PAID SEP 20 1986

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SEP 22 1986

SOUTH WEST DISTRICT
TAMPA

A029-125315

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

AIR POLLUTION SOURCES
CERTIFICATE OF COMPLETION OF CONSTRUCTION*

PERMIT NO. AC29-41943 DATE: 9/16/86

Company Name: Tampa Electric Company County: Hillsborough County

Source Identification(s): F.J. Gannon Station - Unit #1

Actual costs of serving pollution control purpose: $ 11,183,000*

Operating Rates: ____ Design Capacity: 125 MW-Maximum Generator Nameplate rating.

Expected Normal ---- During Compliance Test 110 MW

Date of Compliance Test: August 26, 1986 (Attach detailed test report)

Test Results: Pollutant	Actual Discharge	Allowed Discharge
Particulate (non-soot blow.)	0.01 lb/MMBtu	0.1 lb/MMBtu
Particulate (soot blow.)	0.01 lb/MMBtu	0.3 lb/MMBtu
Sulfur Dioxide	1.6 lb/MMBtu	2.4 lb/MMBtu

Date plant placed in operation: September, 1957

This is to certify that, with the exception of deviations noted**, the construction of the project has been completed in accordance with the application to construct and Construction Permit No. AC29-41943 dated 8/7/81.

A. Applicant:

A. Spencer Autry
Name of Person Signing (Type)

Signature of Owner or Authorized Representative and Title
Manager, Environmental Planning

Date: 9/16/86 Telephone: (813)228-4111

B. Professional Engineer:

Kevin E. Fleming
Name of Person Signing (Type)

Signature of Professional Engineer

Tampa Electric Company
Company Name

Florida Registration No. 0033320

Date: 9/16/86

(Seal)

P.O. Box 111, Tampa, Florida 33601
Mailing Address

(813)228-4111
Telephone Number

KEVIN E. FLEMING
CERTIFICATE NO. 33320
STATE OF FLORIDA
REGISTERED ENGINEER

*This form, satisfactorily completed, submitted in conjunction with an existing application to construct permit and payment of application processing fee will be accepted in lieu of an application to operate.

**As built, if not built as indicated include process flow sketch, plot plan sketch, and updates of applicable pages of application form.

*As of May, 1986.

TAMPA ELECTRIC
A TECO ENERGY COMPANY

September 17, 1986

RE: Gannon Station Unit No. 1 - Air Operations Permit Application

TO WHOM IT MAY CONCERN:

Please be advised that A. Spencer Autry, Manager of Environmental Planning, is the authorized representative of Tampa Electric Company concerning matters with which this permit application deals.

Very truly yours,

Heywood A. Turner

Heywood A. Turner
Senior Vice President
Production

HAT/tb

TAMPA ELECTRIC COMPANY
P.O. Box 111 Tampa, Florida 33601 (813) 228-4111

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

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

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Air Pollution [ ] New[1] [X] Existing[1]

APPLICATION TYPE: [ ] Construction [X] Operation [ ] Modification

COMPANY NAME: Tampa Electric Company COUNTY: Hillsborough

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) Gannon Station Unit #1

SOURCE LOCATION: Street Port Sutton Road City Tampa

UTM: East 359,896 North 3,087,486

Latitude 27 ° 54 ' 25 "N Longitude 82 ° 25 ' 22 "W

APPLICANT NAME AND TITLE: Tampa Electric Company

APPLICANT ADDRESS: P.O. Box 111, Tampa, Florida 33601 - Attn: Environmental Planning

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Tampa Electric Company

I certify that the statements made in this application for an operation permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed:

A. Spencer Autry, Manager, Environmental Planning
Name and Title (Please Type)

Date: 9/16/86 Telephone No. (813)228-4111

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

See Florida Administrative Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed Lynn F. Robinson

Lynn F. Robinson
Name (Please Type)

Tampa Electric Company
Company Name (Please Type)

P.O. Box 111, Tampa, Florida 33601
Mailing Address (Please Type)

Florida Registration No. 20786 Date: 9/16/86 Telephone No. (813)228-4111

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

See Attachment "A"

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction Not Applicable Completion of Construction

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Electrostatic Precipitator $11,183,000*

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

A029-47731 3/11/82 - 1/25/87, A029-7136 9/27/78 - 7/1/83

AC29-41943 8/7/81 - 3/15/87

*As of May 1986.

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr 8760 ; if seasonal, describe: Not Applicable

F. If this is a new source or major modification, answer the following questions. (Yes or No) Not Applicable

1. Is this source in a non-attainment area for a particular pollutant? _____

   a. If yes, has "offset" been applied? _____

   b. If yes, has "Lowest Achievable Emission Rate" been applied? _____

   c. If yes, list non-attainment pollutants. _____

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. _____

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. _____

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? _____

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? _____

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? Yes*

   a. If yes, for what pollutants? Particulate

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.
See Attachment "B"

*Pursuant to Florida Administrative Code 17-2.650(2)(a)1.; "Any existing source that emits particulate matter and is located in a particulate non-attainment area or in the area of influence of such a non-attainment area except a source which has received a determination of Best Available Control Technology pursuant to 17-2.630 or received a permit in connection with 17-2.500 or 17-2.510, shall limit the emission of particulate matter through the application of Reasonably Available Control Technology (RACT)...."

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable: Not Applicable

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): See Section III-E

2. Product Weight (lbs/hr): Not Applicable

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2 **	Allowable[3] Emission lbs/hr *	Potential[4] * Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
Particulate	125.7	374.4	0.1 lb/10^6Btu	125.7	13813	60502	Fig. 1
Sulfur Dioxide	3017	8985	2.4 lb/10^6Btu	3017	3017	8985	

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3]Calculated from operating rate and applicable standard.

[4]Emission, if source operated without control (See Section V, Item 3).

*See Attachment "C"

**Chapter 17-2.600(5)(b)2 and 17-2.600(5)(b)3.b

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
Electrostatic	Particulate	99.09%	N/A	Equipment
Precipitator				Specification
Combustion Engineering				
Rigid Frame				

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Coal		50T/hr	1257

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis:

Percent Sulfur: 1.19* Percent Ash: 7.65*

Density: ---- lbs/gal Typical Percent Nitrogen: ----

Heat Capacity: 12373* BTU/lb ---- BTU/gal

Other Fuel Contaminants (which may cause air pollution): ----

F. If applicable, indicate the percent of fuel used for space heating. Not Applicable

Annual Average _____ Maximum _____

G. Indicate liquid or solid wastes generated and method of disposal.

Fly Ash - from fly ash handling system is either conveyed to silo for sale or is reinjected back into the boiler.

Bottom ash (slag) - is sluiced to dewatering bins where the slag is dewatered and sold. The transport water is then piped to a settling pond before being discharged.

*Average values, Gannon Station Unit #4, 1985 emissions inventory.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: El 315 ft. Stack Diameter: 12 ft.

Gas Flow Rate: 504,800 ACFM -- DSCFM Gas Exit Temperature: 260 ± 55 °F.

Water Vapor Content: 8 % Velocity: 75 FPS

SECTION IV: INCINERATOR INFORMATION

Not Applicable

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diamter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify) _____

Brief description of operating characteristics of control devices: _____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]
   1257 X 10^6 Btu/Hr
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made. See Source Emission Test, August 26, 1986 - Attachment D and Precipitator Performance Test, October 29-30, 1985 - Attachment E
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
   See Attachment C
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.) Not Applicable
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency). Not Applicable
6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained. See Figure 1
7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
   See Figure 2
8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.
   See Figure 3

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

Not Applicable

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

[ ] Yes [ ] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy)

[ ] Yes [ ] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration

D. Describe the existing control and treatment technology (if any).

1. Control Device/System:

2. Operating Principles:

3. Efficiency:*

4. Capital Costs:

*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height: ft.

b. Diameter: ft.

c. Flow Rate: ACFM

d. Temperature: °F.

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy[2]

h. Maintenance Cost:

i. Availaoility of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device:

2. Efficiency:[1]

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:[2]

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

[1] Explain method of determining efficiency.
[2] Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

[1]Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

Not Applicable

A. Company Monitored Data

1. _____no. sites _____ TSP _____( ) SO^{2}* _____ Wind spd/dir

Period of Monitoring _____/_____/_____ to _____/_____/_____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

*Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

a. Was instrumentation EPA referenced or its equivalent? [ ] Yes [ ] No

b. Was instrumentation calibrated in accordance with Department procedures?

[ ] Yes [ ] No [ ] Unknown

B. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from ____/____/____ to ____/____/____
month day year month day year

2. Surface data obtained from (location)_____

3. Upper air (mixing height) data obtained from (location)_____

4. Stability wind rose (STAR) data obtained from (location)_____

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	_____ grams/sec
SO^2	_____ grams/sec

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

ATTACHMENT A

Section II.A

The source is the F.J. Gannon Station Coal Fired Steam Electric Power Generating Plant Unit #1. The Unit consists of a Babcock and Wilcox cyclone fired boiler which generates steam to drive a General Electric generator. Flue gas from the combustion of coal is discharged through a 306 ft stack. Particulates (flyash) are removed from the flue gas by an electrostatic precipitator. The collected flyash is pneumatically conveyed to the Units 1-4 flyash silo or reinjected into the boiler.

ATTACHMENT B

F.J. GANNON STATION - UNIT #1

Operation and Maintenance Plan for the
Processing System and Particulate Control/Collection Systems

INTRODUCTION

F.J. Gannon Station is owned and operated by Tampa Electric Company. The station is located on the eastern shore of Hillsborough Bay at Port Sutton. The station consists of six coal fired, steam electric generating units.

Unit 1 was placed in service in September, 1957 with a generator nameplate capacity of 125 MW. The boiler was manufactured by the Babcock and Wilcox Corporation and is of the "wet" bottom, cyclone firing type. Boiler flue gas passes through an electrostatic precipitator prior to discharge through a 306 foot stack.

PROCESS SYSTEM PERFORMANCE PARAMETERS

The Unit 1 boiler burns low sulfur coal. The design fuel consumption at maximum continuous rating is 50 tons/hr., operating pressure is 1575 psi and operating temperature is 1000°F.

The maximum design steam capacity of the boiler is 910,000 pounds per hour. Steam flow is recorded on a continuous basis.

PARTICULATE CONTROL EQUIPMENT DATA

Gannon Unit 1 is equipped with an electrostatic precipitator for the control of particulate emissions. The rigid frame precipitator was manufactured by Combustion Engineering, Inc. Flyash collected by the precipitator is either pneumatically transported to a storage silo for sale or reinjected into the boiler. Flyash is reinjected into the boiler when the silo approaches its maximum storage capacity. Important design information and data applicable to the particulate control system are listed below:

Precipitator Data

Design Flow Rate	440,000 acfm
Primary Voltage	460 volts
Primary Current	258 amps
Secondary Voltage	56.6 kilovolts
Secondary Current	1500 ma
Design Efficiency	99.09%
Pressure Drop	1.59 inches of H_2O (average)
Rapper Frequency	1/1.5 min-1/4.0 min (average)
Rapper Duration	Impact
Temperature	260 $\pm$ 55°F (average)

Precipitator (ESP) performance parameters are recorded on a daily basis. The information recorded includes primary voltage, primary current, secondary current and secondary voltage. This information is kept in the precipitator technician's office. Flyash hopper high levels are alarmed in the control room.

MAINTENANCE AND INSPECTION SCHEDULES

Precipitator

All generating units of Tampa Electric Company system are regularly scheduled for periodic maintenance. The schedule for planned maintenance outages is affected by system load and forced outage requirements. Typically, planned outages are scheduled during non-peak load periods such as the spring or fall.

The Unit 1 particulate control system receives regular preventive maintenance. The following preventive maintenance procedures are performed on a weekly basis.

- Inspection of insulator compartment heaters/blowers. Service as needed.
- Observation of operation of all rapper and transformer/rectifier controls.

The following preventive maintenance procedures are performed on a daily basis.

- Inspection of system controls. Minor adjustments as needed.

Should these procedures indicate repairs are necessary, maintenance job requests are initiated. All records are maintained for a minimum of two years.

ATTACHMENT C
EMISSIONS CALCULATIONS

Section III

C. Airborne Contaminants Emitted

1. Particulates

a. Emissions

$$1257 \times 10^6 \frac{\text{Btu}}{\text{Hr}} \times 0.1 \frac{\text{lb}}{10^6 \text{ Btu}} = 125.7 \frac{\text{lb}}{\text{Hr}} \text{ maximum emissions}$$

$$125.7 \frac{\text{lb}}{\text{Hr}} \times \frac{1}{2000} \frac{\text{Ton}}{\text{lb}} \times 8760 \frac{\text{Hr}}{\text{Yr}} \times 0.68 \text{ capacity factor} =$$

$$374.4 \frac{\text{Tons}}{\text{Yr}} \text{ Actual emissions}$$

b. Allowed Emission Rate = $0.1 \frac{\text{lb}}{10^6 \text{ Btu}}$

c. Allowable Emissions = $125.7 \frac{\text{lb}}{\text{Hr}}$ (same as maximum emissions)

d. Potential Emissions

= Maximum emissions ÷ (1-Precipitator Efficiency)

$$= 125.7 \div (1\text{-}0.9909) = 13813 \frac{\text{lb}}{\text{Hr}} = 60502 \frac{\text{Tons}}{\text{Yr}}$$

2. Sulfur Dioxide

a. Emissions

$$1257 \times 10^6 \frac{\text{Btu}}{\text{Hr}} \times 2.4 \frac{\text{lb}}{10^6 \text{ Btu}} = 3017 \frac{\text{lb}}{\text{Hr}} \text{ maximum emissions}$$

$$3017 \frac{\text{lb}}{\text{Hr}} \times \frac{1}{2000} \frac{\text{Ton}}{\text{lb}} \times 8760 \frac{\text{Hr}}{\text{Yr}} \times 0.68 \text{ capacity factor} =$$

$$8{,}985 \frac{\text{Tons}}{\text{Yr}} \text{ actual emissions}$$

b. Allowed Emission Rate = $2.4 \frac{\text{lb}}{10^6 \text{ Btu}}$

c. Allowable Emission = $3017 \frac{\text{lb}}{\text{Hr}}$ (same as maximum emissions)

d. Potential Emissions

= Maximum emissions = $3017 \frac{\text{lb}}{\text{Hr}}$; $8985 \frac{\text{Tons}}{\text{Yr}}$

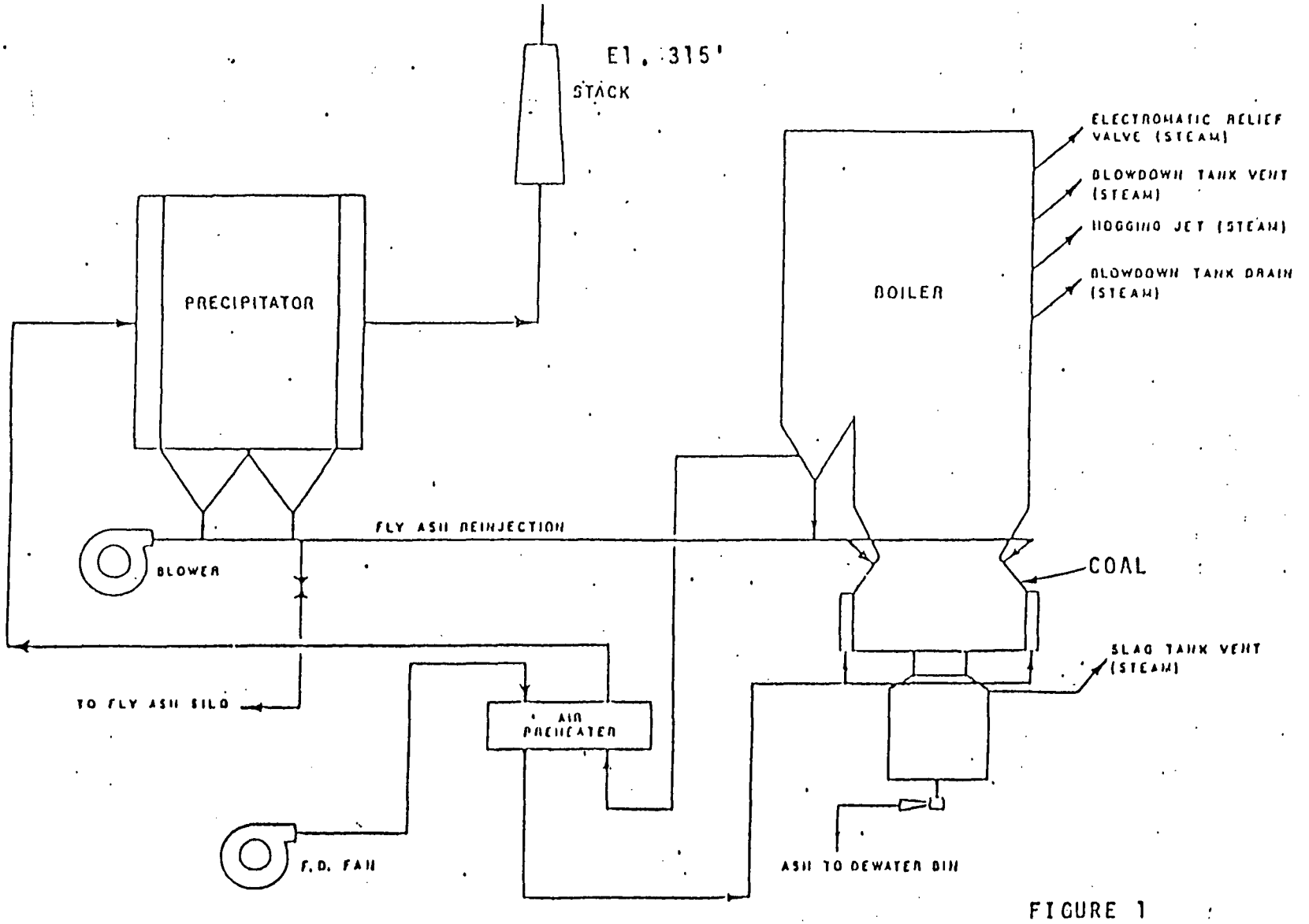

FIGURE 1
GANNON STATION-UNIT 1
TAMPA ELECTRIC COMPANY

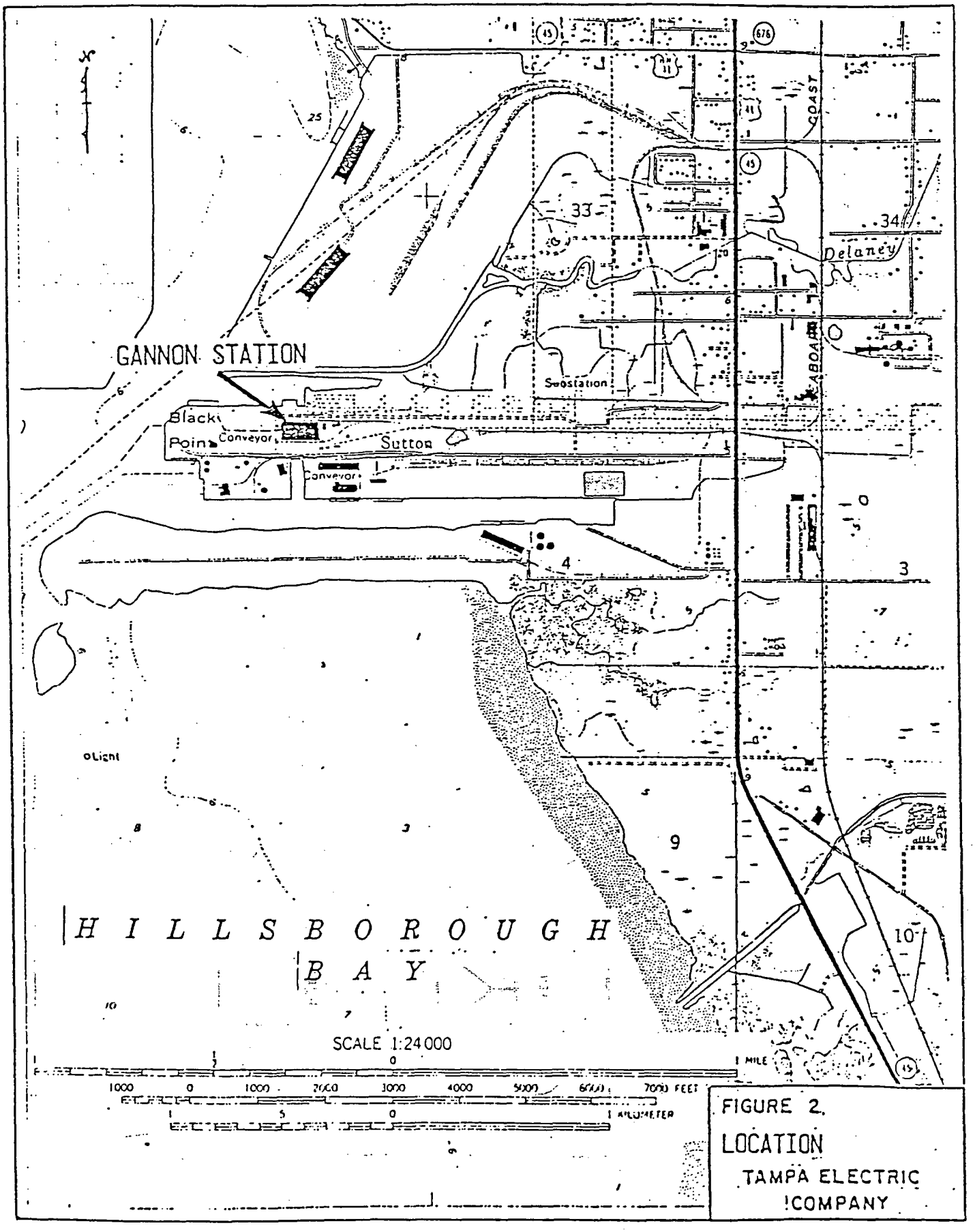

FIGURE 2.
LOCATION
TAMPA ELECTRIC
COMPANY

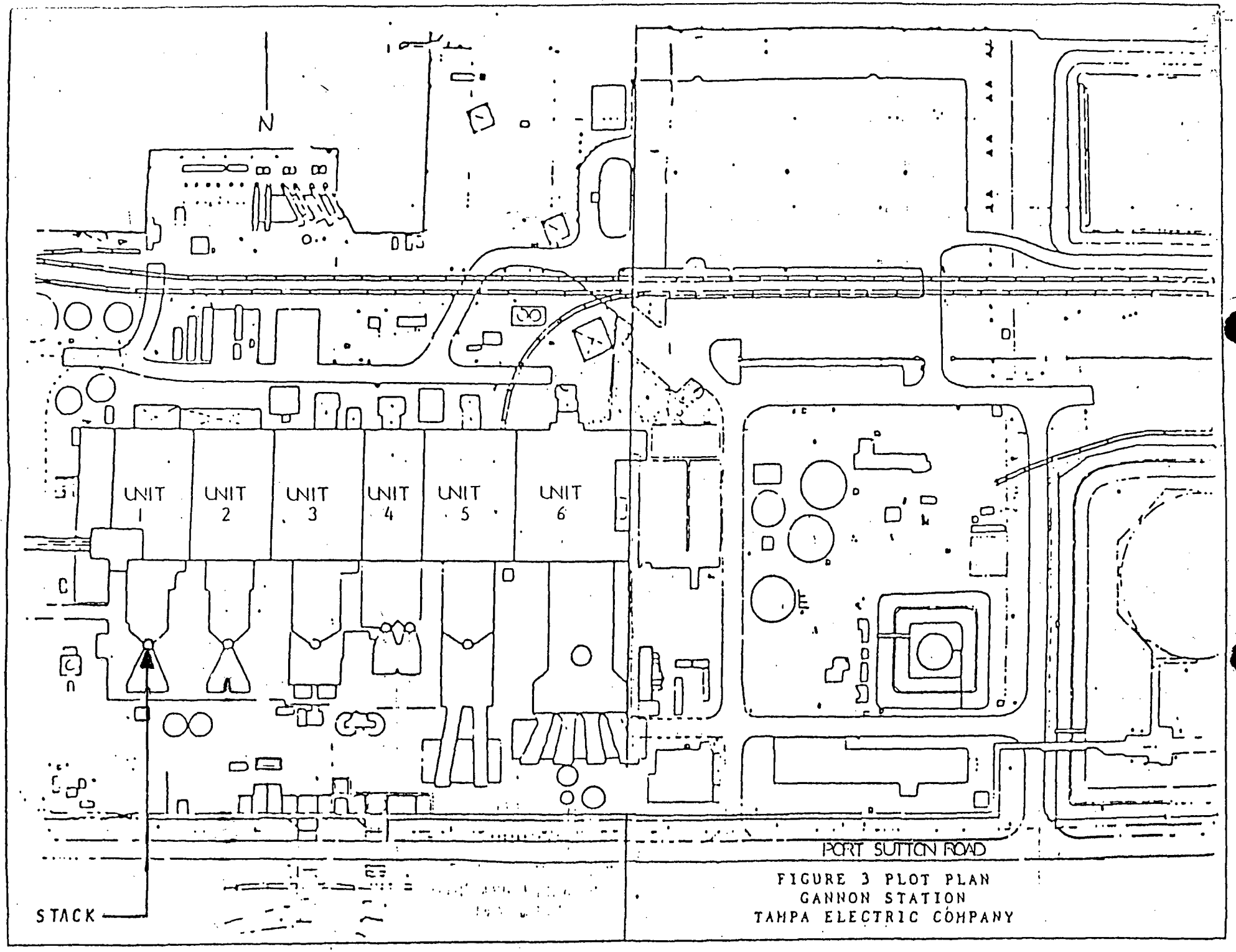

FIGURE 3 PLOT PLAN
GANNON STATION
TAMPA ELECTRIC COMPANY