Final Determination
and Permit Conditions

Pinellas County Resource Recovery Facility Unit 3

Pinellas County, Florida

PSD-FL-098

Prevention of Significant Deterioration

(40 CFR 52.21)

May 22, 1987

CONTENTS

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 on the County's existing Bridgeway Acres Landfill tract. After a thorough review by DER, including public hearings, the Florida Power Plant Siting Board issued a site certification to the County. At the time of the County's application, FDER 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 (i.e., PSD Regulations) pertaining to power plants other than those in the Act. Consequently, EPA determined that the Florida PSD regulations were superseded by the PPSA, and that the PPSA could not legally be approved by EPA as part of the State Implementation Plan (SIP) since it did not comply with EPA PSD regulations both procedurally and substantively. Thus, EPA concluded that the proposed Pinellas County Resource Recovery Facility (RRF) could not be issued a valid PSD permit by FDER. Nor could the PPSA certification substitute for a valid PSD permit. EPA subsequently remanded PSD authority for sources subject to the PPSA while delegating responsibility for the technical and administrative portions of the PSD review to the FDER.

On December 13, 1985, Pinellas County applied to DER for a PSD permit. 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. The following final determination and permit constitute EPA's final action as well as the culmination of those activities delegated to the FDER by EPA.

The project constitutes the third incinerator at this resource recovery facility and uses up to 1050 tons per day (TPD) of refuse as fuel. The boiler expansion increases the total solid waste processing capacity of the facility to 3150 TPD. The steam from the new boiler is sent to a turbine generator with a capacity of 29 megawatts (MW) (gross). Pinellas County contracted with a full service vendor to design, construct, and operate the plant for 20 years. Generated electricity is transmitted to the Florida Power Corporation (FPC) Gandy Substation for distribution over the FPC transmission system. The generating capacity of the expanded plant is approximately 79.9 MW.

II. RULE APPLICABILITY

The proposed site of the Pinellas County RRF is located within a nonattainment area for ozone. This designation requires that all proposed new sources which would emit greater than 100 tons per year (TPY) of volatile organic compound (VOC) undergo a nonattainment review. As the proposed incineration facility is projected to emit less than 100 TPY of VOC, the proposed source is not subject to a nonattainment review. In addition, the source is within 25 kilometers of the Pinellas County sulfur dioxide nonattainment area and within 15 kilometers of the particulate nonattainment area in Tampa. Modeling demonstrates that this source will have an insignificant impact on these areas and is not subject to review requirements for sources impacting on nonattainment areas.

The source is subject to the regulations for PSD of air quality under 40 CFR §52.21 regarding the assessment of source emissions in attainment or unclassified areas. Since this source is within the category of stationary sources listed under the PSD regulations which specifies the threshold of emissions for PSD applicability as 100 TPY or greater for any regulated pollutant, the source must provide a BACT determination, an ambient air quality analysis, a source impact analysis and an additional impact analysis (soils, vegetation, visibility) for each pollutant emitted in significant amounts. These include: particulate matter (PM), sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen oxides (NO_x), lead (Pb), mercury (Hg), and fluorides (as hydrogen fluoride, HF). In addition to the above, a Class I area impact analysis is required because the source is to be located within 100 kilometers of the Chassahowitzka National Wilderness area.

New Source Performance Standards (NSPS) for incinerators under 40 CFR 60, Subpart E, apply to this new unit. This NSPS sets emission standards for incinerators capable of charging more than 50 tons per day of municipal solid waste and limits the maximum amount of PM which may be emitted from any facility subject to this regulation. NSPS for boilers under 40 CFR 60, Subpart Db does not apply to this new unit since construction on the unit commenced prior to June 19, 1984.

III. PSD APPLICABILITY DETERMINATION

Title 40 Code of Federal Regulations, Section 52.21, requires that each pollutant subject to PSD review must be controlled by BACT. Seven pollutants are subject to BACT. The BACT emission limits proposed are summarized as follows:

Pollutant	BACT EMISSION LIMITS
Particulate Matter	0.030 gr/dscf (corrected to 12% CO_2) (1)
Sulfur Dioxide	170.0 lbs/hr
Nitrogen Oxides	254.0 lbs/hr
Carbon Monoxide	66.0 lbs/hr
Lead	2.80 lbs/hr
Mercury	0.294 lbs/hr (2)
Fluorides	8.31 lbs/hr

Based upon these air pollutant emission limits, the calculated total annual tonnage of regulated air pollutant 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)	109	25
Sulfur Dioxide	(SO_2)	745	40
Nitrogen Dioxide	(NO)	1112	40
Carbon Monoxide	(CO)	289	100
Lead	(Pb)	12.3	0.6
Mercury	(Hg)	1.29	0.1
Fluorides	(F)	36.4	3
Beryllium	(Be)	0.000394 (3)	0.0004

(1) As discussed in the BACT determination (page 4), EPA will set an initial particulate emissions limit of 0.03 gr/dscf. Within 24 months of startup of operation, the County shall submit compliance tests that will be used to determine if a new particulate emission limit is warranted. The limit will be determined by observed average emission rate (x) from the submitted compliance tests and will be statistically analyzed using the one tailed student T test ($t_{.05} = (x - u)\, n^{0.5}/s$) at the 95% confidence level to derive a mean emission rate (u), where s is the standard deviation of observed values n. The final operating particulate emissions limit shall be this mean emission rate (u). This limit shall be restricted to no more than 0.030 grains per dry standard cubic foot (corrected to 12% CO_2) or no less than 0.020 grains per dry standard cubic foot (corrected to 12% CO_2).

(2) When more than 2205 lbs/day of municipal sludge is fired.

(3) An emission limitation is included in the permit to limit these emissions to below the PSD significant emissions rate.

IV. BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

A. Particulate Matter

NSPS for incinerators limit particulate emissions from this unit to 0.08 grains per dry standard cubic foot (gr/dscf) based on a 12% flue gas concentration of carbon dioxide. However, BACT clearinghouse reports incinerators emission limits to be from 0.01 to 0.03 gr/dscf.

In performing the BACT determination, EPA decided to take into account what BACT would have been in 1983 due to the time elapsed from the commencement of construction authorized under Florida rule and the application for a federally enforceable PSD permit. EPA will set an initial particulate emissions limit of 0.03 gr/dscf. Within 24 months of startup of operation, EPA will evaluate emissions testing data at the facililty and determine if a change in the allowable emission rate is warranted. A permit provision was added which will allow EPA to determine a more stringent limit should emissions testing reveal that the unit is capable of achieving a better control efficiency. The more stringent limit, as proposed by EPA, will be no lower than 0.02 gr/dscf and should be achievable on a continuous basis without an increase in capital costs.

B. Sulfur Dioxide

The emissions of sulfur dioxide from municipal solid waste incinerators depends on three factors. These factors are: the sulfur content of the waste, the conversion of organic and inorganic sulfur compounds to sulfur dioxide, and the retention of the sulfur dioxide in the ash. Emission test data for a multitude of solid waste combustion facilities is contained in the California Air Resources Board Report. These data indicate that emissions of SO_2 from these facilities range from 0.4 to 7.2 pounds of SO_2 per ton of solid waste fired. The proposed emission limit of 170 pounds per hour, equivalent to 3.9 pounds of SO_2 per ton of solid waste fired, is in the middle of this expected range and is determined to be BACT for this source. (It should be noted that acid gas controls were not considered to be BACT for SO_2 emissions at the time of the application (1983).)

C. Nitrogen Oxides

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 emissions. 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.

The proposed unit will use propriety grate and combustion controls to limit NO_x emissions at 254 pounds per hour. This level of control is judged to represent BACT.

D. Carbon Monoxide

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. The applicant proposes that BACT is a properly designed grate and combustion control system to ensure sufficient mixing of the MSW and air so that the emissions of carbon monoxide are minimized. The proposed CO emission rate is 66 pounds per hour. EPA agrees with the proposal and has judged this emission rate to be BACT for carbon monoxide emissions.

E. Lead

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 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 below 500°F. The particulate control equipment would be capable of removing the lead emissions from the flue gas stream at this temperature.

The emission limit judged to be reasonable for lead is based on test results at similar facilities and the degree of emission control that will be provided by the control equipment which has been determined to be BACT for particulate matter at this facility. In accordance with data contained in the California Air Resources Board (CARB) report on resource recovery facilities, the high concentration of lead in MSW is 0.032 lbs/mm Btu. Based on the control efficiency reported for lead emissions using the required BACT, for particulate matter an emission limitation of 2.80 lbs/hr is judged to be BACT.

F. Mercury

The mercury emission limit determined as BACT is equal to the National Emission Standard for Hazardous Air Pollutant (NESHAP), 40 CFR § 61.50, Subpart E, for municipal wastewater 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 incinerator. According to the report "Air Pollution Control at Resource Recovery Facilities" issued by the CARB, the "high" mercury content of municipal solid waste is 8.4×10^{-4} pounds per million Btu. The applicant has proposed an emission limit of 3200 gram/day when more than 2205 lbs/day of municipal sludge is fired. EPA has determined that an emission rate of 0.294 lbs/hr (3200 grams/day) is BACT for this facility.

G. Fluorides

The incineration of fluorine containing wastes results in the emissions of both particulate fluoride and gaseous fluoride (as hydrogen fluoride) emissions. Emission tests have reported fluoride emissions to be from 0.0002 to 0.2 lbs/ton MSW. The applicant has requested the upper limit as an emissions limit for this pollutant. EPA has determined that this request is justified as no control for this pollutant has been installed at this facility nor will it be required. The BACT emission rate has been determined to be 8.31 lbs/hr.

V. Air Quality Analysis

The air quality impact from 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, EPA 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 predict ground-level concentrations of emissions of gaseous pollutants or small particles from a source through the use of a Gaussian distribution algorithm. The CRSTER model, which is confined by the colocation of all points 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 were used for comparison against the appropriate ambient standard of 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_2 and PM were all the sources evaluated. Total ambient air quality impacts were based on the modeled impacts plus the monitored "background" concentrations.

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 Diameter (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 Pts. Unit 1,2	360.0	3087.5	61.0	427	8.1	4.30
Hooker Pts. Unit 3,5	360.0	3087.5	93.3	400	26.9	3.20
Hooker Pts. Unit 4	360.0	3087.5	93.3	438	42.4	2.90
Hooker Pts. 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

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

Source	SO_2 (g/s)	PM (g/s)	NO_x (g/s)	CO (g/s)	HC (g/s)	Pb (g/s)	Hg (g/s)	Be (g/s)	fluorides (g/s)	Chlorides (g/s)
RRF Unit 3	21.5	2.8	32.0	8.3	1.7	0.353	0.038	1.15×10^{-5}	1.05	22.0
RRF Unit 1-2	43.1	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								

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 EPA 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's area, then, at the discretion of EPA, 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_x, 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_2 and Pb to define existing air quality for these pollutants. Two continuous SO_2 monitors are located in the vicinity of the proposed project. The first, located at site 3620-002, is a special purpose monitoring (SPM) station with the objective of monitoring emissions from the RRF. It is located 1.8 kilometers from the facility and was placed at that location as part of the post construction monitoring requirements associated with the operation of Units 1 and 2. The second SO_2 monitor (site 3980-023) is a NAMS station sited for population exposure measurements and is located 5.1 kilometers from the facility. The nearest lead monitor is located at site 2260-002, 3.2 kilometers from the RRF. This SPM monitor is sited to measure the maximum concentration of lead in an area of high traffic volume. As such, concentration levels measured at this site should be greater than at the RRF and thus considered to be a conservative measure of background levels there.

Although fluorides are subject to monitoring requirements, no EPA-approved method currently exists to measure ambient concentration of this pollutant.

Table V-4 shows the monitoring ambient air quality levels for the most recent complete year (1982) for all the criteria pollutants, including the required data for SO_2 and Pb. These data were collected from existing monitors in Pinellas County.

TABLE V-3

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

Pollutant		Maximum Modeled Concentration (ug/m_3)	De minimus Ambient Impact Level (ug/m^3)
SO_2	(24-hour)	16.4	13
PM	(24-hour)	4.1	10
NO_2	(Annual)	1.7	14
CO	(8-hour)	8.6	575
Pb	(Quarterly)	0.037	0.1
Hg	(24-hour)	0.051	0.25
Fluorides	(24-hour)	1.56	0.25

TABLE V-4

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

Pollutant	Site	Averaging Time	Maximum Concentration (ug/m^3)	2nd Maximum Concentration (ug/m^3)
SO_2	3980 023	3-hour	642	485
		24-hour	205	112
		Annual	24	-
PM	3980 023	24-hour	67	64
		Annual	33	-
NO_2	3980 018	Annual	27	-
CO	3980 018	1-hour	14000	11000
		8-hour	7000	6000
Pb	3980 024	Quarterly	0.8	0.7

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 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_2 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.

Units 1, 2, and 3 of the Pinellas County RRF all consume PSD increments. 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. Two other sources have been identified by the DER as having the potential to affect the increment consumption. These sources are the City of Largo Wastewater Treatment Facility and the Hubert Rutland Hospital. However, analysis by the DER has shown that these two additional sources will not significantly contribute to increment consumption.

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 because 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 two distant nonattainment areas. An SO_2 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^3, 3 hour average; 0.3 ug/m^3, 24 hour average; and 0.02 ug/m^3, 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^3, 24 hour average and 0.006 ug/m^3, 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.

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

Pollutant and Time Average	PSD Class II Increment (ug/m^3)	Predicted Concentration (ug/m^3)	PSD Class I Increment (ug/m^3)	Predicted Concentration (ug/m^3)
SO_2				
3-hour	512	263	25	< 4
24-hour	91	81	5	< 1
Annual	20	5	2	<< 1
PM				
24 hour	37	6	10	<< 1
Annual	19	0.4	5	<< 1

D. AAQS Analysis

Using the 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.

Of the pollutants subject to PSD review only the criteria pollutants, SO_2 PM, CO, NO_2, and Pb have an AAQS with which to compare. All sources listed in Table V-1 were modeled to determine the maximum ground-level impacts for SO_2, and PM. For CO, NO_2, 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 quarterly (90 day) average, for which the lead standard is based, was conservatively estimated by using the maximum 24 hour concentration.

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 is listed in Table V-4. These are conservative estimates because sources used in the modeling may have contributed to the monitored value.

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

Pollutant and Time Average	Maximum Impact Unit 3 (ug/m^3)	Maximum Impact All Sources (ug/m^3)	Existing Background (ug/m^3)	Maximum Total Impact (ug/m^3)	Florida AAQS (ug/m^3)
SO_2					
3 hour	34	269	485	754	1300
24 hour	16	97	112	209	260
Annual	1	13	24	37	60
PM					
24 hour	4	6	64	70	150
Annual	0.2	0.7	33	34	60
NO_2					
Annual	2	6	27	33	100
CO					
1 hour	13	39	11000	11039	40000
8 hour	9	27	6000	6027	10000
Pb					
Quarterly	0.037	0.113	0.8	0.913	1.5

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 Chassahowitzka Class I area.

B. Impact on Visibility

A level I visibility screening analysis was performed to determine if any impact would 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 emission of SO_2 and NO_x, 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 nonsignificant. Thus, no additional 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 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. Final Permit Conditions

PART I. - Specific Conditions

1. Emission Limitations

   a. Stack emissions from Unit 3 shall not exceed the following:

      (1) Particulate: 0.030 grains per dry standard cubic foot (corrected to 12% CO_2), or a final operating particulate emission limit established after startup, whichever is more stringent. This limit shall be restricted to no more than 0.030 grains per dry standard cubic foot (corrected to 12% CO_2) or no less than 0.020 grains per dry standard cubic foot (corrected to 12% CO_2).

      Within 24 months of startup of operation, the County shall submit compliance tests that will be used to determine the new particulate emission limit. The limit will be determined by observed average emission rate (x) from the submitted compliance tests and will be statistically analyzed using the one tailed student T test ($t_{.05} = (x - u)\ n^{0.5}/s$) at the 95% confidence level to derive a mean emission rate (u), where s is the standard deviation of observed values n. The final operating particulate emission limit shall be this mean emission rate (u).

      (2) Visible Emissions: Opacity of stack emissions shall not be greater than 15% opacity.

      (3) SO_2: 170.0 lbs/hr

      (4) Nitrogen Oxides: 254.0 lbs/hr

      (5) Carbon Monoxide: 66.0 lbs/hr

      (6) Lead: 2.80 lbs/hr

      (7) Fluorides: 8.31 lbs/hr

      (8) Beryllium: 9.0×10^{-5} lbs/hr

      (9) Mercury: 0.294 lbs/hr when more than 2205 lbs/day of municipal sludge is fired.

      (10) There shall be a 10% opacity limit for emissions from the refuse bunker and ash handling and loadout. The potential for dust generation by ash handling activities will be mitigated by quenching the ash prior to loading in ash transport trucks and/or scrap piles.

      (11) Unit #3 is subject to 40 CFR Part 60, Subpart E, New Source Performance Standards, except that where requirements in this permit are more restrictive, the requirements in this permit shall apply.

b. The municipal solid waste (MSW) incinerator shall not be loaded in excess of its rated capacity of 87,500 pounds per hour MSW or operated in excess of the maximum steam rate of 275,000 pounds per hour.

c. Compliance Tests

(1) a. Compliance tests for particulate matter, lead, SO_2, nitrogen oxides, CO, fluorides, mercury, and beryllium shall be conducted in accordance with 40 CFR §60.8 (a), (b), (d), (e), and (f). An annual test will be conducted for particulate matter.

b. Compliance with the opacity standard in condition 1.a.(2) of this part shall be determined in accordance with 40 CFR §60.11 (b) and (e).

c. Compliance with the opacity standard in condition 1.a.(10) of this part shall be determined by evaluating emissions from the refuse bunker and ash handling and loadout stations in accordance with EPA reference method 9.

(2) The following test methods and procedures from 40 CFR Parts 60 and 61 shall be used for compliance testing:

a. Methods 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_2.

d. Method 4 for determining stack gas flow rate 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_2. 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 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 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.

2. Compliance with condition 1.b shall be determined through the continuous monitoring and recording of the steam production. The devices installed for this purpose shall be adequately maintained and in operation during all periods of steam production.

3. The height of the boiler exhaust stack shall not be less than 161 feet above ground level at the base of the stack.

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, efficiency, and certification number.

5. Fuel

The Resource Recovery Facility shall utilize refuse such as garbage and trash (as defined in Chapter 17-7, FAC) but not grease, scum, grit screenings or sewage sludge.

6. Air Pollution Control Equipment

The permittee shall install, continuously operate, and maintain a particulate emission control device for the control of particulates. This device shall be fully operational upon startup and subsequent firing of the boilers.

7. Continuous Emission Monitoring

a. Prior to the date of startup and thereafter, the permittee shall install, maintain, and operate the following continuous monitoring systems for the Unit 3 exhaust stack:

(1) Continuous emission monitoring (CEM) systems to measure stack gas opacity, CO, and O_2 concentrations for each unit. The systems shall meet the EPA monitoring performance specifications of 40 CFR 60.13 and 40 CFR 60, Appendix B, during initial compliance testing.

(2) CEM data recorded during periods of startup, shutdown, and malfunction shall be reported but excluded from compliance averaging periods for CO and opacity.

(3) Excess emissions for CO emissions shall be defined as any applicable period during which the average emissions of CO, as measured by the CEM, exceeds 150 ppm (4-day rolling average, dry volume, corrected to 8% O_2.

(4) 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.

8. 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 startup or shutdown shall be prohibited.

9. Reporting

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

b. Stack monitoring shall be reported to 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 60.7.

c. Addresses for submitting reports are:

EPA, Region IV

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

Florida Department of Environmental Regulation (DER)

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

Southwest District Office of DER

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

Pinellas County

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

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. In addition, the permittee shall provide EPA 30 days notice of any anticipated emission testing demonstrations required under condition 1.a.(1).

2. The permittee shall retain records of all information resulting from monitoring activities and information indicating operation 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 condition:

   (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 emissions.

   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, as modified by the final determination, 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 a violation of the emission limitations specified herein. Any construction or operation of the source in material variance with the application, as modified by the final determination, shall be considered a violation of this permit.

5. In the event of any change in control of 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 ther 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 this 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 methods 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 is held invalid, the remainder of this permit shall not be affected.

VIII. PUBLIC COMMENTS/NOTICE

Public notice was given on June 24, 1986, for the Pinellas County RRF Unit 3. No comments were received during the public comment period.

CLEARWATER SUN
JUNE 24, 1986

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

On August 31, 1983, Pinellas County applied to the Florida Department of Environmental Regulation (DER) to construct a third 1050 ton er day (TPD) unit at the existing 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).

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 27, 1984 under the Florida Power Plant Siting Act. At this 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. On December 16, 1985, Pinellas County, while reserving all rights, applied to DER for a PSD permit for Unit #3. 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.

Construction of Unit No. 3 is currently 95% complete. The boiler was first ignited on April 15, 1986, and is expected to undergo formal testing during August, 1986.

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. The degree of increment consumption that will result from the construction is:

Class I Area

Pollutant	Sulfur Dioxide
Annual Avg.	very much less than 5%
24-hr. Avg.	less than 23%
3-hr. Avg.	less than 16%

Pollutant	Particulate Matter
Annual Avg.	very much less than 20%
24-hr. Avg.	very much less than 10%
3-hr. Avg.	N/A

Class II Area

Pollutant	Sulfur Dioxide
Annual Avg.	22%
24-hr. Avg.	18%
3-hr. Avg.	N/A

Pollutant	Particulate Matter
Annual Avg.	2%
24-hr Avg.	5%
3-hr.Avg.	N/A

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 33609

Pinellas County Department of Environmental Mangement
Division of Air Quality
16100 Fairchild Drive
Bldg. - V150
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

June 24