



*Dade County
Resource Recovery Facility*
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30308

JAN 17 1978

Buck Owen
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JAN 23 1978

DIVISION OF
DEPT. OF ENVIRONMENTAL REGULATION
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JAN 20 1978

OFFICE OF SECRETARY

Mr. Colin Morrissey, Director
Department of Environmental Resources Management
Metropolitan Dade County
909 S.E. 1st Avenue
Miami, Florida 33131

Dear Mr. Morrissey:

The attached Pre-Construction Review, pursuant to PSD requirements, for the Dade County Resource Recovery Facility to be constructed in North Dade County is being forwarded to your agency for review and public availability as required by 40 CFR 52.

Upon publication of the attached Public Notice, it is requested that you display the enclosed documents in a convenient area for public inspection for thirty days.

All comments received within the 30-day comment period will be considered in EPA's Final Determination of Dade County's application.

If you have any questions, please contact me or Brian Mitchell at 404/881-3286.

Sincerely yours,

G. T. Helms

G. T. Helms, P.E.
Deputy Director
Air & Hazardous Materials Division

Enclosures

cc: Kennard F. Kosky, P.E.
Environmental Science & Engineering, Inc.

Buck Owen
Department of Environmental Regulation



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
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Mr. Warren Strahm, Subdistrict Manager
South Florida Subdistrict
3301 Gun Club Road
P. O. Box 3858
West Palm Beach, Florida 33402

DIVISION OF
ENVIRONMENTAL PERMITTING

Dear Mr. Strahm:

The attached Pre-Construction Review, pursuant to PSD requirements, for the Dade County Resource Recovery Facility to be constructed in North Dade County is being forwarded to your agency for review and public availability as required by 40 CFR 52.

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Deputy Director
Air & Hazardous Materials Division

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Buck Oven
Florida Department of Environmental Regulation



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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Mr. Dean H. Kohlhepp, Project Support Manager
Resources Recovery Construction Corporation
800 Douglas Entrance, Suite 205
Miami, Florida 33134

DIVISION OF
ENVIRONMENTAL PERMITTING

Dear Mr. Kohlhepp:

The attached Pre-Construction Review, pursuant to PSD requirements, for the Dade County Resource Recovery Facility to be constructed in North Dade County is being forwarded to your agency for review and public availability as required by 40 CFR 52.

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If you have any questions, please contact me or Brian Mitchell at 404/881-3286.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "G. T. Helms".

G. T. Helms, P.E.
Deputy Director
Air & Hazardous Materials Division

Enclosures

cc: Kernard F. Kosky, P.E.
Environmental Science & Engineering, Inc.

Buck Oven
Florida Department of Environmental Regulation



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

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DIVISION OF
ENVIRONMENTAL PERMITTING

Dr. J. P. Subramani, Chief
Bureau of Air Quality Management
Florida Department of Environmental Regulation
2562 Executive Center Circle, East
Tallahassee, Florida 32301

Dear Dr. Subramani:

The attached Pre-Construction Review, pursuant to PSD requirements, for the Dade County Resource Recovery Facility to be constructed in North Dade County is being forwarded to your agency for review and public availability as required by 40 CFR 52.

Upon publication of the attached Public Notice, it is requested that you display the enclosed documents in a convenient area for public inspection for thirty days.

All comments received within the 30-day comment period will be considered in EPA's Final Determination of Dade County's application.

If you have any questions, please contact me or Brian Mitchell at 404/881-3286.

Sincerely yours,

G. T. Helms, P.E.
Deputy Director
Air & Hazardous Materials Division

Enclosures

cc: Kennard F. Kosky, P.E.
Environmental Science & Engineering, Inc.

Buck Owen
Florida Department of Environmental Regulation

Pre-Construction Review and Preliminary
Determination for the Metropolitan Dade County
Resource Recovery Facility to be Constructed in Dade County, Florida

This review was performed by the
U. S. Environmental Protection Agency
in accordance with EPA regulations for
Prevention of Significant Air Quality
Deterioration

January 1977

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INTRODUCTION AND PRELIMINARY DETERMINATION

On December 5, 1974, the Environmental Protection Agency promulgated regulations for Prevention of Significant Air Quality Deterioration (PSD). These regulations were amended on June 12, 1975 and September 10, 1975. On August 7, 1977, the Clean Air Act Amendments of 1977 became law setting forth new PSD requirements. A November 3, 1977 final rulemaking further amended the PSD regulations to incorporate immediately effective changes required by the 1977 Amendments. Specifically, these changes are:

1) Mandatory Class I areas, 2) More restrictive ambient increments for sulfur dioxide and particulate matter, and 3) Restrictions on Class III reclassifications. Also, a new section of the Act on tall stacks limits the credit for stack height to good engineering practice. Under these regulations, a source that is included in one of 19 source categories must be reviewed with regard to significant deterioration prior to construction. Authority for implementing these regulations in the State of Florida presently rests with the EPA. Therefore, sources wishing to construct in Florida must obtain approval from both EPA and the State.

Under the PSD regulations a source must pass two criteria in order to be approved. The first criteria is that Best Available Control Technology (BACT) must be applied to all emission points of sulfur oxides (SO₂) and particulate matter (TSP) within the facility. The second criteria is that increases in ambient concentrations of SO₂ and particulates resulting from emissions from this source must not exceed certain

increments. All areas are presently classified as either Class I or Class II (see attached regulations).

Allowable increments in ambient concentrations are as follows:

Pollutant	Class I ug/m3	Class II ug/m3
Particulate Matter		
Annual Geometric Mean	5	19
24-hour Maximum	10	37
Sulfur Dioxide		
Annual Arithmetic Mean	2	20
24-Hour Maximum	5	91
3-Hour Maximum	25	512

The increments caused by the source are evaluated using air quality models developed by EPA.

Metropolitan Dade County intends to construct a 3000 ton per day solid waste recovery facility (incinerator) in Dade County near the Miami International Airport, and has submitted applications to the EPA for approval to construct four sources of air pollutant emissions at the facility.

EPA has reviewed the material submitted by engineering consultants for Metropolitan Dade County and has made a preliminary determination that in accordance with 40 CFR 52.21(d) (2) (ii), this construction can be approved with conditions. These conditions are necessary for the following reasons:

1. An emission limit is required as a condition of approval for each source under 40 CFR 52.21(d) (2) (ii).
2. From the data submitted in the application, EPA is unable to determine whether Best Available Control Technology (BACT) for particulate emissions will be applied to the source.

For particulate emission control, the applicant plans to install an electrostatic precipitator. Detailed design specifications for the precipitator have been submitted. The vendor has guaranteed the precipitator to comply with an emission limit of 0.06 grains per dry standard cubic foot (0.06 gr/DSCF) corrected to 12 percent CO₂. BACT is defined by 40 CFR 52.01(f) as that technology which will cause the source to comply with the Federal New Source Performance Standard, which is 0.08 gr/DSCF corrected to 12 percent CO₂. If the guaranteed emission rate is met, the unit would comply with BACT requirements.

Upon review of the technical specifications of the precipitator, EPA has been unable, in the time allotted for review, to obtain sufficient data with which to determine if the precipitator is capable of complying with the guaranteed emission rate. It is EPA's conclusion, however, that the technique of electrostatic precipitation does represent BACT for this source. The only uncertainty is the capacity of the precipitator necessary to meet the emission limitation.

Since the applicant has made provisions for installation of additional precipitator capacity, and since the manufacturer has guaranteed the precipitator to meet the emission limit, the construction should be approved contingent upon further review of the control device prior to startup.

The maximum additional control which EPA will require upon further review will be an additional control equal in design to the precipitator now planned. Therefore, one of the conditions of approval is that this additional precipitator capacity will be installed before startup of the source, if EPA determines it to be necessary.

Sulfur dioxide emissions are very low and no additional SO₂ control will be required. (SO₂ emissions are estimated as 2.5 lb per ton of refuse burned, or 180 lb per hour or 116ppm. No. 2 fuel oil will be used for startup only, so these emissions are negligible.

Conditions of Approval

1. Upon final review of the particulate control device specifications, if EPA finds that additional precipitator capacity needs to be installed to meet the applicable particulate emission limit

specified in Condition 2, this additional precipitator capacity will be designed and constructed prior to startup. EPA will complete the preconstruction review for this facility within 60 days from receipt of the additional design information which the facility will submit by March 1, 1978.

2. The source must meet a particulate emission limit, as measured under Condition 4, of 0.08 grains per dry standard cubic foot corrected to 12 percent carbon dioxide. This limit is identical to that required by 40 CFR 60, Subpart E, Standards of Performance for New Stationary Sources.
3. Only low sulfur (0.8% or less) Number 2 fuel oil will be used for startup of the incinerators. Startup times may vary but will not exceed the following: 1) 12 hours at low fuel oil feed rate during "cold" start, or 2) 1 hour during a "hot" start.
4. Additionally, the applicant must comply with the following:
 - a. Within 60 days after achieving the maximum production rate at which the source will be operated, but no later than 180 days after initial startup, the owner or operator shall conduct performance tests and furnish EPA a written report of the results of such performance tests.
 - b. Performance tests shall be conducted and data reduced in accordance with methods and procedures specified by EPA. Reference methods 1 through 5 as published in Appendix A of 40 CFR 60 will be used for particulate tests.

beyond the owner or operator's control, compliance may, upon the approval of EPA, be determined using the arithmetic mean of the other two runs.

5. The applicant must furnish to EPA evidence that the source emits less than 100 tons/year of hydrocarbons due to its location in a non-attainment area for oxidants, or must obtain legally enforceable offsets for the hydrocarbon emissions from this facility.

AIR QUALITY ANALYSIS

The purpose of this section is to present the results of a diffusion analysis, using EPA's air quality models, to predict the maximum concentrations for suspended particulates (TSP) and sulfur dioxide (SO₂) for various averaging periods. The initial modeling analysis was conducted by an environmental consulting firm and submitted to EPA for review. The results of EPA's review are presented below. Based on these results the following conclusions may be drawn for the proposed construction of the resource recovery facility:

1. The proposed operations will be in compliance with EPA's regulations for the Prevention of Significant Deterioration as promulgated in the Federal Register on December 5, 1974, and as amended on June 12 and September 10, 1975, and November 3, 1977. Specifically, the impact of the proposed source will not cause a violation of the applicable PSD increments allowed for the Class I or Class II areas affected.
2. The ground level concentrations of TSP and SO₂ due solely to the operations of the proposed facility will not contravene any applicable Federal ambient air quality standards.

Results

The impact of the proposed resource recovery facility upon local ambient contaminant levels was evaluated by means of mathematical dispersion models which simulate the processes of transport and diffusion of stack effluents in the atmosphere. The models employed

for this purpose are Gaussian plume models developed by the Meteorological Laboratory of the Environmental Protection Agency. Inputs include physical dimensions and emission characteristics of the source, as well as hourly values of those meteorological parameters affecting plume behavior. The emission rates used for modeling the proposed facility were emissions which represent best available control technology. Ground-level concentrations of TSP and SO₂ attributable to operation of the proposed facility were computed for one hour, 24-hour, and annual averaging periods. The output obtained from application of the models consists of hourly, daily, and annual average concentrations at each designated "receptor" location.

The models used and brief summaries of each model are given below:

- PIMAX - A single source model which calculates the maximum 10 minute concentration and downwind distance to point of maximum concentration as a function of stability class and a given set of wind speed categories.
- CRSTER - A single source model which is designed to calculate maximum one-hour, 24-hour, and annual average concentrations at a specified set of receptors for a full year of actual hourly meteorological data.
- PTMTPW - A multiple source model which calculates hourly concentrations and the average concentration for several hours as a function of specified meteorological conditions at specified receptors.
- AQDM - A multiple source model which calculates the annual arithmetic average concentration from regional source emissions and meteorological data.

Table 1 presents the input parameters to the models for all of the point sources at the proposed facility. The distance from the proposed source to the nearest Everglades National Park boundary is approximately 33 kilometers in a general direction of 255° from North (see Figure 1). The maximum ground level concentrations of TSP and SO₂ for this Class I area occurred in this direction at that distance as modeled with CRSTER and these values are shown in Table 2 along with the maximum impacts in the Class II area where the facility is located (see Figure 2). The air quality modeling analysis predicted the impact of the proposed source to be in compliance with PSD regulations. As can be seen from Table 2, the annual and short-term PSD increments are not violated. Therefore, the construction is approved with conditions as outlined above to ensure compliance with BACT.

TABLE 1

Operating and Emission Parameters During Normal Operations

	<u>Source</u>			
	Boilers 1 & 2	Boilers 3 & 4	Pathological Incinerator	Glass Dryer
Sulfur (%)	0.1	0.1	-	0.5
SO ₂ Emission Rate (g/sec)	36.3	36.3	-	0.12
TSP Emission Rate (g/sec)	13.65	13.65	0.15	0.02
Stack Height (meters)	45.7	45.7	6.5	4.6
Stack Diameter (meters)	2.67	2.67	0.61	0.61
Exit Temperature (degrees kelvin)	489.0	489.0	977.0	394.0
Exit Velocity (m/sec)	14.0	14.0	8.1	0.7

TABLE 2

Summary of Air Quality Impact in the Vicinity of
Dade County's Proposed Resource Recovery Facility

Pollutant	Allowable Class I Increments (ug/m3)	Increment Consumed in Everglades Nat'l Park (ug/m3)	Allowable Class II Increments (ug/m3)	Increment Consumed in Class II area (ug/m3)
Particulate Matter (TSP)				
Annual Geometric Mean	5	0.2	19	0.7
24-hour Maximum*	10	0.8	37	10.0
Sulfur Dioxide				
Annual Arithmetic Mean	2	0.3	20	2.0
24-Hour Maximum*	5	2.1	91	25.0
3-Hour Maximum*	25	8.7	512	82.0

*Not to be exceeded more than once per year