

                 R E S U L T S

Asterisks (*) indicate plume impacts that exceed screening criteria

     Maximum Visual Impacts INSIDE  Class I Area
      Screening Criteria ARE NOT Exceeded
                                                    Delta E         Contrast
                                                  ===========     ============
Backgrnd  Theta  Azi Distance       Alpha         Crit  Plume     Crit  Plume
========  =====  === =======        =====         ====  =====     ====  =====
 SKY       10.   35.   34.1          134.         2.00   .968      .05  -.003
 SKY      140.   35.   34.1          134.         2.00   .399      .05  -.005
 TERRAIN   10.   25.   30.7          144.         2.00   .333      .05   .002
 TERRAIN  140.   25.   30.7          144.         2.00   .142      .05   .002

     Maximum Visual Impacts OUTSIDE Class I Area
      Screening Criteria ARE NOT Exceeded
                                                    Delta E         Contrast
                                                  ===========     ============
Backgrnd  Theta  Azi Distance       Alpha         Crit  Plume     Crit  Plume
========  =====  === =======        =====         ====  =====     ====  =====
 SKY       10.    5.   13.4          164.         2.00   .560      .05  -.004
 SKY      140.    5.   13.4          164.         2.00   .226      .05  -.005
 TERRAIN   10.    0.    1.0          168.         2.00   .351      .05   .005
 TERRAIN  140.    0.    1.0          168.         2.00   .115      .05   .005
```

```
         Visual Effects Level 2 Analysis
          Source: Alexander Orr Gens
          Class I Area: Everglades NP


 *** User-selected Screening Scenario Results ***
  Input Emissions for

   Particulates          .70   g/s
   NOx (as NO2)        29.00   g/s
   Primary NO2           .00   g/s
   Soot                  .00   g/s
   Primary SO4           .00   g/s


    **** Default Particle Characteristics Assumed

         Transport Scenario Specifications:

    Background Ozone                       .05   ppm   Winter
    Background Visual Range:             43.00   km    Winter
    Source-Observer Distance:            43.00   km
    Min. Source-Class I Distance:        16.75   km
    Max. Source-Class I Distance:       110.50   km
    Plume-Source-Observer Angle:         11.25   degrees
    Stability:                               5
    Wind Speed:                           2.00   m/s

                 R E S U L T S

  Asterisks (*) indicate plume impacts that exceed screening criteria

       Maximum Visual Impacts INSIDE  Class I Area
        Screening Criteria ARE NOT Exceeded
                                                      Delta E          Contrast
                                                   ===========      ============
  Backgrnd    Theta   Azi  Distance    Alpha        Crit  Plume      Crit  Plume
  ========    =====   ===  =======     =====        ====  =====      ====  =====
   SKY         10.    60.    39.3       109.        2.00   .681       .05   -.002
   SKY        140.    60.    39.3       109         2.00   .252       .05   -.003
   TERRAIN     10.    45.    36.6       124.        2.00   .178       .05    .001
   TERRAIN    140.    45.    36.6       124.        2.00   .068       .05    .001


       Maximum Visual Impacts OUTSIDE Class I Area
        Screening Criteria ARE NOT Exceeded
                                                      Delta E          Contrast
                                                   ===========      ============
  Backgrnd    Theta   Azi  Distance    Alpha        Crit  Plume      Crit  Plume
  ========    =====   ===  =======     =====        ====  =====      ====  =====
   SKY         10.     5.    13.4       164.        2.00   .182       .05   -.002
   SKY        140.     5.    13.4       164.        2.00   .066       .05   -.002
   TERRAIN     10.     0.     1.0       168.        2.00   .112       .05    .002
   TERRAIN      140.    0.     1.0    168.    2.00   .034    .05    .002
```

```
"Alexander Orr Gens    "
"Everglades NP         "
  1  1
  .700  29.000   .000   .000   .000
 43.000  16.250  110.500  47.000
  0   1.500  3
  0   2.500  8
  0   2.500  6
  0   2.000  1
  0   1.500  4
  0    .061   2.000  5
  0  11.250
34
 1 0    5.0 163.8  13.4  30.0  35.6  .75  .050  2.00  .25  2.00  .09  2.00  .12  2.00  .05
 2 1   10.0 158.8  20.6  23.1  30.6 1.17  .050  2.00  .39  2.00  .15  2.00  .14  2.00  .05
 3 1   15.0 153.8  25.2  19.0  27.0 1.55  .050  2.00  .51  2.00  .19  2.00  .16  2.00  .06
 4 1   20.0 148.8  28.3  16.2  24.4 1.90  .050  2.00  .60  2.00  .22  2.00  .18  2.00  .07
 5 1   25.0 143.8  30.7  14.2  22.3 2.23  .050  2.00  .66  2.00  .25  2.00  .19  2.00  .08
 6 1   30.0 138.8  32.6  12.7  20.7 2.54  .050  2.00  .70  2.00  .26  2.00  .20  2.00  .08
 7 1   35.0 133.8  34.1  11.6  19.5 2.83  .050  2.00  .72  2.00  .27  2.00  .21  2.00  .08
 8 1   40.0 128.8  35.4  10.8  18.6 3.10  .050  2.00  .73  2.00  .28  2.00  .21  2.00  .08
 9 1   45.0 123.8  36.6  10.1  17.8 3.34  .050  2.00  .74  2.00  .28  2.00  .21  2.00  .08
10 1   50.0 118.8  37.6   9.6  17.3 3.55  .050  2.00  .74  2.00  .28  2.00  .21  2.00  .08
11 1   55.0 113.8  38.5   9.2  16.9 3.74  .050  2.00  .74  2.00  .28  2.00  .20  2.00  .08
12 1   60.0 108.8  39.3   8.9  16.6 3.90  .050  2.00  .74  2.00  .28  2.00  .20  2.00  .08
13 1   65.0 103.8  40.1   8.6  16.5 4.03  .050  2.00  .74  2.00  .28  2.00  .19  2.00  .07
14 1   70.0  98.8  40.9   8.5  16.5 4.12  .050  2.00  .73  2.00  .28  2.00  .19  2.00  .07
15 1   75.0  93.8  41.6   8.4  16.6 4.19  .050  2.00  .73  2.00  .28  2.00  .18  2.00  .07
16 1   80.0  88.8  42.4   8.4  16.9 4.22  .050  2.00  .73  2.00  .28  2.00  .17  2.00  .07
17 1   85.0  83.8  43.1   8.4  17.3 4.22  .050  2.00  .72  2.00  .27  2.00  .16  2.00  .06
18 1   90.0  78.8  43.8   8.6  17.8 4.19  .050  2.00  .72  2.00  .27  2.00  .15  2.00  .06
19 1   95.0  73.8  44.6   8.7  18.6 4.13  .050  2.00  .71  2.00  .27  2.00  .14  2.00  .06
20 1  100.0  68.8  45.4   9.0  19.5 4.03  .050  2.00  .70  2.00  .27  2.00  .13  2.00  .05
21 1  105.0  63.8  46.3   9.4  20.7 3.90  .050  2.00  .70  2.00  .26  2.00  .11  2.00  .04
22 1  110.0  58.8  47.3   9.8  22.3 3.75  .050  2.00  .68  2.00  .26  2.00  .10  2.00  .04
23 1  115.0  53.8  48.3  10.4  24.4 3.56  .050  2.00  .67  2.00  .25  2.00  .08  2.00  .03
24 1  120.0  48.8  49.5  11.2  27.0 3.35  .050  2.00  .65  2.00  .24  2.00  .06  2.00  .02
25 1  125.0  43.8  50.9  12.1  30.6 3.11  .050  2.00  .62  2.00  .23  2.00  .05  2.00  .02
26 1  130.0  38.8  52.6  13.4  35.6 2.84  .050  2.00  .57  2.00  .22  2.00  .03  2.00  .01
27 1  135.0  33.8  54.7  15.1  43.0 2.55  .050  2.00  .51  2.00  .19  2.00  .02  2.00  .01
28 1  140.0  28.8  57.5  17.4  54.7 2.25  .050  2.00  .43  2.00  .16  2.00  .01  2.00  .00
29 1  145.0  23.8  61.2  20.8  76.0 1.92  .050  2.00  .33  2.00  .12  2.00  .00  2.00  .00
30 1  150.0  18.8  66.9  26.1 126.1 1.57  .050  2.00  .20  2.00  .08  2.00  .00  2.00  .00
31 1  155.0  13.8  76.5  35.3 377.2 1.21  .050  2.00  .08  2.00  .03  2.00  .00  2.00  .00
32 0     .3 168.5   1.0  42.0  42.5  .12  .050  2.00  .11  2.00  .04  2.00  .16  2.00  .05
33 1    6.7 162.1  16.3  27.2  33.7  .90  .050  2.00  .30  2.00  .11  2.00  .13  2.00  .05
34 1  161.8   7.0 110.5  68.8  68.8  .68  .050  2.00  .01  2.00  .00  2.00  .01  2.00  .00
34
 1 0  5.000  .050 -.002  .002 -.003  .002 -.004  .002 -.005  .002  .000  .001 -.001  .001
 2 1 10.000  .050 -.002  .002 -.003  .002 -.006  .003 -.007  .003  .000  .001 -.001  .001
 3 1 15.000  .050 -.003  .002 -.003  .002 -.008  .003 -.008  .003  .000  .001 -.001  .001
 4 1 20.000  .050 -.003  .002 -.004  .002 -.009  .003 -.009  .003  .000  .001 -.001  .001
 5 1 25.000  .050 -.003  .002 -.004  .001 -.009  .003 -.010  .003  .000  .001 -.001  .001
 6 1 30.000  .050 -.003  .002 -.004  .001 -.010  .003 -.010  .003  .000  .001 -.001  .001
 7 1 35.000  .050 -.003  .001 -.004  .001 -.010  .003 -.011  .003  .000  .001 -.001  .000
 8 1 40.000  .050 -.003  .001 -.003  .001 -.010  .003 -.011  .003  .000  .001 -.001  .000
 9 1 45.000  .050 -.003  .001 -.003  .001 -.010  .003 -.011  .003  .000  .001 -.001  .000
10 1 50.000  .050 -.003  .001 -.003  .001 -.010  .003 -.011  .003  .000  .001 -.001  .000
```

```
11 1  55.000  .050 -.003  .001 -.003  .001 -.010  .003 -.011  .003  .000  .001 -.001  .000
12 1  60.000  .050 -.002  .001 -.003  .001 -.010  .003 -.011  .003  .000  .001 -.001  .000
13 1  65.000  .050 -.002  .001 -.003  .001 -.010  .003 -.011  .003  .000  .001 -.001  .000
14 1  70.000  .050 -.002  .001 -.003  .001 -.010  .003 -.011  .003  .000  .001 -.001  .000
15 1  75.000  .050 -.002  .001 -.003  .001 -.010  .003 -.011  .003  .000  .001 -.001  .000
16 1  80.000  .050 -.002  .001 -.003  .001 -.010  .003 -.011  .003  .000  .001 -.001  .000
17 1  85.000  .050 -.002  .001 -.003  .001 -.010  .003 -.010  .002  .000  .001 -.001  .000
18 1  90.000  .050 -.002  .001 -.003  .001 -.010  .002 -.010  .002  .000  .001 -.001  .000
19 1  95.000  .050 -.002  .001 -.003  .001 -.010  .002 -.010  .002  .000  .001 -.001  .000
20 1 100.000  .050 -.002  .001 -.003  .001 -.010  .002 -.010  .002  .000  .000 -.001  .000
21 1 105.000  .050 -.002  .001 -.003  .001 -.010  .002 -.010  .002  .000  .000 -.001  .000
22 1 110.000  .050 -.002  .001 -.003  .001 -.009  .002 -.010  .002  .000  .000 -.001  .000
23 1 115.000  .050 -.002  .001 -.003  .001 -.009  .001 -.010  .001  .000  .000 -.001  .000
24 1 120.000  .050 -.002  .001 -.003  .001 -.009  .001 -.010  .001  .000  .000 -.001  .000
25 1 125.000  .050 -.002  .001 -.003  .000 -.009  .001 -.009  .001  .000  .000 -.001  .000
26 1 130.000  .050 -.002  .000 -.003  .000 -.008  .001 -.009  .001  .000  .000 -.001  .000
27 1 135.000  .050 -.002  .000 -.003  .000 -.007  .000 -.008  .000  .000  .000 -.001  .000
28 1 140.000  .050 -.002  .000 -.003  .000 -.006  .000 -.007  .000  .000  .000 -.001  .000
29 1 145.000  .050 -.002  .000 -.002  .000 -.005  .000 -.005  .000  .000  .000 -.001  .000
30 1 150.000  .050 -.001  .000 -.002  .000 -.003  .000 -.004  .000  .000  .000 -.000  .000
31 1 155.000  .050 -.001  .000 -.001  .000 -.001  .000 -.002  .000  .000  .000 -.000  .000
32 0   .266  .050 -.001  .002 -.002  .002 -.001  .002 -.002  .002  .001  .002 -.001  .002
33 1   6.681  .050 -.002  .002 -.003  .002 -.005  .002 -.005  .002  .000  .001 -.001  .001
34 1 161.750  .050  .000  .000  .000  .000  .000  .000  .000  .000  .000  .000  .000  .000
"Alexander Orr Gens      "
"Everglades NP          "
  1   1
   .700   29.000    .000     .000     .000
  43.000   16.250   110.500   59.000
  0    1.500   3
  0    2.500   8
  0    2.500   6
  0    2.000   1
  0    1.500   4
  0     .040    2.000    5
  0    11.250
 34
 1 0     5.0 163.8  13.4  30.0  35.6  .75  .050  2.00   .48  2.00   .19  2.00   .25  2.00   .10
 2 1    10.0 158.8  20.6  23.1  30.6 1.17  .050  2.00   .65  2.00   .26  2.00   .26  2.00   .11
 3 1    15.0 153.8  25.2  19.0  27.0 1.55  .050  2.00   .77  2.00   .31  2.00   .28  2.00   .12
 4 1    20.0 148.8  28.3  16.2  24.4 1.90  .050  2.00   .84  2.00   .34  2.00   .29  2.00   .12
 5 1    25.0 143.8  30.7  14.2  22.3 2.23  .050  2.00   .89  2.00   .36  2.00   .30  2.00   .13
 6 1    30.0 138.8  32.6  12.7  20.7 2.54  .050  2.00   .91  2.00   .37  2.00   .30  2.00   .13
 7 1    35.0 133.8  34.1  11.6  19.5 2.83  .050  2.00   .91  2.00   .37  2.00   .30  2.00   .12
 8 1    40.0 128.8  35.4  10.8  18.6 3.10  .050  2.00   .91  2.00   .37  2.00   .29  2.00   .12
 9 1    45.0 123.8  36.6  10.1  17.8 3.34  .050  2.00   .91  2.00   .37  2.00   .29  2.00   .12
10 1    50.0 118.8  37.6   9.6  17.3 3.55  .050  2.00   .90  2.00   .36  2.00   .28  2.00   .12
11 1    55.0 113.8  38.5   9.2  16.9 3.74  .050  2.00   .89  2.00   .36  2.00   .27  2.00   .11
12 1    60.0 108.8  39.3   8.9  16.6 3.90  .050  2.00   .88  2.00   .36  2.00   .26  2.00   .11
13 1    65.0 103.8  40.1   8.6  16.5 4.03  .050  2.00   .88  2.00   .35  2.00   .25  2.00   .11
14 1    70.0  98.8  40.9   8.5  16.5 4.12  .050  2.00   .87  2.00   .35  2.00   .24  2.00   .10
15 1    75.0  93.8  41.6   8.4  16.6 4.19  .050  2.00   .86  2.00   .35  2.00   .24  2.00   .10
16 1    80.0  88.8  42.4   8.4  16.9 4.22  .050  2.00   .86  2.00   .35  2.00   .23  2.00   .09
17 1    85.0  83.8  43.1   8.4  17.3 4.22  .050  2.00   .85  2.00   .35  2.00   .22  2.00   .09
18 1    90.0  78.8  43.8   8.6  17.8 4.19  .050  2.00   .85  2.00   .34  2.00   .21  2.00   .09
19 1    95.0  73.8  44.6   8.7  18.6 4.13  .050  2.00   .85  2.00   .34  2.00   .19  2.00   .08
20 1   100.0  68.8  45.4   9.0  19.5 4.03  .050  2.00   .84  2.00   .34  2.00   .18  2.00   .08
21 1   105.0  63.8  46.3   9.4  20.7 3.90  .050  2.00   .84  2.00   .34  2.00   .17  2.00   .07
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22 1  110.0  58.8  47.3   9.8  22.3 3.75  .050  2.00   .83  2.00   .34  2.00   .15  2.00   .06
23 1  115.0  53.8  48.3  10.4  24.4 3.56  .050  2.00   .83  2.00   .33  2.00   .13  2.00   .05
24 1  120.0  48.8  49.5  11.2  27.0 3.35  .050  2.00   .81  2.00   .33  2.00   .11  2.00   .04
25 1  125.0  43.8  50.9  12.1  30.6 3.11  .050  2.00   .79  2.00   .32  2.00   .08  2.00   .03
26 1  130.0  38.8  52.6  13.4  35.6 2.84  .050  2.00   .76  2.00   .31  2.00   .06  2.00   .02
27 1  135.0  33.8  54.7  15.1  43.0 2.55  .050  2.00   .71  2.00   .28  2.00   .03  2.00   .01
28 1  140.0  28.8  57.5  17.4  54.7 2.25  .050  2.00   .63  2.00   .25  2.00   .02  2.00   .01
29 1  145.0  23.8  61.2  20.8  76.0 1.92  .050  2.00   .52  2.00   .21  2.00   .01  2.00   .00
30 1  150.0  18.8  66.9  26.1 126.1 1.57  .050  2.00   .36  2.00   .14  2.00   .00  2.00   .00
31 1  155.0  13.8  76.5  35.3 377.2 1.21  .050  2.00   .18  2.00   .07  2.00   .00  2.00   .00
32 0     .3 168.5   1.0  42.0  42.5  .12  .050  2.00   .23  2.00   .08  2.00   .29  2.00   .09
33 1    6.7 162.1  16.3  27.2  33.7  .90  .050  2.00   .54  2.00   .21  2.00   .25  2.00   .10
34 1  161.8   7.0 110.5  68.8  68.8  .68  .050  2.00   .02  2.00   .01  2.00   .02  2.00   .01
34
 1 0   5.000  .050 -.004  .003 -.005  .003 -.008  .005 -.009  .005  .000  .001 -.001  .001
 2 1  10.000  .050 -.004  .003 -.005  .003 -.010  .005 -.011  .005  .000  .001 -.001  .001
 3 1  15.000  .050 -.004  .002 -.005  .002 -.011  .005 -.012  .005  .000  .001 -.001  .001
 4 1  20.000  .050 -.004  .002 -.005  .002 -.012  .005 -.013  .005  .000  .001 -.001  .001
 5 1  25.000  .050 -.003  .002 -.005  .002 -.013  .005 -.014  .005  .000  .001 -.001  .001
 6 1  30.000  .050 -.003  .002 -.004  .002 -.013  .005 -.014  .005  .000  .001 -.001  .001
 7 1  35.000  .050 -.003  .002 -.004  .002 -.013  .005 -.014  .004  .000  .001 -.001  .001
 8 1  40.000  .050 -.003  .002 -.004  .001 -.013  .004 -.014  .004  .000  .001 -.001  .001
 9 1  45.000  .050 -.003  .002 -.004  .001 -.013  .004 -.014  .004  .000  .001 -.001  .001
10 1  50.000  .050 -.003  .002 -.004  .001 -.012  .004 -.013  .004  .000  .001 -.001  .000
11 1  55.000  .050 -.003  .002 -.004  .001 -.012  .004 -.013  .004  .000  .001 -.001  .000
12 1  60.000  .050 -.003  .001 -.004  .001 -.012  .004 -.013  .004  .000  .001 -.001  .000
13 1  65.000  .050 -.003  .001 -.004  .001 -.012  .004 -.013  .004  .000  .001 -.001  .000
14 1  70.000  .050 -.003  .001 -.004  .001 -.012  .004 -.013  .003  .000  .001 -.001  .000
15 1  75.000  .050 -.003  .001 -.004  .001 -.012  .003 -.013  .003  .000  .001 -.001  .000
16 1  80.000  .050 -.003  .001 -.004  .001 -.012  .003 -.013  .003  .000  .001 -.001  .000
17 1  85.000  .050 -.003  .001 -.004  .001 -.012  .003 -.013  .003  .000  .001 -.001  .000
18 1  90.000  .050 -.003  .001 -.004  .001 -.012  .003 -.013  .003  .000  .001 -.001  .000
19 1  95.000  .050 -.003  .001 -.004  .001 -.012  .003 -.012  .003  .000  .001 -.001  .000
20 1 100.000  .050 -.003  .001 -.004  .001 -.012  .003 -.012  .003  .000  .001 -.001  .000
21 1 105.000  .050 -.003  .001 -.004  .001 -.012  .003 -.012  .003  .000  .001 -.001  .000
22 1 110.000  .050 -.003  .001 -.004  .001 -.012  .002 -.012  .002  .000  .001 -.001  .000
23 1 115.000  .050 -.003  .001 -.004  .001 -.012  .002 -.012  .002  .000  .001 -.001  .000
24 1 120.000  .050 -.003  .001 -.004  .001 -.011  .002 -.012  .002  .000  .001 -.001  .000
25 1 125.000  .050 -.003  .001 -.004  .001 -.011  .001 -.012  .001  .000  .000 -.001  .000
26 1 130.000  .050 -.003  .001 -.004  .001 -.011  .001 -.012  .001  .000  .000 -.001  .000
27 1 135.000  .050 -.003  .000 -.004  .000 -.010  .001 -.011  .001  .000  .000 -.001  .000
28 1 140.000  .050 -.003  .000 -.004  .000 -.009  .000 -.010  .000  .000  .000 -.001  .000
29 1 145.000  .050 -.003  .000 -.003  .000 -.008  .000 -.008  .000  .000  .000 -.001  .000
30 1 150.000  .050 -.002  .000 -.003  .000 -.006  .000 -.006  .000  .000  .000 -.001  .000
31 1 155.000  .050 -.002  .000 -.002  .000 -.003  .000 -.003  .000  .000  .000 -.001  .000
32 0    .266  .050 -.000  .004 -.004  .004 -.003  .004 -.004  .004  .003  .004 -.002  .004
33 1   6.681  .050 -.004  .003 -.005  .003 -.009  .005 -.009  .005  .000  .001 -.001  .001
34 1 161.750  .050 -.000  .000 -.000  .000 -.000  .000 -.000  .000  .000  .000 -.000  .000
"Alexander Orr Gens    "
"Everglades NP       "
   1  1
   .700   29.000    .000    .000    .000
  43.000  16.250  110.500  63.000
  0   1.500   3
  0   2.500   8
  0   2.500   6
  0   2.000   1
  0   1.500   4
```

```
32 0    .3 168.5   1.0  42.0  42.5 .12  .050  2.00   .07  2.00   .03  2.00   .11  2.00   .03
33 1    6.7 162.1  16.3  27.2  33.7 .90  .050  2.00   .22  2.00   .08  2.00   .09  2.00   .03
34 1  161.8   7.0 110.5  68.8  68.8 .68  .050  2.00   .00  2.00   .00  2.00   .01  2.00   .00
34
 1 0  5.000  .050 -.002  .001 -.002  .001 -.003  .002 -.003  .002  .000  .001 -.001  .001
 2 1  10.000  .050 -.002  .001 -.003  .001 -.005  .002 -.005  .002  .000  .001 -.001  .001
 3 1  15.000  .050 -.002  .001 -.003  .001 -.006  .002 -.007  .002  .000  .001 -.001  .001
 4 1  20.000  .050 -.002  .001 -.003  .001 -.008  .003 -.008  .003  .000  .001 -.001  .000
 5 1  25.000  .050 -.003  .001 -.003  .001 -.008  .003 -.009  .003  .000  .001 -.001  .000
 6 1  30.000  .050 -.003  .001 -.003  .001 -.009  .003 -.009  .003  .000  .001 -.001  .000
 7 1  35.000  .050 -.002  .001 -.003  .001 -.009  .003 -.010  .003  .000  .001 -.001  .000
 8 1  40.000  .050 -.002  .001 -.003  .001 -.009  .003 -.010  .003  .000  .001 -.001  .000
 9 1  45.000  .050 -.002  .001 -.003  .001 -.009  .003 -.010  .003  .000  .001 -.001  .000
10 1  50.000  .050 -.002  .001 -.003  .001 -.009  .003 -.010  .003  .000  .001 -.001  .000
11 1  55.000  .050 -.002  .001 -.003  .001 -.009  .003 -.010  .003  .000  .001 -.001  .000
12 1  60.000  .050 -.002  .001 -.003  .001 -.009  .003 -.010  .003  .000  .001 -.001  .000
13 1  65.000  .050 -.002  .001 -.003  .001 -.009  .003 -.010  .003  .000  .001 -.001  .000
14 1  70.000  .050 -.002  .001 -.003  .001 -.009  .003 -.010  .002  .000  .001 -.001  .000
15 1  75.000  .050 -.002  .001 -.003  .001 -.009  .002 -.010  .002  .000  .001 -.001  .000
16 1  80.000  .050 -.002  .001 -.003  .001 -.009  .002 -.010  .002  .000  .001 -.001  .000
17 1  85.000  .050 -.002  .001 -.003  .001 -.009  .002 -.010  .002  .000  .000 -.001  .000
18 1  90.000  .050 -.002  .001 -.003  .001 -.009  .002 -.010  .002  .000  .000 -.001  .000
19 1  95.000  .050 -.002  .001 -.003  .001 -.009  .002 -.010  .002  .000  .000 -.001  .000
20 1 100.000  .050 -.002  .001 -.003  .001 -.009  .002 -.009  .002  .000  .000 -.001  .000
21 1 105.000  .050 -.002  .001 -.003  .001 -.009  .002 -.009  .002  .000  .000 -.001  .000
22 1 110.000  .050 -.002  .001 -.003  .001 -.009  .001 -.009  .001  .000  .000 -.001  .000
23 1 115.000  .050 -.002  .001 -.003  .001 -.008  .001 -.009  .001  .000  .000 -.001  .000
24 1 120.000  .050 -.002  .001 -.003  .000 -.008  .001 -.009  .001  .000  .000 -.001  .000
25 1 125.000  .050 -.002  .000 -.003  .000 -.008  .001 -.008  .001  .000  .000 -.001  .000
26 1 130.000  .050 -.002  .000 -.003  .000 -.007  .000 -.008  .000  .000  .000 -.001  .000
27 1 135.000  .050 -.002  .000 -.003  .000 -.006  .000 -.007  .000  .000  .000 -.001  .000
28 1 140.000  .050 -.002  .000 -.002  .000 -.005  .000 -.006  .000  .000  .000 -.000  .000
29 1 145.000  .050 -.002  .000 -.002  .000 -.004  .000 -.004  .000  .000  .000 -.000  .000
30 1 150.000  .050 -.001  .000 -.002  .000 -.003  .000 -.003  .000  .000  .000 -.000  .000
31 1 155.000  .050 -.001  .000 -.001  .000 -.001  .000 -.001  .000  .000  .000 -.000  .000
32 0   .266  .050 -.000  .002 -.001  .002 -.001  .001 -.001  .001  .001  .002 -.001  .002
33 1  6.681  .050 -.002  .001 -.002  .001 -.004  .002 -.004  .002  .000  .001 -.001  .001
34 1 161.750  .050  .000  .000  .000  .000  .000  .000  .000  .000  .000  .000  .000  .000
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