

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

May 22, 1986

Mr. Bob Van Deman  
Director of Solid Waste Management  
Pinellas County  
2800 110th Avenue North  
St. Petersburg, Florida 33702

Dear Mr. Van Deman:

Enclosed is the draft PSD permit for the Pinellas County Refuse-to-Energy Facility. If you wish to have any changes made, please let me know as soon as possible next week. I would like to send the Preliminary Determination to EPA on May 30.

Sincerely,

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

CHF/pa

Enclosure

cc: Van Cook

0101011R

0891 EX 10M

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Notice of Prevention of Significant Deterioration (PSD)  
Draft Permit

Name and address of applicant:

Pinellas County  
315 Haven Street  
Clearwater, Florida 33516

Name and address of office processing application:

Department of Environmental Regulation  
Bureau of Air Quality Management  
2600 Blair Stone Road  
Tallahassee, Florida 32301

- a. On December 16, 1985, Pinellas County applied to the Florida Department of Environmental Regulation (DER) to construct
- b. an energy recovery facility at the county's Bridgeway Acres site. The application is subject to U.S. Environmental Protection Agency (EPA) regulations for Prevention of Significant Deterioration of Air Quality (PSD), codified at 40 CFR 52.21. 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 40 CFR 52.21. These requirements include a restriction on the incremental increases in air quality due to the new source, and application of best available control technology (BACT).

c,d The DER has been granted delegation by EPA to carry out the PSD review of this source, except for final signature of the PSD permit. Acting under that delegation, the DER has prepared a draft permit and made a preliminary determination that the construction will comply with all applicable provisions of the PSD regulations.

A copy of the administrative record of the application, including the draft PSD permit, the preliminary determination, and all materials submitted by the applicant, will be available for review for 30 days during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the following locations:

Department of Environmental Regulation  
Bureau of Air Quality Management  
2600 Blair Stone Road  
Tallahassee, Florida 32301

Department of Environmental Regulation  
Southwest District  
7601 Highway 301 North  
Tampa, Florida 33509

Pinellas County Department of  
Environmental Management  
Division of Air Quality  
16100 Fairchild Drive  
Bldg. - V102  
Clearwater, Florida 33520

Written comments on the preliminary determination may be submitted to:

C. H. Fancy, P.E.  
Bureau of Air Quality Management  
Department of Environmental Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32301  
Telephone (904)488-1344

Further information on the application, including copies of the application, the draft permit, and a fact sheet, may be obtained from the person named above.

All comments postmarked within 30 days of the date of this notice will be considered by DER in preparing the final determination. The final determination will be sent to EPA for issuance or denial of the PSD application.

Any person may request a public hearing on the draft permit. Request must be in writing, and shall state the issues to be raised in the hearing.

Requests for a hearing must be postmarked not later than 30 days from the date of this notice and sent to:

C. H. Fancy, P.E.  
Bureau of Air Quality Management  
Department of Environmental Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32301  
Telephone (904)488-1344

c,d

A special set of circumstances is applicable to this PSD permit application. A permit to construct the source was issued by the Power Plant Siting Board on February 29, 1984 under the Florida Power Plant Siting Act. At that time, DER considered such a permit to constitute a PSD permit issued under Florida's PSD regulations, which have been approved by EPA. Such approval by EPA transferred permit signature authority for PSD sources from

EPA to DER. Subsequent to the issuance of that permit, EPA determined that Power Plant Site Certifications, because of certain procedural differences, do not constitute PSD permits under the DER regulations, and thus do not satisfy the requirements of the Federal Clean Air Act. In order to rectify this situation, EPA withdrew authority from DER to issue PSD permits to such sources, but delegated to DER the authority to process the PSD applications in preparation for issuance of a permit by EPA.

Since Florida had already issued a Site Certification to Pinellas County, the source had begun construction prior to EPA's determination that the Florida procedure is inadequate. Consequently, EPA issued an administrative order under Section 167 of the Clean Air Act, which required Pinellas County to either immediately apply for a PSD permit or cease construction. Because of the special circumstances surrounding this application, EPA determined that the determination of best available control technology for this source could be made as of the date of the original complete application to Florida for a Power Plant Site Certification permit. Therefore, the draft permit and preliminary determination reflect the best available control technology as of August 31, 1983, the date of that application.

Preliminary Determination  
and Draft Permit  
Pinellas County Resource Recovery Facility  
Pinellas County, Florida

PSD-FL-098

Prevention of Significant Deterioration

40 CFR 52.21

Review performed by Florida Department of Environmental  
Regulation

May 23, 1986

## I. INTRODUCTION

Pursuant to Section 403.505, Florida Statutes, Pinellas County applied to the Florida Department of Environmental Regulation (DER) in August 1983 for certification of a steam electric generating, solid waste energy recovery facility at a site about one mile east of the town of Pinellas Park on the county's existing Bridgway Acres. After a thorough review by DER, including public hearings, the Florida Power Plant Siting Board issued a site certification to the County. 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 Pinellas County resource recovery facility (RRF), which was under construction, 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 Pinellas County to either cease construction or 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).

On December 16, 1985, Pinellas County 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.) In conducting the PSD review, EPA decided that, due to the unique circumstances of this permit application, the best available control technology (BACT) analysis would be conducted taking into account the factors affecting BACT at the time the County submitted a complete application for a site certification. That date was August 31, 1983.

- f. The proposed project will be a third resource recovery facility boiler which could use up to 1050 tons per day (TPD) of refuse as fuel. The proposed boiler expansion will increase the total solid waste processing capacity of the plant to 3150 TPD. The steam from the new boiler will be sent to a turbine generator with a capacity of 29 megawatts (MW) (gross). Pinellas County has contracted with a full service vendor to design, construct,

and operate the plant for 20 years. Generated electricity will be transmitted to the Florida Power Corporation (FPC) Gandy Substation for distribution over the FPC transmission system. The generating capacity of the expanded plant should be approximately 72 MW. The primary purpose of the facility is to dispose of solid waste. In addition to electricity, steam, ferrous metals, and aluminum could be recovered resources. Non-processible waste (including non-combustibles and demolition debris) and unusable residue will be buried at a licensed, off-site sanitary landfill. The sale of electricity, and eventually other processed and recovered resources, will help offset the overall cost of owning and operating the facility.

The Resource Recovery Facility (RRF) will be located on approximately 20 acres within the county's existing Bridgway Acres Phase I Landfill tract. The Phase I Landfill site is situated in the northern most 80 acres of a total of approximately 225 acres located just south of 114th Avenue North and west of 28th Street North. An existing 230 KV transmission line will be used to transmit the electricity from the resource recovery facility. Areas of the plant site not previously disturbed by landfilling. Activities were occupied either by pine flat woods or wet weather ponds. The topography is fairly level with elevation ranging from 5 to 10 feet above sea level across the tract. Geology of the site shows an over burden of sand, marl, and clay lies over solution riddle limestone and dolomite which forms the Floridan aquifer. The over burden forms a subsurface reservoir called the shallow aquifer. The proposed project will consist of a 29 MW steam electric generating turbine; one 1050 tons per day mass-burn solid waste fired boiler; a mechanical draft cooling tower; a 161 foot flue gas stack and an electrostatic precipitator.

Florida Power Corporation's existing 230 KV transmission line corridor will be used to transmit the electricity from the resource recovery facility.

## II. Rule Applicability

The proposed site of the Pinellas County 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 Pinellas 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 one 1050 TPD mass burn technology incinerator for the processing of up to 1050 TPD of municipal solid waste.

- g. The maximum annual emissions from the unit for all regulated pollutants have been estimated by the applicant. These emission rates, and the PSD significant emission rates, are listed in Table II-1.

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 as listed in Table II-1. For the proposed source, the applicant has addressed PSD review for the seven pollutants which will be emitted in significant amounts: PM, SO<sub>2</sub>, CO, NO<sub>x</sub>, Pb, Hg, 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 1050 tons per day, and thus is subject to NSPS and 17-2.600(1)(c). NSPS requires that the source meet a particulate emission rate of 0.08 grains per dry standard cubic foot (gr/dscf), corrected to 12% CO<sub>2</sub>. Regulation 17-2.600(1)(c) requires each incinerator to emit no more than .08 gr/dscf particulate corrected to 50% excess air.

### III. Preliminary Determination

As noted in Section II, Table II-1, the proposed source will result in significant emissions of the criteria pollutants PM, SO<sub>2</sub>, CO, NO<sub>x</sub>, and lead, and of the non-criteria pollutants mercury and fluorides.

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



h.

Table II-1

Pinellas County Resource Recovery Project  
Proposed Annual Emission Rates

Pollutant	Proposed Maximum Emission Rate (Ton/Yr)(1)	Significant Emission Rate for PSD Applicability
particulate Matter (PM)	109	25
volatile Organic Compounds (VOC)(2)	38	n/a
sulfur Dioxide (SO <sub>2</sub> )	613	40
carbon Monoxide (CO)	289	100
nitrogen Oxides (NOx)	577	40
lead (Pb)	5.7	0.6
mercury (Hg)	1.3	0.1
beryllium (Be)	0.00025	0.0004
fluorides (F)	19	3
sulfuric Acid Mist (H <sub>2</sub> SO <sub>4</sub> )(3)	15	7

1) Based on processing 1050 tons per day MSW for 365 days per year.

2) Nonattainment Pollutant.

3) The applicant did not address this pollutant. The department has estimated the emissions of H<sub>2</sub>SO<sub>4</sub> mist and determines that this pollutant is subject to PSD review.

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

BACT

An analysis of existing air quality;

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

An Ambient Air Quality Standards (AAQS) analysis;

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

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

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

Based on these required analyses, the Department has reasonable assurance that the proposed unit at the Pinellas County 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. For the proposed three unit plant, 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	0.03 gr/dscf
Sulfur Dioxide	3.20 lb/ton
Nitrogen Oxides	3.0 lb/ton

Carbon Monoxide	1.51 lb/ton
Lead	.030 lb/ton
Mercury	3200 grams/day
Beryllium	$1.3 \times 10^{-6}$ lb/ton
Fluorides	.099 lb/ton
Sulfuric Acid Mist	.077 lb/ton

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 present plans are to install one 1050 tons per day (TPD) incinerator-boiler unit to process a total of 1050 TPD of MSW and generate 29 megawatts of electrical power.

The incinerator will have an approximate heat input of 438 million Btu per hour based upon a MSW calorific content of 4500 Btu per pound. The incinerator will be scheduled to operate 8760 hours per year and on this basis the tons per year of the various air pollutants emitted was calculated.

Based upon air pollutant emission factors provided by the applicant, the calculated total annual tonnage of regulated air pollutants emitted from the three units to the atmosphere is listed in Table II-1.

k. The applicant has proposed the following air pollutant emission limits, on a pound per ton basis: Particulate-0.57, CO-1.51, SO<sub>2</sub>-3.2, NO<sub>x</sub>-3.0, Pb-0.030, Hg-0.0068, Be- $1.31 \times 10^{-6}$ , fluorides-0.099, and VOC-0.2 lb/ton. An electrostatic precipitator (ESP) will be used to control the particulate, Pb, Hg, and Be emissions. Design and operating procedures will control the emission of VOC, CO and NO<sub>x</sub>. The firing of only MSW, a low sulfur content fuel, will limit SO<sub>2</sub> and sulfuric acid mist emissions.

The applicant has requested emission limits for SO<sub>2</sub> to be a 24-hour limit of 3.2 pounds per ton of MSW charged into the incinerator. Emission test data from Westchester County, New York and Gallatin, Tennessee solid waste combustion sources indicate a range for SO<sub>2</sub> emissions from 2.6 to 3.5 pounds per ton of feed.

The 3.2 figure is judged to be BACT. The amount of SO<sub>2</sub> emitted would be comparable to the burning of distillate oil having a 0.35 percent sulfur content. Burning low sulfur fuel is one acceptable method of controlling SO<sub>2</sub> emissions. The installation of a flue gas desulfurization system to control SO<sub>2</sub> emissions is not warranted when burning MSW.

The mercury emission limit determined as BACT is equal to the National Emission Standard for Hazardous Air Pollutants (NESHAP), 40 CFR 61.50, Subpart E, for municipal waste water sludge incineration plants. The provisions of this subpart, however, do not apply because no grease, scum, grit screenings or sewage sludge will be incinerated in the proposed incinerators. According to the report "Air Pollution Control at Resource Recovery Facilities" issued by the California Air Resources Board, the average mercury emission factor when firing MSW is  $4 \times 10^{-4}$  pounds per million Btu. The applicant has proposed a mercury emission rate of 0.0068 lb/ton. The BACT is determined to be 3200 grams/day.

The uncontrolled emission of beryllium, according to the California report, when firing MSW is estimated to be  $6.2 \times 10^{-6}$  pounds per million Btu. Uncontrolled beryllium emissions would be approximately 11 grams per 24 hours or 0.01 TPY. The operating temperature of the particulate matter emission control device will be below 500°F. Operation below this temperature is necessary to force absorption/condensation of beryllium oxides, present in the flue gas stream, onto available fly ash particles subsequently removed by the control device. Assuming 95% efficiency of the control device the annual beryllium emissions are estimated at 0.0007 tons per year. This amount of beryllium emitted is considered to have a negligible impact on the environment. The emission factor of  $1.31 \times 10^{-6}$  lb/ton MSW proposed by the applicant is judged to be BACT. If beryllium containing waste as defined in the National Emission Standards for Hazardous Air Pollutants (NESHAP), Subpart C, Subsection 61.31(g), were charged into the incinerator, emissions of beryllium to the atmosphere could not exceed 10 grams per 24 hours or an ambient concentration of 0.01 ug/m<sup>3</sup>, 30 day average. Compliance with this beryllium emission limit would be in accordance with NESHAP, Subpart C. However, the applicant has not applied to burn beryllium-containing waste, and the permit prohibits this activity.

L. The temperature of the incinerator combustion gases at the inlet to the particulate control device is estimated to be 425-475 °F. At these temperatures any lead would be in a nonvaporous state and would be removed by the particulate control device. The lead emission limit will be set at 0.030 pounds per ton of MSW charged into the incinerator. This level of control is judged to be BACT.

Since there are several secondary lead reclamation plants in the Tampa area, there is an economic incentive to recycle lead containing materials. The majority of lead emissions from an incinerator are expected to originate from solder joints in

discarded electronic devices. The amount of lead emitted is not considered to have a significant impact upon the environment.

During combustion of municipal solid waste,  $\text{NO}_x$  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  $\text{NO}_x$  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  $\text{NO}_x$  emissions. A few add-on control techniques such as catalytic reduction with ammonia and thermal de- $\text{NO}_x$  are still experimental, and are not considered to be demonstrated technology for the proposed project.

m. The proposed units will use proprietary grate and combustion controls to limit  $\text{NO}_x$  emissions at 3.0 pounds per ton of MSW charged. This level of control is judged to represent BACT.

n. 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 department agrees with the applicant that BACT is the grate and combustion control system to insure sufficient mixing of the MSW and air so that the emission of products of incomplete combustion is minimized. The proposed CO emission rate is 1050 pounds per ton. This level of control is judged to represent BACT.

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.

Particulate matter emissions will be controlled by an electrostatic precipitator (ESP). The proposed boiler will be equipped with its own ESP which will be efficient to 0.030 grains per dry standard cubic foot corrected to 12%  $\text{CO}_2$  at the outlet. At this emission rate, particulate matter emissions for the facility will be approximately 109 tons per year.

VOC emissions, like carbon monoxide emissions, result from incomplete oxidation of carbon compounds. Control of CO and VOC emissions can be mutually supportive events.

The applicant indicates that fluorides will be emitted by the proposed facility. Emissions of fluoride are estimated at 0.099 pounds per ton of fuel combusted. At this emission rate, fluorides would be emitted at a rate of 4.3 pounds per hour or 19.0 tons per year. The significant emission rate for fluoride is 3.0 tons per year. Control of acid gas emissions would be obtained by a scrubber. However, at the level of these acid gas emissions, the addition of a scrubber for acid gas control would be uneconomical. No control is judged to represent BACT. In addition, BACT for the control of acid gas emissions is that the initial design of the proposed facility include provisions for the possible future installation of a wet or dry flue gas scrubber system, if deemed necessary.

b. NSPS and Florida SIP Limit Analysis

These two regulations dictate similar emission limits using slightly different units. The proposed particulate emission limit of 0.030 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 Pinellas 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

Two EPA-approved dispersion models, the Single Source CRSTER model and the Industrial Source Complex Short-term (ISCST) model, were used in the air quality impact analysis. Both of these models relate ground-level concentrations to pollutant emissions of inert gases or small particles from a point source by imposing a Gaussian solution to the steady-state mass conservation equation. The CRSTER model, which is confined by the collocation of all point sources, was used to identify the critical years of meteorology. The ISCST model, which allows for separation of sources and several other features, such as the inclusion of building wake downwash, was used to refine the analysis.

The surface and upper air meteorological data used in these models were National Weather Service data collected at Tampa,

Florida, during the period 1970-1974. Since five years of data were used, the highest, second-high short-term predicted concentrations may be used to compare with the appropriate ambient standard or PSD increment.

The stack parameters and emission rates used in evaluating the ambient impacts are contained in Table V-1 and Table V-2, respectively. Only for the pollutants SO<sub>2</sub> and PM were all the sources evaluated. Total ambient air quality impacts were based on the modeled impacts plus the monitored "background" concentrations.

#### b. Analysis of Existing Air Quality

Preconstruction ambient air quality monitoring may be 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 no less than four months, may be accepted when department approval is given. An exemption to this requirement can be obtained if the maximum air quality impact, as determined through 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 project (Unit 3) for each of the seven pollutants subject to review are given in Table V-3 along with the monitoring de minimus levels. From the table it is seen that PM, NO<sub>x</sub>, CO, and Hg have maximum air impacts less than the de minimus level; therefore no preconstruction monitoring is required. Sufficient data in the area of the source already exist for SO<sub>2</sub> and Pb to define existing air quality for these pollutants. Although fluorides are subject to monitoring requirements, no EPA-approved method currently exists to measure ambient concentrations of this pollutant.

Table V-4 shows the monitored ambient air quality levels for the most recent complete year (1982) for all the criteria pollutants, including the required data for SO<sub>2</sub> and Pb. These data were collected from existing monitors in Pinellas County.

#### c. PSD Increment Analysis

The Pinellas County RRF is located in an area where the Class II PSD increments apply. The facility is also located approximately 75 kilometers from the Class I Chassahowitzka

TABLE V-1  
 PINELLAS COUNTY RESOURCE RECOVERY PROJECT  
 SOURCE PARAMETERS USED IN MODELING

Source	UTM-E (km)	UTM-N (km)	Stack Height (m)	Exit Temperature (K)	Exit Velocity (m/s)	Stack Diamet (m)
RRF Unit 3	335.2	3084.1	49.1	505	26.8	2.37
RRF Units 1-2	335.2	3084.1	49.1	505	26.8	2.37
McKay Bay RRF	360.0	3091.9	45.7	500	21.3	1.91
TECO Big Bend	361.9	3075.0	149.4	426	15.6	7.00
FPC Bartow	342.4	3082.7	91.4	408	44.0	3.35
FPC Higgins	336.5	3098.5	53.0	422	10.4	3.81
Anclote Unit 1	324.9	3119.0	152.1	416	50.0	3.66
Anclote Unit 2	324.9	3119.0	152.1	416	28.3	3.66
Hooker Pt. Units 1,2	360.0	3087.5	61.0	427	8.1	4.30
Hooker Pt. Units 3,5	360.0	3087.5	93.3	400	26.9	3.20
Hooker Pt. Unit 4	360.0	3087.5	93.3	438	42.4	2.90
Hooker Pt. Unit 6	360.0	3087.5	93.3	417	23.4	5.40
TECO Gannon Units 1-5	385.0	3091.0	85.3	403	9.2	3.43
TECO Gannon Unit 6	385.0	3091.0	85.3	403	18.0	2.87

Area Source	UTM-E (km)	UTM-N (km)	Release Height (m)	Area Width (m)
Golden Triangle	330.0	3085.0	12.45	100



TABLE V-2  
 PINELLAS COUNTY RESOURCE RECOVERY PROJECT  
 MAXIMUM HOURLY EMISSION RATES

Source	SO <sub>2</sub> (g/s)	PM (g/s)	NO <sub>x</sub> (g/s)	CO (g/s)	HC (g/s)	Pb (g/s)	Hg (g/s)	Be (g/s)	Fluorides (g/s)	Chloride (g/s)
RRF Unit 3	10.5	2.8	16.6	8.3	1.7	0.17	0.06	7.2x10 <sup>-6</sup>	0.55	22.0
RRF Units 1-2	21.0	5.6								
McKay Bay RRF	21.4	4.1								
TECO Big Bend	6002.2	79.2								
FPC Bartow	722.2	30.9								
FPC Higgins	286.7	8.9								
Anclote Unit 1	1631.9	58.1								
Anclote Unit 2	816.0	29.0								
Hooker Pt. Units 1,2	328.0	15.1								
Hooker Pt. Units 3,5	384.8	16.7								
Hooker Pt. Unit 4	142.6	9.6								
Hooker Pt. Unit 6	832.6	10.1								
TECO Gannon Units 1-5	130.7	11.8								
TECO Gannon Unit 6	58.3	2.6								

TABLE V-3

MAXIMUM AIR QUALITY IMPACTS (UNIT 3 ONLY)  
FOR COMPARISON TO DEMINIMUS AMBIENT LEVELS

<u>Pollutant</u>	<u>Maximum Modeled Concentration (ug/m<sup>3</sup>)</u>	<u>Deminimus Ambient Impact Level (mg/m<sup>3</sup>)</u>
SO <sub>2</sub> (24-hour)	26.3	13
PM (24-hour)	4.1	10
NO <sub>2</sub> (Annual)	0.9	14
CO (8-hour)	8.6	575
Pb (24-hour)	0.25	0.1
Hg (24-hour)	0.082	0.25
Fluorides (24-hour)	0.82	0.25

TABLE V-4

PINELLAS COUNTY 1982 MONITORING DATA IN THE VICINITY OF  
THE PINELLAS COUNTY RESOURCE RECOVERY FACILITY

<u>Pollutant</u>	<u>Site</u>	<u>Averaging Time</u>	<u>Maximum Concentration(ug/m<sup>3</sup>)</u>	<u>2nd Maximum Concentration(ug/m<sup>3</sup>)</u>
SO <sub>2</sub>	3980 023	3-hour	642	485
		24-hour	205	112
		Annual	24	-
PM	3980 023	24-hour	67	64
		Annual	33	-
NO <sub>2</sub>	3980 018	Annual	27	-
CO	3980 018	1-hour	14000	11000
		8-hour	7000	6000
Pb	3980 024	Quarterly	0.8	0.7

National Wilderness Area. As such an analysis of the impact on this area must be performed.

A PSD increment analysis is required for the pollutants SO<sub>2</sub> and PM only. The PSD increments represent the amount that new sources in the area may increase ambient ground-level concentrations of these pollutants for various time averages. At no time, however, can the increased loading of these pollutants into the atmosphere from these new sources cause or contribute to a violation of the ambient air quality standards.

For the Pinellas County RRF the proposed Unit 3 along with the previously built Units 1 and 2 all consume PSD increment. In addition, several other new sources in the area have been identified which may interact with the Pinellas County RRF in consuming the allowed PSD increments. These sources are the McKay Bay RRF and the TECO Big Bend power plant.

Atmospheric dispersion modeling was performed, as discussed previously, taking into account only those new sources which consume PSD increment. The results of the modeling are summarized in Table V-5.

The impact of these sources on the nearest Class I area was not explicitly modeled. The models used in this air quality analysis are not appropriate for predicting ground-level concentrations beyond 50 kilometers. However, the impact on the Class I area may be extrapolated from modeling results showing the proposed Unit 3 impact on the two distant non-attainment areas. An SO<sub>2</sub> nonattainment area is located near Tarpon Springs approximately 23.5 kilometers from the Pinellas County RRF. The impacts of Unit 3 alone on this area are 2.2 ug/m<sup>3</sup>, 3-hour average; 0.3 ug/m<sup>3</sup>, 24-hour average; and 0.02 ug/m<sup>3</sup>, annual average. These values are less than significant for impacts on nonattainment areas and would be much less at the distance of the Class I area. A PM nonattainment area is located in Tampa, 14.4 kilometers from the RRF. Here, the impacts of Unit 3 alone are 0.01 ug/m<sup>3</sup>, 24-hour average and 0.006 ug/m<sup>3</sup>, annual average. Again, these impacts are less than significant for nonattainment areas and the concentrations would be much less at the distance of the Class I area. Table V-5 indicates the results of all the PSD increment modeling.

#### d. AAQS Analysis

Given existing air quality in the area of the Pinellas County RRF, the proposed Unit 3 emissions are not expected to cause or contribute to a violation of an AAQS. The results of the AAQS analysis are contained in Table V-6.

TABLE V-5  
COMPARISON OF NEW SOURCE IMPACTS  
WITH PSD INCREMENTS

Pollutant and Time Average	PSD Class II Increment (ug/m <sup>3</sup> )	Predicted Concentration (ug/m <sup>3</sup> )	Increment Consumed (%)	PSD Class I Increment (ug/m <sup>3</sup> )	Predicted Concentration (ug/
SO <sub>2</sub>					
3-hour	512	262	51	25	<<25
24-hour	91	91	100	5	<<5
Annual	20	5	25	2	<<2
PM					
24-hour	37	6	16	10	<<10
Annual	19	0.4	<0.1	5	<<5

TABLE V-6  
COMPARISON OF TOTAL IMPACTS WITH  
AMBIENT AIR QUALITY STANDARDS

Pollutant and Time Average	Maximum Impact Unit 3 (ug/m <sup>3</sup> )	Maximum Impact All Sources (ug/m <sup>3</sup> )	Existing Background (ug/m <sup>3</sup> )	Maximum Total Impact (ug/m <sup>3</sup> )	Florida AAQS (ug/m <sup>3</sup> )
<b>SO<sub>2</sub></b>					
3-hour	40	285	485	770	1300
24-hour	26	106	112	218	260
Annual	1	14	24	38	60
<b>PM</b>					
24-hour	4	6	64	70	150
Annual	0.2	0.7	33	34	60
<b>NO<sub>2</sub></b>					
Annual	1	3	27	30	100
<b>CO</b>					
1-hour	13	39	11000	11039	40000
8-hour	9	27	6000	6027	10000
<b>Pb</b>					
Quarterly	0.3	0.7	0.8	1.5	1.5

Of the pollutants subject to PSD review only the criteria pollutants SO<sub>2</sub>, PM, CO, NO<sub>2</sub>, and Pb have an AAQS with which to compare. All sources listed in Table I-1 were modeled to determine the maximum ground-level impacts for SO<sub>2</sub>, and PM. For CO, NO<sub>2</sub>, and Pb only the three units at the Pinellas County RRF were modeled to determine the maximum ground-level concentrations resulting from this facility.

The total impact on ambient air is obtained by adding a "background" concentration to the maximum modeled concentrations. This "background" concentration takes into account all sources of the particular pollutant in question that were not explicitly modeled. A conservative estimate of these "background" concentrations as listed in Table V-4. These are conservative estimates because sources used in the modeling may have contributed to the monitored value and this would be contributing doubly to the total impact.

## 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 a 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.

### 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. Acid Rain Impact

The increased emissions of SO<sub>2</sub> and NO<sub>x</sub>, precursors to possible acid formation and subsequent acidic rain, from the proposed Unit 3 project are relatively small. In comparison with the emissions of these pollutants from nearby power plants the increased loading due to the proposed project is inconsequential. Thus, no adverse impact on the acidity of rainfall is expected as a result of this project.

#### d. Growth-Related Air Quality Impacts

The construction of the proposed Unit 3 will require between 200 and 300 persons. Nearly all will be from the local area. The project is not expected to stimulate any additional growth or shift the nature of projected growth to the extent that an air quality impact will result.

#### e. GEP Stack Height Determination

Good engineering practice (GEP) stack height means 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 the building height is 35.4 meters and the building width is 35.0 meters. Thus definition (2) above leads to a GEP stack height of 87.9 meters.

Due to the proximity of the facility to an airport, the stack height cannot be built to the GEP height. The applicant has addressed the possible increased ground-level concentrations (as a result of aerodynamic effects of the nearby building) by including a downwash mechanism in the modeling.

### 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. The source will be located 23.5 kilometers from SO<sub>2</sub> nonattainment area and is a major source for SO<sub>2</sub>. Under the Interpretative Ruling, the proposed source would be subject to certain more stringent requirements if the impact of its SO<sub>2</sub> emissions on the nearby



nonattainment area exceeded  $1 \text{ ug/m}^3$  annual average,  $5 \text{ ug/m}^3$  24-hour average, or  $25 \text{ ug/m}^3$  3-hour average. The modeling analysis shows the impacts of the proposed source to be less than each of those levels, so the Interpretative Ruling will not apply. The source is also located 14.4 kilometers from the Tampa particulate nonattainment area. Again, the predicted impacts on this area are less than significant and the Interpretative Ruling does not apply.

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),

Pinellas County, Florida

q.

is, as of the effective date of this permit (PSD-FL-98) authorized to construct a stationary source at the following location:

One mile east of Pinellas Park on  
the existing County's existing  
Bridgeway Acres Phase I Landfill tract.

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

r.

Date Signed

Regional Administrator

PART I

Specific Conditions

1. Emission Limitations

- s. a. Stack emissions from each unit shall not exceed the following:
- t. (1) Particulate matter: 0.030 grains per dry standard cubic foot corrected to 12% CO<sub>2</sub> (gr/dscf-12%) or 24.9 pounds per hour whichever is more restrictive.
- (2) Visible Emissions: Opacity of stack emissions shall not be greater than 15% opacity except that 20% opacity may be allowed for one six-minute period (average of 24 consecutive observations recorded at 15-second intervals) in any one hour. 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. Opacity of other emission points at the plant shall not exceed 5%.
- (3) VOC: 8.75 lb/hr, or 0.2 lb/ton, whichever is more restrictive
- (4) SO<sub>2</sub>: 140 lb/hr, or 3.2 lb/ton, whichever is more restrictive, 24-hour average,
- (5) Nitrogen Oxides: 131.25 lb/hr, or 3.0 lb/ton, whichever is more restrictive
- (6) Carbon Monoxide: 66.1 lb/hr, or 1.8 lb/ton, whichever is more restrictive.
- (7) Lead: 1.3 lb/hr, or 0.020 lb/ton, whichever is more restrictive.
- (8) Fluorides: 4.3 lb/hr, or 0.060 lb/ton, whichever is more restrictive.

- (9) Beryllium:  $56.9 \times 10^{-6}$  lb/hr, or  $1.3 \times 10^{-6}$  lb/ton, whichever is more restrictive.
- (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: 0.0040 gr/dscf-12%, or 0.077 lb/ton, whichever is more restrictive.
- (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.
- (13) The three unit is 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.
- (15) Only natural gas will be used as an auxiliary fuel.

*No Aux fuel*

b. Compliance Tests

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

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

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

- h. Method 7 for concentration of nitrogen oxides. Four samples, taken at approximately 15 minute intervals, shall constitute one test run.
- i. Method 8 for determination of sulfuric acid mist concentration and associated moisture content. One sample shall constitute one test run.
- j. Method 10 (continuous) for determination of CO concentrations. One sample constitutes one test run.
- k. Method 12 for determination of lead concentration and associated moisture content. One sample constitutes one test run.
- l. Method 25 for determination of volatile organic compounds (VOC) concentration. One sample shall constitute one test run.
- m. Method 13A or 13B for determination of fluoride concentrations and associated moisture content. One sample shall constitute one test run.
- n. Method 101A for determination of mercury emission rate and associated moisture content. One sample shall constitute one test run.
- o. Method 104 for determination of beryllium emission rate and associated moisture content. One sample shall constitute one test run.

(3) The stack tests shall be performed at  $\pm 10\%$  of the heat input rate of 150 million Btu per hour per boiler; however, compliance with the particulate matter emission limit shall be at design capacity.

- v. 2. The height of the boiler exhaust stack shall be 220 feet above ground level at the base of the stack.
- w. 3. The incinerator boilers shall not be loaded in excess of their rated capacity of 36,666 pounds 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.

x. 7. Electrostatic Precipitator

The electrostatic precipitator shall be designed and constructed to limit particulate emissions to no more than 0.021 grains per dscf corrected to 12% CO<sub>2</sub>.

8. Stack Monitoring Program

y. The permittee shall install and operate continuous monitoring devices for stack oxygen and 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.

9. Reporting

a. A copy of the results of the stack tests shall be submitted within forty-five days of testing to the DER Southwest Florida District Office, the Pinellas County Department of Environmental Management (PCDEM) and EPA Region IV.

b. Stack monitoring shall be reported to PCDEM, the DER Southwest 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.

10. Fuel

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

11. Addresses for submitting reports are:

a. EPA - Region IV

Chief, Air Compliance Branch  
U.S. Environmental Protection Agency  
345 Courtland 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. Southwest District Office of DER

District Manager  
Department of Environmental Regulation  
7601 Highway 301 N.  
Tampa, FL 33610



## 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.

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