

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

BEST AVAILABLE COPY

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 Beeline 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 50 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-processible 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 BACT 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

CENTRAL LIBRARY
3650 Summit Boulevard
West Palm Beach, Florida 33402

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

4. Pursuant to Section 403.508, Florida Statutes, the certification hearing will be held by the Division of Administrative Hearings of March 17, 1986, at 10:00 a.m. in Conference Room B, Elisha Newton Dimick Building, 111 Georgia Avenue, West Palm Beach, Florida, in order to take written or oral testimony on the effects 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.

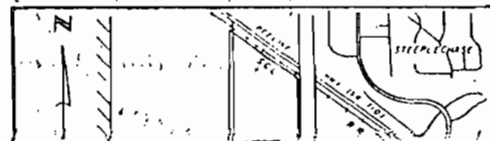
5. Pursuant to 403.508, F.S.: (a) Parties to the proceeding shall include: the applicant; the Public Service Commission; the Division of State Planning; the water management district as defined in Chapter 373, in whose jurisdiction the proposed electrical power plant is to be located; and the Department. (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 subparagraphs (4) (b)1 and (4) (b)2 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 Chapter 120, F.S., and applicable rules. Intervention pursuant to this paragraph may be granted at the discretion of the designated hearing officer and upon such conditions as he may proscribe 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.403.509 (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. Kendrick
Division of Administrative Hearings



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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 subparagraphs (4) (b) 1 and (4) (b) 2 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 Chapter 120, F.S., and applicable rules. Intervention 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 a 403.509 (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. Kendrick
Division of Administrative Hearings
Oakland Office Building
2009 Apalachee Parkway
Tallahassee, Florida 32301

8. Those wishing to intervene in these proceedings must be represented by an attorney or other person who can be determined to be qualified to appear in administrative proceedings pursuant to Chapter 120, F.S., or Chapter 17-1.21, FAC.

9. The Public Notice is also provided in compliance with the federal Coastal Zone Management Act, as specified in 15 CFR Part 930, Subpart D. Public comments on the applicant's federal consistency certification should be directed to the Federal Consistency Coordinator, Division of Environmental Permitting, Department of Environmental Regulation.

10. Pursuant to Section 403.509 (2), F.S., the Palm Beach County Solid Waste Authority or Florida Power and Light Company intends to use, connect to, or cross over properties and works of the following agencies: Florida Department of Transportation, North Palm Beach County Water Control District, and Palm Beach County. The Hearing Officer will receive comments and testimony from the parties, the public, and the affected agencies at the certification hearing.

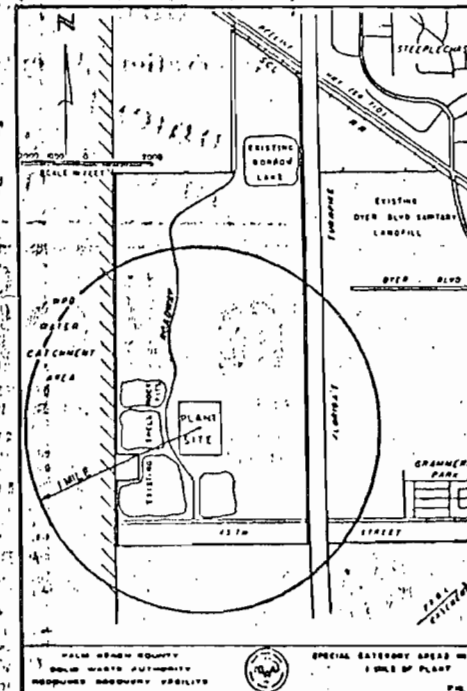
11.0 On June 18, 1985, Palm Beach County applied to the DER to construct the aforementioned resource recovery plant. The application is also subject to U.S. Environmental Protection Agency (EPA) regulations for Prevention of Significant Deterioration of air quality (PSD), codified at 40CFR52.21. These regulations require that, before construction on a source of air pollution subject to PSD may begin, a permit must be obtained from EPA. Such permit can only be issued if the new construction has been determined by EPA to comply with the requirements of the PSD regulations, which are described in 40CFR52.21. These requirements include a restriction on incremental increases in air quality due to the new source and application of best available control technology (BACT).

The DER has been granted a delegation by EPA to carry out the PSD review of this source, except for the final signature of the federal PSD permit. Acting under that delegation, the DER has prepared a draft permit which is included in the DER's staff analysis report. The DER has made a preliminary determination that the proposed construction will comply with all applicable PSD regulations. The degree of increment consumption that will result from the construction is:

Pollutant	Annual Average	24-hr. average	3-hr. average
Particulate	1%	13%	20%
Sulfur dioxide	13%	24%	20%

The source is located more than 100 kilometers from any Class I area.

Feb. 14, 1986
Ad No. 57351R



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, SO₂, CO, NO_x, 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% CO₂. 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, SO₂, CO, NO_x, 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 (NESHP) regulations

BACT

An analysis of existing air quality;

A PSD increment analysis (for SO₂ 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 ₂
Lead	0.005 lb/ton
Mercury*	3200 grams/day
Beryllium	9.0 x 10 ⁻⁶ 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 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.

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 ₂)	2957	40
Nitrogen Dioxide	(NO)	1314	40
Carbon Monoxide	(CO)	3942	100
Ozone	(O ₃)	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 ₂ SO ₄)	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 ₂ -	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_x. The firing of only RDF, a low sulfur content fuel, will limit SO₂.

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% CO₂. 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% CO₂ 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 SO₂ 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 SO₂ 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 SO₂ 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 SO₂ emissions. The installation of a flue gas desulfurization system to control SO₂ 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 6.2×10^{-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 9.0×10^{-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/m³, 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 SO₂ 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_x 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_x 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_x emission. A few add-on control techniques such as catalytic reduction with ammonia and thermal de-NO_x 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_x 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% CO₂ 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 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 SO_2 emission rate. Based on the 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 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, O₂ and CO₂ 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% CO₂ 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% SO₂ 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 SO₂ (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, SO₂ 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% CO₂. 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 SO₂, 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 SO₂ only. Predicted concentrations for all other pollutants were determined by ratioing their emission rate to the SO₂ emission rate and multiplying by the predicted SO₂ 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	2943.7	18.3	433	6.80	1.52			
	592.8	2943.7	18.3	434	6.20	1.52			
	592.8	2943.7	38.1	408	7.70	2.13			
	592.8	2943.7	38.1	408	9.70	2.29			
	592.8	2943.7	22.9	450	18.30	3.05			
FPL Riveria Beach	594.2	2960.6	45.7	430	6.30	4.57			
			90.8	408	18.90	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 ₂	4.0	350.	1314
NO _x	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 ⁻⁶	9.9E ⁻⁵	3.0E ⁻³
F ⁻	0.004	0.349	1.3
H ₂ SO ₄ mist	0.014	1.26	4.7
HCl (4)	10.2	892.5	3351.
2,3,7,8,-TCDD(4)	8.5E ⁻⁸	7.4E ⁻⁶	2.8E ⁻⁵

(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 SO₂, PM, NO₂, 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 SO₂ 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 (ug/m ³) (1)	Deminimus Ambient Impact Level (ug/m ³)
PM (24-hour)	1.0	10
SO ₂ (24-hour)	12.2	13
CO (8-hour)	25.8	575
NO ₂ (24-hour)	12.2	14
Pb (24-hour)	0.002	0.1
F ⁻ (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.

Table V-4
Palm Beach County Resource Recovery Facility
Monitoring Data Within 10 km of Project

Site	Location with Respect to Proposed Facility		Pollutant	Concentration 1984 (1)				
	Direction (degrees)	Distance (km)		Annual (ug/m ³)	24-hour (ug/m ³)	8-hour (mg/m ³)	3-hour (ug/m ³)	1-hour (ug/m ³)
4760-001	126	9.2	CO NO ₂	27		5		16
4760-003	126	9.2	PM	34(2)	63			
3060-001	53	8.7	PM	29(2)	52			
3840-003	74	6.9	SO ₂	10	36		61	

(1) Short-term (i.e., 24-hour average or less) concentrations are second-highest values
(2) Geometric Mean

The PSD increments represent the amount that new sources may increase ambient ground-level concentrations of SO₂ 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 SO₂ and PM emissions increases from sources constructed or modified after the baseline (December, 1977) will consume PSD increment. In addition, all SO₂ 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 SO₂ 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 SO₂, 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/m³, annual average, 4.7 ug/m³, 24-hour average and 10.6 ug/m³, 3-hour average; the maximum increment consumed by the three other sources combined is 1.3 ug/m³ annual average, 5.3 ug/m³, 24-hour average and 19.6 ug/m³, 3-hour average.

The maximum increment consumed by the proposed source itself is 1.7 ug/m³, annual average, 12.2 ug/m³, 24-hour average, and 33.0 ug/m³, 3-hour average. A conservative estimate of the total increment for SO₂ 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 SO₂ 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 ³)	Predicted Increased Concentration (ug/m ³)	Percent Consumed
SO ₂ (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, SO₂, CO, NO₂, 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 SO₂ not included by the applicant. Additional sources of pollutants in the area surrounding the proposed facility were included only for SO₂. 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 SO₂, 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 ³)(1)	Predicted Impact All Sources (ug/m ³)	Existing Background (ug/m ³)(2)	Total Impact (ug/m ³)	FAAQS (ug/m ³)
SO₂					
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
NO₂					
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, whichever 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, de minimus ambient air concentrations are established for the threshold of biological effects for each of the above pollutants. These de minimus values can be compared to the predicted maximum impact listed in Table V-3. It should be noted that the de minimus 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 de minimus biological level for mercury is 0.1 ug/m^3 , 24-hour average. The predicted maximum for the proposed facility is 0.01 ug/m^3 , 24-hour average. The de minimus biological level for beryllium is 0.005 ug/m^3 , 24-hour average. The predicted

maximum impact is 0.00003 ug/m³, 24-hour average. The de minimus biological level for fluorides is 0.01 ug/m³, 24-hour average and the predicted maximum level is 0.01 ug/m³, 24-hour average. And finally, the de minimus biological impact level for sulfuric acid mist is 1 ug/m³, 24-hour average. The predicted impact (not listed in Table V-3) is 0.04 ug/m³, 24-hour average.

Except for fluorides, all of the noncriteria pollutants subject to review are well below their biological de minimus 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.

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 stationary source 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 _____ 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.

Date Signed

Regional Administrator

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% CO₂ (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) SO₂: 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% CO₂
- (7) Lead: 0.0004 lb/MBtu heat input
- (8) Fluorides: 0.0032 lb/MBtu heat input
- (9) Beryllium: 7.3×10^{-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: 3.2×10^{-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, SO₂, 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 CO₂.
 - 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 SO₂. 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 360.0×10^6 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% CO₂.

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

PART II

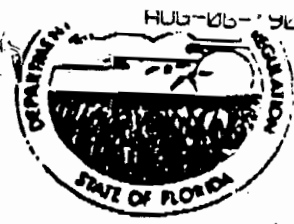
General Conditions

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.



Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400
Bob Martinez, Governor Dale Trachmann, Secretary John Shearer, Assistant Secretary

FAX TRANSMITTAL LETTER

DATE: 8-6-90
TO:
NAME Marc Bruner
AGENCY Palm Beach Solid Waste Authority
TELEPHONE (407) 683-4067
NUMBER OF PAGES (INCLUDING COVER SHEET) 4

FROM:
NAME Barry Andrews
AGENCY DEK

IF ANY OF THE PAGES ARE NOT CLEARLY RECEIVED, PLEASE CALL
IMMEDIATELY. PHONE NO. (904) 488-1344
SENDER'S NAME Barry Andrews

COMMENTS:

Joint comments from Palm
Beach County and Southeast
District.

BEST AVAILABLE COPY



STATE OF FLORIDA
DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES

DISTRICT IX

RECEIVED

DATE: 6/29/90.

JUN 29 1990

DER-BAQM

TO: MIRZA P. BAIG / BARRY ANDREWS

FAX #: (904) ~~488-1158~~ 922 6979

ORGANIZATION & LOCATION: DARM, DER

FROM: ATAYA K SATYAL

FAX #: (407) 355 2442

PROGRAM & LOCATION: PBCPHU - WPB.

TOTAL NUMBER PAGES TO FOLLOW: 2

SPECIAL INSTRUCTIONS: Ref: PBC RRF.

Dear Mirza,
Tom Tittle and I have prepared this
comment jointly. Please call us if
you have any questions. Thanks!

If you do not receive the number pages indicated please call:

SC 273 3070 Info.

273 4550 - Disk.

This material was faxed from fax number 407-832-1712.

BEST AVAILABLE COPY

We need to have DARM determine whether or not the emission limitation modifications proposed constitute BACT. If they do, we should have a new BACT determination to indicate this. We should also make the BACT consistent with the units specified in the certification (i.e. lb/mmBTU).

SO2- Proposed language would make 65% reduction an enforceable limit. We suggest the following language to make clear that the emission limits are enforceable even if the % reduction is being met:

SO2: 65% removal in any one hour period and not to exceed 0.32 lb/mmBTU heat input in any three hour period nor to exceed 0.62 lb/mmBTU in any one hour period. The average of three (or more when approved by the Department) stack test runs shall determine compliance with the three hour limit. Each run shall determine compliance with the removal efficiency and the hourly limit.

If the above suggested language is not what was intended, the above should be reworded to specify the appropriate durations to which each standard applies and specifically indicate how compliance will be determined.

For NOx the highest run indicated an emission rate of 0.372 lb/mmBTU. We do not see the justification for an increase to 0.56 lb/mmBTU.

For CO we have no objection to the proposed language.

For Lead and Mercury we see no reason to change the standards. They complied with flying colors during the compliance test of both units.

They deleted the rule reference for DER Method 9. We suggest we only delete part of the reference to read:

"... in accordance with DER Method 9 as specified in Florida Administrative Code 17-2"

Please note that although the certification indicates that the facility will need to achieve 1900°F for flue gas with one second residence time at or above this temperature, there is no requirement specified to monitor whether or not this time and temperature requirement is being met. Since this is part of the reasonable assurance for the control of dioxins and furans, we suggest we use this opportunity to require this monitoring.

We are confused on the Fluoride limit which they are not proposing any changes. They tested for Hydrogen Fluoride to show compliance with the Fluoride limit. Is this appropriate? If so, shouldn't the limit be for Hydrogen Fluoride instead?

5 For Sulfuric Acid Mist they are proposing to delete the mass emission limiting standard (which they violated during the tests) and replace it with the 90% reduction already required in specific condition XIV.A.2.b. Please note the testing did not show compliance with 90% reduction either! We suggest that DARM review this matter to determine an appropriate BACT and means of determining compliance with the emission limit specified as BACT. One problem now is that the emissions tested are very low for the method.

They are proposing an increase in mmBTU/hr. This will increase allowable emissions under the certification for all pollutants. A reevaluation of the PSD modelling is needed.

1 Before we change the language of XIV.A.2.c. we need to know how they compute the mmBTU value during testing and how this relates to both input RDF and steam.

XIV.A.2.e. should specify "within 10% of capacity" not +/- 10%.

AJ/Tom

XIV

1. Emission Limitations upon Operation of Units 1 and 2

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

- (1) Particulate matter: 0.015 grains per standard cubic foot dry gas corrected to 12% CO₂.
- (2) SO₂: 0.32 lbs/MBtu average heat input not to exceed 0.62 lb/MBtu heat input one hour average. Compliance with SO₂ emission limits shall be determined by annual stack tests. The average of three or more stack test runs shall determine the average value.
- (3) Nitrogen Oxides: 0.32 lbs/MBtu heat input
- (4) Carbon Monoxide: 400 ppmv corrected to 12% CO₂
- (5) Lead: 0.0004 lbs/MBtu heat input.
- > (6) Mercury: 3200 grams/day for the entire facility or when firing sludge or 0.00024 lbs/MBtu whichever is more stringent.
- (7) Odor: there shall be no objectionable odor at the site boundary.
- (8) Visible emissions: opacity shall be no greater than 15% except that visible emissions with no more than 20% opacity may be allowed for up to three consecutive minutes in any one hour except during start up or upsets when the provisions of 17-2.250, FAC, shall apply. Opacity compliance shall be demonstrated in accordance with Florida Administrative Code Rule 17-2.700(6)(a)9., DER Method 9.
- > (9) Fluoride: 0.0032 lb/MBtu heat input.
- > (10) Beryllium: 7.3xE-7 lb/MBtu heat input.
- (11) VOC: 0.016 lb/MBtu heat input
- (12) Sulfuric Acid Mist: 3.2 E-5 lb/MBtu heat input.

OK

(4) Carbon Monoxide: 400 ppm corrected to 12%

CO₂

(5) Lead: 0.0004 lbs/MBtu heat input

(6) Mercury: 3200 grams/day for the entire facility or when firing sludge or 0.00024 lbs/MBtu whichever is more stringent.

(7) Odor: there shall be no objectionable odor at the site boundary.

(8) Visible emissions: opacity shall be no greater than 15% except that visible emissions with no more than 20% opacity may be allowed for up to three consecutive minutes in any one hour except during start up or upsets when the provisions of 17-2.250, FAC, shall apply. Opacity compliance shall be demonstrated in accordance with Florida Administrative Code Rule 17-2.700(6)(a)9., DFR Method 9.

(9) Fluoride: 0.0032 lb/MBtu heat input

(10) Beryllium: 7.3xE-7 lb/MBtu heat input

(11) VOC: 0.016 lb/MBtu heat input

(12) Sulfuric Acid Mist: 3.2 E-5 lb/MBtu heat input.

b. The height of the boiler exhaust stack shall not be less than 250 feet above grade.

c. The incinerator boilers shall not be loaded in excess of their rated nameplate capacity of ~~58,333~~ ^{412.5} pounds of RDF ~~or 360.0~~ x 10⁶ Btu per hour each.

d. 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.

e. Compliance with the limitations for particulates, sulfur oxides, nitrogen oxides, carbon monoxide, fluoride, sulfuric acid mist, VOC and lead shall be determined in accordance

with Florida Administrative Code Rule 17-2.700, DFR Methods 1, 2, 3, and 40 CFR 60, Appendix A, Methods 5, 7, 8, (modified with prefilter), 10, 12, 13A or 13B (or method 5 for flourides), and 18 or other methods as approved by the DFR. The stack test for each unit shall be performed at $\pm 10\%$ of the maximum heat input rate of 360.0×10^6 Btu per hour or the maximum charging rate of 58,333 pounds of MSW per hour. Compliance with the beryllium emission limitation shall be determined in accordance with 40 CFR 61, Method 103 or 104, Appendix B. Particulate testing shall include one run during representative soot blowing which shall be averaged proportionally to normal daily operations. Visible emission testing shall be conducted simultaneously with soot blowing and non-soot blowing runs.

2. Emission Control Equipment

a. The boiler particulate emission control devices shall be designed and constructed to achieve a maximum emission rate of 0.015 grains per dscf corrected to 12% CO₂. All other particulate control devices shall be designed to meet the provisions of section 17-2.610.

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

c. The Permittee must submit to the Department within thirty (30) days after it becomes available, copies of technical data pertaining to the selected emissions control systems. These data should include, but not be limited to, guaranteed efficiency and emission rates, and major design parameters. The data shall be processed and approved or denied in accordance with F.S. 120.60.

3. Air Monitoring Program

a. The Permittee shall install and operate continuously monitoring devices for flue gas oxygen and opacity. The

XIV. OPERATION

A. Air

The operation of the Resource Recovery Facility shall be in accordance with all applicable provisions of Chapter 17-2, 17-5, and 17-7, Florida Administrative Code. In addition to the foregoing, the Permittee shall comply with the following specific conditions of certification:

1. Emission Limitations upon Operation of Units 1 and 2

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

(1) Particulate matter: 0.015 grains per standard cubic foot dry gas corrected to 12% CO .

(2) SO₂ : 65% removal (0.32 lbs/MMBtu heat input not to exceed 0.62 lbs/MMBtu heat input one hour average). Compliance with SO₂ emission limits shall be determined by annual stack tests. The average of three or more stacktest runs shall determine the average value.

(3) Nitrogen Oxides: 0.56 lbs/MMBtu heat input.

(4) Carbon Monoxide: 200 ppmv corrected to 12% CO (4-hour average), 400 ppmv corrected to 12% CO (1-hour average).

(5) Lead: 15.0 E-4 lbs/MMBtu heat input.

(6) Mercury: 7.5 E-4 lbs/MMBtu heat input.

(7) Odor: There shall be no objectionable odor at the site

**MODIFIED LANGUAGE
SPECIFIC CONDITION XIV.**

**SOLID WASTE AUTHORITY OF PALM BEACH COUNTY
RESOURCE RECOVERY FACILITY**

PALM BEACH COUNTY, FLORIDA

PSD-FL-108

PREVENTION OF SIGNIFICANT DETERIORATION

40 CFR 52.21

**REVIEWED AND ISSUED BY THE FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION**

boundary.

(8) Visible emissions: Opacity shall be no greater than 15% except that visible emissions with no more than 20% opacity may be allowed for up to three consecutive minutes in any one hour except during start up or upsets when the provisions of 17-2.250, FAC, shall apply. Opacity compliance shall be demonstrated in accordance with Florida Administrative Code.

(9) Fluoride: $3.2 \text{ E-3 lbs/MMBtu}$ heat input.

(10) Beryllium: $7.3 \text{ E-7 lbs/MMBtu}$ heat input.

(11) VOC: $1.6 \text{ E-2 lbs/MMBtu}$ heat input.

(12) Sulfuric Acid Mist: 90% Removal

b. The height of the boiler exhaust stack shall not be less than 250 feet above grade.

c. The maximum boiler heat input shall not exceed 412.5 MMBtu per hour. This corresponds to the nameplate rating of 324,300 pounds per hour steam capacity.

d. 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.

e. Compliance with the limitations for particulates, sulfur oxides, nitrogen oxides, carbon monoxide, fluoride, sulfuric acid mist, VOC and lead shall be determined in accordance with Florida Administrative Code Rule 17-2.700, DER Methods 1,2,3, and 40 CFR 60, Appendix A, Methods 5, 7, 8, (modified with prefilter), 10, 12, 13A or 13B (or modified method 5 for fluorides), and 18 or other methods as approved by the DER. The stack test for each unit shall be performed at +10% of the maximum heat input rate of 412.5 MMBtu per hour. Compliance with the beryllium emission limitation shall be determined in accordance with 40 CFR 61, Method 103 or 104, Appendix B. Particulate testing shall be averaged proportionally to normal daily operations. Visible emission testing shall be conducted simultaneously with soot blowing and non-soot blowing runs.

SHAPIRO & BREGMAN

A PROFESSIONAL ASSOCIATION

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ALLAN SALOVIN

MAILING ADDRESS:
P.O. BOX 20629
WEST PALM BEACH, FL 33416-0629

TELECOPIER: (407) 655-6222

December 10, 1996

DER-BAQM

DIRECT DIAL NUMBER:

(407) 650-7908

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Barry Andrews
Division of Air Resources Management
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: Request for Modification of Condition of
Certification Number XIV, Solid Waste
Authority of Palm Beach County Resource
Recovery Facility.

Dear Mr. Andrews:

Please be advised that our clients have serious concerns regarding the referenced modification, which we understand would change the air emission limitations for the subject facility. Therefore, we would appreciate your providing us with notice of the Department's intended action on the request prior to final agency action. I appreciate your courtesy in this matter.

Very truly yours,


Alfred J. Malefatto

AJM:msl:l78ld

cc: Ms. Mirza P. Baig
Mr. Thomas Tittle



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

RECEIVED
JUL 13 1989
DER-BAQM

4APT/APB-aes

JUL 10 1989

Mr. Thomas R. Keith
Deputy Executive Director
Solid Waste Authority of
Palm Beach County
5114 Okeechobee Boulevard, Suite 2C
West Palm Beach, Florida 33417

Re: Solid Waste Authority of Palm Beach County
North County Regional Resource Recovery Project
Request for Modification of Permit: PSD-FL-108

Dear Mr. Keith:

This letter is to confirm a telephone conversation between Mr. Wayne Aronson of my staff and yourself, on June 26, 1989. As stated in the conversation, we have the following comments regarding your proposed modification.

Your April 28, 1989, request for a permit modification included a modification to the plant capacity due to better heat recovery efficiency. The project was permitted for 2 - 360 MMBTU/hr boilers. The requested modification would allow 412.5 MMBTU/hr heat input per hour for each boiler. Based on current permit emission limits, this increase in heat input would increase the potential to emit of several pollutants by a "significant" amount (as defined in 40 CFR 52.21(b)(23)). The boilers cannot be operated at a rate higher than 360 MMBTU/hr until the permit is modified.

The increased potential to emit for each pollutant should be assessed. The net emissions increase of each pollutant should be determined by computing the difference between current actual emissions and the new (or existing) allowable emission rate. Any pollutant which would increase significantly would constitute a major modification and would be subject to a complete prevention of significant deterioration (PSD) review, including best available control technology (BACT) analyses. This would necessitate a new application and opportunity for public comment.

Other possible solutions would be to accept permit restrictions or additional control equipment such that the increases in potential to emit would be limited below the significant levels.

Thank you for the cooperation you have given to EPA throughout this project. Region IV will be happy to assist you in any way possible. If you have any questions or comments, please do not hesitate to contact Mr. Wayne Aronson of my staff at (404) 347-2864.

Sincerely yours,

Bruce P. Miller

Bruce P. Miller, Chief
Air Programs Branch
Air, Pesticides, and Toxics
Management Division

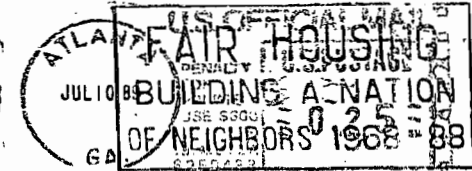
cc: Mr. Clair Fancy
FDER

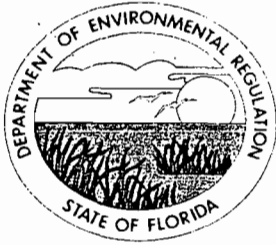
UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

AIR-4

Mr. Clair Fancy
Deputy Bureau Chief
Florida Department of Environmental
Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301





Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION NOTICE OF PERMIT

Mr. D. S. Beachler
Westinghouse RESD, Cost Building
2400 Ardmore Boulevard
Pittsburgh, Pennsylvania 15221

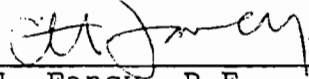
October 17, 1988

Enclosed are permits Nos. AC 03-145061, AC 03-152196 and PSD-FL-129 for Bay Resource Management Center to increase the municipal solid waste charging rate at the existing Bay County Waste-to-Energy Facility, in Bay County, Florida. These permits are issued pursuant to Section 403, Florida Statutes.

Any Party to these permits has the right to seek judicial review of these permits pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date these permits are filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION


C. H. Fancy, P.E.

Deputy Chief

Bureau of Air Quality Management

Copy furnished to:

E. Middleswart, NW District
T. Moody, NW District
W. Aronson, EPA
M. Flores, NPS
A. Richter, P.E.
J. Kolk, Audubon Society

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 10/18/88.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to
§120.52(9), Florida Statutes, with
the designated Department Clerk,
receipt of which is hereby
acknowledged.

Judy Rogers
Clerk

10/18/88
Date

Final Determination

Bay Resource Management Center
Panama City, Bay County, Florida

Bay County Waste-to-Energy Facility

Permit Nos. AC 03-145061
AC 03-152196

PSD-FL-129

Florida Department of Environmental Regulation
Bureau of Air Quality Management
Central Air Permitting

October 13, 1988

Final Determination

Bay Resource Management Center's application for a construction permit to increase the municipal solid waste (MSW) charging rate at the existing Bay County Waste-to-Energy Facility, Bay County, Florida, has been reviewed by the Bureau of Air Quality Management. Public Notice of the Department's Intent to Issue the permit was published in the News-Herald on August 10, 1988.

Comments in response to the Public Notice are addressed below, in the order they were received.

I. Comments received from Westinghouse (see Attachment 13) are addressed below:

1. In Specific Condition No. 3 of the proposed permit, the flue gas emissions listed are for the facility. The table will be amended to include emissions for each combustor.
2. The expiration date of the proposed permit will be extended until June 1, 1989, to provide time for equipment installation and testing.
3. The facility will be allowed to charge up to 160 TPD wood waste. However, the combustor in which the wood waste is burned will have to comply with the permitted emission limitations. If the facility is to be permitted to combust wood waste in excess of 160 TPD, the permit application will have to be amended to reflect the consequent increase in emissions of several pollutants.
4. DER will not accept wood waste as start-up fuel in place of fuel oil because of greater emissions during the period when the operating conditions are not normal and emissions tend to be higher than when operating at steady state.
5. The Department will accept prior test results so long as the tests are in accordance with the permit conditions and the operation rates are representative (within 10% of the maximum permitted capacity).
6. The visible emissions limit in Specific Condition No. 3 is 15% opacity for six minutes in any one hour.
7. In consideration of comments received and further review, DER will delete the requirement for the CO₂ monitor from Specific Condition No. 5. A concentration value will be added for CO.
8. The Department will accept heat input calculations based on steam and flue gas data with a mention of the amount of waste

III. Comments from the Central Air Permitting staff on several specific conditions (SC) are addressed below:

SC No. 1: This condition will be amended to reflect wording used in permits for similar projects.

SC No. 3: A reference to the 1987 version of the CFR, and a clarification of it's applicability, will be added to the reference to 40 CFR 60.

SC No. 4d: This condition will be amended to reflect that compliance testing should be conducted within 10% of the maximum capacity.

SC No. 4e: This condition will be amended to clarify which alternate compliance tests are acceptable.

SC No. 7: A specific reference to the Northwest District office will be added to this condition.

IV. Comments received from EPA on October 11, 1988 (see attachment 15), are addressed below:

1. EPA requests the inclusion of the basis for the emission limitations into the permit conditions. The emission factors which were used to establish the emission limitations will be added to SC No. 3.
2. PM₁₀ emissions will be addressed in SC No. 3 as requested by EPA. DER conservatively assumed that PM₁₀ is 100% PM₁₀.
3. The reference to 40 CFR 60 in SC No. 4 will be qualified by a mention of the year of publication. EPA's request to include compliance test runs, sampling times, and averaging times, will be added to future permits after further clarification from EPA.
4. EPA objects to the use of wood waste as start up fuel, as does DER (see I.4, Westinghouse comments).
5. If the MSW charging rate limitation is expressed as an average, EPA feels that a 3-hour averaging time should be specified.

The final action of the Department will be to issue the permit as proposed with the above mentioned amendments.

burned. However, the permit restriction on the quantity of waste burned will not be replaced with a restriction on only heat input because the Bureau believes that the mass emissions from the units are directly related to the quantity of the waste burned.

9. DER is willing to review the request for increasing the permitted charging rate of the units if the permit application is amended to reflect the increase in both fuel and emissions. The request to allow operation up to 120% of the design capacity cannot be allowed because it exceeds the maximum parameters considered in the technical review.

II. Although comments from the Bay County Audubon Society (see Attachment 14) were received late, DER will consider them in the Final Determination. The comments are addressed below:

1. DER's BACT, which does not require acid gas scrubbers, is based on the cost of controlling the incremental increase in acid gas emissions resulting from the increase in MSW and the corresponding decrease in wood waste burned, and not on the overall acid gas emissions. The control costs thus determined are over three times the EPA cost guideline of \$2000 per ton of pollutant. Therefore, DER does not consider the cost of scrubbers justifiable.
2. The fact that the time period needed to install scrubbers would be detrimental to attracting waste from surrounding counties was mentioned as a consequential issue, not as a significant factor in the BACT analysis.
3. The fact that alternate waste disposal arrangements would be required during a facility shutdown was mentioned as a consequential issue, not as a significant factor in the BACT analysis.
4. The Bureau's policy in reviewing air construction permit applications has been to evaluate projects based on applicable existing rules, regulations and guidelines. Where possible, applicants have been made aware of pending/proposed rules which may affect a given project at a later date. However, permitting or the postponement thereof, based on proposed rules is not the policy. If EPA promulgated rules that would require retrofit of acid gas controls on existing units of this size then Bay County would be required to do so.
5. The Department has directed significant resources towards the acid rain problem as well as the ozone problem. In accordance with the Clean Air Act, the Bureau has set up a project evaluation system which takes into consideration health, economics, environmental issues, etc. Only projects which meet the environmental regulatory requirements are allowed to be constructed.

Fed. Exp. 6947055972
8-15-88
Panama City, FL

file copy

Best Available Copy



**BAY COUNTY
ENERGY SYSTEMS,
INC.**

7504 Hwy. 231 N.
Panama City, Florida 32404
(904) 785-7933

BCES/DER-88-80

August 15, 1988

C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RECEIVED

AUG 16 1988

DER-BAQM

Dear Mr. Fancy:

Enclosed, per conditions stated in the Bay Resource Management Center Intent to Issue, is Proof of Publication.

Please contact me if you require additional information.

Sincerely,

G. Gregg Pennington
Plant Manager

GGP/wlf

Enclosure

cc: D. S. Beachler
J. J. Ludwig

copied: Pradeep Patel
Tom Rogers
Larry Andrews
Ed Middleswart, NW Dist.
Richard Sublette, NW Dist. Branch
Stacye Aronson, EPA
Michael D. Lucas, NPS

Florida Freedom Newspapers, Inc.

PUBLISHERS OF THE NEWS - HERALD
Panama City, Bay County, Florida
Published Daily

RECEIVED

AUG 1 1988

DER-BAQM

State of Florida
County of Bay

Before the undersigned authority appeared _____

KAYE NICHOLS

, who on oath says that (s)he

is ADVERTISING DIRECTOR of the News-Herald, a daily

newspaper published at Panama City, in Bay County, Florida; that the attached copy

of advertisement, being a NOTICE OF INTENT

in the matter of DEP OF ENVIRONMENTAL REG. PERMIT

BAY RESOURCE MANG. WASTE TO ENERGY FACILITY

in the BAY COUNTY COURTS

Court, was published in said newspaper in the issues of AUG 10

Affiant further says that the News-Herald is a direct successor of the Panama City News and that this publication, together with its direct predecessor, has been continuously published in said Bay County, Florida, each day (except that the predecessor, Panama City News, was not published on Sundays), and that this publication, together with its said predecessor, has been entered as a second class mail matter at the post office in Panama City in said Bay County, Florida, for a period of one year next preceding the first publication of the attached copy of the advertisement, all in accordance with the provisions of section 49.03, Florida Statutes; and affiant further says that (s)he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Sworn to and subscribed before me this 10th day of

AUG

A. D., 1988

Notary Public, State of Florida at Large

Notary Public, State of Florida

My Commission Expires My Commission Expires Aug. 1, 1989

Bonded thru Troy Inc - Insurance, Inc.

The Department of Environmental Regulation hereby gives notice of its intent to issue permits to Bay Resource Management Center for the Bay County Waste-to-Energy Facility located in Panama City, Bay County, Florida. The project involves increasing the charging rate of municipal solid waste from 350 tons per day (TPD) to 510 TPD (current design capacity). There will be increases in emissions of sulfur dioxide, nitrogen oxides, particulate matter, carbon monoxide, volatile organic, fluoride, lead, mercury, beryllium, and acid gases. The project is not expected to have significant impacts on the ambient air quality. The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

Persons whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative determination (hearing) in accordance with

Section 120.57, Florida Statutes. The petition must conform to the requirements of Chapters 17103 and 285, Florida Administrative Code, and must be filed (received) in the Department's Office of General Counsel, 2800 Blair Stone Road, Twin Towers Office Building, Tallahassee, Florida 32399-2400, within fourteen (14) days of publication of this notice. Failure to file a petition within this time period constitutes a waiver of any right such person has to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

If a petition as filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the proposed agency action. Therefore, persons who may not wish to file a petition may wish to intervene in the proceeding. A petition for intervention must be filed pursuant to Rule 285.207, Florida Administrative Code, at least five (5) days before the final hearing and be filed with the hearing officer if one has been assigned at the Division of Administrative Hearings, Department of Administration, 2009 Appalachia Parkway, Tallahassee, Florida 32301. If no hearing officer has Office assigned, the petition is to be filed with the Department's Office of General Counsel, 2800 Blair Stone Road Tallahassee, Florida 32399-2400. Failure to petition to intervene within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, Florida Statutes.

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

Dept. of Environmental Regulation
Bureau of Air Quality Management
2800 Blair Stone Road
Tallahassee, Florida
32399-2400

Dept. of Environmental Regulation
Northwest District Office
160 Governmental Center
Pensacola, Florida
32501-5794

Department of Environmental Regulation
Northwest District Branch Office
340 West 23rd Street, Suite E
Panama City, Florida 32405

Any person may send written comments on the proposed action to Mr. Bill Thomas at the Department's Tallahassee address. All comments mailed within 30 days of the publication of this notice will be considered in the Department's final determination.



Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Bob Martinez, Governor

Dale Twachmann, Secretary

John Shearer, Assistant Secretary

PERMITTEE:
Bay Resource Mgmt. Center
c/o Westinghouse RESD
Cost Building
2400 Ardmore Blvd.
Pittsburg, PA 15221

Permit Numbers: AC 03-145061
03-152196
County: Bay
Expiration Date: June 1, 1989
Latitude/Longitude: 30° 15' 54"N
85° 30' 08"W
Project: Bay County Waste-Energy
Facility, Units 1 & 2.

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the increase in municipal solid waste (MSW) facility charging rate from 350 TPD (tons per day) to 510 TPD at the Bay County Waste-to-Energy facility, Bay County, Florida.

Construction shall be in accordance with the attached permit application and additional information except as otherwise noted in the General and Specific Conditions.

The PSD Number for the permits is PSD-FL-129.

Attachments are as Follows:

1. Westinghouse application package received February 5, 1988.
2. DER's letter of incompleteness dated March 7, 1988.
3. Westinghouse response received March 21, 1988.
4. U.S. EPA's letter dated March 21, 1988.
5. Fish & Wildlife Service letter received April 11, 1988.
6. DER's letter requesting additional information dated April 19, 1988.
7. Westinghouse response received April 27, 1988.
8. DER's letter dated May 26, 1988.
9. Westinghouse letter received June 10, 1988.
10. Board of Commissioners, Bay County, letter received June 16, 1988.
11. Bay County Audubon Society letter received July 22, 1988.
12. DER letter dated August 2, 1988.
13. Westinghouse letter received August 12, 1988.
14. Bay County Audubon Society letter received September 20, 1988.
15. EPA letter received October 11, 1988.
16. Final Determination dated October 12, 1988.

PERMITTEE: Bay Resource
Management Center

Permit Numbers: AC 03-145061
03-152196

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

PERMITTEE: Bay Resource
Management Center

Permit Numbers: AC 03-145061
03-152196

GENERAL CONDITIONS:

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

- a. Having access to and copying any records that must be kept under the conditions of the permit;
- b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

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

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information:

- a. a description of and cause of non-compliance; and
- b. the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

PERMITTEE: Bay Resource
Management Center

Permit Numbers: AC 03-145061
03-152196

GENERAL CONDITIONS:

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

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the Department, may be used by the Department as evidence in any enforcement case arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. This permit also constitutes:

- (x) Determination of Best Available Control Technology (BACT)
- (x) Determination of Prevention of Significant Deterioration (PSD)
- (x) Compliance with New Source Performance Standards.

14. The permittee shall comply with the following monitoring and record keeping requirements:

- a. Upon request, the permittee shall furnish all records and plans required under Department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the department, during the course of any unresolved enforcement action.

PERMITTEE: Bay Resource
Management Center

Permit Numbers: AC 03-145061
03-152196

GENERAL CONDITIONS:

- b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.
- c. Records of monitoring information shall include:
- the date, exact place, and time of sampling or measurements;
 - the person responsible for performing the sampling or measurements;
 - the date(s) analyses were performed;
 - the person responsible for performing the analyses;
 - the analytical techniques or methods used; and
 - the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. Municipal Waste Combustor

- a. The maximum charging rate of each municipal waste combustor (MWC) shall not exceed 255 tons of municipal solid waste (MSW) per day (a total of 510 TPD for the facility); 95.6 million Btu heat input per hour, assuming a heating value of 4,500 Btu per pound; and a steam production rate of 68,000 lbs/hr (design capacity).
- b. The wood waste utilization rate shall not exceed 160 TPD for the facility. Wood waste shall be used when sufficient MSW is not available to maintain a steady heat rate.

PERMITTEE: Bay Resource
Management Center

Permit Numbers: AC 03-145061
03-152196

SPECIFIC CONDITIONS:

- c. The furnace mean temperature at the fully mixed zone of the combustor shall not be less than 1,800°F.
- d. The normal operating range of the MWC shall be 80% to 100% of design rated capacity.
- e. The MWC shall be fueled with municipal solid waste and wood waste only. Other wastes shall not be burned without specific prior written approval of DER.
- f. Auxiliary fuel burners shall be fueled only with distillate fuel oil or natural gas. If the annual capacity factor for oil or gas is greater than 10%, as determined by 40 CFR 60.43b(d), the facility shall be subject to 40 CFR 60.44b, standards for nitrogen oxides.
- g. Auxiliary fuel burners shall be used at start up during the introduction of MSW fuel until design furnace gas temperature is achieved.
- h. The facility may operate continuously (8760 hrs/yr).

2. Each MWC shall be equipped with an electrostatic precipitator for particulate emission control.

3. Flue gas emissions from the facility shall not exceed the following:

Pollutant	Emission Limitations		Emission Factors	
	Per Unit lbs/hr	Facility lbs/hr	Wood lb/ton	MSW lb/ton
PM, PM ₁₀	6.8	13.5	(0.03 gr/dscf)	
CO	92.8	185.6	20.0	3.58
NOx	26.9	53.9	2.8	2.41
SO ₂	35.8	71.5	0.3	3.36
VOC	7.1	14.2	1.7	0.196
Lead	0.04	0.08	0	0.0039
Mercury	0.18	0.36	0	0.0017
Beryllium	5x10 ⁻⁶	1x10 ⁻⁵	0	4.8x10 ⁻⁷
Hydrogen Chloride	61.7	123.3	0	5.8
Sulfuric Acid Mist	1.5	3.0	0	0.14
Fluoride	0.15	0.3	0	0.014

Visible emissions shall not exceed 15% opacity (6 min. average).

PM₁₀ emissions are conservatively assumed to be equal to 100% PM.

PERMITTEE: Bay Resource
Management Center

Permit Numbers: AC 03-145061
03-152196

SPECIFIC CONDITIONS:

Compliance with the permit emission limits shall be determined by EPA reference method tests included in 40 CFR Parts 60 and 61 (1987 version) and listed in Condition No. 4 of this permit or by equivalent methods approved by Florida DER.

For the purpose of establishing specific increment consumption for TSP and SO₂ at the facility, an hourly emission rate shall be established for each pollutant at the time of performance testing.

The combustors are subject to 40 CFR Part 60, Subpart E; and Subpart Db, when heat input per unit exceeds 100 MMBtu/hr; except that where requirements within the permit are more restrictive, the requirements of the permit shall apply.

4. Compliance Tests

- a. Initial compliance tests for particulate matter, SO₂, nitrogen oxides, CO, VOC, lead, fluorides, mercury and beryllium shall be conducted in accordance with 40 CFR 60.8 (a), (b), (d), (e), and (f).
- b. Annual compliance tests for particulate matter, sulfur dioxide, and nitrogen oxides shall be performed.
- c. Initial and annual visible emissions compliance tests shall be determined in accordance with 40 CFR 60.11(b) and (e).
- d. The compliance tests shall be conducted within 10% of the maximum capacity and firing rate of each permitted fuel.
- e. The following test methods and procedures of 40 CFR Parts 60 and 61 or other DER approved methods with prior DER approval shall be used for compliance testing:
 - (1) Method 1 for selection of sample site and sample traverses.
 - (2) Method 2 for determining stack gas flow rate.
 - (3) Method 3 or 3A for gas analysis for calculation of percent O₂ and CO₂.

PERMITTEE: Bay Resource
Management Center

Permit Numbers: AC 03-145061
03-152196

SPECIFIC CONDITIONS:

- (4) Method 4 for determining stack gas moisture content to convert the flow rate from actual standard cubic feet to dry standard cubic feet.
- (5) Method 5 or Method 17 for particulate matter.
- (6) Method 9 for visible determination of the opacity of emissions as required in this permit in accordance with 40 CFR 60.11.
- (7) Method 6, 6C, or 8 for SO₂.
- (8) Method 7, 7A, 7B, 7C, 7D, or 7E for nitrogen oxides.
- (9) Method 10 for CO.
- (10) Method 12 for lead.
- (11) Method 13B for fluorides.
- (12) Method 25 or 25A for VOCs.
- (13) Method 101A for mercury.
- (14) Method 104 for beryllium.

5. Continuous Emission Monitoring

Continuous emission monitors for opacity, oxygen, and carbon monoxide shall be installed, calibrated, maintained and operated for each unit.

- a. Each continuous emission monitoring system (CEMS) shall meet performance specifications of 40 CFR 60, Appendix B.
- b. CEMS data shall be recorded during periods of startup, shutdown and malfunction but shall be excluded from emission averaging calculations for CO and opacity.

PERMITTEE: Bay Resource
Management Center

Permit Numbers: AC 03-145061
03-152196

SPECIFIC CONDITIONS:

- c. A malfunction means any sudden and unavoidable failure of air pollution control equipment or process equipment to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions.
- d. The procedures under 40 CFR 60.13 shall be followed for installation, evaluation and operation of all CEMS.
- e. Opacity monitoring system data shall be reduced to 6-minute averages, based on 36 or more data points, and gaseous CEMS data shall be reduced to 1-hour averages, based on 4 or more data points, in accordance with 40 CFR 60.13(h).
- f. CO emissions, corrected to 7% O₂, shall be recorded. A CO value of 400 ppmvd shall indicate good combustion (800 ppm corresponds to the emission limitation in Condition No. 3).
- g. For purposes of reports required under this permit, excess emissions are defined as any calculated average emission concentration, as determined pursuant to Condition No. 5 herein, which exceeds the applicable emission limit in Condition No. 3.

6. Operations Monitoring

- a. Devices shall be installed to continuously monitor and record steam production, furnace exit gas temperature (FEGT) and flue gas temperature at the exit of the control equipment. An FEGT to combustion zone correlation shall be established to relate furnace temperature at the temperature monitor location to furnace temperature in the overfire air fully mixed zone.
- b. The furnace heat load shall be maintained between 80% and 100% of the design rated capacity during normal operations. The lower limit may be extended provided compliance with the carbon monoxide emissions limit and the FEGT within this permit at the extended turndown rate are achieved.

7. Reporting

- a. A minimum of fifteen (15) days prior notification of compliance test shall be given to DER's Northwest District office.

PERMITTEE: Bay Resource
Management Center

Permit Numbers: AC 03-145061
03-152196

SPECIFIC CONDITIONS:

- b. The results of compliance test shall be submitted to the Department's Northwest District office within 45 days after completion of the test.
- c. The owner or operator shall submit excess emission reports for any calendar quarter during which there are excess emissions from the facility. If there are no excess emissions during the calendar quarter, the owner or operator shall submit a report semiannually stating that no excess emissions occurred during the semiannual reporting period. The report shall include the following:
 - (1) The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factors used, and the date and time of commencement and completion of each period of excess emissions (60.7(c)(1)).
 - (2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the furnace boiler system. The nature and cause of any malfunction (if known) and the corrective action taken or preventive measure adopted (60.7(c)(2)).
 - (3) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks, and the nature of the system repairs or adjustments (60.7(c)(3)).
 - (4) When no excess emissions have occurred or the continuous monitoring system has not been inoperative, repaired, or adjusted, such information shall be stated in the report (60.7(c)(4)).
 - (5) The owner or operator shall maintain a file of all measurements, including continuous monitoring systems performance evaluations; monitoring systems or monitoring device calibration; checks; adjustments and maintenance performed on these systems or devices; and all other information required by this permit recorded in a permanent form suitable for inspection (60.7(d)).

PERMITTEE: Bay Resource
Management Center

Permit Numbers: AC 03-145061
03-152196

SPECIFIC CONDITIONS:

8. The construction shall reasonably conform to the plans and schedule submitted in the application. If the permittee is unable to complete construction on schedule, the Department must be notified in writing a minimum of 60 days prior to the expiration of the construction permit and submit a new schedule and request for an extension of the construction permit, (Rule 17-2, F.A.C.).

To obtain a permit to operate, the permittee must demonstrate compliance with the conditions of the construction permit and submit a complete application for an operating permit, including the application fee, compliance test results, and Certificate of Completion to the Department's Northwest District office a minimum of 90 days prior to the expiration date of the construction permit. The permittee may continue to operate in compliance with all terms of the construction permit until its expiration date. Operation beyond the construction permit expiration date requires a valid permit to operate, (Rules 17-2 and 17-4, F.A.C.).

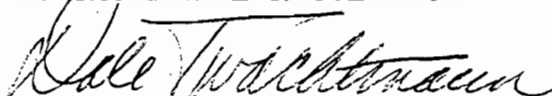
If the construction permit expires prior to the permittee requesting an extension or obtaining a permit to operate, then all activities at the project must cease and the permittee must apply for a new permit to construct which can take up to 90 days to process a complete application, (Rule 17-4, F.A.C.).

9. Any change in the method of operation, fuels, equipment or operating hours shall be submitted for approval to the Department's Northwest District office.

10. This permit shall supercede previous permits issued for the Bay County Waste-to-Energy Facility.

Issued this 14 day of Oct, 1988

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION


Dale Twachtmann, Secretary

Best Available Control Technology (BACT) Determination
Bay Resource Management Center
Bay County

The applicant has constructed a resource recovery facility (RRF) located near Panama City, Florida. The RRF is capable of burning up to 510 tons per day (TPD) of municipal solid waste (MSW).

When the application was submitted to construct the facility in 1984, it was proposed to supplement the available MSW with wood waste to operate at a level which was equivalent in heat input to burning 510 TPD of MSW. At that time, the applicant proposed burning 350 TPD of MSW and supplementing with 135 TPD of wood, since there were insufficient quantities of MSW available to operate at the 510 TPD capacity level. In accordance with this request, the applicant was restricted to burning only 350 TPD of MSW as a condition of the construction permit.

On February 5, 1988, the applicant requested that the construction permit be modified to increase the permitted level of 350 TPD of MSW to a level of 510 TPD. This increase in the MSW operating level will allow the facility to operate as a regional resource recovery facility for Bay County and the surrounding counties.

In accordance with the increase in MSW operating capacity, the resulting air emissions from the facility will also increase. The applicant has indicated the increases in emissions resulting from the modification as shown in Table 1.

Rule 17-2.500(2)(f)3 of the Florida Administrative Code (F.A.C.) requires a BACT review for all regulated pollutants emitted in an amount equal to or greater than the significant emission rates listed in FAC Rule 17-2, Table 500-2, Regulated Air Pollutants. The facility is located in an area classified as attainment for all air pollutants, in accordance with F.A.C. Rule 17-2.420.

BACT Determination Requested by the Applicant

A review of Table 1 indicates that sulfur dioxide (SO₂) is the only pollutant that is subject to BACT. The applicant's review indicates that BACT for the modification should be the same as the BACT approved by the Florida DER in 1984 (i.e. no acid gas control requirement). Based on test results from Bay County and other facilities, the SO₂ emission rate proposed is equivalent to 3.36 pounds per ton of MSW charged.

Date of Receipt of a BACT Application

February 5, 1988

BACT Determination Procedure:

DER rules on a BACT determination require the Department to consider for each pollutant emitted, on a case by case basis, taking into account energy, environmental and economic impacts, and costs, and determine the maximum degree of reduction which is achievable through application of production processes and available methods, systems, and techniques. The applicable regulations also require the Department to consider:

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

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

Energy, Economic and Environmental Impacts Analysis

In a recent policy memorandum (June 26, 1987) entitled "Operational Guidance on Control Technology for New and Modified Municipal Waste Combustors", the EPA has identified acid gas scrubbers as an effective means of controlling sulfur dioxide emissions from these facilities. The use of this type of control in conjunction with a particulate control device is considered to provide the most stringent control available for resource recovery facilities and thereby represents the first step in the "top-down" BACT review process.

In determining whether or not the installation of an acid gas scrubber is justified as BACT for this facility, the economics of

providing this control must be evaluated. To assist agencies in performing this evaluation, guidelines have been established to justify the use of control equipment/strategies in terms of the amount of pollutants controlled per dollars invested. For controlling the emissions of sulfur dioxide the EPA has considered costs of up to \$2,000 per ton as being reasonable when developing New Source Performance Standards (NSPS). This guideline is pertinent when making BACT determinations since BACT must be at least as stringent as NSPS.

When performing the cost benefit analysis, it is necessary to include all the pollutants which are controlled by a particular control device/strategy. This requirement was stressed in another recent EPA memorandum (September 1987) entitled "Implementation of North County Resource Recovery PSD Remand" which strongly affirms that the permitting authority should take the toxic effects of unregulated pollutants into account in making BACT decisions for regulated pollutants.

The applicant has indicated that a dry scrubber system for the facility would cost \$1,337,986 annually, based on 8,760 hours per year operation. The breakdown of the costs to install a dry scrubbing system at the facility are shown as follows:

Capital Costs

I. Spray Dryers

Lime Slurry Feed and Preparation	450,000
Dryers	750,000
Erection	500,000
Ductwork	150,000
Heat Insulation	300,000
Controls	100,000
Piping	50,000
Access	125,000
Wiring	200,000
Field Supervision	60,000
Start-up and Shakedown	200,000
	<hr/>
SUB-TOTAL:	\$2,885,000

II. ESP Relocation and Stack Construction

Dismantle and Remove Existing Stack	200,000
Construct New Stack (including foundations)	510,000
Construct New ESP Foundations	70,000
Dismantle ESP's	150,000
Re-erect ESP's	350,000
Add an Additional Field to Each ESP	400,000
	<hr/>
SUB-TOTAL	\$1,690,000

III. Miscellaneous Equipment

Replace Pneumatic Conveyors with Drag Conveyors	450,000
Replace Induced Draft Fans	88,000
SUB-TOTAL	<u>\$ 538,000</u>

IV. Direct Costs Related to 6-Month Plant Shutdown

Transportation of By-Pass Waste (510 TPD) (180 days) (\$2/ton)	183,600
Landfill Depletion (383 TPD) (180 days) (\$20/ton)	1,378,800
Boiler Shutdown Servicing	250,000
Lost Electrical Revenue	2,056,230
SUB-TOTAL	<u>3,868,630</u>
TOTAL CAPITAL COSTS:	<u>\$8,972,030</u>

Operating and Maintenance Costs

Lime Consumption	75,555
Additional Power	56,718
Water	5,440
Maintenance	35,200
Spare Parts	78,280
Increase Disposal Costs	32,580
TOTAL OPERATING COSTS:	<u>\$283,773</u>

Annualized Costs

(I=10%, N=20 years)

Capital Cost	= \$8,972,030
O&M	= \$283,773
Annualized Cost	= \$8,972,030 (A/P, 10%, 20) + \$283,773
Annualized Cost	= \$1,337,986

Assuming that the dry scrubber controls 70% SO₂ and 90% of the other acid gases, an analysis of the cost required to control tonnage of pollutants removed can be completed. The reduction of both the regulated and non-regulated pollutants when using the dry scrubber on an incremental and overall basis are estimated to be as follows:

Pollutant	Reduction (TPY)	
	Incremental	Overall
Sulfur Dioxide	63.0	219.1
Fluorides	0.36	1.2
Sulfuric Acid Mist	2.8	11.7
Hydrogen Chloride	153	486.0
Total	219.2	718.0

Taking the annualized control cost of \$1,337,986 into consideration with the total tonnages controlled, the cost per ton of emissions controlled by the dry scrubber would be approximately \$6,104 and \$1863 for the incremental and overall pollutants, respectively.

BACT Determination By DER

Dispersion modeling indicates that the maximum predicted impacts from the facility with the level of emissions proposed by the applicant will be well below the Ambient Air Quality Standards, for all of the averaging periods. In addition, the proposed control is judged to limit the emissions of unregulated pollutants to a level which is deemed to be acceptable. As is the case, the impacts associated with this modification as proposed are not perceived to be a threat to air quality.

Potentially Sensitive Concerns

Although, the Bay County Waste-to-Energy facility was designed to process a total of 510 TPD of MSW, it was restricted to burn only 350 TPD of MSW since this corresponded to the guaranteed amount of MSW that was available in Bay County at that time. Now that there is sufficient MSW to operate at the design capacity, the applicant has asserted that the permit should be granted without imposing more stringent emission control since there have been no physical changes made to the plant to increase its capacity. In addition to this concern, there are other impacts which would be brought about if additional control equipment were to be installed at the facility.

As previously indicated the installation of additional control equipment would necessitate a six month plant shutdown. This would require the MSW waste stream to be disposed in landfills which are limited in number and nearing capacity. In addition the time period needed to install additional equipment would prolong the opportunity for surrounding counties with inadequate landfills to utilize the facility.

Finally, it should be noted that the EPA is in the process of developing a policy with regard to the control equipment requirements for existing municipal waste combustors. Based on this activity, the applicant has stated that no additional control requirements should be imposed on the facility unless such control is consistent with EPA's final policy.


BACT Determination By DER

Based on the information presented in the preceding analysis, the Department has determined that BACT for the Bay County RRF is equivalent to that proposed by the applicant (i.e., no acid gas control).

From an economics standpoint, the cost of controlling the incremental increase of acid gases due to the requested MSW throughput increase is well above the \$2,000 guideline. Although cost of controlling the overall acid gas emissions does fall slightly below the \$2,000 guideline, the cost does not appear justified in view of the MSW disposal impacts that would be brought about by temporarily closing down the facility in order to install the additional control equipment.

In accordance with this determination, the emission limit for sulfur dioxide will be established at the proposed level of 3.36 pounds per ton of MSW charged.

Recommended by:



C. H. Fancy, P.E.
Deputy Bureau Chief, BAQM

October 13, 1988
Date

Approved by:



Dale Twachtman, Secretary

14 Oct. 1988
Date

TABLE 1

<u>Pollutant</u>	<u>Annual Emissions (Tons/Year) Based on 350 TPD MSW 135 TPD Wood</u>	<u>Maximum Annual Emissions (tons/yr) Based on 510 TPD MSW or 350 TPD MSW & 160 TPD Wood</u>	<u>Difference (Tons/Year)</u>	<u>PSD Significant Emissions Rate (Tons/Year)</u>
Particulate Matter	50	59	9	25
Carbon Monoxide	722	813	91	100
Nitrogen Oxides	223	236	13	40
Sulfur Dioxide	223	313	90	40
VOC	54	62	8	40
Lead	0.25	0.36	0.11	0.6
Mercury	0.11	0.16	0.05	0.1
Beryllium	0.000031	0.000045	0.0000136	0.004
Fluorides	0.9	1.30	0.40	3
Sulfuric Acid Mist	9.0	13	4	7
Hydrogen Chloride	370	540	170	-

ATTACHMENT 11

PM
7-21-88
Panama City, FL

full copy

"FROM BIRDWATCHING



TO THE TOTAL ENVIRONMENT"

RECEIVED

JUL 22 1988

DER-BAQM

July 19, 1988

Mr. Clair Fancy
State Department of Environmental Regulation
2600 Blair Stone Road
Twin Towers Office Building
Tallahassee, FL 32301

Dear Mr. Fancy:

This letter is regarding the Bay County waste-to-energy facility's request for a permit modification that you are in the process of reviewing.

First of all, let us thank you for having Mr. Raval send Audubon's Jeff Palgut a copy of that permit.

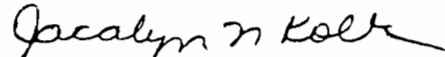
In reviewing the application, Bay County Audubon Society was alarmed to see that sulfur dioxide emissions would increase approximately 90 tons per year when burning 510 tons per day of municipal solid waste as opposed to 350 tons per day. Federal regulations do not permit this type of increase.

In consideration of the above information, Bay County Audubon Society actively opposes granting of the permit modification. If the Bay County waste-to-energy facility desires to increase its burning capacity above that granted in its operating permit, it should be required to comply with existing Federal regulations governing prevention of significant deterioration. Such compliance could be achieved with existing technology to remove the offending pollutant sulfur dioxide.

Page Two
July 19, 1988
Mr. Clair Fancy

Bay County Audubon Society at this time formally requests notification concerning preliminary decision on the application, by your office. Should your decision be in favor of granting the terms of the application, we also formally request a public hearing and/or administrative determination.

Respectfully,

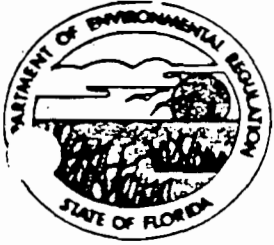


Jacalyn N. Kolk, President
Bay County Audubon

JNK/dt

cc: Environmental Protection Agency
Region IV
Mr. Bill Thomas, Florida D.E.R.
Mr. Pradeep Raval, Florida D.E.R.
Ed Middelwert, DW Dist.

ATTACHMENT 12



Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

August 2, 1988

Mr. D. S. Beachler
Westinghouse RESD, Cost Bldg.
2400 Ardmore Boulevard
Pittsburg, PA 15221

Dear Mr. Beachler:

RE: The Technical Evaluation and Preliminary Determination and proposed permit for Bay County Waste-to-Energy Facility, located in Panama City, Bay County, Florida, PSD-FL-129.

Specific Condition No. 1.b., in the above mentioned proposed permit needs to be corrected to reflect that wood waste use shall not exceed 160 TPD for the facility, and is not limited to 80 TPD per combustor.

Specific Condition No. 3 in the proposed permit needs to be corrected to reflect that the emission limits therein are for the facility and not just for one combustor.

Please find attached pages 5 and 6 as corrected.

Please submit, in writing, any comments which you wish to have considered concerning the Department's proposed action to Mr. Bill Thomas of the Bureau of Air Quality Management.

Sincerely,

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

CHF/pr

Attachments

cc: E. Middleswart, NW District
T. Moody, NW District
W. Aronson, EPA
M. Flores, NPS
A. Richter, P.E.
J. Kolk, Audubon Society

PERMITTEE: Bay Resource
Management Center

Permit Numbers: AC 03-145061
03-152196

GENERAL CONDITIONS:

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. Municipal Waste Combustor

- a. Each of the two municipal waste combustors (MWC) shall have a design rated capacity of 255 tons municipal solid waste (MSW) per day, 95.6 million Btu heat input per hour, assuming a heating value of 4,500 Btu per pound, and a steam production rate of 68,000 lbs/hr.
- b. The maximum throughput for each MWC shall not exceed the design charging rate of 255 TPD or the heat input rate of 95.6 MMBtu/hr. In absence of sufficient MSW to maintain a steady heat rate, wood waste may be used but not in excess of 160 TPD for the facility.

PERMITTEE: Bay Resource
Management Center

Permit Numbers: AC 03-145061
03-152196

SPECIFIC CONDITIONS:

- c. The furnace mean temperature at the fully mixed zone of the combustor shall not be less than 1,800°F.
 - d. The normal operating range of the MWC shall be 80% to 100% of design rated capacity.
 - e. The MWC shall be fueled with municipal solid waste and wood waste only. Other wastes shall not be burned without specific prior written approval of Florida DER.
 - f. Auxiliary fuel burners shall be fueled only with distillate fuel oil or natural gas. If the annual capacity factor for oil or gas is greater than 10%, as determined by 40 CFR 60.43b(d), the facility shall be subject to 40 CFR 60.44b, standards for nitrogen oxides.
 - g. Auxiliary fuel burners shall be used at start up during the introduction of MSW fuel until design furnace gas temperature is achieved.
 - h. The facility may operate continuously (8760 hrs/yr).
2. Each MWC shall be equipped with an electrostatic precipitator for particulate emission control.
3. Flue gas emissions from the facility shall not exceed the following:

Pollutant	Emissions	
	lbs/hr	TPY
PM	13.5	59
CO	185.6	813
NOx	53.9	236
SO ₂	71.5	313
VOC	14.2	62
Lead	0.08	0.36
Mercury	0.36	0.16
Beryllium	1 x 10 ⁻⁵	4.5 x 10 ⁻⁵
Hydrogen Chloride	123.3	540
Sulfuric Acid Mist	3	13
Fluoride	0.3	1.3

Visible emissions shall not exceed 15% opacity.

ATTACHMENT 13



file copy

Westinghouse
Electric Corporation

Resource Energy Systems
Division

Cost Building
2400 Ardmore Boulevard
Pittsburgh Pennsylvania 15221
(412) 636 5800
WN 61 5800

EN1351DB

RECEIVED

AUG 12 1988

DER-BAQM

August 4, 1988

Mr. Clair H. Fancy
Deputy Chief
Bureau of Air Quality Management
Florida DER
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399

Dear Mr. Fancy:

We would like to make the following comments and ask a few questions regarding the Technical Evaluation, Preliminary Determination, and proposed permit for the waste-to-energy facility located in Panama City, Florida.

1. There is an error on Page 6 of 11 of the proposed permit, Point No. 3. The flue gas emissions listed in the table are for both units combined, not from each combustor as shown.
2. The expiration date on the permit is given as December 1, 1988. This date should be changed to April 1, 1989 because the facility will need to install and certify additional continuous emission monitors and to conduct additional stack testing.
3. Specific Condition No. 1b states that each combustor can burn a maximum of 80 TPD wood waste. We would like the flexibility of being able to burn all of the allowable wood waste in one combustor. In addition, in the unlikely event that less than 350 TPD MSW was available (i.e., 250 TPD), can the facility make up this shortfall by burning wood waste (i.e., 260 tons of wood)?
4. Condition No. 1f states that the facility must be started using fuel oil. We would like to request the flexibility of starting the facility using wood instead of fuel oil.

5. Specific Condition No. 4 states that tests must be conducted to measure particulate matter, SO₂, NO_x, CO, VOC, lead, fluorides, mercury, and beryllium. Westinghouse contracted Entropy to conduct sampling in March, 1988 to measure many of these pollutants. Would DER accept some of this data to reduce the amount of testing required by this condition?
6. Condition No. 3 states that opacity shall not exceed 15%. Is the opacity limit of 15% for six minutes in any one hour?
7. Condition No. 5 requires installing a number of continuous emission monitors. The plant currently has opacity, O₂, and CO monitors installed on each combustor/boiler train. We would like to propose using the O₂ monitor to determine the CO₂ concentration. We have made numerous simultaneous measurements for both O₂ and CO₂, approximately 400 hours of data. These data show that O₂ and CO₂ levels vary linearly. Therefore, the computer could be programmed to compute the CO₂ level from the corresponding reading of O₂. We feel that this would be adequate to determine CO₂ levels.
8. Condition No. 1b states that the plant can burn a maximum of 510 TPD MSW (255 TPD per combustor). The facility keeps records of the amount of waste that is delivered to the site and the amount burned. We would like to request that the first sentence under No. 1b be changed to read "The average throughput for each MWC shall not exceed the design average heat input rate of 95.6 MM Btu/hr, which corresponds to 255 TPD of waste having a HHV of 4500 Btu/lb.

The facility will be operated to maintain a steam flow rate of approximately 68,500 lb/hr. The computer control system has a setpoint that allows each combustor/boiler to maintain this value within a range of ±2000 lb/hr. When the steam flow drops below the setpoint, the rams are activated to increase the MSW feed into the combustor. When the steam flow exceeds the setpoint, less MSW is fed into the unit.

The higher heating value (HHV) of the waste varies because of the heterogeneous nature of the waste. In the spring and summer months, the waste can typically have a HHV less than 4500 because the waste is occasionally soaked by heavy rainfalls. In this case, it will take more than 255 TPD MSW to generate an average heat input of 95.6 MM Btu/hr. However, in terms of pollutant levels, the concentrations of particulate matter, NO_x, SO₂, HCl, CO, etc. in the flue gas will be approximately the same as when burning 4500 Btu/lb waste because the additional weight in the MSW is comprised of mostly water and/or inerts. On the other hand, if the waste contains more cardboard or paper (as during the holidays), the waste will have a heating value of more than 4500 Btu/lb and less waste, tonnage-wise, will be burned in the combustor.

8. (Continued)

We would like to propose using the boiler operating parameters to determine the average heat input into the combustor boiler. The computerized control system can be programmed to record various parameters including steam flow and flue gas O₂ concentration and temperature. By assuming the boiler efficiency and ash burnout remains relatively constant, the heat input from the waste can be estimated using these parameters. The facility will measure and record all of the appropriate data including the amount of waste burned and submit this data for review by DER.

9. Specific Condition No. 1d specifies that the normal operating range of the MWC shall be 80% to 100% of the design rated capacity. The facility is designed to operate at 50% to 120% design rated capacity. The equipment is designed with the excess margin so that it can operate for short time intervals and not be subject to strain and subsequently damaged. We would like to propose that this condition read "The normal operating range of the MWC shall be 80% to 120% of the design rated capacity."

If you have any questions regarding the above items, please call me at (412) 636-5806.

Sincerely,

Daniel S. Beachler

D. S. Beachler, Manager
Environmental and Quality Engineering

cc: S. J. Brady, Westinghouse RESD
G. G. Pennington, Bay County Resource Management Center

/kjd
EN1351DB-ENC9

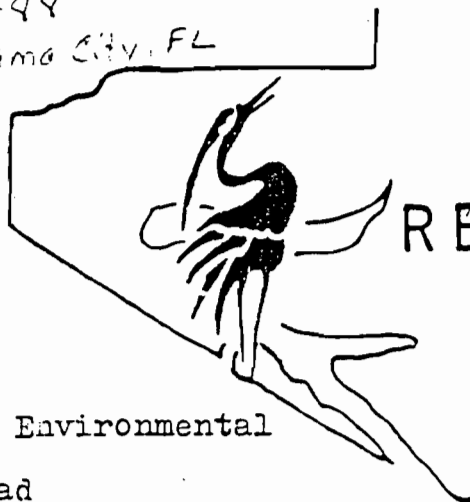
*copied: Pradip Raval
Barry Andrews
Tom Rogers
Ed Middleswart
Tom Moody
Wayne Aronson
Miguel Lopez
CFF/BT*

ATTACHMENT 14

9-19-88
Panama City, FL

John Comery

"FROM BIRDWATCHING



TO THE TOTAL ENVIRONMENT"

RECEIVED

September 17, 1988

SEP 20 1988

Mr. Clair Fancy
State Department of Environmental
Regulation
2600 Blair Stone Road
Twin Towers Office Building
Tallahassee, Florida 32301

DER-BAQM

Dear Mr. Fancy:

I am writing to outline the reasons for our objection to the granting of permits nos. AC 03-145061 and AC 03-152196. These permits involve increasing the charging rate of municipal solid waste (MSW) from 350 tons per day to 510 tons per day at the Bay County Resource Recovery Facility.

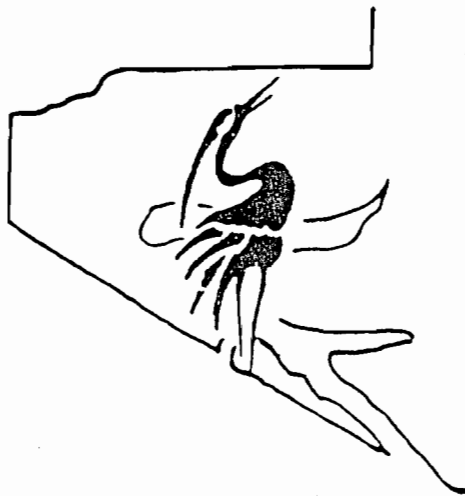
The proposed project will result in a net significant increase in SO₂ emissions as well as increases in particulate matter, carbon monoxide, nitrogen oxides, VOC, lead, mercury, beryllium, fluoride; sulfuric acid mist, and hydrogen chloride. The emission of furans, dioxins, and other carcinogenic compounds will undoubtedly also increase. A BACT review demonstrates that the cost per ton of overall pollutants controlled by dry scrubbers would be \$1863. The EPA has considered costs of up to \$2000 per ton as being reasonable. Yet your agency did not require the Bay County Resource Facility to add these scrubbers.

The Bay County Resource Recovery Facility was not initially intended to be a regional waste to energy facility. Therefore your objection that the time period needed to install additional equipment would be detrimental to attracting waste from surrounding counties is invalid.

The new Steelfield landfill is designed to handle MSW in the event that that the Bay County Resource Recovery Facility is shut down. Therefore your objection to a plant shutdown to install additional pollution control equipment based on the lack of an alternative disposal site for waste is invalid.

If the EPA is in the process of developing a policy in regard to the control equipment requirements for existing municipal waste combustors, then it follows that a decision on this permit should be delayed or denied until the EPA's final policy is released.

"FROM BIRDWATCHING



TO THE TOTAL ENVIRONMENT"

Mr. Clair Fancy
September 17, 1988
Page Two

Many of the pollutants that would increase if the permit were granted will contribute to the acid-rain problem facing our state and nation. Florida currently has 677 acid sensitive lakes, the highest number of any state in the country. The Office of Technology Assessment predicts that acid rain--causing pollutants are responsible for 50,000 premature deaths nationwide every year. Additionally there is evidence that nitrogen oxides may be contributing to the formation of low-lying ozone, which the Clean Air Act has sought to limit.

We are very disappointed with your decision to grant this permit despite the availability and economic feasibility of installing the necessary pollution control equipment. Your apparent lack of concern for the health of the environment and citizens of Bay County is disturbing. Your agency was established to regulate and control pollution, not to grant permits to increase it.

Very truly yours,

BAY COUNTY AUDUBON SOCIETY

BY: Jeffrey D. Palgut
Jeffrey D. Palgut, Conservation Committee

cc: Robert Kriegel, DER
Nelson B. Kverno, Fish & Wildlife Service, Region 6
Bruce P. Miller, EPA Region IV

Bay County Board of Commissioners
copied: Pradeep Raval
Barry Andrews
Tom Rogers

ATTACHMENT 15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

OCT 03 1988

4APT/APB-aes

RECEIVED

OCT 11 1988

DER - BAQM

Mr. Clair H. Fancy, Deputy Chief
Bureau of Air Quality Management
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399

Re: Bay County Waste-to-Energy Facility (PSD-FL-129)

Dear Mr. Fancy:

We have reviewed the preliminary determination and draft permit for the Bay County Waste-to-Energy Facility as well as the letter to you from Westinghouse. The permit was reviewed under the Region IV Overview of State Programs Policy. Our comments were discussed in a conversation on September 22, 1988, between Bill Thomas of your staff and Karrie-Jo Shell of my staff; our comments are:

Emission Limits

In order to effectively limit potential emissions of regulated pollutants, all emission limits must be tied to enforceable operating restrictions such as production, hours of operation, or materials processed per unit of time. These limitations must be shown to effectively limit the source's potential to emit for each pollutant. These requirements in limiting potential to emit are a result of a recent court decision, U.S. v. Louisiana-Pacific Corporation, which concluded that EPA can no longer recognize limits on actual emissions as being adequate for limiting a source's potential to emit unless the emission limits are also tied to other enforceable restrictions. For further explanation, refer to our May 13, 1988, letter to you which included an EPA memorandum entitled "Opinion in U.S. v. Louisiana-Pacific Corporation" dated December 23, 1987. Additionally, an emission limit for PM₁₀ should be included in the discussion of the projected pollutant emissions for this facility.

Compliance Testing

When designating the test method to be used for compliance testing, include which versions of 40 CFR Parts 60 and 61 to be used. Also, for pollutants not subject to testing provisions contained in 40 CFR Parts 60 or 61, specify a testing protocol, including each pollutant's sample volume, sampling time and the number of test runs for each test method specified.

Letter from Westinghouse Electric Corporation

Concerning item 4 in the letter, we object to using wood instead of fuel oil during start-up operations for the auxiliary fuel burners. Using wood would not ensure minimal particulate emissions prior to energizing the ESP.

In item 8, the word "average" must be defined. We recommend the average be determined by using the throughput for each municipal waste combustor over a three hour period.

Thank you for allowing us the opportunity to provide comments. If you have any questions, please contact Wayne Aronson or Karrie Shell of my staff at (404) 347-2864.

Sincerely yours,

Bruce P. Miller

Bruce P. Miller, Chief
Air Programs Branch
Air, Pesticides, and Toxics
Management Division

cc: Bay County Waste-to-Energy Facility Contact

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