

COUNTY



OF HILLSBOROUGH

P.O. BOX 1110 TAMPA, FLORIDA 33601

NORMAN W. HICKEY, COUNTY ADMINISTRATOR

Dept. of Solid Waste  
(813) 272-6674

April 25, 1984

*4/26 Bill T. for permit file*

Clair Fancy  
Bureau of Air Quality Monitoring  
2600 Blair Stone Road  
Tallahassee, Florida 32301

Dear Ms. Fancy:

Hillsborough County announces that it is soliciting proposals from qualified contractors for the design, construction, start-up, acceptance testing, operation, and long-term management of a 1,200 ton per day mass-burn, Solid Waste Energy Recovery Facility. Attached is a copy of a news release for your information.

If you have any questions or require additional information regarding our project, please feel free to contact me at (813) 272-6674.

Sincerely,

Marc J. Rogoff, Ph.D  
Resource Recovery Program  
Coordinator

MJR/pd  
Attachments

DER  
APR 27 1984  
BAQM

# COUNTY



# OF HILLSBOROUGH

P.O. BOX 1110 TAMPA, FLORIDA 33601

NORMAN W. HICKEY, COUNTY ADMINISTRATOR

\* \* \* \* \* NEWS RELEASE \* \* \* \* \*

April 25, 1984

FOR MORE INFORMATION CONTACT:

Dr. Marc J. Rogoff  
Resource Recovery Program Coordinator  
(813) 272-6674

The Board of County Commissioners of Hillsborough County, Florida, is seeking proposals for the design, construction, start-up, acceptance testing, operation and long-term management of a mass-burn, solid waste energy recovery facility.

Hillsborough County will retain ownership of this facility with the selected contractor operating it under a full-service, 20 year contract to the County. This 1,200 ton per day mass-burn, resource recovery facility will dispose of all processible municipal solid waste from the County's unincorporated areas.

The Board of County Commissioners has endorsed resource recovery as the long-term solution to Hillsborough County's solid waste disposal problems. After evaluating several technologies, the County found that the proposed resource recovery facility incorporating a mass-burn technology operated under contract by a full-service vendor can best fit its needs. This plant will employ a system called mass-burning, by which solid waste is combusted with virtually no pre-processing and regulated very precisely to control air pollution. The plant will meet all state and federal environmental standards. Electricity generated will be sold to the Tampa Electric Company.

The Board of County Commissioners has designated a 50-acre site north of State Road 60 and west of Faulkenburg Road for Hillsborough's mass-burn facility. The site is near the center of waste collection for the County, thereby minimizing transportation costs. Ash residue will be disposed of at the County's new Southwest landfill, now under construction.



(813) 272-6674

**MARC J. ROGOFF**  
RESOURCE RECOVERY PROGRAM ADMINISTRATOR  
DEPARTMENT OF SOLID WASTE

DIVISION OF  
PUBLIC WORKS AND SAFETY  
HILLSBOROUGH COUNTY

POST OFFICE BOX 1110  
TAMPA, FLORIDA 33601

HILLSBOROUGH COUNTY  
DEPARTMENT OF SOLID WASTE  
P.O. BOX 1110  
TAMPA, FLORIDA 33601



Clair Fancy  
Department of Environmental Regulation  
Bureau of Air Quality Monitoring  
2600 Blair Stone Road  
Tallahassee, Florida 32301

destroy any odors in the combustion chamber. This enclosed plant design will also keep noise below specified industrial levels.

#### WILL RESOURCE RECOVERY AFFECT THE WAY REFUSE IS COLLECTED?

Most of us only think about our garbage when we put it out by the curb for collection. We rely on Hillsborough County to take the far greater problem: How to dispose of it economically and in an environmentally sound manner. When Hillsborough County constructs the resource recovery facility, there will be a major change in the way it disposes of its waste. But there won't be much change in what we as citizens have to do. No special receptacles will be needed. The garbage will be collected and carried in covered trucks, as it currently is. Litter will not be a problem at the plant site since all activities connected with the process will take place inside the building.

#### WILL LANDFILLING STILL BE NECESSARY AFTER THE PLANT IS IN OPERATION?

Every resource recovery system needs a backup landfill to dispose of material left after processing and for any unprocessable debris. However, only about 15 percent or less of the original tonnage supplied to the facility will be sent to the new Southeast County landfill for final disposal. The combustion process in the resource recovery plant will leave an inert ash that will be much easier to dispose of in a landfill. With resource recovery, the County can greatly extend the life of its Southeast County landfill well past the end of this century.

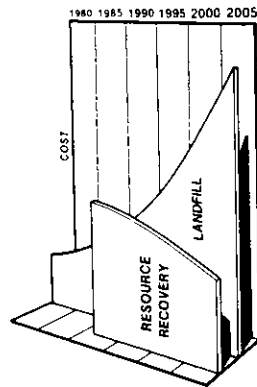
#### HOW WILL THE FACILITY BE FINANCED AND PAID FOR?

To pay for the facility, construction revenue bonds (bonds whose repayment is entirely from

the revenues generated by the facility) will be issued. The money earned from the sale of electricity to a local electric utility, payments for materials recovered from the refuse, and user charges for every load of garbage brought to the plant, will repay the cost of funds used for financing its construction. At the time of construction, the cost for this bond issue is expected to total between \$150 and \$200 million. Included in the cost are transfer stations, access roads, weighing facilities, and landfill improvements. Lead underwriters for the bond issue are: William R. Hough and Company; Kidder Peabody and Company; Bache Halsey Stuart Shields, Inc.; Merrill Lynch White Weld, and E.F. Hutton and Company. Bond counsel for the County project is Bryant, Miller and Olive, its financial advisor is Jerry Williams, Inc.

#### WILL RESOURCE RECOVERY BE MORE EXPENSIVE THAN THE CURRENT SYSTEM?

Initially, the cost to dispose of solid waste in the energy recovery facility will be higher than the cost of landfill disposal. However, this situation will change as the cost of landfilling increases over time, due to higher operating costs and more stringent environmental regulations. Revenues from the sale of electricity will increase as the price paid for the electricity rises, eventually bringing the cost of energy recovery below the cost of landfilling. The increased income from energy generated by the plant will result in net savings over time for the County and its residents.

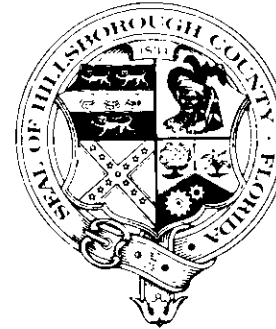


For more information about Hillsborough County's Resource Recovery Program, write or call the Department of Solid Waste, P.O. Box 1110, Tampa, Florida 33601, Telephone (813)272-6677.

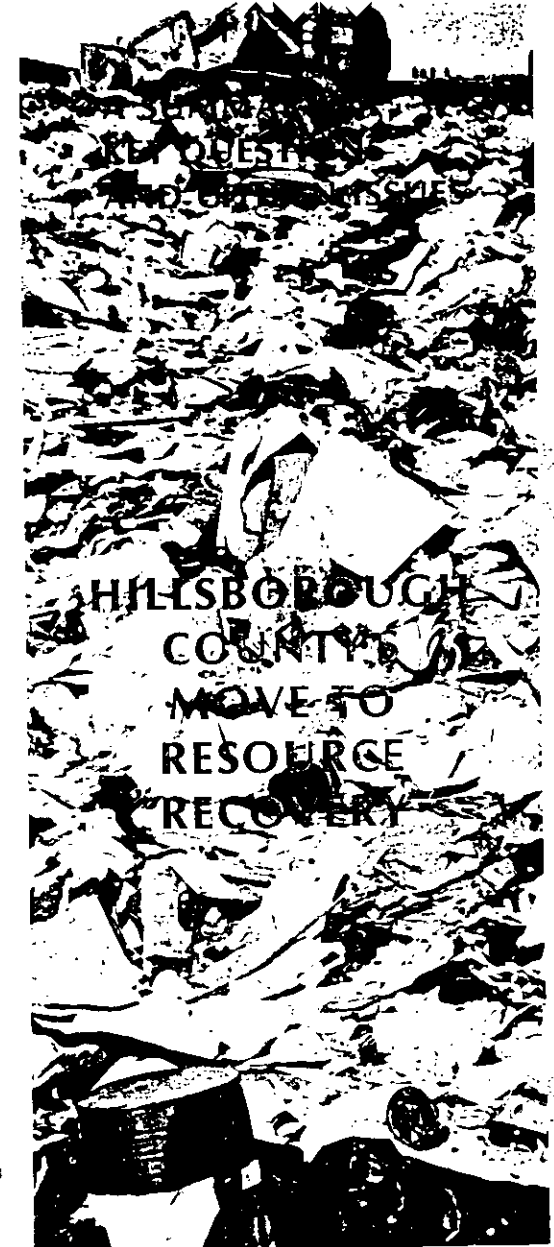
#### BOARD OF COUNTY COMMISSIONERS

Jan K. Platt, Chairman  
Rodney Colson  
E L Bing  
Matt Jetton  
John Paulk

Norman W. Hickey,  
County Administrator



*This brochure is printed on recycled paper*



## Hillsborough County's Solid Waste Problem

Hillsborough County's residents currently generate almost 600,000 tons of garbage and refuse annually. Every day, each person throws away over four pounds of refuse, an average family a little over two tons per year — roughly enough to cover the football field at Tampa Stadium with a daily two-foot deep layer of garbage and refuse, over 700 feet high by year's end. How to dispose of the cans, cereal boxes, newspapers, tires, bottles, and other castoffs of our rapidly growing county has become a problem of critical proportions.

Hillsborough County and its three incorporated cities of Tampa, Plant City and Temple Terrace presently dispose of their municipal solid waste at the Hillsborough Heights Sanitary Landfill. Approximately 2,000 tons of refuse (energy equivalent to 2,000 barrels of oil) are disposed of at this landfill daily, with the unincorporated areas contributing about half the total. In previous years, other city and county landfills were used, but are now closed. We have progressed in Hillsborough County from open dumps to the present modern method of sanitary landfilling.



However, due to strict federal and state laws governing landfill operations, areas which are environmentally and economically suitable for landfills in our rapidly urbanizing county are

quickly diminishing. Hillsborough County can no longer rely on conventional landfilling as its only method of solid waste disposal and is, therefore, developing an alternative primary disposal method — a modern resource recovery system.

The City of Tampa has contracted for the design, construction and operation of a resource recovery facility at the site of the non-operative Tampa incinerator at McKay Bay. This facility will be designed to burn only 1,000 tons per day of municipal solid waste generated primarily within the incorporated boundaries of Tampa. Hillsborough County is, therefore, pursuing the implementation of its own resource recovery facility to service the solid waste needs of its growing unincorporated areas.

The County's decision to build a resource recovery facility comes after several years of investigation by the Board of County Commissioners into alternative methods of resolving the growing solid waste problem in Hillsborough County. These methods included shredding refuse for landfilling, composting, and energy recovery. By using the energy obtainable from solid waste to generate electricity, resource recovery makes the most sense economically and environmentally, and provides a long-range solution to Hillsborough County's refuse disposal problem. Resource recovery plants, such as that planned for Hillsborough County, have been operating in Europe for the past 30 years, and more than 250 such plants are in operation worldwide. More and more communities in the United States are building similar resource recovery facilities; the technology is tested and proven.

... Some often-asked questions about resource recovery are:

### WHAT KIND OF DISPOSAL SYSTEM IS IT?

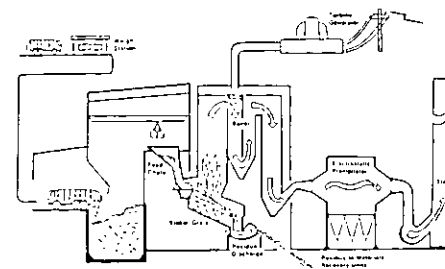
In general, resource recovery is defined as the process of obtaining energy and useful materials from municipal refuse. Energy can be extracted by burning the refuse and recovering the heat energy either in the form of steam or electricity. Materials also may be recovered, including fer-

rous and nonferrous metals, glass, and paper, among others.

After evaluating several resource recovery technologies, the County selected one that is technically proven, environmentally sound, and economically feasible. Called "mass burning", this system uses heat from burning unprocessed refuse to produce steam in a specially designed boiler. The steam is used to drive an electrical generator. Electricity generated in Hillsborough's plant will be enough to provide the needs of more than 10,000 homes.

As shown in the diagram below, refuse collection trucks and transfer trailers place their loads into a large receiving pit inside the plant. An overhead crane picks up this waste and drops it into a chute that feeds a furnace, where it is burned. Ashes and materials that won't burn fall off the end of the grate into a water tank. Metals and other materials may be recovered from the ash residue and sold as scrap.

Schematic of Resource Recovery Facility



### WHAT ABOUT THE PLANT?

Hillsborough County's plant will be sized to take all the burnable garbage generated in the rapidly growing unincorporated areas of the County for the foreseeable future. A single contractor will be chosen by the County to plan and construct the facility.

### WHERE WILL THE PLANT BE LOCATED?

The Board of County Commissioners has designated a 50-acre site north of State Road 60

and west of Faulkenburg Road for Hillsborough's mass burn facility. A site selection study prepared by the County's engineering consultant, Camp, Dresser and McKee, Inc., recommended this location west of I-75 between Brandon and Tampa. The site is near the center of waste collection for the County, so transportation times (due to the proximity to I-75, I-4 and the Crosstown Expressway) and overall costs can be minimized for the County's ratepayers. Additionally, the area adjoining the site is zoned for light and heavy industry with a growing number of commercial interests nearby. Someday, there is the possibility that steam generated by the plant's combustion process could be used as an energy source by one or more of these nearby businesses or by new business attracted by the availability of this energy.

### WILL THE FACILITY HAVE ANY EFFECT ON THE ENVIRONMENT?

We are all concerned about protection of our Florida environment. These concerns will be especially taken into account in planning the resource recovery facility. Since Hillsborough County has been designated by the United States Environmental Protection Agency and Florida Department of Environmental Regulation as a "non-attainment" area for suspended dusts and ozone, the resource recovery facility, like that of any industrial development in the County, will require the lowest achievable emission air pollution control equipment. Computer modeling and on-site investigations of resource recovery plants now operating have found that emissions from the County facility will be well within federal, state, and county air standards.

Odors will not be a nuisance since the refuse storage pits will be completely enclosed. Air will be continuously drawn down from outside the plant to provide oxygen for combustion. This type of air intake will produce a constant negative air pressure within the plant so that any potential odors will not escape. Temperatures maintained in excess of 1,400 degrees F. will

State of Florida  
DEPARTMENT OF ENVIRONMENTAL REGULATION

**INTEROFFICE MEMORANDUM**

For Routing To District Offices And/Or To Other Than The Addressee		
To: _____	Locn.: _____	
To: _____	Locn.: _____	
To: _____	Locn.: _____	
From _____	Date: _____	
Reply Optional [ ]	Reply Required [ ]	Info. Only [ ]
Date Due: _____	Date Due: _____	

TO: Hamilton S. Owen  
THRU: Clair Fancy *CF*  
FROM: Bob King *BK*  
DATE: September 15, 1983  
SUBJ: Hillsborough County Resource Recovery Project -  
Plan of Study

Please note that the information and data listed in Section 3.7 Air Emissions on the subject Plan of Study are insufficient. The required information and data such as a full description of types and sources of air emissions, the methods for compliance with applicable regulations and the methods of discharge, and a completed form entitled Best Available Control Technology Data are not included. The applicant indicates in the Plan of Study that he will give the information and data later.

BK/ks

State of Florida  
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

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Reply Optional [ ]	Reply Required [ ]	Info. Only [ ]
Date Due: _____	Date Due: _____	

TO: Hamilton S. Owen  
THRU: Clair Fancy *CH*  
FROM: Tom Rogers *TR*  
DATE: September 15, 1983  
SUBJ: Pinellas County Resource Recovery Project PA 83-18;  
Completeness and Sufficiency Review

Please have the consultant for this project provide me a list of the sources used in the modeling. These sources should be identified by name and include the following information for each emission point: (1) emission rate for each applicable pollutant; (2) UTM coordinate; (3) stack parameters; and (4) indication of whether the emission point consumes PSD increment.

TR/ks

9/6

~~Carry~~ Bill  
Tom

State of Florida  
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

thru me

For Routing To District Offices And/Or To Other Than The Addressee		
To: <u>Clair Fancy</u>	Loctn.:	
To: _____	Loctn.:	
To: _____	Loctn.:	
From: _____	Date:	
Reply Optional [ ]	Reply Required [ ]	Info. Only [ ]
Date Due: _____	Date Due: _____	

TO: Power Plant Siting Review Committee

FROM: Hamilton S. Oven *HSO*

DATE: August 30, 1983

SUBJECT: Hillsborough County Resource Recovery Project -  
Plan of Study

DER  
AUG 30 1983  
BAQM

Please review and comment on the adequacy of the attached Plan of Study for Hillsborough County's proposed power plant siting application. Please give me your comments by September 15, 1987.

- cc: Frank Andrews  
Clair Fancy  
Bob McVety  
Rodney De Han  
Larry Olsen  
Dennis Wile  
Don Schiesswhol  
Bill Brett  
Bill Hennessey



HILLSBOROUGH COUNTY SOLID WASTE ENERGY RECOVERY PROGRAM

Received DER

AUG 29 1983

PLAN OF STUDY  
FOR  
COMPLETION OF THE APPLICATION FOR  
CERTIFICATION OF PROPOSED ELECTRICAL  
POWER GENERATING PLANT SITE

P P S

AUGUST 1983

Prepared for the

Florida Department of Environmental Regulation,  
Other Official Parties Under the Florida  
Electrical Power Plant Siting Act, and  
Concerned Agencies

by

Hillsborough County  
Board of County Commissioners  
Division of Public Works  
Department of Solid Waste

HILLSBOROUGH COUNTY SOLID WASTE ENERGY RECOVERY PROGRAM

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## PLAN OF STUDY

### Purpose

The purpose of this plan of study is to provide the Florida Department of Environmental Regulation (DER), Florida Public Service Commission (PSC), Department of Community Affairs (DCA), Southwest Florida Water Management District and any other state or local concerned agency, with Hillsborough County's intended level of detail for completing DER Form 17-1.122(72), Application for Certification of Proposed Electrical Power Generating Plant Site. The County does not intend to seek a binding written agreement with the concerned agencies. However, this plan of study is offered in good faith that DER and any other concerned agency will comment on and seek agreement with the proposed data sources, procedures and level of effort.

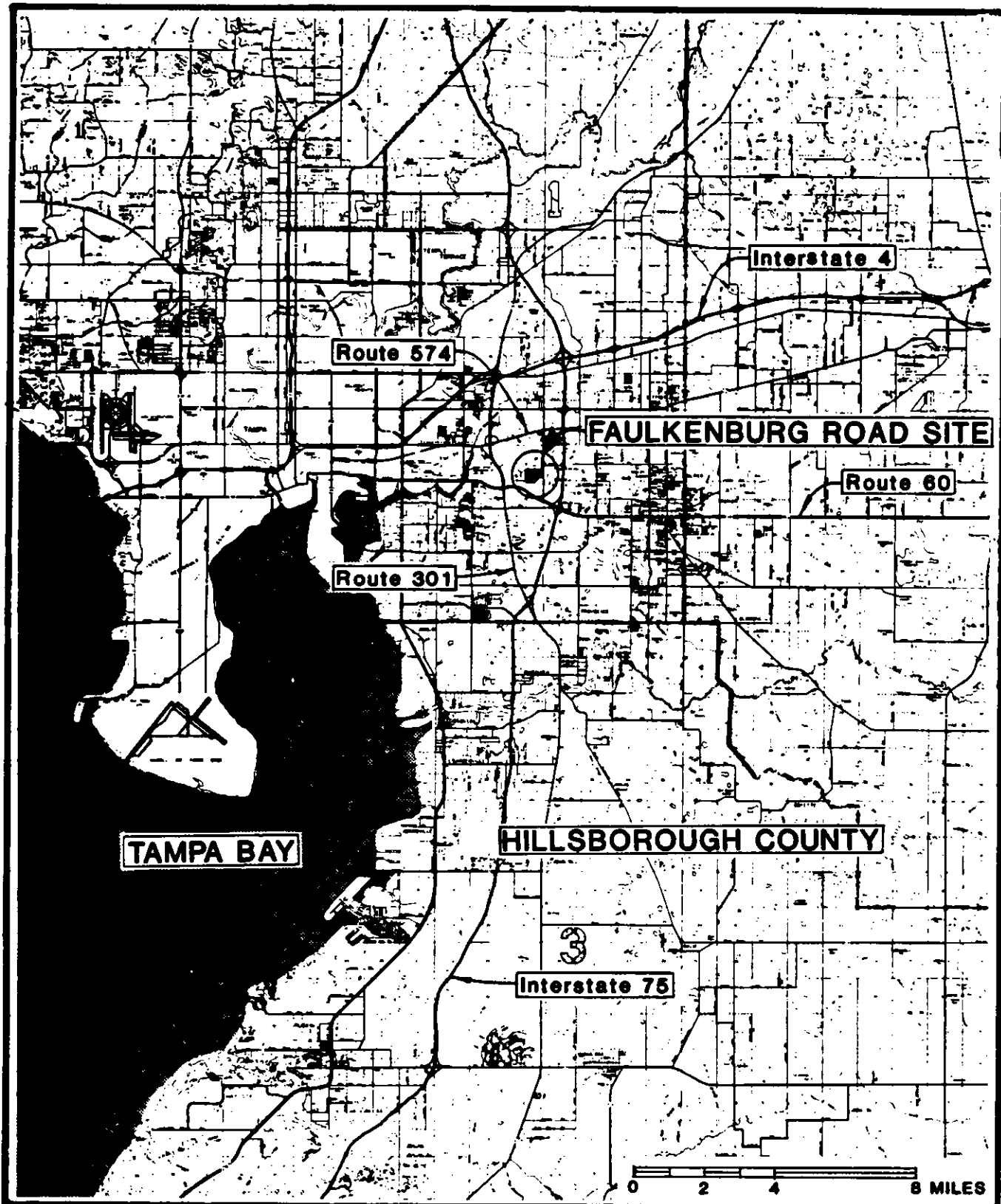
### Background

The proposed 50.4 acre resource recovery facility site is located in Township 29S, Range 20E, approximately 1.7 miles east of the Tampa, Florida municipal limits. Figure 1, General Site Location Map, shows the location of the site in Hillsborough County. As shown on Figure 2, Site Characteristics, the site has a 225 foot frontage on Faulkenburg Road about 4,200 feet north of State Road 60. The site is currently undeveloped. Abutting the site to the west is an existing Tampa Electric Company (TECO) transmission line within a 200 foot TECO easement. The transmission line directly associated with the energy recovery facility will use this easement.

The County is in the process of amending the Hillsborough County Horizon 2000 Land Use Plan Map to change the site designation from Light Industrial to Major Public/Semi-Public. On June 27, 1983, the Hillsborough County City-County Planning Commission unanimously adopted the resolution for the plan amendment. Concurrently, an application for rezoning the site from Restricted Industry (M-1A) to Community Unit (C-U) is being reviewed by the Hillsborough County Office of Development Coordination. The Board of County Commissioners is scheduled to act on the land use amendment and rezoning on October 6, 1983.

On July 11, 1983, Hillsborough County notified the Florida Department of Environmental Regulation of their intent to seek certification which will authorize construction and operation of an energy recovery facility. The energy recovery facility is anticipated to have a nameplate generating capacity of approximately 29 megawatts, using 1,200 tons per day of solid waste as fuel. However, certification for an ultimate site capacity of about 39 megawatts, capable of processing 1,600 tons of solid waste per day, will be sought in anticipation of future solid waste disposal requirements. It is expected at this time that the application will be filed in November 1983. No state environmental licenses are currently held for preapplication work at the site.

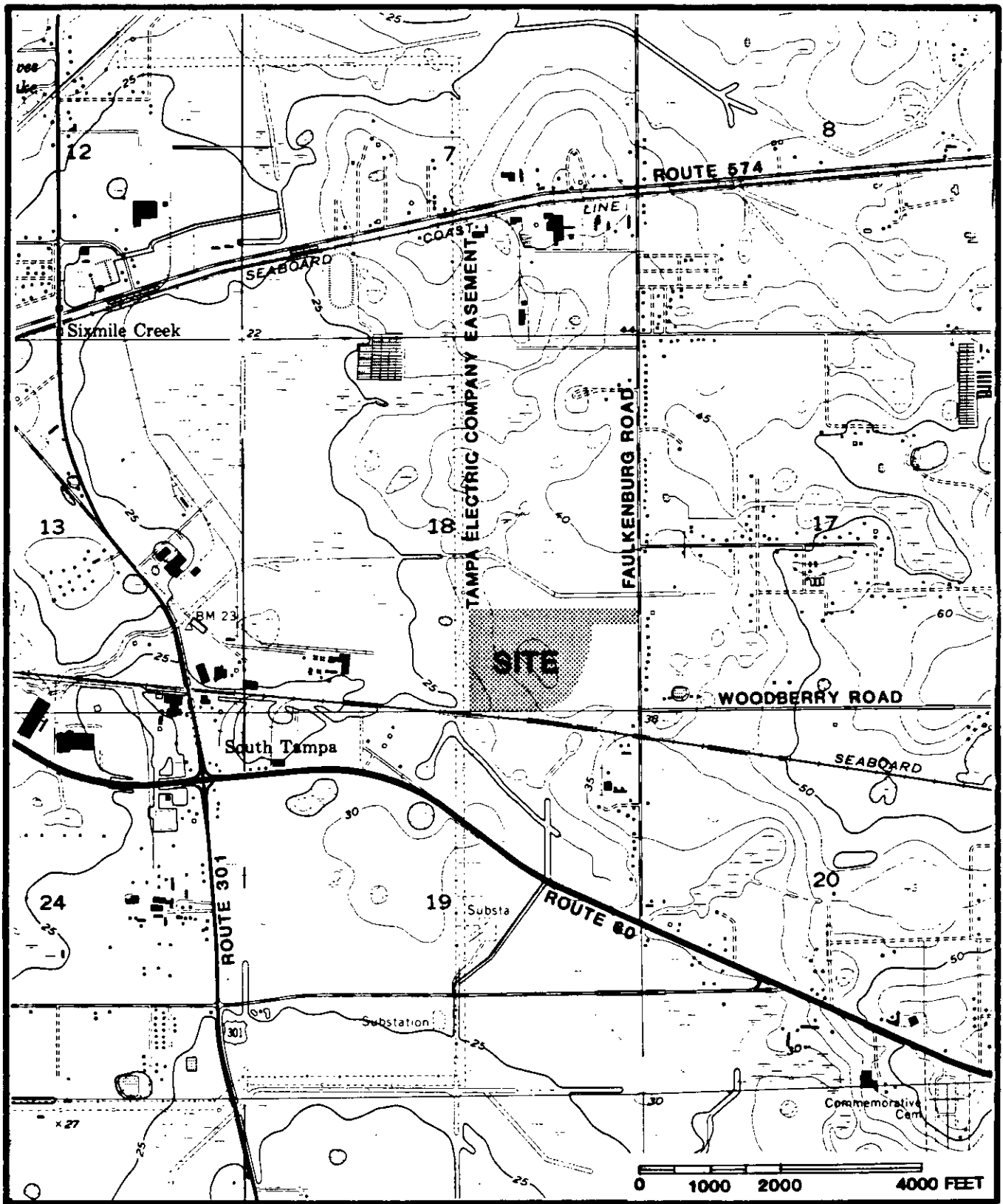
The sole purpose of the proposed facility is to dispose of solid waste and recover energy and possibly materials. This proposed facility will afford



Hillsborough County Resource Recovery Facility

Hillsborough County Division of Public Works  
Department of Solid Waste

**FIGURE 1**  
**GENERAL SITE LOCATION MAP**



Hillsborough County Resource Recovery Facility

Hillsborough County Division of Public Works  
 Department of Solid Waste

**FIGURE 2**  
**SITE CHARACTERISTICS**

Hillsborough County a method of solid waste disposal which will substitute for the present landfilling operations.

The Northwest Brandon Subregional Wastewater Treatment Plant will be co-located on the site. The energy recovery facility will utilize treated wastewater effluent for cooling water and boiler feed water. Cooling tower blowdown and boiler blowdown not used to quench the combustion residue, along with sanitary waste from the energy recovery facility, will go to the same wastewater treatment plant.

#### Approach

Hillsborough County shall complete the application for site certification using the format of the application in DER Form 17-1.122(72) dated January 10, 1979. Forty-five (45) copies of the certification application shall be submitted by the County to the Department of Environmental Regulation. An application fee of \$25,000 shall accompany the application (\$2,500 of which was submitted as a Notice of Intent Fee) and shall be used, disbursed and refunded in accordance with DER regulations Chapter 17-17.051. The following sections present the County's Plan of Study for completing the application for site certification. Where appropriate, the material presented in DER Form 17-1.122(12) is incorporated by reference. A copy of the form is included in this plan of study in Appendix A.

#### PREPARATION OF THE APPLICATION FORM

The County intends to abide by all conditions discussed under this heading in the application. However, as mentioned previously, a binding written agreement is not being sought.

On July 12, 1983, the County and their Engineering Consultant, Camp Dresser & McKee Inc., met with representatives of the Department of Environmental Regulation, Public Service Commission, and the Florida Game and Fresh Water Fish Commission. The purpose of the meeting was to determine the scope, quantity and level of information to be included in the application. The issues and concerns raised at the meeting are reflected in this Plan of Study.

In anticipation of future solid waste disposal requirements, Hillsborough County is seeking certification for an ultimate site capacity of about 39 megawatts with the facility capable of processing approximately 1,600 tons per day of municipal solid waste. The initial energy recovery facility to be constructed and operated is anticipated to have a nameplate generating capacity of approximately 29 megawatts using 1,200 tons per day of solid waste. The facility description, air quality modeling, and analysis of construction and operation impacts however, will be based on the 39 megawatt, 1,600 tpd facility. It is the County's understanding that once the site is certified for a 39 megawatt facility and a 29 megawatt facility is under operation, a supplemental application for the additional 10 megawatts will be required when and if the County decides to increase the size of the energy recovery facility from 1,200 tpd to 1,600 tpd (29 megawatts to 39 megawatts, respectively).

DEPARTMENT ACTION ON SUBMITTED APPLICATIONS

The County concurs in full with this section.

PERTINENT APPLICANT INFORMATION

The Pertinent Applicant Information Form has been slightly modified, completed and submitted herein as Appendix B. This form will accompany the completed application for certification.



CHAPTER 1

PURPOSE OF THE PROPOSED FACILITY AND ASSOCIATED TRANSMISSION

1.1 System Demand and Reliability

In that the proposed electrical power generating plant is a resource recovery facility, the following will be submitted in lieu of this section:

- a. Purpose of the proposed facility
- b. Petition from Hillsborough County to PSC for determination of need
- c. PSC response to the petition

1.2 Other Objectives

This section will be included emphasizing that the sole purpose of the facility is to dispose of solid waste and recover energy.

1.3 Consequences of Delay

This section will be included. However, rather than discussing the consequential effect on power supply, the consequences of delay in terms of solid waste disposal and project implementation will be discussed.

## CHAPTER 2

### THE SITE

#### 2.1 Site Location and Layout

##### 2.1.1 Maps

No changes to the requirements of the application. U.S. Geological Survey Quadrangle Maps and County real property assessment maps will be used.

##### 2.1.2 Site Modifications

No changes to the requirements of the application. This will be completed by using a layout plan of the facility on the site.

##### 2.1.3 Existing and Proposed Uses

No changes in the requirements of the application. A county-owned wastewater treatment plant will be co-located on the site.

#### 2.2 Regional Demography, Land and Water Use

No changes to the requirements of the application.

##### 2.2.1 Demography

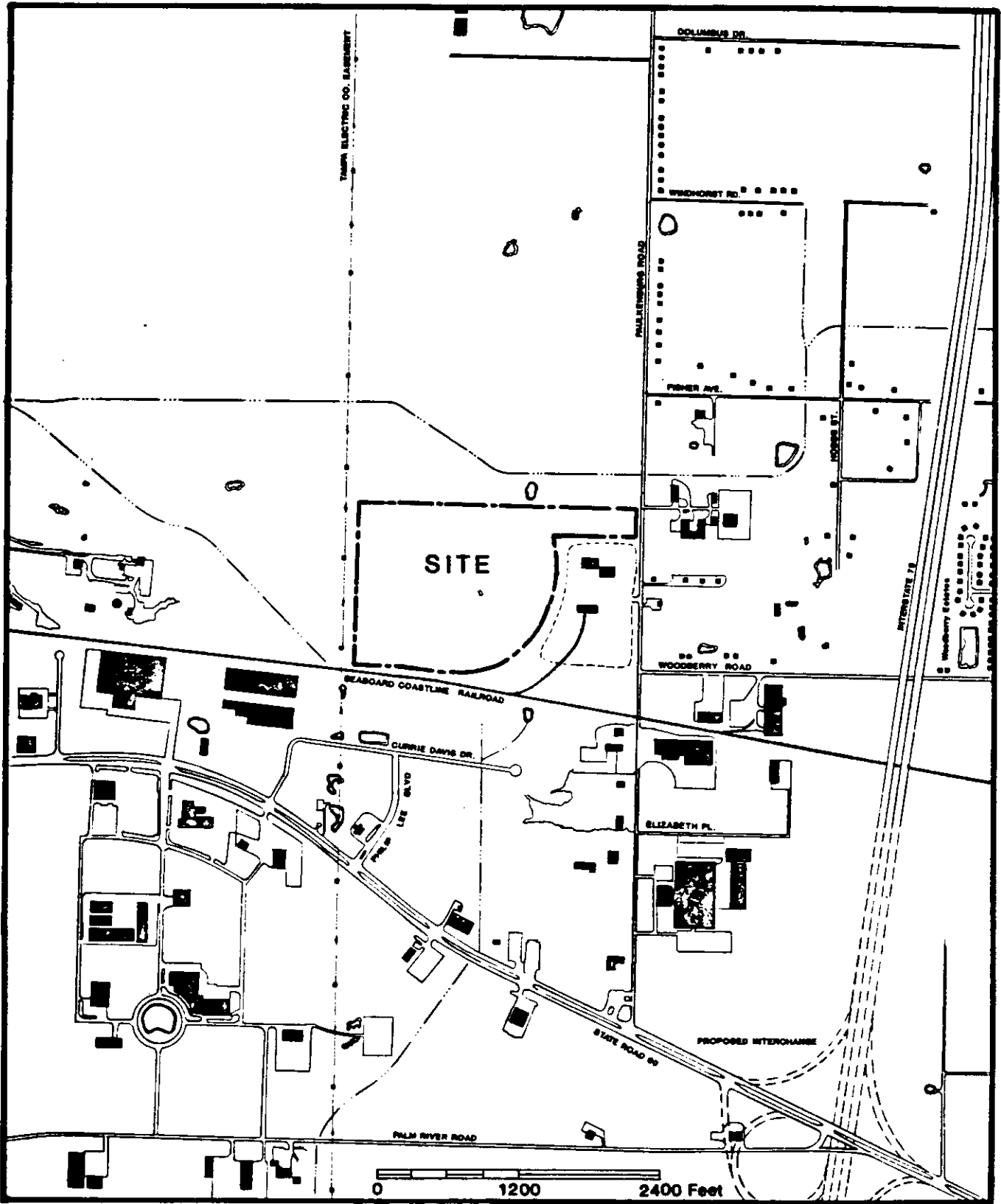
Existing populations of the towns and cities will be indicated on the map provided under 2.2 or separate tabulation utilizing the most recent governmental data available. Populations for the unincorporated areas within the 5 miles radius will be presented by census tract.

##### 2.2.2 Land Use

A general discussion of existing and projected land uses will be described for the 5-mile radius area. Recent trends will also be noted. Land use and zoning will be shown for the site and area around the site within the areal limits shown in Figure 3. Land use and zoning will not be shown for the proposed transmission line corridor (the existing TECO right-of-way) except for that which appears on Figure 3. It will be noted that no changes to land use plans or zoning will be necessary to allow the construction of the transmission of the facilities. Changes already made to the zoning and land use plan maps will be indicated.

##### 2.2.3 Water Use

The sources and amounts of major water uses for community water supplies, private use and agricultural irrigation near the site will be discussed. An inventory of permitted wells as reported by the Southwest Florida Water Management District will be presented. In that the energy recovery facility will use small amounts of potable water from the existing force



Hillsborough County Resource Recovery Facility

Hillsborough County Division of Public Works  
 Department of Solid Waste

FIGURE 3

PRIMARY STUDY AREA  
 FOR LOCALIZED IMPACTS

main in Faulkenburg Road for only sanitary purposes (the boiler feed water makeup and cooling water will be supplied by the wastewater treatment plant), potable water use is not considered a major issue of concern for this particular facility.

## 2.3 Regional historic, scenic, cultural and natural landmarks

### 2.3.1 Sensitive Areas

No changes to the requirements of the application are being considered.

### 2.3.2 Archeological sites

No changes to the requirements of the application are being considered.

### 2.3.3 Associated facilities

This section will be indicated as not applicable. For the purposes of the application there are no associated facilities to the energy recovery facility.

## 2.4 Geology

A description of the major geological aspects of the site will be provided. The proper level of detail will be provided to assess potential sinkhole development, the requirement for pilings, effectiveness of stormwater retention basins, and the procedures for dewatering if necessary for the refuse bunker construction. The general characteristics of the site in terms of topography, stratigraphy, soils and rock types will be discussed. On site soil borings and information from the U.S. Geological Survey will be the major sources of data for this section.

## 2.5 Hydrology

The data collection and analysis procedures noted below will be coordinated with the Southwest Florida Water Management District.

### 2.5.1 Affected waters

This section will contain information essential for determining the effect on groundwater and surface water during construction of the proposed facility (specifically, any dewatering operations associated with excavation for the refuse storage bunker). Plant effluent will be discharged to the wastewater treatment plant and stormwater runoff will be retained onsite. It will be stated that there are no impacts to surface water bodies or groundwater during the operation of the facility.

### 2.5.2 Water withdrawals

This section will specifically address any proposed dewatering operations during construction. There will be no ground or surface water withdrawals during operation of the facility. It will be noted that there will be no new wells required for the operation of the facility.

### 2.5.3 Affected tributaries

Stormwater runoff will be retained on-site, therefore, no tributaries adjacent to the site are expected to be affected. However, the patterns and gradients of drainage in the area will be described based on a topographic survey of the site and U.S. Geological Survey Quadrangle Maps. Based on the present design and plan of construction and operation there should be no discharge to surface water bodies. If it is found after additional analysis that any construction dewatering activities may necessitate a surface water discharge, groundwater characteristics and characteristics of affected nearby tributaries will be discussed. Maxima, averages, and minima of flow rate, velocity, levels, chemical characteristics, and mixing characteristics will be presented.

### 2.5.4 Surface Water

Surface water bodies will not be impacted by the proposed facility. This section will be indicated as not applicable. Reference will be made to section 2.5.3 for characteristics of the affected nearby tributaries, if any.

### 2.5.5 Natural variation of surface waters

This section will be indicated as not applicable. Section 2.5.3 will be referenced for information pertaining to seasonal and other water level fluctuations for affected tributaries, if any.

### 2.5.6 Groundwater

No changes to the requirements of the application are being considered.

## 2.6 Meteorology

A description of the local climatology/meteorology will be presented to characterize the project area. Data recorded at the Tampa National Weather Service (NWS) station will be used to describe local climatology along with any other pertinent nearby monitoring data that may be available.

Diurnal and monthly averages and extremes of temperature and relative humidity along with monthly averages and extremes of precipitation will be included. Frequency of occurrence of precipitation, fog, thunderstorms and atypical weather phenomena necessary to describe the site area will be discussed. Data on wind characteristics representing the site area will also be presented.

In order to predict air quality impacts from the proposed system, meteorological data (both surface and upper air) recorded at the Tampa International Airport from the 5-year period of 1970-1974 will be used. A tabular summary of the joint-frequency distribution will be presented and a map indicating prevailing wind patterns and wind roses will be included.

## 2.7 Ecology

### 2.7.1 Important species

The U.S. Fish and Wildlife Service, the Florida Department of Natural Resources, and the Florida Game and Fresh Water Fish Commission will be contacted to determine which species in the vicinity of the site are considered "important" as defined in this section of the application. If "important" species are believed to be onsite or in the adjacent tributary, the requirements of section 2.7.1 of the application for discussing species-environmental relationships will be included. If no important species are found onsite or in the adjacent tributary, these conclusions will be documented and the requirements of 2.7.1 will be considered not applicable.

### 2.7.2 Abundance of organisms

- a. Aquatic organisms within the adjacent tributary will be documented if any dewatering scheme requires discharging groundwater to the offsite tributary. The method by which this information is gathered will, where applicable, be according to U.S. EPA's manual entitled "Biological Field and Laboratory Methods for Measuring the Quality of Surface Waters and Effluents" or other techniques acceptable to the DER. A general description of onsite terrestrial flora and fauna will also be included. A map that shows the distribution of the principal plants onsite will be provided.
- b. The discussion of species-environmental relationships will include descriptions of area usage (e.g. habitat, breeding, etc.). Descriptions of the regional biota will be included as required to predict or evaluate the impact of the facility on the regional biota.

### 2.7.3 Pre-existing stresses

No changes to the requirements of the application are being considered.

## 2.8 Ambient Air

### 2.8.1 Baseline data for PSD review

Ambient air quality data recorded at existing monitoring locations as presented in the annual Environmental Quality reports of the Hillsborough County Environmental Protection Commission will be used to define the baseline of all monitored pollutants concentrations. The most recent year of data considered to be representative of the site and impacted area that meets data sufficiency requirements will be used. EPA ambient monitoring guidelines will be used to determine acceptable monitoring methodologies. Additional information on baseline monitoring requirements is described in Section 6.2.6.

2.8.2 Source of data

A full description of the monitoring program will be supplied. It will identify monitoring locations, parameters monitored, instrumentation used, frequency and duration of observations and quality assurance methods employed.

2.9 Other environmental features

No changes to the requirements of the application are being considered.

## CHAPTER 3

### THE PLANT

The resource recovery facility and directly associated transmission lines will be described in this chapter. The best estimate of character and magnitude of facility discharges and emissions along with a description of facility systems will be provided in as much detail as possible.

Since this project is not a utility sponsored program there is no need to provide an update of any Ten-year Site Plan.

#### 3.1 External Appearance

No changes to the requirements of the application are being considered.

#### 3.2 Fuel

The resource recovery facility will utilize municipal solid waste (MSW) as its fuel. The quality and quantity features of the MSW will be described along with the materials handling features of the facility with regard to MSW delivery, storage and processing prior to combustion.

#### 3.3 Plant Water Use

A quantitative water-use diagram for normal and peak load operating conditions will be presented for the heat dissipation system, sanitary system, chemical waste system and process water system. Effluent from the wastewater treatment plant to be located adjacent to the facility will be the source of water for the heat dissipation system and internal process requirements. Potable water for routine sanitary requirements will be provided by the public supply system.

The quality of the water from the WWTP will be described.

Total consumptive use of water by the facility will be presented in terms of a comparison to preconstruction use. Since most of the water demand of the facility will be satisfied with WWTP effluent, this discussion will focus on the limited potable demand of the facility.

#### 3.4 Heat Dissipation System

##### 3.4.1 Intake and Outfall

The pipeline from the WWTP will be described along with any holding facilities designed to balance required flows. No outfall is associated with this proposed facility.

##### 3.4.2 Source of Cooling Water

The expected characteristics of the effluent from the WWTP will be described.



### 3.4.3 System Design

The following features of the proposed heat dissipation system will be described.

- quantity of heat dissipated
- consumptive water use and characteristics
- design size and location of cooling system
- blowdown volume and physical characteristics
- temperature changes across condenser
- rate of evaporation of water from tower

Since the proposed facility will use wastewater treatment plant effluent, the minimum water quality characteristics will be discussed in terms relative to this concept. There will be no need for a discussion of using water of a lower quality.

### 3.4.4 Dilution System

This section will be indicated as not applicable.

### 3.4.5 Blowdown and Trash Removal

The procedures for handling and disposing of blowdown will be described. There is no need to describe disposal of trash from intake structures (no intake structures are included in design).

### 3.4.6 Injection Wells

This section will be indicated as not applicable.

### 3.5 Chemical and Biocide Waste

No changes to the requirements of the application are being considered.

### 3.6 Sanitary and other wastes systems.

#### 3.6.1 Volumes and Quality

No changes to the requirements of the application are being considered.

#### 3.6.2 Treatment and Disposal

No changes to the requirements of the application are being considered.

#### 3.6.3 Solid Wastes

No changes to the requirements of the application are being considered. Ash from the resource recovery facility will be transported to an existing, permitted landfill.

### 3.7 Air Emissions

A description of emission sources characterizing the facility will be given. A compilation of representative emission factors for pertinent pollutants expected to be emitted from the proposed resource recovery facility (see Table 1) will be supplied based on:

- o Federal, state and local emission limitations to determine maximum allowable emission rates including FAC 17-2, NSPS (40 CFR 60), NESHAPS (40 CFR 61);
- o Review of recent applicable Best Available Control Technology (BACT) and Lowest Achievable Emission Rate (LAER) determinations;
- o A BACT analysis (where required by FAC 17-2);
- o A LAER evaluation of emitted nonattainment pollutants (in accordance with FAC 17-2);
- o Emission factors suggested by the DER, as well as those contained in the EPA document entitled "Compilation of Air Pollution Emissions Factors" (AP-42).
- o Current available literature on emissions from comparable sources;
- o Previous experience with similar facilities;
- o Previous emission factors developed and accepted by regulatory agencies for similar facilities.

Pollutant emissions will be quantified both during the use and in the absence of control devices (control equipment failure).

The form entitled Best Available Control Technology data included in the Application for Certification of Proposed Electrical Power Generating Plant Site (DER FORM 17-1.22(72)) dated 1/10/79 will also be completed.

### 3.8 Directly associated transmission lines

Overhead lines will run from the electric switchyard on the site to the abutting TECO easement. It is not certain at this time whether lines will use existing towers or require new structures within the easement. In any event, the transmission system will be within an existing, maintained TECO easement. The transmission lines will run to an existing substation about one mile from the site. The impacts of the directly associated transmission line are not anticipated to be a major issue.

#### 3.8.1 Route and Size

The existing TECO easement and substation will be shown on an aerial photograph and U.S.G.S. Quadrangle Map. The length, width and general maintenance condition will be specified.

TABLE 1

Data on the following pollutants will be reviewed and emission rates quantified where possible.

<u>PSD and Criteria Pollutants</u>	<u>Non PSD Pollutants</u>
Total Suspended Particulates	Hydrochloric Acid
Sulfur Dioxide	
Nitrogen Dioxide	
Carbon Monoxide	
Volatile Organic Compounds	
Lead	
Asbestos	
Beryllium	
Mercury	
Vinyl Chloride	
Flourides	
Sulfuric Acid Mist	
Total Reduced Sulfur	
Reduced Sulfur	
Hydrogen Sulfide	

### 3.8.2 Land Use Impacts

No changes to the requirements of the application are being considered.

### 3.8.3 Beneficial Uses

No changes to the requirements of the application are being considered.

### 3.8.4 Visibility

No changes to the requirements of the application are being considered.

### 3.8.5 Associated Transmission Structures

Since the transmission lines from the energy recovery facility will go to an existing substation, this section will be indicated as not applicable.

### 3.9 Associated Facilities

There are no associated facilities. This section, including sections 3.9.1, 3.9.2 and 3.9.3, will be indicated as not applicable, for the purposes of this application.

### 3.10 On-Site drainage system

No changes to the requirements of the application are being considered for this section.

### 3.11 Design Alternatives

Various design alternatives will be discussed in this section. Previous studies that led to the proposed facility will be referenced. However, alternative sites will be discussed in Chapter 8. Some alternatives that will be mentioned include:

- a. Solid waste disposal alternatives
- b. Size and redundancy
- c. BACT analysis
- d. Co-disposal
- e. Water sources
- f. Stack height

The stack height analysis is being conducted in conjunction with the air quality analysis. The construction of a stack to service the proposed facility must be based on a design that will ensure the effective dilution of combustion exhaust gases prior to intersecting the surface or sensitive areas while considering cost and visual impacts. Several aspects of plant operations and receptor locations must be included in the analysis of an acceptable stack height. Once an acceptable design is determined, the DER and the Hillsborough County Environmental Protection Commission (EPC) will review the proposed design stack height and make recommendations on

acceptability. It is because of this acceptability review that the following general approach to designing an acceptable stack height will be followed:

- Task 1: An analysis will be prepared of the proposed facility that includes:
- o A complete description of source emission characteristics for a range of plant operating conditions, waste characteristics, and building configuration.
  - o Source emission characteristics; including the range of pollutant emission rates for various plant load conditions, exit volumes, exit velocities, exit temperatures and exit flue diameters.
  - o Preparation of a series of dispersion calculations that include the effects of structures, local dispersion climatology and standard diffusion analysis for determining ground-level impacts.
- Task 2: Perform the stack height design analysis presented below as determined in discussions with regulatory agencies.
- Task 3: Select and evaluate an acceptable stack height based upon the results of the design analysis.
- Task 4: Submit stack height analysis for review by regulatory agencies prior to including the analysis within the application for certification. It may be necessary to modify the initial work plan. No accounting of such modifications is made in this plan of study.

It is anticipated that this proposed analysis will define the height of the stack and appropriate diameters and exit velocity conditions for each flue servicing a combustion unit. The approach to determining the stack height will include an analysis of the wake effects of proposed on-site structures. These effects will be evaluated based on work by Hosker (1978) and others who have prepared methodologies for defining the wake cavity boundary and the effects of turbulence, speed reductions and transport mechanisms within the cavity.

Initially the stack height will be set so that it is outside of the immediate wake effects of on-site structures. Modeling as described in Section 5.5 of this Plan of Study will be performed to define dispersion of the plume from the facility. This modeling will also provide concentration patterns of various air pollutants from comparison with standards and increments. Such comparisons may dictate that the initial stack height be modified to prevent excessive concentrations and will define the GEP stack height for the facility.

## CHAPTER 4

### ENVIRONMENTAL EFFECTS OF SITE PREPARATION, PLANT AND ASSOCIATED TRANSMISSION FACILITIES CONSTRUCTION

#### 4.1 Site Preparation and Plant Construction

##### 4.1.(a) Land use

Consideration will be given to land use impacts onsite and on affected properties during the construction period.

##### (b) Water use

No changes to the requirements of the application are being considered.

##### (c) Water Quality

No changes to the requirements of the application are being considered.

##### (d) Air Quality

This air quality analysis will predict the impact of emissions during construction. The following series of tasks will be performed:

- o Projections of construction impacts will be made based on the mobile source emission rates from onsite and offsite vehicle exhausts as well as fugitive emissions from onsite construction equipment.
- o Construction impacts will be added to background air quality and will be compared to state and federal ambient air quality standards to determine compatibility.
- o Mitigation measures will be proposed and their effectiveness assessed if unacceptable impacts are predicted.

##### (e) Solid Waste Generation and Disposal

No changes to the requirements of the application are being considered.

##### (f) Ambient Noise Levels

Analytical techniques outlined within EPA's Technical Report "Direct Environmental Factors at Municipal Wastewater Treatment Works" (EPA-430/9-76-003) and similar documents prepared by HUD, EPA, and the Transportation Research Board will be used to analyze potential noise impacts from construction activities.

Ambient dBA levels will be measured utilizing hand held meters. Approximate average day time and night time ambient levels will be determined by averaging multiple short term measurements. This average ambient noise will serve as the basis for determining the potential significance of possible construction noise impacts.

#### 4.1.1 Construction Areas

No changes to the requirements of the application are being considered.

#### 4.1.2 Land impact

No changes to the requirements of the application are being considered.

#### 4.1.3 Impact on human populations

This section will indicate the proximity of nearest human population and identify undesirable impacts on their environment arising from noise and from inconveniences due to the movement of men, material, and machines. Particular attention will be paid to construction - related transportation impacts.

#### 4.1.4 Work Force

No changes to the requirements of the application are being considered.

#### 4.1.5 Impact on landmarks and sensitive areas

No changes to the requirements of the application are being considered.

#### 4.1.6 Mitigating measures

No changes to the requirements of the application are being considered.

#### 4.1.7 Benefits from construction

No changes to the requirements of the application are being considered. Benefits to be described include the economic impacts and creation of jobs through construction of the facility.

#### 4.1.8 Impact on water bodies and uses.

The impact of site preparation and construction activities on affected waters will be described. These activities will include site clearing and grading and any dewatering during construction of the refuse bunker. The effects of these activities on water quality, aesthetics, and fish and wildlife resources will be discussed.

#### 4.2 Special features

No changes to the requirements of the application are being considered.

4.3 Construction of directly associated transmission facilities

In that the transmission lines will use an existing TECO easement, Sections 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, and 4.3.6, will be indicated as not applicable.

4.4 Resources committed

No changes to the requirements of the application are being considered

4.5 Construction of other associated facilities

For the purposes of the application, There are no associated facilities to this project, therefore, this section will be indicated as not applicable.



## CHAPTER 5

### ENVIRONMENTAL EFFECTS OF PLANT OPERATION

#### 5.1 Effects of the operation of the heat dissipation system

##### 5.1.1 Temperature effect on receiving body of water

This section will be indicated as not applicable.

##### 5.1.2 Thermal Limits

This section will be indicated as not applicable.

##### 5.1.3 Effects on aquatic life

This section will be indicated as not applicable.

##### 5.1.4 Biological effects of modified circulation

This section will be indicated as not applicable.

##### 5.1.5 Effects of offstream cooling.

This section will describe the expected effects of heat dissipating facilities, including cooling towers, on the local environment and on agricultural, housing, highway safety, airports, and similar installations with respect to meteorological phenomena, including fog and cooling tower blowdown and drift. If fog or other visible atmospheric emission is to occur the estimated hours per year, distances, and directions will be determined with emphasis upon effects associated with any decreased visibility, the distance or length of effect, and frequency of occurrence. This analysis will include potential effects upon roadways and other transportation references. The analysis will include measures to mitigate such identified transportation arteries. In addition, the possible synergistic effects that might result from mixing of fog or drift with other plant emissions in the atmosphere will be considered.

#### 5.2 Effects of Chemical and Biocide discharges

##### 5.2.1 Industrial wastewater discharges

The quality and quantity of the wastewater discharged from the resource recovery facility will be characterized and the need for any pretreatment prior to discharge to the sewer system will be assessed.

##### 5.2.2 Leachate

This section will be indicated as not applicable.

### 5.2.3 Cooling Tower Blowdown

Any effects of cooling tower blowdown will be discussed under Section 5.2.1, as the cooling tower blowdown will be discharged along with other plant effluent to the sanitary sewer system.

### 5.3 Impacts on water supplies

It is not anticipated that surface or groundwater supplies or uses beyond the "Five Mile Radius Area" will be affected. Therefore Sections 5.3.1, 5.3.2, and 5.3.3 will be indicated as not applicable.

### 5.4 Sanitary and other waste discharges

No changes to the requirements of the application are being considered.

### 5.5 Air quality impacts

Air quality impacts resulting from operation of the proposed plant will be predicted. Incremental pollutant concentrations will be quantified based on diffusion modeling of those pollutants listed in Section 3.7. The air quality modeling approach to be used in the analysis will conform with FAC 17-2.260 approved by DER and specified in the Guideline on Air Quality Models (QAQPS 1.2-080 U.S. EPA, April 1978).

As noted in Section 3.11, stack height analysis will be conducted and used in the air quality impact analysis to identify an appropriate stack height that will optimize pollutant dispersion while considering cost and visual impacts. The height of the stack could be somewhere between 2.0 times the building height and GEP height. Consequently, both short-term and long-term time dependent facility impacts would be quantified using the CRSTER single source dispersion model with rural diffusion coefficients (as determined by methods developed by Auer, 1978). Incremental pollutant impacts predicted from the modeling analysis will be added to representative background levels to determine compliance with national and state ambient air quality standards. Non-criteria pollutants included in Table 1 of this Plan of Study will also be quantified and predicted. Incremental levels will be compared with acceptable public health levels.

If it is determined that the stack height would be below 2 times the building height, a modified ISCST model will be used that includes an algorithm for areas less than 100 meters from the stack, and the standard ISCST model will be used for determining impacts greater than 100 meters from the stack.

Pollutant impacts will also be used where applicable in the sulfur dioxide increment analysis. If further modeling to include other sources is necessary to define increment consumption, the MPTER or ISCST model will be used to perform multiple source modeling.

A receptor grid necessary to describe the extent of the source impact will be developed. The grid will be of sufficient size to cover the area of significant impact concentrating on areas of maximum impact and sensitive receptors. Receptor locations will also be placed at existing monitor locations.

Impacts due to the failure of control devices will be estimated when the potential for emission of uncontrolled pollutants can be discharged.

New source review requirements including emission offsets will also be addressed.

Impacts associated with the potential fog formation and drift due to operation of the cooling towers will also be addressed. Due to the fact that the proposed cooling media will be treated effluent from the nearby wastewater treatment facility, emission of contaminants in the effluent (both chemical and biological) will also be addressed.

5.6 Effects of operation and maintenance of the directly associated transmission system.

5.6.1 Effects of Operation and Maintenance

It will be indicated that the existing TECO easement will be used. The existing O&M of the easement will be presented.

5.6.2 Effects of public access

This section will be indicated as not applicable.

5.7 Associated facilities and other effects

There are no associated facilities for the purposes of this application. Therefore sections 5.7.1, and 5.7.2 will be indicated as not applicable.

5.8 Resources committed

5.8.1 Lost Resources

No changes to the requirements of the application are being considered.

5.8.2 Changes in species populations

No changes to the requirements of the application are being considered.

5.9 Variances

No changes to the requirements of the application are being considered.

## CHAPTER 6

### ENVIRONMENTAL MEASUREMENTS AND MONITORING PROGRAMS

#### 6.1 General

This section addresses the procedures to be used to collect baseline data necessary to conduct an effective environmental analysis of the proposed project.

#### 6.2 Pre-application monitoring

No changes to the requirements of the application are being considered. As monitoring programs are developed for this project they will be described and submitted to the DER for approval.

##### 6.2.1 Sampling techniques

No changes to the requirements of the application are being considered.

##### 6.2.3 Use of reports developed by the applicant

No changes to the requirements of the application are being considered.

##### 6.2.4 Surface waters

Based upon the present design and plan of construction and operation there should be no need to conduct ambient water and related ecology monitoring programs. If it is found after additional analyses that any construction dewatering activities may necessitate a surface water discharge the requirements of this section will be satisfied as applicable.

##### 6.2.4.1 Physical and chemical parameters

See discussion under 6.2.4.

##### 6.2.4.2 Ecological Parameters

See discussion under 6.2.4.

##### 6.2.5 Groundwater

No changes to the requirements of the application are being considered.

##### 6.2.6 Air (Pre-application Monitoring)

A description of the monitoring program used for obtaining existing background ambient air quality data representative of the project/impact area will be provided.

Ambient air quality data recorded at existing monitoring locations will be used to define background air quality. Monitors within Hillsborough County are maintained by the Hillsborough County Environmental Protection

Commission. Also, the applicability of establishing pre-construction monitoring in the project area will be explored. Preconstruction Air Quality Monitoring and Analysis Guidelines listed in FAC 17-2.500(5)(f) and the General Ambient Monitoring Exemption provision in FAC 17-2.500(3)(e) will be followed. Projected ambient impacts and ambient concentrations will be compared to Table 500-3 DeMinimus Ambient Impacts to determine if an exemption from performing additional ambient monitoring can be obtained.

In any event regardless of the source of monitoring data, a full description of the monitoring program used to obtain that data will be supplied. It will identify monitoring locations, parameter monitored, instrumentation used, frequency and duration of observations and quality assurance measures employed.

Included will be data describing location, instrumentation, frequency and duration of meteorological measurements at the Tampa National Weather Service (NWS).

Also as required in this section, a description of the air quality models used in the air quality analysis to predict impacts will be provided. A discussion on model validity and accuracy will be included as well as identifying any validation studies used to assess model accuracy.

A detailed discussion of the methods used to project facility emissions will be explained and presented in Section 3.7. A discussion of the available emissions data used in projecting emission factors from resource recovery facilities will be detailed.

#### 6.2.7 Geology

No basic changes to the requirements of the application are being considered. A subsurface investigation for the selected site was completed during the early planning phases of this project. The results of this investigation and U.S. Geological Survey information will be used for this application.

#### 6.2.8 Archaeology

No changes to the requirements of the application are being considered. (See discussion in Section 6.3.9).

#### 6.2.9 Noise

No changes to the requirements of the application are being considered.

#### 6.2.10 Terrestrial Biota

No changes to the requirements of the application are being considered.

### 6.3 Construction and operation monitoring

This section addresses the procedures to be used to monitor/evaluate the environmental effects of facility construction and operation.

#### 6.3.1 Sampling techniques

No changes to the requirements of the application are being considered.

#### 6.3.2 Modifications

No changes to the requirements of the application are being considered.

#### 6.3.3 Surface waters

(See Section 6.2.4)

#### 6.3.4 Physical and chemical parameters

(See Section 6.2.4)

#### 6.3.5 Ecological parameters

(See Section 6.2.4)

#### 6.3.6 Groundwater

No changes to the requirements of the application are being considered.

#### 6.3.7 Air (Construction-Operational Monitoring)

This section requires the applicant to describe the construction/operation monitoring program to determine the effect that facility emissions are having on air quality. The necessity of such a program will be determined by the DER upon review of the site certification application as described in FAC 17-2.500(5)(g). Therefore due to this and the fact that an option is available in the Site Certification regulations that allows the post construction monitoring program for the plant operation period to be submitted to the DER 6 months to a year before plant startup date, a monitoring program, if required, will not be submitted until that time.

Meteorological monitoring from the Tampa NWS Station will be used in the construction phase to define existing baseline conditions as described in 6.2.6.

Stack monitoring requirements will be determined by DER upon review of the site certification application. Therefore stack monitoring provisions will be described upon review of DER's requirements issued in the site certification approval and submitted to DER along with the construction operational monitoring program description.

#### 6.3.8 Geology

No changes to the requirements of the application are being considered.

### 6.3.9 Archaeology

An archaeological and historic site location survey of the site was conducted and the findings published in a May 1983 report. The Florida Department of State Division of Archives reviewed the results of the survey and determined that the site did not constitute a significant archaeological site. Additionally, they indicated that the project may proceed without further involvement with that agency.

These events will be documented within the application and the results of the survey included as an appendix to the application.

## CHAPTER 7

### ECONOMIC AND SOCIAL EFFECTS OF PLANT CONSTRUCTION AND OPERATION

#### 7.1 Socio-Economic Benefits

Potential Socio-Economic benefits associated with the construction and operation of the resource recovery facility will be discussed. The various social and economic benefits which may affect local government agencies will include discussions of:

- o Tax Revenues to be received by local and state governments
- o Temporary and permanent new jobs created and payroll amounts
- o Improvements of local and state roadways and transportation facilities or corridors.
- o Increased knowledge of the environment as a consequence of ecological research and environmental monitoring activities associated with plant operation.
- o Financial benefits of increased availability of landfill capacity coupled with increased energy output associated with the resource recovery facility.

#### 7.2 Socio-Economic Costs

##### 7.2.1 Plant Costs

This section will be indicated as not applicable, except for a description of the estimated costs of the resource recovery facility.

##### 7.2.2 External costs

###### 7.2.2.1 Temporary External Costs

The effects of temporary external costs on the interests of people will be examined. The estimated social impact and any special measures designed to alleviate adverse impacts will be detailed for the following temporary external costs:

- o Congestion of local streets and highways
- o Noise
- o Temporary aesthetic disturbances

Costs will be allocated between continuing and temporary construction period costs.



#### 7.2.2.2 Long-term external costs

The effects of long term external costs on the interests of people will be examined. The estimated social impact and any special measures designed to alleviate adverse impacts will be detailed for the following long term external costs:

- o aesthetic and scenic values
- o restrictions on access to areas of scenic, historic, cultural, or archaeological value
- o removal of land from present or contemplated alternative uses
- o creation of locally adverse meteorological conditions and noise
- o a generic discussion of the impact upon real estate values

CHAPTER 8

ALTERNATIVE ENERGY SOURCES AND SITES

8.1 Assessment of alternative sites.

The siting study that was completed in conjunction with the project will be referenced.

8.2 Alternative Fuels Analysis

The potential for burning relatively small quantities of sludge with the solid waste will be discussed.

APPENDIX A

APPLICATION FOR CERTIFICATION OF PROPOSED  
ELECTRICAL POWER GENERATING PLANT SITE

DER Form 17-1.122(72)

FLORIDA DEPARTMENT OF  
ENVIRONMENTAL REGULATION

APPLICATION FOR CERTIFICATION OF PROPOSED  
ELECTRICAL POWER GENERATING PLANT SITE

DER Form 17-1.122 (72)

1/10/79

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APPLICATION FOR CERTIFICATION OF A PROPOSED  
ELECTRICAL POWER GENERATING PLANT SITE

INTRODUCTION

This application form has been prepared by the Department of Environmental Regulation to guide utilities in the preparation of an application for power plant site certification and to aid affected state agencies and local governments and interested persons in the review of an application. This form is intended as the prescribed format for the submission of complete and sufficient applications.

Prior to the issuance of a site certification the Department of Environmental Regulation is required to assess the potential effects upon the environment, ecology and society by the proposed plant in order to insure that the construction and operation of the plant will be consistent with the public policy and legislative intent, as set forth in Chapter 403, Part II, of the Florida Statutes.

PREPARATION OF THE APPLICATION FORM

The format of the application is intended to minimize the efforts of the applicant, the Department of Environmental Regulation, Department of Administration, Public Service Commission, and others in the preparation and review of the application. It is designed to reduce duplication of information.

It is intended that the information presented discuss the conditions of the plant site prior to construction, the anticipated changes to these conditions resulting from construction, and the anticipated effects of the plants operation. The form will be modified from time to time to further achieve these purposes.



Existing information obtained from state, federal, local and regional governmental agencies, educational institutions, and qualified consultants may be utilized when completing the application. All published documents utilized as supporting data should be referenced. If the applicant and/or his consultant gathers additional information regarding air and water quality, noise conditions, solid wastes, or other environmental impacts, the methods and procedures for developing such data shall be those duly adopted published, and numbered or otherwise approved by the Department of Environmental Regulation. Otherwise, data collection procedures should be discussed with the appropriate Department of Environmental Regulation staff to obtain mutual understanding and approval.

Concise descriptive and/or narrative text, as well as, tables, charts, graphs, etc., should be used where possible. Each subject should be documented and treated in sufficient depth to permit the reviewer to evaluate readily the extent of the environmental impact. Line drawings, photographs, and architectural concepts should be used wherever they contribute to the clarity and brevity of the application.

Prior to filing of a certification application, an applicant may request a meeting with the department and all statutory parties to review the applicant's plans and information requirements for the certification. The purpose of the meeting shall be to determine the scope, quantity, and level of information to be included in the application and to reach agreement, in writing, on the methods to be used in providing such information and the nature of supporting documents to be included in the application. It is not contemplated that all sections of this form need be extensively discussed in all applications. In some instances "not applicable" may be sufficient. It is suggested that preparation of the application be coordinated with the department, Division of State Planning, EPA, Public

Service Commission, appropriate water management district as defined by Chapter 373, Florida Statutes, and any other state or federal agency that might be required to prepare an environmental impact statement. Applicants should coordinate preparation of that portion of the application that is within the jurisdiction of the appropriate water management district. The department shall give notice of such meetings to all statutory parties and to the public and to any persons who have indicated an intention to become a party. As dictated by the nature of the applicant's proposed facility, the department, the applicant and other statutory parties may agree, in writing, that certain portions of the information requirements may not be applicable to the applicant's submittal. Unless agreed to in writing, an agreement by the applicant and statutory parties shall not be binding on any other parties to the subsequent certification proceedings.

The department may certify a site for an ultimate megawattage generating capacity to be obtained by incremental additions of generating units until the ultimate is reached. The conditions upon which such a certification may be issued will be made part of the certification.

Commonly available information and materials may be incorporated in the application by reference without impeding agency and public review. The incorporated material shall be cited in the application and its content briefly described. The applicant shall indicate where the referenced material may be obtained. Upon a written request by any party such materials shall be furnished by the applicant.

#### DEPARTMENT ACTION ON SUBMITTED APPLICATIONS

The submitted application, together with related information, will

be given a cursory review by the department to determine its completeness. Should the application be found incomplete, the applicant will be notified and given reasons for arriving at such a conclusion.

If the submittal is found to be complete, it will then be distributed to the Department of Administration, Public Service Commission, the appropriate water management district, and other state, federal and regional agencies that may have some jurisdiction, responsibility, or interest. The availability of the material will be made known to the general public.

Numerous conferences, consultations, and hearings may be held with the applicant, other state and federal agencies, and interested parties, in order to establish the reliability, accuracy, and source of the data and information submitted.

PERTINENT APPLICANT INFORMATION

In this application the following information should be supplied:

Applicant's Official Name \_\_\_\_\_

Address \_\_\_\_\_

Address of Official Headquarters \_\_\_\_\_

Business entity (corporation, partnership, co-operative, name(s),  
owner(s), etc., \_\_\_\_\_

Name and Title of Chief Executive officer(s) \_\_\_\_\_

Name, title, address and phone number of official representative  
responsible for obtaining certification \_\_\_\_\_

Professional Engineer Submitting Application Name \_\_\_\_\_

Florida Registration No. \_\_\_\_\_ Seal \_\_\_\_\_

Site Location: County \_\_\_\_\_

Nearest Incorporated City \_\_\_\_\_

Latitude and Longitude \_\_\_\_\_

UTMs Northerly \_\_\_\_\_

Easterly \_\_\_\_\_

Name plate Generating Capacity; Currenty Existing on site \_\_\_\_\_

Capacity of Proposed Additions and Ultimate Site Capacity (where  
applicable) \_\_\_\_\_

Remarks: (Additional information that will help identify the applicant)

CHAPTER 1  
PURPOSE OF THE PROPOSED FACILITY AND ASSOCIATED TRANSMISSION

In Chapter 1 of its application, the applicant should discuss the need for the facility with respect to the requirements for generating and transmission facility capacity to be satisfied, the system reliability to be achieved, or any other primary objectives of the facility and how these objectives would be affected by variations in the scheduled operation of the facility. The latest forms and reports filed with the Division of State Planning in the applicant's Ten-Year Site Plan shall be updated, and the latest Florida Electric Power Coordinating Group Composite Ten Year Site Plan will be filed with the application or appropriately referenced to answer the following sections where appropriate.

When an applicant proposes to construct a resource recovery facility they shall discuss the need for the facility. However, the rest of this chapter shall not apply.

1.1 System Demand and Reliability

The section should discuss the requirements for the proposed unit(s) in the applicant's system and in the state, considering the overall power supply situation, past load and projected load, and reserve margins. In addition, the applicant should consider the impact of applicable energy conservation and other potential load-affecting programs on its planning effort.

A full and clear description of the applicant's system should be provided including, for each generating unit or group of units, the

extent of ownership by the applicant and the commitments involved. Where an entire planning area, or coordinating agreement, is involved, identification of such area should be clear and reasonably available data should be presented.

#### 1.1.1 Load Characteristics

In order to portray the relationship of the proposed generating facility to the applicant's system and related systems, data should be provided on: (a) the applicant's system, and (b) the power pool or area in which the applicant's planning studies are based, as follows:

##### 1.1.1.1 Load Analysis

The past annual net summer and winter peak load demands and the annual energy requirements for a period beginning at least 10 years prior to the filing of the application should be reported. In addition, the future projected annual net summer and winter peak demand and annual energy requirement should be reported from the year of filing of the application for a minimum period of ten years.

##### 1.1.1.2 Demand Projections

This section should provide detailed explanation of the forecasting method used for determining future demand for electric power. It should explicitly identify any economic and demographic projections utilized in the methodology. Where regression equations or elasticity demand models

are used to estimate projections, all statistical measures of correlation should be provided.

#### 1.1.1.3 Capacity Exchanges

Past and expected future net capacity exchanges applicable at the time of the annual peak demands presented above should be shown as they relate to demand estimates supporting the station capacity under review.

#### 1.1.2 System Capacity

The applicant should briefly discuss power planning programs and criteria used as they apply (a) to the applicant's system, (b) to the power pool or planning area, which ever is applicable, within which the applicant's planning studies are based.

#### 1.1.3 Reserve Margins

The applicant's method of determining system generating capacity requirements and reserve margins should be described including:

1. The method and criterion employed to determine the minimum system reserve requirement, such as single largest unit, probability method, or historical data and judgement. If probabilistic studies are used as a planning tool, a general description of the assumptions and methodology employed, and the significant results attained should be presented.

2. The method employed for the scheduling of outages of individual generating units within the applicant's system.
3. The effect of operation of the proposed unit(s) (a) on the applicant's system, and (b) on the power pool or planning area within which the applicant's planning studies are based. In addition, the effects of present and planned interconnections on the capacity requirements should be discussed.

#### 1.2 Other Objectives

If other objectives are to be met by the operation of the proposed facility, such as producing process steam for sale or desalting water, a description of these should be given, an analysis of the effect of other objectives on the station capacity factor or availability of individual units should be given.

#### 1.3 Consequences of Delay

The effects of delay in the proposed project on the reserve margin of the power supply for the applicant's system should be discussed for increments of delay of 1, 2 and 3 years. The effect of no action to increase capacity should also be illustrated. Appraise the likely social and economic impacts of any such power supply shortages, including the benefits to be accrued in averting potential adverse impacts. Where applicable, direct experiences with brownouts and emergency load-shedding should be related. The applicant's plans or procedures for meeting such emergencies should also be discussed.



## CHAPTER 2 THE SITE

This Chapter should present the basic, relevant information concerning those physical, biological, and sociological characteristics of the area environment that might be affected by the construction and operation of a power plant on the designated site. To the extent possible, the information presented should reflect observations and measurements made over a period of time. In general, one year's data will suffice, but where information is readily available, greater length of time may be utilized. Data may be summarized by giving maximums, minimums and averages.

### 2.1 Site location and layout

#### 2.1.1 Maps

On topographical maps show the location of the plant perimeter and the site; include abutting and adjacent properties.

#### 2.1.2 Site Modifications

Indicate total site acreage owned by the applicant and that part to be occupied or modified by the plant and associated facilities.

#### 2.1.3 Existing and proposed uses

Indicate other existing and proposed uses, if known, of applicant's property both before and after construction of the new plant and the acreage devoted to these uses.

## 2.2 Regional demography, land and water use

Provide a map indicating the boundaries of towns and cities within an area of 5-mile radius centered at the proposed plant location. The 5-mile map should have circles centered at the stack location for 1, 2, 3, 4 and 5 miles radii.

### 2.2.1 Demography

The existing populations (utilizing appropriate governmental projections) of the towns and cities shown on the map should be indicated either on the map or in a separate tabulation.

### 2.2.2 Land Use

Indicate (for the 5-mile radius area) the nature and extent of present and projected land uses and any recent trends such as abnormal changes (sudden increases or decreases) in population or industrial patterns. Nearby activities that may be affected by plant construction and operation should be described in greater detail than more distant activities. The applicant should indicate the zoning restrictions both at the site and within 5 miles of the stack. Also indicate the land use and zoning within the proposed transmission line corridors and adjacent to associated facilities and indicate whether changes in land use plans or zoning will be necessary to allow construction of such facilities.

### 2.2.3 Water use

Discuss the nature and amounts of present major water uses such as: community water supplies, agricultural irrigation, reservoirs, recreation, transportation; also the source (surface water or aquifer), within the 5-mile radius area, and show the major impacted sources on a map.

## 2.3 Regional historic, scenic, cultural and natural landmarks

### 2.3.1 Sensitive areas

Known areas valued as natural landmarks or for either their historic, scenic, or cultural significance that may be affected should be described. The application should include a brief discussion of the historic, scenic, cultural, and natural or ecological significance, if any, of the plant site and nearby areas. Specific attention should be given to the sites and areas listed in the National Register of Historic Places and the National Registry of Natural Landmarks, and areas specially designated under state programs (e.g. environmentally endangered lands, aquatic preserves, state parks and recreation areas, and wilderness areas).

### 2.3.2 Archaeological sites

Indicate whether or not the site has any archaeologically significant sites, above or below water, and explain how conclusions were reached.

### 2.3.3 Associated facilities

State whether proposed associated facilities and the directly

associated transmission lines will impact or pass through or be contiguous to known historic, cultural, scenic, natural, ecological or archaeologically significant areas.

## 2.4 Geology

A description of the major geological aspects of the site should be provided. The level of detail presented should be appropriate to the proposed plant design. For example, if holding or cooling ponds are to be created, a detailed description of soil and bedrock types, etc., should be provided, including information on seepage and its effects. Except for those specific features that are relevant to the certification, the discussion may be limited to noting the broad features and general characteristics of the site (topography, stratigraphy, soil and rock types).

## 2.5 Hydrology

Discuss the effects of plant construction and operation on any adjacent surface or subsurface bodies of water.

### 2.5.1 Affected waters

Describe the physical, chemical, and hydrological characteristics (and their seasonal variations) of those waters that will be affected by plant effluents or that will be affected by the construction or operation of the proposed plant. The description should include the water classification

designated in Chapter 17-3, F.A.C.

#### 2.5.2 Water withdrawals

Discuss the proposed ground and surface water withdrawals, define consumptive use discharges, and consumptive use (rates) in relation to other existing and proposed consumptive uses, the hydrologic interactions of each and the degree of competition for water supply for all uses.

#### 2.5.3 Affected tributaries

Include a description of significant tributaries (those shown on USGS 7.5 and 15 minute Quadrangle Maps) affected by the site and the pattern and gradients of drainage in the area. Note that information relating to both surface and ground water characteristics should include measurements, to the extent possible, made on or in close proximity to the site.

#### 2.5.4 Surface water

Discuss the relevant maxima, averages and minima of important parameters of those surface waters which may be affected by construction or operation of the plant. The parameters should include, where applicable: flow rate, velocity, water table altitude above mean sea level and chemical characteristics, temperature circulation patterns, mixing characteristics, river and lake levels, tides, floods, currents, wave action and flushing times, and volumes of flows in and out of lake systems.

### 2.5.5 Natural variation of surface waters

Indicate the manner in which volumes and areas of surface waters change with expected seasonal and other water level fluctuations. When a stream or other water body is to be used by the plant, the available mean, low, and high flow values should be provided. Vertical and areal variations should be established for the area affected by the site. When using historical data, it should cover a ten-year period of normal, high and low flow hydrological condition, if available.

### 2.5.6 Ground water

Data on ground water (including seasonal variations) aquifer transmissivity, storage coefficient, aquiclude permeability or leakance, areal water table, chemical characteristics and potentiometric surface contours, (for the aquifers affected by the site of the plant) should be presented. (Note that water use at the site is discussed in Section 2.2). Groundwater contours to the nearest foot shall be illustrated.

Aquifer testing procedures may be used to determine the hydraulic characteristics of the affected aquifer(s), using one or more observation wells, when average daily ground water withdrawals in excess of 5 mgd are planned, or if expected drawdowns on property not owned or leased or otherwise controlled by the applicant equals or exceeds 1 foot.

## 2.6 Meteorology

Current data on site meteorology is preferred (representative meteorology may be used as approved by the Department). Such data

should consist of: (1) diurnal and monthly averages and extremes of temperature, and relative humidity; (2) monthly data on wind characteristics which are applicable or have been measured, including speeds, directions stability category, and average mixing heights from the most representative NOAA\* station; (3) data on precipitation; (In the second item, the joint wind speed-stability-direction frequencies should be presented in tabular form, giving the frequencies as fractions when using only one or two years of onsite data. The data should be presented for each of the 36 sectors utilized by NOAA, and the stability categories should be established to conform as closely as possible with those approved by the Department.) Also, indicate on a map the prevailing wind patterns, especially with reference to urban areas within 15 miles.

## 2.7 Ecology

The applicant should identify the important flora and fauna in the region of the site (which may reasonably be expected to be affected by the proposed plant), their habitats, and distribution, as well as, the relationship between species and their breeding grounds territorial boundaries and their environments. The methods by which this information is gathered should, where applicable, be according to U.S. EPA's manual entitled "Biological Field and Laboratory Methods for Measuring the Quality of Surface Waters and Effluents," as revised, or other techniques acceptable to the Department. Sources of information should be identified. Lists of published material dealing with the area should be provided. Studies in progress should be noted and described.

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\*National Oceanographic and Atmospheric Administration

### 2.7.1 Important species

A species, whether animal or plant, is "important" (1) if it is commercially or recreationally valuable; (2) if it is rare, endangered, threatened, or protected; or (3) if it has unique ecological value. Items 1 through 3 above, will vary significantly from site to site, therefore, the applicant should establish with Department of Environmental Regulation staff the species to be studied. A "rare, endangered, threatened or protected" species is any species officially designated as such by the U.S. Fish and Wildlife Service or Florida State agencies such as the Department of Natural Resources, Game and Fresh Water Fish Commission, etc.

The discussion of species-environmental relationships should include (1) descriptions of area usage (e.g., habitat, breeding, etc.); (2) it should include life histories of important regional animals and aquatic organisms, their normal seasonal population fluctuations and their habitat requirements (e.g., thermal tolerances); (3) and it should include identification of food chains and other inter-species relationships when these contribute to predictions or evaluations of the impact of the plant on the regional biota.

### 2.7.2 Abundance of organisms

a. In cataloging the local organisms, the applicant should identify major families of terrestrial and aquatic organisms and discuss the abundance of the important organisms. This discussion should include species that migrate through the area or use it for breeding grounds. A



map that shows the distribution of the principal plant communities should be provided.

b. The discussion of species-environmental relationships should include (1) descriptions of area usage (e.g., habitat, breeding, etc.); (2) it should include life histories of important regional animals and aquatic organisms, their normal seasonal population fluctuations and their habitat requirements (e.g., thermal tolerances); (3) and it should include identification of food chains and other inter-species relationships when these contribute to predictions or evaluations of the impact of the plant on the regional biota.

#### 2.7.3 Pre-existing stresses

It may be appropriate to identify known, pre-existing environmental stresses from sources such as (1) pollutants, as well as (2) any ecological conditions suggestive of such stresses; (3) the status of ecological succession; (4) the histories of any infestations, epidemics, or catastrophes (caused by natural or man induced phenomena) that have had a significant impact on regional biota.

#### 2.8 Ambient Air

Determination of ambient air quality as it exists prior to site preparation and plant construction is an important step in determining site suitability.

### 2.8.1 Baseline data for PSD Review

At least one year's baseline data and information must normally be gathered and presented on the current ambient air quality and/or predicted air quality levels for the base year for pollutants that will or can be reasonably expected to be emitted and have a state or federal ambient or emission limitations applicable to the facility. Such data should be analyzed using Larsens statistical procedure. Under some circumstances less than one year of air quality data may be acceptable. The EPA ambient monitoring guidelines may be used to determine acceptable monitoring methods.

### 2.8.2 Source of data

If existing data is used, provide the source and the method of collection. One year shall constitute a minimum time span for useful data, if there were more than 24 samples collected and the frequency of sample collection was distributed in a representative fashion throughout the twelve month period.

### 2.9 Other environmental features

For certain sites, some relevant information on the plant environs may not clearly fall within the scope of the preceding topics such as downstream and estuarine effects. Additional information which may be required in order to reflect the value of the site and site environs should be included here.

## CHAPTER 3 THE PLANT

The operating plant and directly associated transmission lines and associated facilities are to be described in this chapter. The best estimate of the character and magnitude of the plant discharges and plant-related systems should be described in as much detail as possible.

Accompany the information presented in this chapter with an updated version of related information required by the Department of Administration's "Forms and Instructions for Preparation of Ten-Year Site Plans for Electrical Generating Facilities and Associated Transmission Lines."

### 3.1 External appearance

The actual or conceptual building layout and plant perimeter should be illustrated and related to the site map presented in Section 2.1. The proposed plant profile should be shown in proportion to the surroundings by line drawings or other illustrative techniques. The location and elevation of release points for liquid and gaseous wastes should be clearly indicated.

### 3.2 Fuel

Discuss the proposed fuel use characteristics of the plant, including (1) the types of fuel to be used, (2) quantities, (3) transportation, (4) storage, and (5) fuel quality. Included should be the potential for use of alternative fuel types.

### 3.3 Plant water use

A quantitative water-use diagram for normal and peak load operation of the plant should be presented, showing estimated quantities of water flows to and from the various plant water systems (1) heat dissipation system, (2) sanitary system, (3) chemical waste system, and (4) process water system.

The sources and quality of the water for each input should be indicated.

Show total consumptive use of water by the plant, including a comparison of preconstruction to post construction evaporation, diversion, blow-down and seepage quantities from the plant, for maximum power operation and average anticipated power operation. Flows occurring during a plant shutdown should be described separately.

### 3.4 Heat dissipation system

Describe the type of heat dissipation system to be used in the proposed plant, and the quality and source of water the applicant proposes to use in the system.

#### 3.4.1 Intake and outfall

Simplified flow diagrams and sketches showing the location and design of the intake and outfall structures should be submitted.

### 3.4.2 Source of cooling water

Identify the source and quality of the cooling water. The temperature range of the cooling water supply (including monthly changes and stratification, should be described in Section 2.5).

### 3.4.3 System design

Topics to be covered, where applicable, should include estimates of: (1) quantity of heat dissipated, (2) quantity of water withdrawn, (3) consumptive use, (4) design size and location of cooling system, (5) blowdown volume and physical characteristics, (6) rate of discharge, (7) physical and chemical characteristics for towers and ponds, (8) temperature changes across condenser, (9) rate of changes and hold-up times in cooling ponds, (10) rate of evaporation of water from towers or ponds, (11) information on dams or dikes where a cooling reservoir is created, (12) conceptual design and location of water intake structures, including water depth, flow and velocity, screens, number and capacity of pumps at intake structures, (13) maximum predicted discharge temperature at POD water, (14) travel time from condenser inlet to POD, and (15) seepage rate from cooling ponds or reservoirs. Describe the minimum water quality characteristics the cooling water source must possess in order to operate the proposed heat dissipation system. If water of a lower quality could be used without significant cost penalty in a different heat dissipation system which the applicant has the ability to use, describe the physical characteristics of such water and of such system.

#### 3.4.4 Dilution system

Describe where applicable any dilution system including: (1) proposed point of addition and flow rate of any diluent added to the cooling water stream; (2) details of outfall design, including discharge flow and velocity and the depth and location of the discharge structure in the receiving water, (3) seasonal variation in operation should be noted, (4) intake design details, if a separate intake for dilution water is used.

#### 3.4.5 Blowdown and trash disposal

Describe proposed systems and procedures for removal and disposal of blowdown from the heat dissipation system and of trash collected at the intake structures.

#### 3.4.6 Injection wells

If injection wells are to be used for disposal of cooling system and/or boiler blowdown or any other type of waste, provide a detailed geological description of the disposal site together with information about aquifer, its quality, quantity, predicted effects, etc. Include well construction diagrams, such as, casing depths, well bore diameters, grouting, etc., for the injection well and monitoring wells. Show the location of the monitoring wells and describe the drilling and testing programs. List the materials or chemicals and the estimated quantities of each to be injected.

### 3.5 Chemical and biocide waste

The applicant should describe chemical additives (including corrosion inhibitors, chemical and biological anti-fouling agents), and waste streams or discharges from chemical processing and water treatment that may enter the local environment as a result of plant operation. The discussion should include description of procedures by which effluents will be treated, controlled and discharged.

### 3.6 Sanitary and other wastes systems

#### 3.6.1 Volumes and quality

Describe any other liquid waste materials, such as sanitary or chemical laboratory wastes, that may be created and may enter the local environment during plant operation. The description should include the types, volumes and concentrations of pollutants discharged.

#### 3.6.2 Treatment and disposal

Describe the manner in which the sanitary and other liquid wastes will be treated and controlled and procedures for disposal.

#### 3.6.3 Solid wastes

Describe the anticipated quantities and types of solid waste, including ash, that will result from plant operation and the methods of disposal.

### 3.7 Air emissions

The applicant should fully describe types and sources of air emissions, the methods for compliance with applicable regulations and the methods of discharge. Include a discussion of compliance with the provisions of Sections 17-2.03 Best Available Control Technology and complete the following form entitled Best Available Control Technology Data. In addition, estimates of air emission levels both during the use of and in the absence of control technology should be specified.

If the applicant proposes to construct a source impacting a non-attainment area, it shall submit sufficient information to comply with the provisions of Chapter 17-2, FAC, relating to Non-Attainment Areas.



BEST AVAILABLE CONTROL TECHNOLOGY DATA

A. Emission Limitations For Any Pollutants Emitted From The Source Pursuant To 17-2, F.A.C.?

Yes ( )                      No ( )

POLLUTANT	RATE OF CONCENTRATION
_____	_____
_____	_____
_____	_____
_____	_____

B. Are Standards of Performance For New Stationary Sources Pursuant To 40 C.F.R. Part 60 Applicable To The Source?

Yes ( )                      No ( )

POLLUTANT	RATE OF CONCENTRATION
_____	_____
_____	_____
_____	_____
_____	_____

C. Has EPA Declared The Best Available Control Technology For This Class Of Sources? (If Yes Attach Copy)

Yes ( )                      No ( )

POLLUTANT	RATE OF CONCENTRATION
_____	_____
_____	_____
_____	_____
_____	_____

D. What Emission Levels Do You Propose As Best Available Control Technology?

POLLUTANT	RATE OF CONCENTRATION
_____	_____
_____	_____
_____	_____
_____	_____

E. Describe the Control Technology Proposed (If not available explain the reasons fully):

1. Control Device: (Generic)
2. Efficiency: (Estimate)
3. Capital Cost: (Estimate)
4. Life: (Estimate)
5. Operating Cost: (Estimate)
6. Energy: (Estimate)
7. Maintenance Cost: (Estimate)

8. Stack Parameters:

- |               |     |                 |     |
|---------------|-----|-----------------|-----|
| a. Height:    | Ft. | b. Diameter:    | Ft. |
| b. Flow Rate: | CFM | d. Temperature: | OF  |
| e. Velocity:  | FPS |                 |     |

9. Fuels:

TYPE	HOURLY USE*		HOURLY HEAT INPUT MILLION BTU/HR.	
	AVG.	MAX.	AVG.	MAX.
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
TYPE	DENSITY	%S	%N	%ASH
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

\*Gaseous CU. Ft./Hr.

Liquid & Solid: Lbs./Hr.

10. Wastes Generated, Disposal Method, Cost of Disposal:

F. Show Derivation of Efficiency Estimation.

G. An 8½" x 11" Flow Diagram Which Will, Identify the Individual Operations and/or Processes. Indicate Where Raw Materials Enter, Where Solid and Liquid Waste Exist, Where Gaseous Emissions and/or Airborne Particles Are Evolved.

### 3.8 Directly associated transmission lines

The application shall contain sufficient information to permit evaluation of directly associated transmission lines and related facilities that are to be constructed from the proposed installation to an interconnecting point or points on the existing high-voltage transmission system. The applicant should look to USNRC Regulatory Guide 4.2, Revision 2, Section 3.9 for guidance in their description.

#### 3.8.1 Route and size

The applicant shall supply contour maps and/or aerial photographs showing the proposed right-of-way and identifying any existing associated high-voltage transmission system. (1) the lengths and widths of the proposed rights-of-way should be specified; (2) any access roads, maintenance roads and new facilities located on or near the right-of-way should be shown.

#### 3.8.2 Land use impacts

The applicant should describe the land and water to be crossed by the associated transmission line and indicate (1) whether the land adjacent to the right-of-way has residential, agricultural, industrial or recreational uses; (2) any area where construction of the associated transmission line(s) will require permanent clearing of trees and vegetation, changes in topography, or removal of manmade structures; (3) areas where transmission lines will be placed underground; on, under or over water or wetlands. Any impact on landmarks or sensitive areas not previously

discussed under 2.3 should be included here.

### 3.8.3 Beneficial uses

Any beneficial or multiple uses planned for the right-of-way should be discussed.

### 3.8.4 Visibility

Indicate the degree to which the above-ground lines will be visible from frequently traveled public roads, federal or state wilderness areas, parks and preserves.

### 3.8.5 Associated transmission structures

Include adequate descriptions of proposed line-related facilities such as substations. This portion of the application should provide sufficient information on the external appearance of the associated transmission structures and their relationship to the surrounding environment to permit an assessment of their aesthetic impact.

### 3.9 Associated facilities

The application should contain sufficient information on the location and characteristics of associated facilities that are to be constructed in association with the power plant to allow assessment of their environmental impacts.

### 3.9.1 Purpose, location, and characteristics

The applicant shall describe the purpose, location, and pertinent characteristics such as size or type of the associated facilities.

### 3.9.2 Maps

Supply contour maps and/or aerial photographs showing the property to be developed, and outline the major dimensions of the associated facilities, access roads, ports, docks, parking lots, sources of pollutants, etc.

### 3.9.3 Land type and uses

The applicant should describe the land being utilized for the associated facility and indicate (1) whether the land adjacent to facility is used for residential, agricultural, industrial or recreational purposes; (2) and whether the associated facilities might impact on landmarks or sensitive areas not previously discussed.

### 3.10 On-Site drainage system

The applicant shall describe the proposed on-site drainage system indicating the location of storage ponds, potential spoil areas and potential discharge points for stormwater runoff from construction and operation, as well as the receiving ground and surface waters. Identify the design storm for which the drainage system has been designed.

### 3.11 Design alternatives

The applicant may discuss alternative designs for the plant or pollution control facilities in this section.

CHAPTER 4  
ENVIRONMENTAL EFFECTS OF SITE PREPARATION, PLANT AND ASSOCIATED  
TRANSMISSION FACILITIES CONSTRUCTION

This chapter of the application should discuss the expected environmental effects of site preparation and construction of the plant, associated facilities and directly associated transmission facilities. The effects should be presented in terms of their physical impact on the resources and populations described in Chapter 2.

In the applicant's discussion of environmental effects, it should be made clear which of these are considered unavoidable and irreversible. Those effects which represent an irretrievable commitment of resources should receive detailed consideration in Section 4.4. In the context of this discussion, "irretrievable commitment of resources" alludes to natural resources and means a permanent impairment of these resources, (e.g. loss of wildlife habitat; impairment of nesting, breeding or nursery areas, interference with migratory routes) loss of valuable or aesthetically treasured natural areas; as well as the expenditure of directly utilized resources.

4.1 Site preparation and plant construction

The applicant should organize the discussion in terms of the effects of site preparation and plant construction on:



- (a) land use
- (b) water use
- (c) water quality
- (d) air quality
- (e) solid waste generation and disposal
- (f) ambient noise levels

The measures for mitigating the adverse impacts of the above should be discussed. The applicant should consider consequences to both human and wildlife populations and indicate which are unavoidable, reversible, etc., according to the categorization set forth earlier in this chapter. Provide a description of how construction activities may disturb the existing terrain and wildlife habitat.

#### 4.1.1 Construction areas

Consider the effects of such activities as creating building material laydown areas; building temporary or permanent roads, bridges and service lines; disposing of trash and chemical wastes (including oil); and clearing, excavating or filling of land.

#### 4.1.2 Land impact

Provide information concerning the following:

- (a) how much land will be disrupted?
- (b) what quantity of solid waste (trees and other vegetation) will be disposed of and how?

- (c) will there be construction related dust or smoke problems? For how long?
- (d) what explosives will be used? Where and how often?
- (e) where applicable, submit the Joint Application, Department of Army/Florida Department of Environmental Regulation for Activities in Waters of the State of Florida, SAJ Form 983 (July 21, 1977), or as subsequently amended, to facilitate coordination of Federal and State permits.

#### 4.1.3 Impact on human populations

Indicate proximity of human populations and identify undesirable impacts on their environment arising from noise and from inconveniences due to the movement of men, material, machines. Include activities impacting on housing, transportation, and educational facilities for local residents, workers and their families.

#### 4.1.4. Work Force

Provide a schedule of the estimated work force to be involved in site preparation and plant construction.

#### 4.1.5 Impact on landmarks and sensitive areas.

Describe any expected construction related environmental impact on those areas identified in 2.3, including changes in accessibility.

#### 4.1.6 Mitigating measures

Discuss measures designed to mitigate or reverse undesirable effects,

such as erosion control, dust stabilization, landscape restoration, control of truck traffic, restoration of affected animal habitat, and protection or preservation of archaeological sites.

#### 4.1.7 Benefits from construction

The discussion should also include any effects of site preparation and plant construction activities which may be beneficial to the region.

#### 4.1.8 Impact on water bodies and uses

Describe the impact of site preparation and construction activities on affected waters (lakes, streams, oceans, ground water, etc.). Discuss the overall plan for use (recreation, reservoir, etc.) of water bodies that may be affected by plant construction. Activities that might affect water use, include the construction of cofferdams, and/or storm sewers, dredging operations, placement of fill material in the water, and the creation of shoreside facilities involving bulkheads, piers, jetties, basins or other structures enabling ingress or egress from the plant by water. Examples of other pertinent activities are construction of intake and discharge structures for cooling water or other purposes, straightening or deepening a water channel and operations affecting water levels (flooding), construction, dewatering effects on nearby ground water users, etc. The applicant should describe the effects of these activities on navigation, fish and wildlife resources, water quality, water supply, and aesthetics. Where it is proposed to create a

cooling water lake, describe the effects on the local ecology, including the loss of flora and local migration or loss of fauna from the area the lake will occupy. Where applicable, any program for the establishment, development or control of aquatic plant and animal life should be described. This discussion may reference any available data based on studies of similarly sited artificial lakes. If excavations are made for cooling ponds or canals, describe type and volume of material removed and the method and site of its ultimate disposal.

#### 4.2 Special features

Describe and discuss all special features such as unusual products, raw materials, garbage disposal services, incinerator effluents and residues produced during construction, that may have an influence on the environment and ecology of the plant site and the adjacent area.

#### 4.3 Construction of directly associated transmission facilities

Discuss the effects of construction and installation of directly associated transmission line towers and facilities on the land, adjoining landowners and traffic.

##### 4.3.1 Permanent changes to vegetation, wildlife and aquatic life

Discuss any permanent changes that will be induced in the physical and biological processes of plants, aquatic life or wildlife through the changes in the hydrology, topography, or ground cover or through the use of growth retardants, chemicals, biocides, sprays, etc., during construction

of the associated transmission lines. Indicate where construction will necessitate the permanent clearing of trees or other vegetation.

#### 4.3.2 Extent of impact on sensitive areas

Indicate total length of new lines through and in various categories of visually sensitive land (that is, sensitive to presence of transmission lines and towers) such as natural shorelines, marshland, wildlife refuges, parks, national forest and/or heavily timbered areas, shelter belts steep slopes, wilderness areas.

#### 4.3.3 New roads

Indicate number, length, and width of new access and service roads required. Indicate whether each new road will have a permeable or impermeable surface and how each will change present patterns of water flow.

#### 4.3.4 Erosion

Discuss potential erosion problem caused by construction activities.

#### 4.3.5 Impact on land use

Discuss changes in land use such as changes in agricultural productivity along the transmission line right-of-way due to construction of the transmission facilities. Also discuss any impacts of construction on

historic, cultural or archaeologically significant areas as defined in Section 2.3.

#### 4.3.6 Mitigative measures

Discuss mitigative measures such as plans for protection of aquatic life or wildlife, for disposal of trash and unmarketable timber, and for cleanup and restoration of area affected by clearing and construction activities.

Also discuss the effects of construction on any identified rare or endangered species (as defined in Section 2.7), landmarks or sensitive areas (as defined in Section 2.3) and what action will be taken to mitigate or avoid any adverse effects.

#### 4.4 Resources committed

Discuss any irreversible and irretrievable commitments of resources (loss of land, destruction of biota, etc.) which are expected should site preparation and facilities construction proceed. Such losses should be evaluated in terms of their relative and long-term net, as well as absolute, impacts, (see Section 5.8 of this Form for more detailed consideration). Relative impacts may mean destruction of X% of something in a given area. Long-term net impacts might be a loss of population due to habitat destruction.

#### 4.5 Construction of other associated facilities

Discuss the impacts of constructing associated facilities on vegetation, wildlife, aquatic life, sensitive areas, historic, cultural, or archaeologically significant areas, and the mitigative measures planned.

CHAPTER 5  
ENVIRONMENTAL EFFECTS OF PLANT OPERATION

This chapter should describe the operational interaction of the plant and associated facilities with the environment. The applicant is not required to repeat the material presented in Chapters 2 and 3, but such previously presented material should be cross-referenced.

a. Effects of plant operation (including the transmission and associated facilities) on the environment should be described in detail.

b. In the discussion of environmental effects, effects that are considered unavoidable but are either temporary or subject to later amelioration should be clearly distinguished from those regarded as unavoidable and irreversible.

The impacts of operation of the facility should be, to the extent practicable, quantified and systematically presented. In the discussion of each impact, the applicant should make clear whether the supporting evidence is based on theoretical, laboratory, on-site, or field studies undertaken on this or on previous occasions. The source of each impact [the plant subsystem (type and size), waste effluent -] and the population or resource affected should be made clear in each case. The impacts should be distinguished in terms of their effects on surface water bodies, groundwater, air and land. Impacts due to failure of control devices should be estimated. The applicant should discuss the relationship between local "short term" and "long term" effects. ("Short term" effects may be taken to refer to the operation life of the proposed facility and "long-term" to refer to time periods extending beyond this



life). The applicant should also discuss the reasons for and effects of any requested variances to regulations.

## 5.1 Effects of the operation of the heat dissipation system

### 5.1.1 Temperature effect on Receiving Body of Water

If applicable, (a) describe the effect that the heated effluent will have on the temperature of the receiving body of water with respect to space and time; and (b) describe changes in temperature caused by drawing water from one depth and discharging it at another. Cover seasonal effects and the predicted temperature changes in the receiving body of water as a whole. Details of calculational methods used in predicting thermal plume configurations should be given in an appendix to the application. Models used should be discussed in Chapter 6.

### 5.1.2 Thermal limits

If applicable, describe the thermal standards or limitations applicable to the receiving body of water including maximum permissible temperature, maximum permissible temperature increase above ambient, and the size and location of the mixing zone, if any.

### 5.1.3 Effects on aquatic life

If applicable, describe the effects of released heat on marine or fresh water life. Give the basis for any prediction of effects. In this discussion, appropriate references should be made to the baseline

ecological data presented in Section 2.7. (1) Expected thermal effects should be related to the optimum and tolerance temperature ranges for important (as defined in Section 2.7) aquatic species and the food base which supports them. (2) The evaluation should consider aquatic habitat potentially affected by operation of the plant, especially by decreased freshwater quantities. (3) Probable hazards of the cooling water intake and discharge structures to fish species and food base organisms should be identified and steps planned to minimize the hazards of impingement and entrainment should be discussed. (4) Indicate whether any of the species affected are, or known to be, in the foodchain of "important" species as defined in 2.7.1.

If applicable, discuss diversion techniques in light of information obtained from ecological studies on fish population, size, and habitats.

If applicable, the applicant should also discuss the possible impacts of unit shutdown on aquatic life with special attention given to the dependence of the season on the potential effect. Describe procedures, for mitigating thermal shock to organisms.

If applicable, discuss the possible effects on plankton populations due to passage through the condensor and the resultant implications for the important species and functional groups.

#### 5.1.4 Biological effects of modified circulation

If applicable, the applicant should discuss the potential biological effects of modifying the natural circulation of a water body, especially

where water is withdrawn from one region or zone and discharged into another. This discussion should consider such factors as the alteration of the dissolved oxygen and nutrient content and distribution in the receiving water, as well as, the anticipated effects of scouring, erosion, and deposition of suspended sediments. Discuss effects of any increased or decreased volumes of water in the receiving body of water.

#### 5.1.5 Effects of offstream cooling

If applicable, discuss the expected effects, if any, of heat dissipation facilities such as cooling towers, lakes, spray ponds, or diffusers on the local environment and on agriculture, housing, highway safety, airports, or other installations with respect to meteorological phenomena, including fog, and cooling tower blowdown and drift. (1) If fog occurs, the estimated hours per year, distances, directions, and transportation arteries (including navigable waters) potentially affected should be presented and measures, if any, to mitigate such effects should be discussed. (2) Consider possible synergistic effects that might result from mixing of fog or drift with other plant emissions in the atmosphere. (Environmental effects of chemicals discharged in cooling tower drift should be discussed in Section 5.2 rather than in this section).

### 5.2 Effects of chemical and biocide discharges

#### 5.2.1 Industrial waste water discharges

Show how the applicant proposes to comply with applicable state and federal discharge regulations and water quality standards for industrial

type wastewater including chemical and biocidal wastes. The concentrations of these wastes at the points of discharge should be compared with natural ambient concentrations without the discharge and also compared with applicable water quality standards. The projected effects of the effluents for both acute and chronic exposure of the biota (including any long-term buildup in sediments and in the biota) should be discussed and identified. Dilution and mixing of discharges into the receiving water should be discussed in detail and estimates of concentrations at various distances from the point of discharge should be provided. Include a detailed description of the method of calculation. The estimated area enclosed by contour lines of equal concentration and a contour line corresponding to water-quality-standard values in the receiving body of water should be described and displayed on a map.

Discuss variations of the estimated waste discharges showing predicted changes in conditions of the receiving body of water (e.g. stream flow), and use contour maps showing concentrations and areas affected to display the effect of the variations.

The effects on terrestrial and aquatic environments from oil and grease or chemical wastes which may contaminate surface or ground water due to leaching of such wastes should be included.

#### 5.2.2 Leachate

Assess the effects of leachate from coal piles, ash ponds, flue gas desulphurization ponds and chemical waste holding or treatment ponds on ground or surface water quality.

### 5.2.3 Cooling tower blowdown

The effects of chemicals in cooling tower blowdown on the environment should be discussed in this section. (1) Estimates of concentrations at various distances should be provided. (2) Any anticipated chemical or biocide contamination of domestic water supplies should be identified and discussed.

### 5.3 Impacts on water supplies

In the event the applicant anticipates that surface or groundwater supplies or uses beyond the "5-mile radius area" will be affected by the proposed plant, discuss the anticipated effects.

#### 5.3.1 Drinking Water

The quality, quantity and hydrological changes due to the plant water use, either by withdrawal or discharge on a drinking water source, either surface or ground, should be identified and their impacts discussed. In water short areas water reuse and recycling systems should be discussed. The effects of discharges into drinking water sources not previously discussed should be covered in this section.

#### 5.3.2 Surface Water

Discuss plant caused changes in hydrologic or water quality characteristics due to diversion, interception, or additions to surface water drainage and flow.

### 5.3.3 Groundwater

Assess as in 5.3.2 above

### 5.4 Sanitary and other waste discharges

The expected effects of sanitary wastes or any other discharge system should be discussed in the same manner as in Section 5.2.

### 5.5 Air quality impacts

Discuss effects upon ambient air quality in the vicinity of the plant site due to plant operation in accordance with Chapter 17-2, FAC, including incremental impacts of particulates and sulfur dioxide for 3 hour, 24 hour and annual averages, as appropriate. Diffusion modeling must be used to assess changes in existing air quality as a result of plant operation. Compare predicted air quality levels and the Florida air quality standards including PSD increments as contained in Chapter 17-2, FAC. Predictions of visible emissions (opacity) should also be discussed.

The secondary air quality impacts as defined by the 1977 Amendments to the Clean Air Act should be discussed, if applicable.

### 5.6 Effects of operation and maintenance of the directly associated transmission system

#### 5.6.1 Effects of operation and maintenance

The environmental effects of the operation and maintenance of the directly associated transmission lines should be evaluated. (1) The evaluation of effects should make clear the applicant's plans for maintenance of the right-of-way and required access roads. (2) Discuss plans for use of herbicides, and pesticides indicating the types, volume, concentrations, manner and frequency of use. Evaluate their effects on plant life and wildlife habitat. The impacts of the operation and maintenance of the transmission lines on land resources, and scenic values should also be evaluated. This section should also discuss noise, induced currents, or ozone production of potential environmental significance.

#### 5.6.2 Effects of public access

If access roads increase the exposure of directly associated transmission line corridors to the public, the applicant should discuss the potential effect of this increased exposure on resident wildlife.

#### 5.7 Associated facilities and other effects

Discuss in this section the operational effects of associated facilities not covered elsewhere.

##### 5.7.1 Effects of associated facilities

The applicant should discuss the effects of the operation of associated facilities with respect to the topics covered by Sections 5.1 to 5.5.

In addition, discuss items not previously covered such as changes in adjacent land and water use, additional roads, interaction of the associated facilities' effluents or emissions with neighboring plants, effects on ground water from withdrawals and disposal of solid and liquid wastes. Anticipated noise levels should also be described with reference to the DBA scale, where applicable, at the facility perimeter.

#### 5.7.2 Other plant operation effects

The applicant should discuss any effects of plant operation that do not clearly fall under any single topic of Section 5.1 to 5.5. As an example, these may include changes in land and water use at the plant site, additional vehicular traffic, additional roads and highways, interaction of the plant with other existing or projected neighboring plants, effect of ground water withdrawal on ground water resources in the vicinity of the plant, and disposal of solid and liquid wastes other than those discussed in Sections 5.2 and 5.3. Also discuss anticipated noise impacts and abatement features and plans where applicable.

#### 5.8 Resources committed

Discuss any irreversible and irretrievable commitments of state or local resources due to plant operation.

##### 5.8.1 Lost resources

In this section consider lost state, regional or local resources from the viewpoints of both relative impacts and long-term net effects.



### 5.8.2 Changes in species populations

Examine changes in population of important species caused by, or expected to be caused by, the operation of the plant with the view of determining whether they represent long-term net loss or long-term net gains.

### 5.9 Variances

If known at the time of application, list each known variance from applicable standards which will be sought as part of the state certification proceedings. Cite the standard's code section number from which the variance is sought. Also list any variances sought from federal standards or guidelines. State the nature of the variance, the reasons for seeking a variance, and the length of time for which it is sought, including anticipated renewal periods, and the facts that show a variance should be granted.

## CHAPTER 6

### ENVIRONMENTAL MEASUREMENTS AND MONITORING PROGRAMS

#### 6.1 General

The purpose of this chapter is to describe the programs by which the applicant collects the baseline data presented in other chapters and to describe the applicant's plans and programs for monitoring the environmental impacts resulting from site preparation and plant construction. As an option, the monitoring program for the plant operational period may be submitted to the department no later than six months and preferably one year before the plant start up target date. This option may be exercised on the part of the applicant if the target start up date is more than two years beyond the anticipated date of receiving site certification from the department. The background data gathering program should have established, at least in part, a reference framework for assessing subsequent environmental effects attributable to the activity.

In some instances this form indicates the specific environmental effects which are to be evaluated, especially during site preparation and plant construction; consequently, the parameters to be measured will be apparent. In some cases it may be necessary to establish a monitoring program to identify other potential or possible effects.

Duplication of information may be avoided by cross-referencing.

## 6.2 Pre-application monitoring

It is strongly suggested that the applicant discuss and agree to in writing any monitoring or data gathering program with the Department prior to implementation.

### 6.2.1 Sampling techniques

Sample station location, sampling frequency, methodology, (including calibration and checks with standards) and instrumentation for both collection and analysis should be thoroughly discussed. Information should be provided on instrument accuracy, sensitivity and especially for high automated systems, reliability. Standard analytical or other techniques as used by the Department of Environmental Regulation should be used or permission to vary the method must be obtained.

### 6.2.2 Use of published data

Where information from published data has been used by the applicant, it should be concisely summarized and documented by reference to the original data sources. Where the availability of original sources that support important conclusions is limited, the applicant should provide either extensive quotations or reference to accessible secondary sources. In all cases, information derived from the applicant's field measurements should be clearly identified, when used to verify the applicability of similar studies found in the literature.

### 6.2.3 Use of reports developed by the applicant

Any reports of work (e.g. ecological surveys) supported by the applicant that are of significant value in assessing the environmental impact of the facility, should be included as appendices or supplements to the application for certification if requested. Any deviation from departmental standard procedures used by the authors of the above mentioned reports should be well documented and discussed.

### 6.2.4 Surface waters

Describe the programs by which the background condition of the water and related ecology were determined and reported in Chapter 2.

#### 6.2.4.1 Physical and chemical parameters

a. The programs and methods for measuring background physical and chemical parameters of surface water which will be affected during construction and/or operation of the facility should be described. The sampling program should be presented in sufficient detail to demonstrate its adequacy with respect both to spatial coverage (surface area and depth) and to temporal coverage (durations and sampling frequency), and to give due consideration to seasonal effect.

b. In addition to describing the programs for obtaining the data, also describe any computational models used in predicting effects. The applicant should indicate how models were verified and calibrated.

#### 6.2.4.2 Ecological parameters

The applicant should describe the program used to determine the ecological characteristics presented in Section 2.7.

a. Those portions of the program concerned with determining the presence and abundance of important aquatic and amphibious species (identified in Section 2.7) should be detailed in terms of frequency, pattern and duration of observation. (1) The applicant should describe how taxonomic determinations were made and validated. (2) In this connection, the applicant should discuss its reference collection of voucher specimens or other means whereby consistent identification is assured.

b. A description should be provided of the methods used and to be used for observing natural variations of ecological parameters. If these methods will involve indicator organisms, the criteria for their selection should be presented.

#### 6.2.5 Ground water

In those cases in which the facility or a practicable design alternative will probably affect the chemical and/or physical condition of local ground water during the site preparation and construction, the program leading to the assessment of the existing conditions should be described.

#### 6.2.6 Air

a. The applicant should describe the program that was used for obtaining background information on local air quality, if relevant, and local meteorology.

b. The applicant should identify sources of air quality and meteorological data reported in Section 2.6. Locations and elevations of observation stations, instrumentation, and frequency and duration of measurements should be specified both for the applicant's measuring activities and for activities of governmental agencies or other organizations on whose information the applicant intends to rely.

c. Any models used by the applicant either to derive estimates of baseline air quality and/or meteorological information or to estimate the effects of emissions from existing sources should be described and their validity and accuracy discussed.

d. Methods for determining emissions should be explained. Quality assurance procedures should be discussed.

#### 6.2.7 Geology

Those geological and soil studies designed to determine the suitability of the site should be described. The description should include identification of the sampling pattern and the justification for its selection, the sampling method, pre-analysis treatment, and analytic techniques. When

used, previously published geological and soil studies should be briefly summarized.

#### 6.2.8 Archaeology

The methods used in making archaeological and historical studies made of the site should be described. Methods acceptable to the Department of State, Division of Archives, History and Records Management are preferred.

#### 6.2.9 Noise

The methods use in making noise surveys should be described. EPA noise guidelines in EPA-400/9-75-003T "Direct Environmental Factors at Municipal Wastewater Treatment Works" may be utilized.

#### 6.2.10 Terrestrial Biota

Discuss the program used to document the terrestrial biota discussed in Section 2.7

### 6.3 Construction and Operational monitoring

In this section indicate the specific environmental effects which are to be evaluated for plant construction and operation. The format and material used to address the appropriate subsection of section 6.2 may be referenced. Where post application monitoring is the same as pre-application monitoring a statement referring to the appropriate

subsection of section 6.2 will be acceptable. Changes from pre application monitoring should be addressed.

#### 6.3.1 Sampling techniques

Sample station, location, sampling frequency, methodology, (including calibration and checks with standards) and instrumentation for both collection and analysis should be thoroughly discussed. Information should be provided on instrument accuracy, sensitivity and especially for high automated systems, reliability. Standard analytical or other techniques as used by the Department of Environmental Regulation should be used or permission to modify the techniques must be obtained.

#### 6.3.2 Modifications

Where site preparation and/or facility construction may alter a previously measured or observed environmental condition, the program for monitoring the modified condition should be described.

#### 6.3.3 Surface waters

Describe the programs by which the condition of the water and related ecology will be monitored during site preparation, plant construction, and plant operation.

#### 6.3.4 Physical and chemical parameters

a. The programs and methods for measuring physical and chemical parameters of waters which will be affected during construction and/or



operation of the facility should be described. The sampling program should be presented in sufficient detail to demonstrate its adequacy with respect both to spatial coverage (surface area and depth) and to temporal coverage (durations and sampling frequency), and giving due consideration to seasonal effects.

b. In addition to describing the programs for obtaining the data, the applicant should also describe any computational models used in predicting effects. The applicant should indicate how models will be verified and calibrated.

#### 6.3.5 Ecological parameters

The applicant should describe the construction and operational program used to monitor the ecological characteristics presented in Section 2.7. Any variation from the pre-constructional program to be used during the construction or operational phases of the project as outlined in 6.2.4.2 should be described. Any variation from the pre-constructional program to be used during the construction phase program should be fully explained.

The applicant should fully describe any anticipated changes in the program for assessing effects on the terrestrial biota resulting from site preparation and plant construction. If possible at the time of application, the application should submit the anticipated program or changes in the background program that would cover the plant operational period.

### 6.3.6 Ground water

In those cases in which the proposed facility or a practicable design alternative may potentially affect the chemical and/or physical condition of local ground water during the site preparation and construction, the program leading to the assessment of effects, including use of models, should be described.

### 6.3.7 Air

a. The applicant should describe the program that will be used to monitor ambient air quality and local meteorology, if relevant. If significant changes in the program previously used for gathering background data are anticipated when determining the effects of plant construction and site preparation, those changes should be well explained.

b. The applicant should identify sources of meteorological data. Locations and elevations of observation stations, instrumentation, and frequency and duration of measurements should be specified both for the applicant's measuring activities and for activities of governmental agencies or other organizations on whose information the applicant intends to rely.

c. The applicant should describe stack monitoring provisions, such as continuous monitors for SO<sub>2</sub>, NO<sub>x</sub>, Oxygen, visible emissions or opacity and the calibration and calculation procedures to be used for each.

#### 6.3.8 Geology

Those geological and soil studies designed to determine the environmental impact of the construction and/or operation of the facility should be described. The description should include identification of the sampling pattern and the justification for its selection, the sampling method, pre-analysis treatment, and analytic techniques. Other geological and soil studies should be briefly summarized if relevant.

#### 6.3.9 Archaeology

The procedure for monitoring construction activities to identify, catalogue, or preserve any unforeseen discoveries of archaeological significance should be described.

CHAPTER 7  
ECONOMIC AND SOCIAL EFFECTS OF PLANT  
CONSTRUCTION AND OPERATION

The purpose of this chapter is to present the applicant's assessment of the economic and social effects of the proposed facility. Projections of cost and benefits should include the assumptions upon which they are based.

### 7.1 Socio-Economic Benefits

Potential benefits of the plant, if any, should be discussed such as the sale of steam or other products or services. If claimed, estimate the likelihood of achieving such benefits.

Discuss social and economic benefits which may affect various local governmental agencies within whose jurisdiction the plant is to be located.

Examples may include:

1. Tax revenues to be received by local and State governments.
2. Temporary and permanent new jobs created and payroll amounts.
3. Enhancement of recreational or environmental values by making available for public use any parks, artificially created cooling lakes, marinas, wildlife management areas, etc.
4. Creation and improvement of local roads, waterways, or other local transportation facilities.

5. Increased knowledge of the environment as a consequence of ecological research and environmental monitoring activities associated with plant operation, and technological improvements from the applicant's research program.
6. Creation of a source of heated discharge which may be used for beneficial purposes (e.g., in aquaculture, in improving commercial and sport fishing, or in industrial, residential, or commercial heating).
7. Provision of public education or meeting facilities (e.g., a visitors' center).

In each instance where a particular benefit is discussed, the applicant should indicate, to the extent practical, who is likely to be affected and for how long. In the case of aesthetic impacts that are difficult to quantify, the applicant should provide its best estimate of the benefits.

## 7.2 Socio-Economic Costs

This section should include a detailed assessment of the anticipated economic and social costs resulting from the proposed power plant and its operation and any special measures to be taken to alleviate adverse impacts.

### 7.2.1 Plant costs

Information on plant costs as included in the applicant's latest Ten Year Site Plan should be provided.

### 7.2.2. External Costs

The effects of external costs on the interests of people should be examined. The applicant should, where applicable, an evaluation, supporting data and rationale re external social and economic costs as noted below. The applicant should describe the estimated economic and social impact, and the special measures to be taken to alleviate adverse impacts.

#### 7.2.2.1 Temporary External Costs

Temporary external costs may include: Shortages of housing; inflationary rents or prices; congestion of local streets and highways; noise; temporary aesthetic disturbances; overloading of water supply and sewage treatment facilities; crowding of local schools, hospitals or other public facilities; overtaxing of community services; and the disruption of people's lives or the local community caused by acquisition of land for the proposed site. Allocate the costs between continuing and temporary construction period costs.

#### 7.2.2.2 Long-term external costs

There may be long term external costs of the facility which should be discussed. A list of examples are: impairment of recreational values (e.g., reduced availability of desired species of wildlife and sport fish, restrictions of access to land or water areas preferred for recreational use); deterioration of aesthetic and scenic values; restrictions on access to areas of scenic values; restrictions on access to areas of

scenic, historic, cultural, natural, or archeological value; removal of land from present or contemplated alternative uses; creation of locally adverse meteorological conditions and noise, reduction of regional products due to displacement of persons from the land proposed for the site; lost income from reductions in recreation, tourism, commercial fishing, and real estate values in areas adjacent to the proposed facility; increased costs to local government for services required by the permanently employed workers and their families.

## CHAPTER 8

### ALTERNATIVE ENERGY SOURCES AND SITES

The intent of this chapter is to present the basis for the applicant's proposed choice of site and fuel. The applicant should describe its site-plant selection process and indicate how and why a particular site and a particular energy source was chosen, including discussion of the range of practicable alternatives. Material from the most current Ten Year Site Plan and the latest Florida Electric Power Generating Group Composite Ten Year Site Plan may be utilized and updated to fulfill the requirements of this chapter. The purpose of this chapter is to assist state and federal agencies in determining that the applicant has made the most cost effective choice in providing new capacity in keeping with the legislature intent to provide abundant, low cost electrical energy.

#### 8.1 Assessment of alternative sites

The applicant should discuss the practical alternative sites considered in Chapter 4 of the latest ten year site plan.

#### 8.2 Alternative Fuels analysis

The applicant should briefly discuss the availability of fuel or other energy sources at the chosen site including any limitations on the use of specific fuels. Included in this section should be a condensed description of the major considerations which led to selection of the proposed fuel. The applicant should discuss the short and long-term availability of the chosen fuel(s) and of alternative fuels or other



energy sources available at the proposed site. Limitations on the use of specific fuels at the proposed site should be identified; for example, limitations on: maximum allowable fuel sulfur content, required fuel transport networks, availability of large volumes of refuse, sources of hydroelectric power, etc.

APPENDIX B

PERTINENT APPLICANT INFORMATION

PERTINENT APPLICANT INFORMATION

Applicants Official Name: Hillsborough County  
Address: Hillsborough County Courthouse  
Tampa, Florida 33602

Name and Title of Business Head: \_\_\_\_\_, Chairman of  
Board of County Commissioners

Name, Title and Address of  
Representative Responsible  
for Obtaining Certification: Warren N. Smith, Director  
Department of Solid Waste  
925 East Twiggs Street  
Tampa, FL 33601

Site Location: County-Hillsborough  
Nearest Incorporated City - Tampa  
Township and Range: T29S, R20E

Latitude and Longitude: 27°57'14" N  
82°40'22" W

UTMs Northerly - 30/92/700m.N.  
Easterly - 3/68/220m.E.

Nameplate Generating Capacity  
of Proposed Facility: 29 megawatts

Ultimate Site Capacity for  
Certification: 39 megawatts

REMARKS: The sole purpose of the proposed energy recovery facility is to dispose of solid waste and recover energy and possibly materials. This proposed facility will afford Hillsborough County a method of solid waste disposal which will substitute for the present landfilling operations. Hillsborough County does not operate, maintain or construct facilities for the purpose of electric generation. Neither does Hillsborough County distribute electrical energy generated at facilities operated by others.

PROFESSIONAL ENGINEER SUBMITTING APPLICATION

Name: Thomas D. Furman, Jr.

Florida Registration No.: 12473

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Address and Phone Number: Camp Dresser & McKee Inc.  
2280 U.S. Highway 19 North, Suite 202  
Clearwater, FL 33515  
(813) 796-1903

(SEAL)