



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET  
ATLANTA, GEORGIA 30365

4APT-AP/lms

DEC 16 1986

RECEIVED

DEC 17 1986

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Mr. Timothy F. Hunt  
Executive Director  
Palm Beach County Solid  
Waste Authority  
West Palm Beach, Florida 33409

RE: Palm Beach County Solid Waste Resource Recovery Facility  
PSD-FL-108

Dear Mr. Hunt:

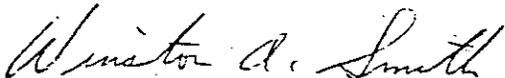
Review of your June 18, 1985, application to construct a three unit, 360 mmBTU/hr (each) heat input, refuse derived fuel, energy recovery facility in Palm Beach County, Florida, has been completed. The construction is subject to rules for the Prevention of Significant Deterioration (PSD) of air quality contained in 40 CFR §52.21. The Florida Department of Environmental Regulation (FDER) performed the preliminary determination concerning the proposed construction and published a request for public comment on February 14, 1986. Comments regarding the determination were addressed during the public hearing held March 17-21, 1986. On November 21, 1986, FDER prepared a final determination recommending issuance of the PSD permit by EPA. Due to the uncertainty regarding commencement of construction for the third unit only two (2) units are being permitted. Application for the construction of the third unit will have to be made to the FDER at the time definite plans are made for its construction.

The Environmental Protection Agency (EPA) has determined that the construction as described in the application meets all the applicable requirements of 40 CFR §52.21. Accordingly, pursuant to 40 CFR 124.15, the Regional Administrator has made a final decision to issue the enclosed Permit to Construct - Part I Specific Conditions and Part II General Conditions. This authority to construct, granted as of the effective date of the permit, is based solely on the requirements of 40 CFR §52.21, air quality. It does not apply to other permits issued by this Agency or by other agencies. Please be advised that a violation of any permit condition, as well as any construction which proceeds in material variance with information submitted in your application, will be subject to enforcement action.

This final permit decision is subject to appeal under 40 CFR §124.10 by petitioning the Administrator of the EPA within thirty (30) days after receipt thereof. The petitioner must submit a statement of reasons for the appeal and the Administrator must decide on the petition within a reasonable time period. If the petition is denied, the permit shall become effective upon notice of such action to the parties to the appeal. If no appeal is filed with the Administrator, the permit shall become effective thirty (30) days after receipt of this letter. Upon the expiration of the thirty (30) day period, EPA will notify you of the status of the permit's effective date.

Receipt of this letter does not constitute authority to construct. Approval to construct this two unit, refuse derived fuel, energy recovery facility shall be granted as of the effective date of the permit. The complete analysis which justifies this approval has been fully documented for future reference, if necessary. Any questions concerning this approval may be directed to Mr. Bruce Miller, Chief, Air Programs Branch at (404) 347-2864.

Sincerely yours,



Winston A. Smith, Director  
Air, Pesticides, and Toxics  
Management Division

Enclosure

cc: Mr. Steve Smallwood, P.E., Chief  
Bureau of Air Quality Management  
Florida Department of Environmental  
Regulation

PERMIT TO CONSTRUCT UNDER THE RULES FOR THE  
PREVENTION OF SIGNIFICANT DETERIORATION OF AIR QUALITY

Pursuant to and in accordance with the provisions of Part C, Subpart 1 of the Clean Air Act, as amended, 42 U.S.C. §7470 et. seq., and the regulations promulgated thereunder at 40 CFR §52.21, as amended at 45 Fed. Reg. 52676, 52735-41 (August 7, 1980),

Palm Beach County Solid Waste Authority Resource  
Recovery Facility

is, as of the effective date of this permit (PSD-FL-108) authorized to construct a two unit, 360 mmBTU/hr (each), refuse derived fuel (RDF), energy recovery facility at the following location:

Near the intersection of the Beeline  
Highway and the Florida Turnpike in  
Palm Beach County, Florida.

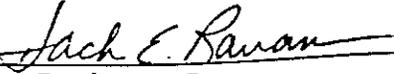
Upon completion of authorized construction and commencement of operation/production, this stationary source shall be operated in accordance with the emission limitations, sampling requirements, monitoring requirements and other conditions set forth in the attached Specific Conditions (Part I) and General Conditions (Part II)

This permit is hereby issued on December 16, 1986, and shall become effective thirty (30) days after receipt hereof unless a petition for administrative review is filed with the Administrator during that time. If a petition is filed any applicable effective date shall be determined in accordance with 40 CFR §124.19(f)(1).

If construction does not commence within 18 months after the effective date of this permit, or if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time, this permit shall expire and authorization to construct shall become invalid.

This authorization to construct/modify shall not relieve the owner or operator of the responsibility to comply fully with all applicable provisions of Federal, State, and local law.

December 16, 1986  
Date Signed

  
\_\_\_\_\_  
Jack E. Ravan  
Regional Administrator

6. The permittee shall allow representatives of the state and local environmental control agency or representatives of the EPA upon the presentation of credentials:

(a) to enter upon the permittee's premises, or other premises under the control of the permittee, where an air pollutant source is located or in which any records are required to be kept under the terms and conditions of the permit;

(b) to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit, or the Clean Air Act;

(c) to inspect at reasonable times any monitoring equipment or monitoring method required in this permit;

refuse derived  
following

(d) to sample at reasonable times any emissions of pollutants; and

(e) to perform at reasonable times an operation and maintenance inspection of the permitted source.

7. The conditions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

PART I

Specific Conditions

1. Emission Limitations

a. Stack emissions from each unit shall not exceed the following:

- (1) Particulate matter: 0.015 grains per dry standard cubic foot corrected to 12% CO<sub>2</sub> (gr/dscf-12% CO<sub>2</sub>).
- (2) Visible Emissions: Opacity of stack emissions shall not be greater than 15% opacity. Excess opacity resulting from startup or shutdown shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess opacity shall be minimized but in no case exceed two hours in any 24-hour period unless specifically authorized by EPA for longer duration.

Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during start-up or shutdown shall be prohibited.

- (3) VOC: 0.023 lb/mmBTU heat input
- (4) SO<sub>2</sub>: 65% removal (0.32 lb/mmBTU heat input max.)
- (5) Nitrogen Oxides: 0.32 lb/mmBTU heat input
- (6) Carbon Monoxide: 400 ppmv corrected to 12% CO<sub>2</sub>
- (7) Lead: 0.0004 lb/mmBTU heat input
- (8) Fluorides: 0.0032 lb/mmBTU heat input
- (9) Beryllium:  $7.3 \times 10^{-7}$  lb/mmBTU heat input
- (10) Each of the emission limits in conditions (1) and (3) through (9) is to be expressed as a 3-hour average based on the expected length of time for a particulate compliance test.
- (11) Mercury: 3200 grams/day
- (12) Sulfuric Acid Mist:  $3.2 \times 10^{-5}$  lb/mmBTU heat input

(13) The units are subject to 40 CFR Part 60, Subpart E and Subpart Db, New Source Performance Standards (NSPS), except that where requirements in this permit are more restrictive, the requirements in this permit shall apply.

(14) There shall be no fugitive emissions from the refuse bunker and the ash handling and loadout. The potential for dust generation by ash handling activities will be mitigated by quenching the ash prior to loading in ash transport trucks. Additionally, all portions of the proposed facility including the ash handling facility which have the potential for fugitive emissions will be enclosed. Also, those areas which have to be open for operational purposes, e.g., tipping floor of the refuse bunker while trucks are entering and leaving, will be under negative air pressure.

(15) Only natural gas will be used as an auxiliary fuel and the annual capacity factor for use of natural gas, as determined by 40 CFR §60.43b(d), shall be less than 10%.

b. Compliance Tests

- (1) Compliance tests for particulate matter, SO<sub>2</sub>, nitrogen oxides, CO, fluorides, mercury and beryllium shall be conducted in accordance with 40 CFR §60.8(a), (b), (d), (e), and (f), and 40 CFR Part 60, Subpart Db. An annual test will be conducted for particulate matter. Compliance tests for opacity will be conducted simultaneously during each compliance test run for particulate matter.

Compliance tests shall be conducted as specified herein by EPA and as required by 40 CFR §60.8. The permittee shall make available to EPA such records as may be necessary to determine the conditions of the performance tests and the methods to be used in obtaining representative RDF samples for ultimate analyses required in Method 19, Appendix A.

- (2) The following test methods and procedures from 40 CFR Parts 60 and 61 shall be used for compliance testing:
- a. Method 1 for selection of sample site and sample traverses.
  - b. Method 2 for determining stack gas flow rate when converting concentrations to or from mass emission limits.
  - c. Method 3 for gas analysis when needed for calculation of molecular weight or percent CO<sub>2</sub>.
  - d. Method 4 for determining moisture content when converting stack velocity to dry volumetric flow rate for use in converting concentrations in dry gases to or from mass emission limits.
  - e. Method 5 for concentration of particulate matter and associated moisture content. One sample shall constitute one test run.
  - f. Method 9 for visible determination of the opacity of emissions.
  - g. Method 6 for concentration of SO<sub>2</sub>. Two samples, taken at approximately 30 minute intervals, shall constitute one test run.
  - h. Method 7 for concentration of nitrogen oxides. Four samples, taken at approximately 15 minute intervals, shall constitute one test run.

- i. Method 8 for determination of sulfuric acid mist concentration and associated moisture content. One sample shall constitute one test run.
  - j. Method 10<sup>1</sup> (continuous) for determination of CO concentrations. One sample constitutes one test run.
  - k. Method 12 for determination of lead concentration and associated moisture content. One sample constitutes one test run.
  - l. Method 13A or 13B for determination of fluoride concentrations and associated moisture content. One sample shall constitute one test run.
  - m. Method 19 for determination of "F" factors in determining compliance with heat input emission rates and sulfur dioxide removal in Special Condition 1.a.(4).
  - n. Method 101A for determination of mercury emission rate and associated moisture content. One sample shall constitute one test run.
  - o. Method 104 for determination of beryllium emission rate and associated moisture content. One sample shall constitute one test run.
  - p. Method 25 or 25A for determination of volatile organic compounds. One sample shall constitute one test run.
2. The height of the boiler exhaust stack shall be 250 feet above ground level at the base of the stack.
  3. The incinerator boilers shall not be loaded in excess of their rated capacity of 58,333 pounds of RDF per hour each or  $360.0 \times 10^6$  Btu per hour each.
  4. The incinerator boilers shall have a metal name plate affixed in a conspicuous place on the shell showing manufacturer, model number, type waste, rated capacity and certification number.
  - ⑤ The permittee must submit to EPA and DER within fifteen (15) days after it becomes available to the County, copies of technical data pertaining to the incinerator boiler design, to the electrostatic precipitator design, and to the fuel mix that can be used to evaluate compliance of the facility with the preceding emission limitations.

6. Grease, scum, grit screenings or sewage sludge shall not be charged into the solid waste to energy facility boilers.

7. Air Pollution Control Equipment

The permittee shall install, continuously operate, and maintain the following air pollution controls to minimize emissions. Controls listed shall be fully operational upon start-up of the proposed equipment.

- a. Each boiler shall be equipped with a particulate emission control device for the control of particulates.
- b. Each boiler shall be equipped with an acid gas control device designed to remove at least 90% of the acid gasses.

8. Stack Monitoring Program

The permittee shall install and operate continuous monitoring devices for oxygen and stack opacity. The monitoring devices shall meet the applicable requirements of Rule 17-2.710, FAC, 40 CFR Part 60, Subparts A and Db, Sections 60.13 and 60.48b respectively, except that emission rates shall be calculated in units consistent with emission limits in this permit. The conversion procedure shall be approved by EPA.

9. Reporting

- a. A copy of the results of the stack tests shall be submitted within forty-five days of testing to the DER Southeast Florida District Office, Palm Beach County and EPA Region IV.
- b. Stack monitoring shall be reported to the DER Southeast District Office and EPA Region IV on a quarterly basis in accordance with Section 17-2.710, FAC, and 40 CFR Part 60, Sections 60.7 and 60.49b.

10. Fuel

The Resource Recovery Facility shall utilize refuse such as garbage and trash (as defined in Chapter 17-7, FAC) but not sludge from sewage treatment plants as its fuel. Use of alternate fuels would necessitate application for a modification to this permit.

11. Addresses for submitting reports are:

- a. EPA - Region IV

Chief, Air Compliance Branch  
U.S. Environmental Protection Agency  
345 Courtland Street, N.E.  
Atlanta, GA 30365

b. DER

Chief, Compliance and Ambient Monitoring  
Bureau of Air Quality Management  
Florida Department of Environmental  
Regulation  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32301

c. Southeast District Office of DER  
Each boiler shall be equipped with an acid gas control device

District Manager  
Department of Environmental Regulation  
3301 Gun Club Road  
P. O. Box 3858  
West Palm Beach, FL 33402

PART II

General Conditions

1. The permittee shall comply with the notification and record-keeping requirements codified at 40 CFR Part 60, Subpart A, § 60.7.
2. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specified in the specific conditions of this permit for a minimum of two (2) years from the date of recording.
3. It, for any reason, the permittee does not comply with or will not be able to comply with the emission limitations specified in this permit, the permittee shall provide EPA with the following information in writing within five (5) days of such conditions:
  - (a) description of noncomplying emission(s)
  - (b) cause of noncompliance,
  - (c) anticipated time the noncompliance is expected to continue, or, if corrected, the duration of the period of noncompliance
  - (d) steps taken by the permittee to reduce and eliminate the noncomplying emission, and
  - (e) steps taken by the permittee to prevent recurrence of the noncomplying emission.

Failure to provide the above information when appropriate shall constitute a violation of the terms and conditions of this permit. Submittal of the aforementioned information does not constitute a waiver of the emission limitations contained within this permit.

4. Any proposed change in the information submitted in the application regarding facility emissions or changes in the quantity or quality of materials processed that would result in new or increased emissions or ambient air quality impact must be reported to EPA. If appropriate, modifications to the permit may then be made by EPA to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause violation of the emission limitations specified herein. Any construction or operation of the source in material variance with the application shall be considered a violation of this permit.
5. In the event of any change in control or ownership of the source described in the permit, the permittee shall notify the succeeding owner of the existence of this permit and EPA of the change in control of ownership within 30 days.

RECEIVED

DEC 1 1986

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING  
2600 BLAIR STONE ROAD  
TALLAHASSEE, FLORIDA 32301-8241



BOB GRAHAM  
GOVERNOR

VICTORIA J. TSCHINKEL  
SECRETARY

November 21, 1986

Mr. Wayne Aronson  
Air Programs Branch  
Air, Pesticides, and Toxics  
Management Division  
U.S. EPA - Region IV  
345 Courtland Street, N.E.  
Atlant, Georgia 30365

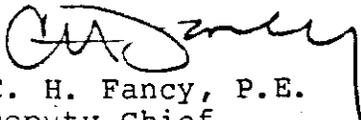
Dear Mr. Aronson:

Re: Palm Beach County Solid Waste Authority Final Determination

In response to Mr. Bruce Miller's request of October 9, 1986, we have prepared the final determination for the above referenced project and have enclosed a copy of the public notice. Because we have the final determination on our word processor, we will make any changes that you wish and send you a corrected copy of the determination the next day. Please call any changes directly to me at (904)488-1344.

The Palm Beach County Solid Waste Authority has been extremely cooperative throughout the permitting procedure and has requested their permit as soon as possible. We will be glad to do anything we can to expedite the issuance of their PSD permit.

Sincerely,

  
C. H. Fancy, P.E.  
Deputy Chief  
Bureau of Air Quality  
Management

CHF/ES/s

cc: Thomas Keith ✓  
Gene Sacco  
Isidore Goldman



# NOTICE OF CERTIFICATION HEARING ON AN APPLICATION TO CONSTRUCT AND OPERATE AN ELECTRICAL POWER PLANT ON A SITE TO BE LOCATED NEAR WEST PALM BEACH, FLORIDA.

1. Application number PA 84-20 for certification to authorize construction and operation of an electrical power plant near West Palm Beach, Florida, and associated transmission line from the plant to a Florida Power and Light Company transmission line at Haverhill Road is now pending before the Department of Environmental Regulation, pursuant to the Florida Electrical Power Plant Siting Act, Part II, Chapter 403, F.S. Certification of this power plant would allow construction and operation of a new source of air pollution which would consume an increment of air quality resources. The department review has resulted in an assessment of the prevention of significant deterioration impacts and a determination of the Best Available Control Technology necessary to control the emission of air pollutants from this source.

2. The proposed 1320 acre resource recovery and landfill site is located in unincorporated Palm Beach County at the southwest quadrant of the intersection of the Boudline Highway (SR 710) and the Florida Turnpike. The facility site is directly west of the Turnpike. A 73 acre parcel east of the Turnpike will serve as a corridor for a 138 KV transmission line. The proposed plant will consist initially of a 60 MW unit Refuse Derived Fuel Fired Energy Recovery Facility. The power plant will ultimately be expanded to 75 MW. The site will contain Class I and Class III landfills for the disposal of garbage, ash, trash, and non-processable wastes.

3. The Department of Environmental Regulation has evaluated the application for the proposed power plant. Certification of the plant would allow its construction and operation. The application, DER report, PSD and DACT determinations are available for public inspection at the addresses listed below:

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION  
 Twin Towers Office Building  
 2600 Blair Stone Road  
 Tallahassee, Florida 32301

PALM BEACH COUNTY SOLID WASTE AUTHORITY  
 5114 Okeechobee Boulevard  
 Suite 2C  
 West Palm Beach, Florida 33409

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION  
 South Florida District Office  
 3301 Gun Club Road  
 West Palm Beach, Florida 33402

SOUTH FLORIDA WATER MANAGEMENT DISTRICT  
 3301 Gun Club Road  
 West Palm Beach, Florida 33402

CENTRAL LIBRARY  
 3650 Summit Boulevard  
 West Palm Beach, Florida 33402.

4. Pursuant to Section 403.508, Florida Statutes, the certification hearing will be held by the Division of Administrative Hearings at 10:00 a.m. on March 17, 1986, at 10:00 a.m. in Conference Room D, Elisha Newton Dimick Building, 111 Georgia Avenue, West Palm Beach, Florida, in order to take written or oral testimony on the merits of the proposed electrical power plant or any other matter appropriate to the consideration of the site. Need for the facility has been predetermined by the Public Service Commission at a separate hearing. Written comments may be sent to William J. Kendrick (Hearing Officer) at Division of Administrative Hearings, 2009 Apalachee Parkway, Tallahassee, Florida 32301, on or before March 7, 1986.

5. Pursuant to 403.508, F.S.: (a) Parties to the proceeding shall include: the applicant; the Public Service Commission; the Division of State Planning; the water management district as defined in Chapter 373, in whose jurisdiction the proposed electrical power plant is to be located; and the Department. (b) Upon the filing with the Department of a notice of intent to be a party at least 15 days prior to the date set for the land use hearing, the following shall also be parties to the proceeding:

1. Any county or municipality in whose jurisdiction the proposed electrical power plant is to be located.
2. Any state agency not listed in paragraph (a) as to matters within its jurisdiction.
3. Any domestic non-profit corporation or association formed in whole or in part to promote conservation or natural beauty; to protect the environment, personal health, or other biological values; to preserve historical sites; to promote consumer interests; to represent labor, commercial or industrial groups; or to promote orderly development of the area in which the proposed electrical power plant is to be located.
- (c) Notwithstanding paragraph (4) (d), failure of an agency described in subparagraph (4) (b) to file a notice of intent to be a party within the time provided herein shall constitute a waiver of the right of the agency to participate as a party in the proceedings. (d) Other parties may include any person, including those persons enumerated in paragraph (4) (b), who failed to timely file a notice of intent to be a party, whose substantial interests are affected and being determined by the proceeding, and who timely file a motion to intervene pursuant to this paragraph may be granted at the discretion of the designated hearing officer and upon such conditions as he may prescribe any time prior to 15 days before the commencement of the certification hearing. (e) Any agency whose properties or works are being affected pursuant to s. 403.508 (2) shall be made a party upon the request of the department or the applicant.

6. When appropriate, any person may be given an opportunity to present oral or written communications to the designated hearing officer. If the designated hearing officer proposes to consider such communication, then all parties shall be given an opportunity to cross-examine or challenge or rebut such communications.

7. Notices of petitions made prior to the hearing should be made in writing to:

Mr. William J. K.





Final Determination  
and Permit

Palm Beach County Solid Waste Authority  
Resource Recovery Facility

Palm Beach County, Florida

PSD-FL-108

Prevention of Significant Deterioration

40 CFR 52.21

Review performed by Florida Department of Environmental  
Regulation

November 24, 1986

## I. INTRODUCTION

Pursuant to Section 403.505, Florida Statutes, Palm Beach County Solid Waste Authority (SWA) applied to the Florida Department of Environmental Regulation (DER) in June 1985 for certification of a steam electric generating, solid waste energy recovery facility at a site near the intersection of the Beeline Highway and the Florida Turnpike in Palm Beach, Florida. After a thorough review by DER, including public hearings, the Florida Power Plant Siting Board issued a site certification to the SWA. At that time, DER believed that such a site certification constituted a legal prevention of significant deterioration (PSD) permit under Chapter 17-2.500 of the Florida air pollution regulations which had been approved by the U.S. Environmental Protection Agency (EPA) on December 22, 1983. In the summer of 1985, EPA became aware that the Florida Electrical Power Plant Siting Act (PPSA) under which the site certification was issued, restricts the authority of the State of Florida to implement any regulation pertaining to power plants other than those set out in the Act. Consequently, EPA determined that the Florida PSD regulations are superceded by the PPSA, and could not legally be approved by EPA as part of the State Implementation Plan (SIP) since the PPSA does not comply in part (as to PPSA covered sources) with EPA PSD regulations both procedurally and substantively. Thus, EPA concluded that the Palm Beach County SWA resource recovery facility (RRF), did not possess a valid PSD permit. EPA's remedy for this situation was to issue an Order under Section 167 of the Clean Air Act for Palm Beach County to apply for a federal PSD permit under 40 CFR 52.21. EPA plans to issue in the near future a Federal Register notice clarifying its retention of PSD permitting authority as to sources subject to the PPSA. See also 51 Fed. Reg. 58 (Jan. 2, 1986).

Palm Beach County SWA applied to DER for a PSD permit. (By that time, DER had been given authority by EPA to conduct the technical and administrative steps of the federal PSD permitting process.)

The applicant plans to construct a 3000 ton per day (TPD) solid waste-to-energy facility to be located near the intersection of the Beeline Highway and the Florida Turnpike in Palm Beach County, Florida. The municipal solid waste (MSW) will be processed into refuse derived fuel (RDF) and then combusted to produce steam for power generation.

The present plans are to construct a 2000 ton per day MSW processing facility and add an additional 1000 TPD capacity within 5 years. The ultimate plant capacity of 3000 TPD MSW will

be processed into 1800 TPD RDF. The applicant desires to permit the facility at this ultimate capacity.

Each of the three energy recovery units will have an approximate maximum heat input of 350 million Btu per hour based on a maximum heat content of 6,200 Btu/lb for RDF. Each incinerator will be scheduled to operate 8760 hours per year and on this basis the tonnage of the various air pollutants emitted were calculated.

## II. Rule Applicability

The proposed site of the Palm Beach County SWA RRF is in an area designated as nonattainment for ozone under 40 CFR 81.310, and attainment for all other criteria pollutants.

New major sources which emit attainment pollutants regulated under the Clean Air Act in amounts greater than certain significance levels, are subject to 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The significance levels are specified by the PSD regulations.

New major sources in Palm Beach County which are subject to the PPSA and which are major for a nonattainment pollutant will be subject to 40 CFR 52.24, statutory restriction on new stationary sources (construction ban). New municipal incinerators capable of charging greater than 50 TPD are also subject to 40 CFR 60, Subpart E, New Source Performance Standards (NSPS).

New municipal incinerators with a charging rate equal to greater than 50 TPD are also subject to Florida Rule 17-2.600(1)(c).

The applicant is proposing the construction of a facility capable of handling 2000 TPD of municipal solid waste of which 1200 TPD of refuse derived fuel will be produced and incinerated. In the future, the facility will be expanded to handle 3000 TPD of MSW and generate 1,800 TPD of RDF.

The average annual emissions from the unit for all regulated pollutants have been estimated by the applicant.

The proposed source has the potential to emit more than 100 tons per year of one or more regulated pollutants and is, therefore, subject to review for Prevention of Significant Deterioration (PSD) under 40 CFR 52.21. PSD review includes, among other requirements, a determination of Best Available Control Technology (BACT) and an air quality impact analysis for each attainment and noncriteria pollutant that would be emitted in a significant amount. For the proposed source, the applicant

has addressed PSD review for the eight pollutants which will be emitted in significant amounts: PM, SO<sub>2</sub>, CO, NO<sub>x</sub>, Pb, Hg, Be, and fluorides.

The proposed source will emit less than 100 TPY of VOC (precursor of ozone), and is thus not subject to the construction ban of 40 CFR 52.24. The proposed incinerator will have a charging rate of 1000 tons per day, and thus is subject to NSPS and 17-2.600(1)(c). NSPS requires that the source meet a particulate emission rate of 0.08 grains per dry standard cubic foot (gr/dscf), corrected to 12% CO<sub>2</sub>. Regulation 17-2.600(1)(c) requires each incinerator to emit no more than .08 gr/dscf particulate corrected to 50% excess air.

### III. Preliminary Determination

The proposed source will result in significant emissions of the criteria pollutants PM, SO<sub>2</sub>, CO, NO<sub>x</sub>, and lead, and of the non-criteria pollutants beryllium, mercury and fluorides.

The review required under the prevention of significant deterioration (PSD) regulations for these pollutants includes:

Compliance with all applicable SIP, NSPS, and National Emission Standards for Hazardous Pollutants (NESHAP) regulations

BACT

An analysis of existing air quality;

A PSD increment analysis (for SO<sub>2</sub> and PM only);

An Ambient Air Quality Standards (AAQS) analysis;

An analysis of impacts on soils, vegetation, visibility, and growth-related air quality impacts, and;

A "Good Engineering Practice" (GEP) stack height determination.

The analysis of existing air quality generally relies on preconstruction monitoring data collected in accordance with EPA-approved methods. The PSD increment and AAQS analyses depend on air quality dispersion modeling carried out in accordance with EPA guidelines. BACT is specified on a case-by-case basis considering environmental, economic, and energy impacts.

Based on these required analyses, the Department has reasonable assurance that the proposed unit at the Palm Beach County SWF RRF, as described in this report and subject to the

conditions of approval proposed herein, will employ BACT, will not cause or contribute to a violation of any PSD increment or ambient air quality standard, and will comply with all applicable air pollution regulations. A discussion of all review components follows.

#### IV. Control Technology Review

##### a. BACT Determination

40 CFR 52.21 (j) requires that each pollutant subject to PSD review must be controlled by BACT. Eight pollutants are subject to BACT. The BACT emission limits proposed by the Department are summarized as follows:

<u>Pollutant</u>	<u>BACT</u>
Particulate Matter	0.015 gr/dscf
Sulfur Dioxide	4.0 lb/ton
Nitrogen Oxides	4.0 lb/ton
Carbon Monoxide	400 ppmv, corrected to 12% CO <sub>2</sub>
Lead	0.005 lb/ton
Mercury*	3200 grams/day
Beryllium	9.0 x 10 <sup>-6</sup> lb/ton
Fluorides	90% control
Sulfuric Acid Mist	90% control

\*when more than 2205 lb/day of municipal sludge is fired.

Also included as proposed permit conditions are limits on opacity, and VOC. These limits are required to insure the emissions of VOC do not exceed the threshold level for applicability of the construction ban.

The applicant plans to construct a 3000 ton per day (TPD) solid waste-to-energy facility to be located near the intersection of the Beeline Highway and the Florida Turnpike in Palm Beach County, Florida. The municipal solid waste (MSW) will be processed into refuse driven fuel (RDF) and then combusted to produce steam for power generation.

The present plans are to construct a 2000 ton per day MSW processing facility and add an additional 1000 TPD capacity within 5 years. The ultimate plant capacity of 3000 TPD MSW will be processed into 1800 TPD RDF. The applicant desires to permit the facility at this ultimate capacity.

Each of the three energy recovery units will have an approximate maximum heat input of 350 million Btu per hour based on a maximum heat content of 6,200 Btu/lb for RDF. Each incinerator will be scheduled to operate 8760 hours per year and

on this basis the tonnage of the various air pollutants emitted were calculated.

Based upon air pollutant emission factors provided by the applicant, the calculated total annual tonnage of regulated air pollutants emitted from the units to the atmosphere is listed as follows:

Pollutant		Maximum Annual Emissions (tons/Year)	PSD Significant Emissions Rate (tons/year)
Particulate	(PM)	214	25
Sulfur Dioxide	(SO <sub>2</sub> )	2957	40
Nitrogen Dioxide	(NO)	1314	40
Carbon Monoxide	(CO)	3942	100
Ozone	(O <sub>3</sub> )	95	40
Lead	(Pb)	4.6	0.6
Mercury	(Hg)	0.98	0.1
Beryllium	(Be)	0.003	0.0004
Fluorides	(F)	13.2	3
Sulfuric Acid Mist	(H <sub>2</sub> SO <sub>4</sub> )	0.131	7

**BACT Determination Requested by the Applicant:**

The following emission limits are based upon a unit ton of RDF charged.

PM	-	0.65 lbs	CO	-	12.0 lbs	Hg	-	0.003 lbs
SO <sub>2</sub>	-	9.0 lbs	Pb	-	0.014 lbs	F	-	0.04 lbs
NOx	-	4.0 lbs	Be	-	9.0 lbs	VOC	-	0.20 lbs

An electrostatic precipitator (ESP) will be used to control the particulate, Pb, Hg, and Be emissions. Design and operating procedures will control the emission of VOC, CO and NO<sub>x</sub>. The firing of only RDF, a low sulfur content fuel, will limit SO<sub>2</sub>.

Each RDF incinerator will have a charging rate more than 50 tons per day, and therefore, is subject to the provisions of 40 CFR 60.50, Subpart E, New Source Performance Standards (NSPS). The NSPS standard regulates only particulate matter. The particulate matter standard is 0.08 grains/dscf, corrected to

12% CO<sub>2</sub>. This NSPS was promulgated in 1971 and no longer reflects state-of-the-art for control of particulate emissions. Recent stack testing data for MSW incinerators indicates that both electrostatic precipitator and fabric filter control technology are capable of controlling particulate emissions well below the applicant's proposal of 0.03 grains/dscf. Based on the control technology available a particulate matter emission limit of 0.015 grains/dscf corrected to 12% CO<sub>2</sub> is judged to represent BACT. All the other requirements as set forth in the NSPS, Subpart E, will apply.

The Department has determined the emission limit for SO<sub>2</sub> to be 4.0 pounds per ton of RDF charged into the incinerator. RDF components that appear to be major contributors of sulfur include rubber, plastics, leather, paper, and paper products.

The SO<sub>2</sub> emission limit was determined to be BACT by evaluating limits set for similar facilities in Florida and other states, determinations which have indicated that an emission limit of 4.0 pounds per ton of RDF charged is reasonable based on the heat content of the fuel. The amount of SO<sub>2</sub> emitted would be comparable to the burning of distillate oil having less than a 0.5% sulfur content. Burning low sulfur fuel is one acceptable method of controlling SO<sub>2</sub> emissions. The installation of a flue gas desulfurization system to control SO<sub>2</sub> emissions alone is not warranted when burning RDF.

The mercury emission limit determined as BACT is equal to the National Emission Standard to Hazardous Air Pollutants (NESHAPs), 40 CFR 61.50, Subpart E, for municipal waste water sludge incineration plants. Although this standard does not apply to the incineration of municipal solid waste, it is an emission limit that should not be exceeded. The BACT is determined to be 3200 grams per day for the entire facility.

This level of mercury emissions is not considered to have a major impact on the environment.

The uncontrolled emission of beryllium, according to the California report, when firing MSW is estimated to be  $6.2 \times 10^{-6}$  pounds per million Btu. Uncontrolled beryllium emissions would be approximately 11 grams per 24 hours or 0.01 TPY. The operating temperature of the particulate matter emission control device will be below 500°F. Operation below this temperature is necessary to force adsorption/condensation of beryllium oxides, present in the flue gas stream onto available fly ash particles for subsequent removal by the particulate control device. The annual beryllium emissions are estimated at 0.003 tons per year. This amount of beryllium emitted is considered to have a negligible impact on the environment. The emission factor of  $9.0 \times 10^{-6}$  lb/ton RDF proposed by the applicant is judged to be BACT. If, however, beryllium containing waste as defined in the

National Emission Standards for Hazardous Air Pollutants (NESHAPs), Subpart C, Subsection 61.31(g), is charged into the incinerator, emissions of beryllium to the atmosphere shall not exceed 10 grams per 24 hours or an ambient concentration of 0.01 ug/m<sup>3</sup>, 30 day average. Compliance with this beryllium emission limit will be in accordance with the NESHAPs, Subpart C.

The applicant has projected abated lead and fluoride(s) emissions to be 4.6 and 13.2 tons per year respectively. These amounts are well in excess of the significant emission rates given in Florida Administrative Code Rule 17-2.500, Table 500-2.

With respect to lead emissions, two conditions are needed to achieve high removal efficiencies of metallic compounds emitted at refuse burning facilities: (1) operation of particulate matter control equipment at temperatures below 260°C (500°F), and (2) consistently efficient removal of submicron fly ash particles. The maximum temperature of the incinerator combustion gases at the inlet to the particulate control device is estimated to be 450°F. At this temperature the particulate control equipment would be capable of removing the lead emissions from the flue gas stream.

When flue gas temperatures are lowered below 260°C (500°F), metallic compounds are removed from the vapor phase by adsorption and condensation preferentially on fine particles with submicron particles receiving the highest concentrations of metals. Properly designed and operational fabric filter systems appear at this time to offer the best method for consistent and efficient removal of fine (and in particular submicron) fly ash. Removal efficiencies of fine fly ash using these systems can be in excess of 99% with respect to MSW incinerators. Studies have indicated the weight percent of submicron particles emitted from combustion is on the order of 45% which clearly indicates the need for efficient control of particles in this range.

The California Air Resources Board (CARB) report on resource recovery facilities indicates that the highest uncontrolled lead emission rate from refuse-fired incinerators tested is 16,000 ug/MJ. Based on a heating value of 6,200 Btu per pound of refuse, this equates to an emission rate of 0.46 lbs per ton refuse charged. Recent testing of baghouses and high efficiency four field electrostatic precipitators indicates that lead removal efficiencies greater than 99% are being achieved with both types of control devices. Taking into consideration this efficiency and the maximum emission rate, 0.005 lbs per ton of refuse charged is judged to be reasonable as BACT for lead emissions.

Emissions of fluoride originate from a number of sources in the refuse. The mechanisms of governing fluoride release and formation of hydrogen fluoride at refuse-burning facilities are probably similar to those for hydrogen chloride. The control of fluorides can be reduced at refuse-burning plants by removal of

selected refuse components with high fluoride contents, and the use of flue gas control equipment. In view of the fact that it is proposed to incinerate materials that contain fluoride, BACT for the control of fluorides is installation of a wet or dry flue gas scrubber system. The addition of a scrubber system would also provide control for SO<sub>2</sub> emissions addressed earlier in this analysis as well as other acid gases which will be addressed in other sections of the analysis.

During combustion of municipal solid waste, NO<sub>x</sub> is formed in high temperature zones in and around the furnace flame by the oxidation of atmospheric nitrogen and nitrogen in the waste. The two primary variables that affect the formation of NO<sub>x</sub> are the temperature and the concentration of oxygen. Techniques such as the method of fuel firing to provide correct distribution of combustion air between overfire and underfire air, exhaust gas recirculation, and decreased heat release rates have been used to reduce NO<sub>x</sub> emission. A few add-on control techniques such as catalytic reduction with ammonia and thermal de-NO<sub>x</sub> are still experimental and are not considered to be demonstrated technology for the proposed project. State-of-the-art control of the combustion variables will be used to limit NO<sub>x</sub> emissions at 4.0 pounds per ton of RDF charged. This level of control is judged to represent BACT.

Carbon monoxide is a product of incomplete combustion where there is insufficient air. Incomplete combustion will also result in the emissions of solid carbon particulates in the form of smoke or soot and unburned and/or partially oxidized hydrocarbons. Incomplete combustion results in the loss of heat energy to the boiler. The applicant proposes that good equipment design and practice plus continuous CO monitors are BACT for carbon monoxide. The department feels that an emission limit for carbon monoxide which would correspond to optimum combustion is needed. Based on technical information relating good combustion practices for the control of dioxin emissions and BACT determinations from other states, a limit of 400 ppmv corrected to 12% CO<sub>2</sub> is judged to represent BACT for carbon monoxide emissions.

Furthermore, CO has a calorific value of 4347 Btu/lb and when discharged to the atmosphere represents lost heat energy. Since heat energy is used to produce the steam which drives the generator to produce electric power, there is a strong economic incentive to minimize CO emissions.

Hydrocarbon emissions, like carbon monoxide emissions, result from incomplete oxidation of carbon compounds. Control of CO and HC emissions can be mutually supportive events. BACT for hydrocarbons is good combustion practices which correspond to the carbon monoxide limitation above.

Sulfur dioxide produced by combustion of sulfur containing materials can be oxidized to  $\text{SO}_3$  which can then combine with water vapor to produce sulfuric acid mist. The applicant has estimated sulfuric acid mist emissions to be 0.131 tons per year, assuming 99% removal by the electrostatic precipitator (ESP).

In accordance with information supplied by the applicant, data has shown a 1.6 percent conversion to sulfuric acid mist from the  $\text{SO}_2$  emission rate. Based on the  $\text{SO}_2$  emissions rate supplied by the applicant, uncontrolled sulfuric acid mist emissions are estimated to be 47.3 tons per year. The department has not seen any information or data to substantiate the applicant's claim that the sulfuric acid mist would be a liquid aerosol which would be adsorbed on fly ash particulate and collected at an efficiency of 99%. Flue gas scrubbers have demonstrated 90+% control of sulfuric acid mist emissions and are considered to be BACT for this proposed facility.

The type of air pollutants emitted when incinerating plastics depends on the atomic composition of the polymer. Plastics composed of only carbon and hydrogen or carbon, hydrogen and oxygen form carbon dioxide and water when completely combusted. Incomplete combustion yields carbon monoxide as the major pollutant.

Plastics containing nitrogen as a heteroatom yield molecular nitrogen, some  $\text{NO}_x$ , carbon dioxide, and water when completely combusted. Incomplete combustion may yield hydrogen cyanide, cyanogen, nitrites, ammonia and hydrocarbon gases. Complete combustion of plastics containing halogen or sulfur heteroatoms form acid gases such as hydrogen chloride, hydrogen fluoride, sulfur dioxide, carbon dioxide, and water. Halogen or sulfur compounds can form from incomplete combustion of the plastic. Polyvinyl chloride (PVC), one of the many polymers, has been implicated as causing the most serious disposal problem due to the release of hydrogen chloride (HCl) gas when incinerated. This problem has long been realized resulting in other polymers being used in packaging. For example, the weight percent of chlorine in polyurethane is 2.4, with only trace amounts in polyethylene and polystyrene, as compare to the weight percent of 45.3 in PVC.

A recent study of MSW incineration performed for the USEPA has indicated that the plastics content of refuse is expected to grow by from 300-400% from the year 1968 to 2000. This increase can be expected to increase uncontrolled HCl emissions from municipal waste incineration by roughly 400% from 1970 to the year 2000. The applicant has stated that HCl emissions from the incinerator are estimated to be 1150 tons per year based on an emission factor of 3.5 lbs per ton of RDF incinerated. In accordance with recent information available and test results

from resource recovery facilities the department feels that HCl emissions have been substantially underestimated.

Data contained in the California Air Resources Board report on resource recovery facilities states that at least 70 percent of refuse chlorine is converted to HCl at RDF-fired facilities. Based on the RDF chlorine composition of 0.73 percent submitted in the application, the resulting HCl emissions would be at least 10.2 pounds per RDF charged which equates to at least 3,351 tons per year. This value is much higher than the applicant's estimate but is believed to be more representative of these facilities at this time. By comparison, the Mid-Connecticut 2,000 ton per day RDF facility, which was permitted in April 1985, has estimated HCl emissions to be 12 pounds per ton charged.

Emissions of HCl at refuse incineration facilities can be reduced by removal of selected refuse components with high chlorine contents (source separation), combustion modification, and the use of flue gas control equipment. Although the combustor configuration may influence the amount of chlorine conversion, combustion modification is not a viable means of controlling HCl emissions.

Potential emissions of HCl can be reduced significantly by removing plastic items from the waste stream. This is particularly true when the plastics are the PVC type explained earlier. With the exception of limited recycling efforts, source separation of plastics has not been demonstrated and costs are uncertain at this time. In addition to this, the combustion of plastics may be favorable due to their relatively high heat of combustion.

Plastic materials have a high heat of combustion, for example, coated milk cartons - 11,300 Btu/lb, latex - 10,000 Btu/lb and polyethylene 20,000 Btu/lb. For comparison, newspaper and wood have a heat content of 8,000 Btu/lb, and kerosene 18,900 Btu/lb. Here again there is economic incentive to obtain as complete combustion as possible.

At this time flue gas controls are the most conventional means of reducing HCl emissions at refuse burning facilities. Based on the estimates of HCl emissions and the trend for increases due to higher percentages of plastics in future waste streams, the installation of a wet or dry scrubber to control the acid gases would provide an added benefit of controlling HCl emissions.

An analysis of a proposal to construct a RDF incinerator in 1986 would not be complete unless the subject of dioxins was addressed.

Dioxin is a hazardous material that has received widespread public concern. It is found in trace amounts whenever substances containing chlorine (for example, plant and animal tissues and plastics) are burned. It is also an impurity that can be found in some herbicides, such as "2,4,5-T".

The applicant has stated that excellent combustion controls and auxiliary fuel systems are designed to maintain exit gas temperatures at a level above the control threshold where dioxin could be formed. The department agrees with the applicant that optimum combustion is essential to control the emissions of dioxins. Optimum combustion pertaining to the destruction of dioxins needs to be continually demonstrated by monitoring combustion temperature plus CO, O<sub>2</sub> and CO<sub>2</sub> levels as indications of combustion efficiency. In addition, scientists concerned with the destruction of dioxins in resource recovery facilities generally agree that a CO concentration limit of 400 ppmv, corrected to 12% CO<sub>2</sub> is a good indicator that optimum combustion is present. This CO limit is judged to represent BACT for carbon monoxide also. Combustion temperatures must be maintained at least at 1800°F with residence times being at least 1 second.

Although the subject of dioxin is new, and relatively little is known, two important things stand out: 1) dioxin is readily minimized in properly designed and operated BACT-equipped facilities, and 2) very small amounts cause demonstrable health effects. Although most of the reduction in dioxin emissions is believed to take place in the combustion chamber, the installation of acid gas control and a high efficiency particulate control device (grain loading not to exceed 0.015 gr/dscf) would provide an additional control strategy to remove dioxins from the flue gases based on the assumption which is thought by many that dioxins can be adsorbed on the surface of particulate matter. Thus, the greater the TSP collection, especially submicron particles, the better the dioxin control.

Throughout this BACT determination much emphasis has been placed on the controls that are needed to satisfy the BACT requirements. Although the department does not have the authority to stipulate the type of control equipment that should be used on a facility (i.e., ESP vs. baghouse; dry vs. wet scrubber), a dry scrubber used in conjunction with a baghouse appears to be the best method for controlling emissions from this type of facility.

Electrostatic precipitators (ESP's) without acid gas control remove total suspended particulates (TSP) only, collecting submicron particles with difficulty. Submicron particle collection can be done, but as with any control, effectiveness and reliability are questionable in this area. The need for acid gas controls is clearly defined in this analysis and test data show fabric filters to be less sensitive to changes in flue gas

volumes, inlet concentrations, and small excursions in temperature than ESP's usually employed at refuse burning facilities.

The recommendation that a dry scrubber baghouse combination should be used as the control strategy for the resource recovery facility is not warranted if the economic costs of installing and operating the recommended control technology outweigh the benefits of controlling the pollutants that would be controlled by the equipment.

The applicant has stated that a dry scrubber system for a 750 TPD unit would cost approximately 2.2 million dollars per year. Assuming that the dry scrubber controls 70% SO<sub>2</sub> and 90% of the acid gases, an analysis of the cost required to control tonnage of pollutants removed is required.

Based on the cost of controlling SO<sub>2</sub> (70% of 2957) and HCl\* (90% of 3,351) alone, the installation and operation of a scrubber unit would be \$1,298 per ton of pollutants controlled (\$0.65 per pound). This is not excessive compared to costs of up to \$2,000 per ton which are considered reasonable in developing EPA New Source Performance Standards. Using the applicant's estimate of 2.2 million dollars for each of three units, the additional cost per ton of MSW handled would be approximately \$6.00. It should be noted that the applicant's annual cost estimate for the control equipment is relatively high in comparison to actual costs projected for adding acid gas scrubbers to other resource recovery facilities.

A review of economic analyses performed for several proposed resource recovery facilities indicates that the highest cost of adding acid gas control was \$4.37 (1984 dollars) per ton of refuse incinerated. It should be noted that an accurate comparison of projected costs can only be determined by equating the amortization periods, interest rates, and site specific costs. The Palm Beach County proposal estimated the cost of adding acid gas control using an interest rate of 11% which is high for the present and is likely one of the discrepancies that account for the difference in the proposed cost.

Previous analyses completed for similar facilities have indicated that the cost of using the scrubber-baghouse combination was not unreasonable compared to using an electrostatic precipitator alone. At rated capacity, a unit proposed for installation in the state of Connecticut showed that the cost of using the scrubber-baghouse combination and the precipitator alone were \$3.36 and \$1.83 respectively per ton of refuse charged. This comparison indicates the costs per ton of pollutant removed using the scrubber-baghouse combination are indeed reasonable when compared to the costs of using an

an electrostatic precipitator alone. This slight differential in cost can be attributed to the following:

1) a scrubber cools the gases and reduces their volume which reduces the size requirement (cost) of the particulate control device, and 2) a dry scrubber is mechanically a simple device and capable of off-site fabrication.

The applicant has also indicated in their economic analysis that the cost of using the dry scrubber-baghouse combination is only slightly higher than using a dry scrubber in conjunction with an ESP. The difference amounted to \$0.17 per ton of MSW handled.

During testimony at the South Broward hearing, Dr. Aaron Teller, President of Teller Environmental Systems, guaranteed that his company could provide acid gas and particulate control using dry scrubbing and fabric filter technology for \$6.00 per ton of municipal solid waste incinerated. This cost would utilize equipment that is capable of reducing, SO<sub>2</sub> emissions by 70%, HCl by 90%, HF by 95%, heavy metals by 99%, and controlling particulate emissions to 0.01 grains/dscf, corrected to 12% CO<sub>2</sub>. These control efficiencies are much more stringent than those proposed by the applicant, yet the guaranteed cost of providing the high efficiency control for both particulates and acid gases is equal to the cost provided by the applicant for acid gas control alone. In addition, other states such as Connecticut are seeing that actual tipping fees have increased much less than expected when the dry scrubber-baghouse combination was imposed instead of using an ESP only for controlling emissions from resource recovery facilities.

At a recent conference held in Washington D.C., entitled "Acid Gas and Dioxin Control For Waste-to-Energy Facilities", a topic of great concern was the methods in which emissions from resource recovery facilities should be controlled. The general consensus of the conference speakers (including EPA) is that resource recovery facilities are best controlled with a dry scrubber-baghouse combination.

Based on the scrubber's ability to control SO<sub>2</sub>, HCl\*, and other acid gas emissions, and the size of the projected resource recovery facility (the cost to control emissions on a per ton of refuse charged decreases as the size of the facility increases), the department feels that the cost of adding a flue gas scrubber to the precipitator or using the dry scrubber-baghouse combination is not unreasonable for this facility. Assuming a realistic figure of 400,000 households being served by the facility when construction begins and Dr. Teller's cost estimate, the cost of total particulate and acid gas control would amount to \$1.25 per month per household with approximately half of the cost going

cost going to acid gas control and the other half to particulate control. In view that the actual number of households will be greater when the facility actually goes on line and it is known that businesses and industry will also generate refuse and share the cost, the actual cost per household is expected to be even less. The added cost according to general equipment vendors, designers and contractors is typically in the range of 2 to 5 percent of the total cost of the project and would be offset by the immediate economic and environmental benefits realized by the installation.

(\* Hydrochloric acid [HCl], though not listed as a regulated pollutant for MSW incinerators, is intensely corrosive and should be included in the economic analysis when justifying the addition of flue gas scrubbing equipment. The EPA is currently requiring hazardous waste incinerators emitting more than four (4) pounds of HCl per hour achieve removal efficiency of up to 99%. A minimum of 99% removal efficiency is required when removal at this efficiency will not reduce emissions to four pounds per hour.)

b. NSPS and Florida SIP Limit Analysis

These two regulations dictate similar emission limits using slightly different units. The proposed particulate emission limit of 0.015 gr/dscf is far below either of these limits.

V. Air Quality Analysis

The air quality impact of the proposed emissions has been analyzed. Atmospheric dispersion modeling has been completed and used in conjunction with an analysis of existing air quality data to determine maximum ground-level ambient concentrations of the pollutants subject to BACT. Based on these analyses, the department has reasonable assurance that the proposed solid waste recovery facility in Palm Beach County, subject to these BACT emission limitations, will not cause or contribute to a violation of any PSD increment or ambient air quality standard.

a. Modeling Methodology

Four EPA-approved air quality dispersion models were used by the applicant in the impact analysis. These models were the point-plume (PTPLU) model, the point-distance (PTDIS) model, and the industrial source complex short-term (ISCST) and long-term (ISCLT) models. The PTPLU and PTDIS models are screening models used in preliminary analysis and the ISC models are refined models for which the final estimates on air quality impacts are made.

All of these models determine ground-level concentrations of inert gases or small particles emitted into the atmosphere by

point sources. They incorporate elements for plume rise, transport by the mean wind, and gaussian dispersion. In addition, the ISC models allow for area and volume type sources, separation of sources, building wake downwash, and various other input and output features. The PTDIS and PTPLU models were used primarily to determine the appropriate receptor locations to be used in the ISC model runs.

Palm Beach County SWA is initially proposing to build a facility capable of handling 2000 TPD of municipal solid waste (MSW) of which 1200 TPD of refuse derived fuel (RDF) is produced and incinerated. In the future, the facility will be expanded to handle 3000 TPD of MSW, generating 1800 TPD of RDF. Although the current certification process will permit only the initial proposal, the applicant has completed the modeling assuming the ultimate capacity. In addition, the applicant has anticipated that on a short-term basis (24-hours or less) the facility could produce as much as 2100 TPD of RDF. As such, all modeling completed by the applicant assumes that 2100 TPD of RDF is burned on a short-term basis, and 1800 TPD on an annual average basis.

All of the modeling completed by the applicant was for SO<sub>2</sub> only. Predicted concentrations for all other pollutants were determined by ratioing their emission rate to the SO<sub>2</sub> emission rate and multiplying by the predicted SO<sub>2</sub> concentration.

The emission rates used by the applicant to determine the impacts of each pollutant were those proposed by the applicant to be BACT. In many cases the department has recommended different BACT emission limitation for various pollutants. The applicant has proposed the installation of an electrostatic precipitator (ESP) to meet their BACT determination. To meet the department BACT limitations it will be necessary to install additional or different control equipment at the facility. This different control equipment may change the stack effluent characteristics (e.g., stack gas temperature) used in the modeling analysis.

The department, in reviewing the modeling results submitted by the applicant, adjusted the predicted concentrations for each pollutant to conform to the department-determined BACT limitations. No adjustment was made for the potentially different stack gas emission characteristics. This adjustment was not made because it is unknown just what the new emission characteristics would exactly be and because of the relatively low predicted impacts of the proposed facility, it is unlikely that a significant change would occur.

Table V-1 lists the source parameters and emission characteristics used in the modeling for the proposed facility. This facility is actually composed of three units, each with a flue emitting from a common stack. The exit velocity and stack diameters given is appropriate to each separate flue. Also,

Table V-1  
 Palm Beach County Resource Recovery Facility  
 Sources Used in Modeling

Source	UTM-E (km)	UTM-N (km)	Stack Height (m)	Exit Temp. (K)	Exit Velocity (m/s)	Stack Diameter (m)	Bldg. Height (m)	Bldg. Width (m)	Bldg. Length (m)
Palm Beach (1) RRF	585.820	2960.474	76.2	505	24.90	2.04	36.58	33.53	71.02
Pratt & Whitney	565.5	2974.4	20.0	533	10.40	2.29			
Lake Worth Utilities	592.8 592.8 592.8 592.8 592.8	2943.7 2943.7 2943.7 2943.7 2943.7	18.3 18.3 38.1 38.1 22.9	433 434 408 408 450	6.80 6.20 7.70 9.70 18.30	1.52 1.52 2.13 2.29 3.05			
FPL Riveria Beach	594.2	2960.6	45.7 90.8	430 408	6.30 18.90	4.57 4.88			

(1) Three 600 TPD Units emitting from a common stack. Exit velocity and stack diameter are appropriate to each flue within the common stack.

indicated on the table are the dimensions of the building housing the refuse incinerators. These dimensions are used within the model to calculate any potential building wake downwash effects which may occur for certain meteorological conditions. The location of, and stack emission parameters for, the other sources in the area that were explicitly modeled are also included in the table. Additional sources, not included here, have been evaluated by the department. The impacts of these sources are discussed in later sections.

The emission rates used in the modeling for each emitted, regulated pollutant are listed in Table V-2. The emission rates of pollutants of additional environmental concern, HCl and dioxin, are also included in the table, however, no modeling was performed. These emission rates are based on the BACT, where applicable. An emission factor in terms of lb/ton of RDF is calculated for pollutant by pollutant comparison. The lb/hr emission listed for each pollutant is based on 2100 TPD of RDF and the ton/yr emission is based on 1800 TPD of RDF.

Five years of sequential hourly meteorological data were used in the modeling analyses. The surface data used were National Weather Service (NWS) data collected at West Palm Beach, during the period 1970-1974. The upper air data for this same period were collected at Miami. Since five years of data were used, the highest, second-high, short-term predicted concentrations are compared with the appropriate ambient standard or PSD increment. For the long-term (annual) modeling, these same data were compiled into annual joint frequency distributions of wind direction, wind speed, and atmospheric stability.

The initial set of model runs completed considered only the impact of the proposed facility. The ISCST model was used for all short-term concentration predictions and the ISCLT was used for the annual average concentration predictions. A dense, polar coordinate grid of receptors were placed around the facility with 60 radials placed every 6 degrees apart. Seven other radials were included along directions in which other facilities aligned. Each radial contained a receptor at distances of 0.73, 0.8, 0.9, 1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 2.0, 2.5, 5.0, 10.0, 15.0, 20.0, 25.0, and 50.0 kilometers from the center of the polar grid. The initial receptor distance of 0.73 kilometers is the distance of the nearest property boundary. Inside this boundary the general public does not have casual access.

This initial set of model runs defined the maximum impacts expected from the proposed facility. They also defined the significant impact area (SIA). The SIA extends to the farthest distance from the facility to which the increased emissions contribute significantly. Significant impact is defined in Rule 17-2.100(170). For the proposed facility the SIA extends to a

Table V-2

Palm Beach County Resource Recovery Facility  
Maximum Emission Rates (1)

Pollutant	(lb/ton RDF)	(lb/hr)(2)	(ton/yr)(3)
PM	0.33	28.4	107
SO <sub>2</sub>	4.0	350.	1314
NO <sub>x</sub>	4.0	350.	1314
CO	3.94	344.4	1295
VOC	0.20	17.5	65.6
Pb	0.005	0.437	1.6
Hg	0.004	0.341	1.29
Be	9.0E <sup>-6</sup>	9.9E <sup>-5</sup>	3.0E <sup>-3</sup>
F <sup>-</sup>	0.004	0.349	1.3
H <sub>2</sub> SO <sub>4</sub> mist	0.014	1.26	4.7
HCl (4)	10.2	892.5	3351.
2,3,7,8,-TCDD(4)	8.5E <sup>-8</sup>	7.4E <sup>-6</sup>	2.8E <sup>-5</sup>

(1) Based on department BACT.

(2) Based on 2100 TPD RDF; used in short-term modeling.

(3) Based on 1800 TPD RDF; used in long-term modeling.

(4) Not a PSD regulated pollutant; emission rate given is uncontrolled control of this pollutant will result from controlling the other regulated pollutants.

distance of 10 kilometers. Significant impacts are defined only for SO<sub>2</sub>, PM, NO<sub>2</sub>, and CO.

A second set of model runs were completed, this time including the surrounding facilities which may interact with the proposed new facility. Three facilities were included: Pratt and Whitney, Florida Power and Light-Riviera Beach, and Lake Worth Utilities. The combined impact of these sources plus the addition of a background concentration to account for all sources not modeled is compared to ambient air quality standards.

Additional modeling completed by the department included four other sources which could potentially interact with the proposed facility. These other sources are U.S. Sugar-Bryant, Osceola Farms, and Atlantic Sugar, three sugar cane companies located 36 km or greater to the west and Parkway Asphalt located approximately 9.5 km from the facility. The impact of these facilities on the SO<sub>2</sub> concentrations were added to the impact of the other facilities for comparison to air quality standards.

More details on the modeling methodology can be found in the application submitted to the department.

#### b. Analysis of Existing Air Quality

Preconstruction ambient air quality monitoring is required for all pollutants subject to PSD review. In general, one year of quality assured data using an EPA reference, or the equivalent monitor must be submitted. Sometimes less than one year of data, but not less than four months, may be accepted when department approval is given.

An exemption to the monitoring requirement can be obtained if the maximum air quality impact, as determined through air quality modeling, is less than a pollutant-specific de minimus concentration. In addition, if current monitoring data already exist and these data are representative of the proposed source area, then at the discretion of the department these data may be used.

The predicted maximum air quality impacts of the proposed facility for those pollutants subject to PSD review are given in Table V-3. The monitoring de minimus level for each pollutant is also listed. Sulfuric acid mist is not listed because there is no de minimus level for it. All pollutants have maximum predicted impacts below their respective de minimus values. Therefore, specific preconstruction monitoring is not required for any pollutant.

Table V-4 lists, however, the measured ambient concentrations of all pollutants being currently monitored within 10 kilometers of the proposed facility. These values are used to estimate current background levels.

Table V-3  
Palm Beach County Resource Recovery Facility  
Maximum Air Quality Impacts for  
Comparison to Deminimus Ambient Levels

Pollutant and Averaging Time	Predicted Impact ( $\mu\text{g}/\text{m}^3$ ) (1)	Deminimus Ambient Impact Level ( $\mu\text{g}/\text{m}^3$ )
PM (24-hour)	1.0	10
SO <sub>2</sub> (24-hour)	12.2	13
CO (8-hour)	25.8	575
NO <sub>2</sub> (24-hour)	12.2	14
Pb (24-hour)	0.002	0.1
F <sup>-</sup> (24-hour)	0.01	0.25
Hg (24-hour)	0.01	0.25
Be (24-hour)	0.00003	0.0005

(1) Predicted highest, second-high concentrations using department BACT emission limitation.

The PSD increments represent the amount that new sources may increase ambient ground-level concentrations of SO<sub>2</sub> and PM. At no time, however, can the increased emissions of these pollutants cause or contribute to a violation of the ambient air quality standards.

#### c. PSD Increment Analysis

The proposed facility is located in a Class II area and must meet the increments defined for this class. The nearest Class I area, the Everglades National Park, is located 123 kilometers to the south and west. No impact analysis is required at that distance.

All SO<sub>2</sub> and PM emissions increases from sources constructed or modified after the baseline (December, 1977) will consume PSD increment. In addition, all SO<sub>2</sub> and PM emission increases associated with construction or modification of major sources which occurred after January 6, 1975, will consume increment.

All of the emissions of SO<sub>2</sub> and PM at the proposed facility itself will consume PSD increment. Modeling of the proposed facility by itself shows that there will be no significant ambient impact for PM. As such, no other increment consuming sources were evaluated. For SO<sub>2</sub>, the only other potential increment consuming sources are: Parkway Asphalt located 9.5 km away; Atlantic Sugar, 36.0 km; Osceola Farms, 42.3 km; and U.S. Sugar-Bryant, 47.6 km. The department has completed its own analysis of these sources contribution to total PSD increment consumption. Screening modeling using PTPLU or ISCST shows that the maximum increment consumed by Parkway Asphalt is 1.2 ug/m<sup>3</sup>, annual average, 4.7 ug/m<sup>3</sup>, 24-hour average and 10.6 ug/m<sup>3</sup>, 3-hour average; the maximum increment consumed by the three other sources combined is 1.3 ug/m<sup>3</sup> annual average, 5.3 ug/m<sup>3</sup>, 24-hour average and 19.6 ug/m<sup>3</sup>, 3-hour average.

The maximum increment consumed by the proposed source itself is 1.7 ug/m<sup>3</sup>, annual average, 12.2 ug/m<sup>3</sup>, 24-hour average, and 33.0 ug/m<sup>3</sup>, 3-hour average. A conservative estimate of the total increment for SO<sub>2</sub> consumed is obtained by simply adding all of the above values for each averaging time together. This is very conservative since they occur at different times, location, and meteorological conditions. Table V-5 summarizes the PSD increment analysis. The department has reasonable assurance that neither the PM or SO<sub>2</sub> PSD increments will be exceeded.

#### d. AAQS Analysis

Given existing air quality in the area of the proposed facility, emissions from the new facility are not expected to cause or contribute to a violation of an AAQS. Table V-6 shows the results of the AAQS analysis.

Table V-5  
 Palm Beach County Resource Recovery Facility  
 PSD Increment Analysis

Pollutant and Averaging Time	Allowable Class II Increment (ug/m <sup>3</sup> )	Predicted Increased Concentration (ug/m <sup>3</sup> )	Percent Consumed
SO <sub>2</sub> (1)			
3-hour	512	63	13
24-hour	91	22	24
Annual	20	4	20
PM (2)			
24-hour	37	1	3
Annual	19	<1	<1

(1) Includes increment consuming emissions from Parkway Asphalt, Atlantic Sugar, Osceola Farms, and U.S. Sugar-Bryant.

(2) Palm Beach RRF only.

Of the pollutants subject to review, only the criteria pollutants PM, SO<sub>2</sub>, CO, NO<sub>2</sub>, and Pb have an AAQS with which to compare. Dispersion modeling was performed by the applicant as described in the section on modeling methodology. Additional modeling was performed by the department to include sources of SO<sub>2</sub> not included by the applicant. Additional sources of pollutants in the area surrounding the proposed facility were included only for SO<sub>2</sub>. Predicted maximum impacts due to the proposed source itself for the other criteria pollutants were small enough so that it was not necessary to evaluate the impact of other sources. For SO<sub>2</sub>, major sources within 50 km were evaluated for impact near the new facility

The additional modeling completed by the department included emissions from U.S. Sugar, Osceola Farms, Atlantic Sugar, and Parkway Asphalt. The impacts of these sources have been included in the results in Table V-6. As in the PSD increment analysis, the maximum impacts of these sources were simply added to the combined impact from the proposed source, FPL Riviera Beach, Lake Worth Utilities, and Pratt and Whitney.

The total impact on ambient air is obtained by adding a "background" concentration to the maximum modeled concentration. This "background" concentration takes into account all sources of the pollutant not explicitly modeled. A conservative estimate of this "background" value is obtained as the second highest monitored concentration for each pollutant as listed in

Table V-4. This is a conservative estimate because sources used in the modeling may have contributed to the monitored value.

Based on this analysis, the department has reasonable assurance that no AAQS will be exceeded as a result of the operation of the proposed new resource recovery facility.

## VI. Additional Impacts Analysis

### a. Impacts on Soils and Vegetation

The maximum ground-level concentrations predicted to occur as a result of emissions from the proposed project in conjunction with all other sources, including background concentrations, will be below all applicable AAQS including the secondary standards designed to protect public welfare-related values. No soils or species of vegetation highly sensitive to these emissions in the concentrations predicted are known to occur in the site vicinity, or in the Chassowitzka Class I area.

Table V-6  
 Palm Beach County Resource Recovery Facility  
 Ambient Air Quality Standards Analysis

Pollutant and Averaging Time	Predicted Impact of Project (ug/m <sup>3</sup> )(1)	Predicted Impact, All Sources (ug/m <sup>3</sup> )	Existing Background (ug/m <sup>3</sup> )(2)	Total Impact (ug/m <sup>3</sup> )	FAAQS (ug/m <sup>3</sup> )
SO <sub>2</sub>					
3-hour	33	571	61	632	1300
24-hour	12	108	36	144	260
Annual	2	12	10	22	60
PM					
24-hour	1 (3)	-	63	-	150
Annual	<1 (3)	-	34	-	60
NO <sub>2</sub>					
Annual	2	-	27	29	100
CO					
1-hour	60 (3)	-	16000	-	40000
8-hour	26 (3)	-	5000	-	10000
Pb					
3-month	<0.1(4)	-	-	-	1.5

(1) Highest, second-highest impacts based on department BACT emission limitations  
 (2) Second-highest monitored concentrations for the monitors located near the proposed facility  
 (3) Less than significant, no further analysis completed  
 (4) Concentration for maximum 24-hour average; this is a conservative estimate of 3-month average

b. Impact on Visibility

A level I visibility screening analysis was performed to determine if any impact may occur in the Class I area. The analysis showed that there was no potential for an adverse impact on visibility in this area.

c. Growth-Related Air Quality Impacts

The proposed facility is not expected to significantly change employment, population, housing, or commercial/industrial development in the area to the extent that a significant air quality impact will result.

d. GEP Stack Height Determination

Good Engineering Practice (GEP) Stack height is defined as the greater of: (1) 65 meters or (2) the maximum nearby building height plus 1.5 times the building height or width, which ever is less. For the proposed project, a single common stack, housing the individual flues for each incinerator, will be 76.2 meters high. The building dimensions of the facility are 36.6 meters in height, and 33.5 meters in width. The calculated GEP height is thus 86.9 meters. The applicant has included building wake downwash in the modeling analysis since the stack is less than GEP.

e. Noncriteria Pollutants

The proposed facility emits in PSD-significant amounts the following regulated noncriteria pollutants: mercury, beryllium, fluorides, and sulfuric acid mist. There have been no ambient air quality standards established for these pollutants. They are regulated through the PSD regulations by applying BACT to each of them.

Some information about the impacts of these pollutants in the ambient air is available however. In the previously cited EPA document (EPA-450/2-80-074) on health impacts of noncriteria pollutants, deminimus ambient air concentrations are established for the threshold of biological effects for each of the above pollutants. These deminimus values can be compared to the predicted maximum impact listed in Table V-3. It should be noted that the deminimus ambient impact levels listed on this table are not the same as in the above referenced EPA document. The values in the table are threshold values for the ability to accurately monitor these pollutants using EPA standard monitors.

The deminimus biological level for mercury is 0.1 ug/m<sup>3</sup>, 24-hour average. The predicted maximum for the proposed facility is 0.01 ug/m<sup>3</sup>, 24-hour average. The deminimus biological level for beryllium is 0.005 ug/m<sup>3</sup>, 24-hour average. The predicted

maximum impact is 0.00003 ug/m<sup>3</sup>, 24-hour average. The deminimus biological level for fluorides is 0.01 ug/m<sup>3</sup>, 24-hour average and the predicted maximum level is 0.01 ug/m<sup>3</sup>, 24-hour average. And finally, the deminimus biological impact level for sulfuric acid mist is 1 ug/m<sup>3</sup>, 24-hour average. The predicted impact (not listed in Table V-3) is 0.04 ug/m<sup>3</sup>, 24-hour average.

Except for fluorides, all of the noncriteria pollutants subject to review are well below their biological deminimus value. Fluorides are right at the threshold.

#### f. Unregulated Pollutants

Two additional pollutants are often brought up in the context of resource recovery facilities. These are hydrogen chloride (HCl) and dioxins (2, 3, 7, 8-TCDD). Neither is currently regulated within the PSD regulations. Hydrogen chloride is regulated nationally for other type sources but not specifically for resource recovery facilities. Some states do regulate both of these substances. Both of these substances may become regulated either nationally or by the state in the future. The recommended control equipment necessary for the facility to meet the BACT emissions limitations for the regulated pollutants will also control HCl and dioxins.

### VII. Nonattainment Review

EPA announced approval of Florida's new source review program for major sources in designated nonattainment areas on March 18, 1980 (45 FR 17140). Subsequently, in 1985, EPA discovered that the Florida Power Plant Siting Act supercedes in part the nonattainment new source review regulations under Florida law. Consequently, the Florida SIP is deficient with respect to electrical power plants. EPA plans to issue, in the near future, a federal register notice clarifying that two sets of nonattainment regulations will apply:

- (1) For sources located in designated nonattainment areas, EPA's construction ban (40 CFR 52.24) applies to major sources and major modifications, and
- (2) For sources locating in designated attainment or unclassifiable areas, EPA's Interpretative Ruling (40 CFR 51.18 Appendix S) will apply to major sources and major modifications.

The proposed source will be located in an area designated nonattainment for ozone, but is not a major source of VOC and, thus, will not be subject to the construction ban.



PART I

Specific Conditions

1. Emission Limitations

a. Stack emissions from each unit shall not exceed the following:

- (1) Particulate matter: 0.015 grains per dry standard cubic foot corrected to 12% CO<sub>2</sub> (gr/dscf-12%).
- (2) Visible Emissions: Opacity of stack emissions shall not be greater than 20% opacity. Excess opacity resulting from startup or shutdown shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess opacity shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by EPA for longer duration.

Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during start-up or shutdown shall be prohibited.

- (3) VOC: 0.023 lb/MBtu heat input
- (4) SO<sub>2</sub>: 65% removal or 0.32 lb/MBtu heat input
- (5) Nitrogen Oxides: 0.32 lb/MBtu heat input
- (6) Carbon Monoxide: 400 ppmv corrected to 12% CO<sub>2</sub>
- (7) Lead: 0.0004 lb/MBtu heat input
- (8) Fluorides: 0.0032 lb/MBtu heat input
- (9) Beryllium:  $7.3 \times 10^{-7}$  lb/MBtu heat input
- (10) Each of the emission limits in conditions (1) and (3) through (10) is to be expressed as a 3-hour average. This averaging time, which is applicable to the emission limits for all pollutants, is based on the expected length of time for a particulate compliance test. The concentration standards in conditions (3) through (9) are included as the primary compliance limit to facilitate simpler compliance testing, since the process weight, in tons per hour, is not easily measured. The concentration limit is intended to be equivalent to the lb/ton limit.

- (11) Mercury: 3200 grams/day
- (12) Sulfuric Acid Mist:  $3.2 \times 10^{-5}$  lb/MBtu heat input
- (13) The units are subject to 40 CFR Part 60, Subpart E, New Source Performance Standards (NSPS), except that where requirements in this permit are more restrictive, the requirements in this permit shall apply.
- (14) The potential for dust generation by ash handling activities will be mitigated by quenching the ash prior to loading in ash transport trucks. Additionally, all portions of the proposed facility including the ash handling facility which have the potential for fugitive emissions will be enclosed. Also those areas which have to be open for operational purposes, e.g., tipping floor of the refuse bunker while trucks are entering and leaving, will be under negative air pressure.
- (15) Only natural gas will be used as an auxiliary fuel.

b. Compliance Tests

- (1) Compliance tests for particulate matter, SO<sub>2</sub>, nitrogen oxides, CO, fluorides, mercury and beryllium shall be conducted in accordance with 40 CFR 60.8 (a), (b), (d), (e), and (f), except that an annual test will be conducted for particulate matter. Compliance tests for opacity will be conducted simultaneously during each compliance test run for particulate matter.

Compliance tests shall be conducted for such time and under such conditions as specified by EPA prior to the compliance test. These conditions will be specified by EPA upon notification of performance tests as required by General Condition 1. The permittee shall make available to EPA such records as may be necessary to determine the conditions of the performance tests.

- (2) The following test methods and procedures from 40 CFR Parts 60 and 61 shall be used for compliance testing:
  - a. Method 1 for selection of sample site and sample traverses
  - b. Method 2 for determining stack gas flow rate when converting concentrations to or from mass emission limits.
  - c. Method 3 for gas analysis when needed for calculation of molecular weight or percent CO<sub>2</sub>.
  - d. Method 4 for determining moisture content when converting stack velocity to dry volumetric flow rate for use in converting concentrations in dry gases to or from mass emission limits.
  - e. Method 5 for concentration of particulate matter and associated moisture content. One sample shall constitute one test run.
  - f. Method 9 for visible determination of the opacity of emissions.
  - g. Method 6 for concentration of SO<sub>2</sub>. Two samples, taken at approximately 30 minute intervals, shall constitute one test run.

- h. Method 7 for concentration of nitrogen oxides. Four samples, taken at approximately 15 minute intervals, shall constitute one test run.
- i. Method 10 (continuous) for determination of CO concentrations. One sample constitutes one test run.
- j. Method 12 for determination of lead concentration and associated moisture content. One sample constitutes one test run.
- k. Method 13A or 13B for determination of fluoride concentrations and associated moisture content. One sample shall constitute one test run.
- l. Method 101A for determination of mercury emission rate and associated moisture content. One sample shall constitute one test run.
- m. Method 104 for determination of beryllium emission rate and associated moisture content. One sample shall constitute one test run.

(3) The stack tests shall be performed at design capacity.

- 2. The height of the boiler exhaust stack shall be 250 feet above ground level at the base of the stack.
- 3. The incinerator boilers shall not be loaded in excess of their rated capacity of 58,333 pounds of RDF per hour each or  $360.0 \times 10^6$  Btu per hour each.
- 4. The incinerator boilers shall have a metal name plate affixed in a conspicuous place on the shell showing manufacturer, model number, type waste, rated capacity and certification number.
- 5. The permittee must submit to EPA and DER within fifteen (15) days after it becomes available to the County, copies of technical data pertaining to the incinerator boiler design, to the electrostatic precipitator design, and to the fuel mix that can be used to evaluate compliance of the facility with the preceding emission limitations.
- 6. Grease, scum, grit screenings or sewage sludge shall not be charged into the solid waste to energy facility boilers.

7. Electrostatic Precipitator

The electrostatic precipitator shall be designed and constructed to limit particulate emissions to no more than 0.015 grains per dscf corrected to 12% CO<sub>2</sub>.

8. Acid Gas Control

The fluoride, HCl, and sulfuric acid mist gas control system shall be designed to remove at least 90% of the maximum projected inlet concentrations.

9. Stack Monitoring Program

The permittee shall install and operate continuous monitoring devices for oxygen and stack opacity. The monitoring devices shall meet the applicable requirements of Rule 17-2.710, FAC, 40 CFR Part 60, Subparts A and D, Sections 60.13 and 60.45 respectively, except that emission rates shall be calculated in units consistent with emission limits in this permit. The conversion procedure shall be approved by EPA.

10. Reporting

- a. A copy of the results of the stack tests shall be submitted within forty-five days of testing to the DER Southeast Florida District Office, Palm Beach County and EPA Region IV.
- b. Stack monitoring shall be reported to the DER Southeast District Office and EPA Region IV on a quarterly basis in accordance with Section 17-2.710, FAC, and 40 CFR, Part 60, Subsection 60.7.

11. Fuel

The Resource Recovery Facility shall utilize refuse such as garbage and trash (as defined in Chapter 17-7, FAC) but not sludge from sewage treatment plants as its fuel. Use of alternate fuels would necessitate application for a modification to this permit.

12. Addresses for submitting reports are:

- a. EPA - Region IV

Chief, Air Compliance Branch  
U.S. Environmental Protection Agency  
345 Courtland St.  
Atlanta, GA 30365

b. DER

Chief, Compliance and Ambient Monitoring  
Bureau of Air Quality Management  
Florida Department of Environmental  
Regulation  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32301

c. Southeast District Office of DER

District Manager  
Department of Environmental Regulation  
3301 Gun Club Road  
P. O. Box 3858  
West Palm Beach, FL 33402

southeast Florida District Office Palm Beach County

## PART II

### General Conditions

1. The permittee shall comply with the notification and record-keeping requirements codified at 40 CFR Part 60, Subpart A, § 60.7.
2. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specified in the specific conditions of this permit for a minimum of two (2) years from the date of recording.
3. If, for any reason, the permittee does not comply with or will not be able to comply with the emission limitations specified in this permit, the permittee shall provide EPA with the following information in writing within five (5) days of such conditions:
  - (a) description of noncomplying emission(s),
  - (b) cause of noncompliance,
  - (c) anticipated time the noncompliance is expected to continue or, if corrected, the duration of the period of noncompliance,
  - (d) steps taken by the permittee to reduce and eliminate the noncomplying emission, and
  - (e) steps taken by the permittee to prevent recurrence of the noncomplying emission.

Failure to provide the above information when appropriate shall constitute a violation of the terms and conditions of this permit. Submittal of the aforementioned information does not constitute a waiver of the emission limitations contained within this permit.

4. Any proposed change in the information submitted in the application regarding facility emissions or changes in the quantity or quality of materials processed that would result in new or increased emissions or ambient air quality impact must be reported to EPA. If appropriate, modifications to the permit may then be made by EPA to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause violation of the emission limitations specified herein. Any construction or operation of the source in material variance with the application shall be considered a violation of this permit.

5. In the event of any change in control or ownership of the source described in the permit, the permittee shall notify the succeeding owner of the existence of this permit and EPA of the change in control of ownership within 30 days.
6. The permittee shall allow representatives of the state and local environmental control agency or representatives of the EPA upon the presentation of credentials:
  - (a) to enter upon the permittee's premises, or other premises under the control of the permittee, where an air pollutant source is located or in which any records are required to be kept under the terms and conditions of the permit;
  - (b) to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit, or the Clean Air Act;
  - (c) to inspect at reasonable times any monitoring equipment or monitoring method required in this permit;
  - (d) to sample at reasonable times any emissions of pollutants; and
  - (e) to perform at reasonable times an operation and maintenance inspection of the permitted source.
7. The conditions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.