D.E.R.

AUG 14 1978

SOUTHWEST DISTRICT
TAMPA

Appl Accepted 7-12-78

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RECEIVED
JUN 27 1978
H.C.E.P.C.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

PAID 8-21-78 KC
A029-7136

Source Type: Air Pollution [XX] Incinerator [ ]
Type application: [XX] Operation [ ] Construction
Source Status: [ ] New [XX] Existing [ ] Modification

Source Name: F. J. Gannon Station Boiler 1 County: Hillsborough

Source Location: Street: Port Sutton Road City: Tampa

UTM: East: 360,000 North: 3,087,500

Appl. Name and Title: Tampa Electric Company
Appl. Address: P. O. Box 111, Tampa, Florida 33601

STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

The undersigned owner or authorized representative of * Tampa Electric Company is fully aware that the statements made in this application for a operating permit are true, correct and complete to the best of his knowledge and belief. Further, the undersigned agrees to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provisions of Chapter 403, Florida Statutes, and all the rules and regulations of the Department or revisions thereof. He also understands that a permit, if granted by the Department, will be non-transferable and he will promptly notify the Department upon sale or legal transfer of the permitted establishment.

Signature of the Owner or Authorized Representative

Date: 6/23/78 Telephone No.:

*Attach a letter of authorization. If applicant is a corporation, a Certificate of Good Standing must be submitted with application. This may be obtained, for a $5.00 charge, from the Secretary of State, Bureau of Corporate Records, Tallahassee, Florida 32304.

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA

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 profesional judgment, that 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 the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signature
Name: Bernard D. Kitching (Please Type)
Company Name: Tampa Electric Company
Florida Registration Number: 6503
(Affix Seal)

STATE OF FLORIDA REGISTERED ENGINEER

Mailing Address: P.O. Box 111
Tampa, Florida 33601
Telephone No.: 813/879-4111
Date: June 23, 1978

DETAILED DESCRIPTION OF SOURCE

A. Describe the nature and extent of the project. Refer to existing pollution control facilities, expected improvement in performance of the facilities and state whether the project will result in full compliance. Attach additional sheet if necessary.

The source is an oil fired boiler which generates steam to drive a turbine and produce electricity. A conversion from coal firing to oil firing in 1976 was accomplished to allow compliance with applicable sulfur dioxide and particulate emission regulations.

B. Schedule of Project Covered in this Application (Construction Permit Application Only).

Start of Construction N.A.
Completion of Construction

C. Costs of Construction (Show a breakdown of costs for individual components/units of the project serving pollution control purpose only). Information on actual costs shall be furnished with the application for operation permit.

Estimated final completion cost for conversion of Gannon 1-4 to oil firing - $19,566,000 (Dec. 1977 estimate)

A breakdown of costs related to each boiler is not available.

D. For this source indicate any previous DER permit: issuance dates, and expiration dates; and orders and notices.

AO29-2191 dated May 25, 1973 - expired July 1, 1975

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code ? .....Yes XX No

AIR POLLUTION SOURCES & CONTROL DEVICES
(other than incinerators)

A. Identification of Air Contaminants

1) [XX] Particulates
   a) [ ] Dust b) [XX] Fly Ash c) [ ] Smoke d) [ ] Other (Identify)

2) [XX] Sulfur Compounds
   a) a) [XX] SO_x as SO_2 b) [ ] Reduced Sulfur as H_2S c) [ ] Other (Identify)

3) [XX] Nitrogen Compounds
   a) [XX] NO_x as NO_2 b) [ ] NH_3 c) [ ] Other (Identify)

4) [ ] Flourides 5) [ ] Acid Mist 6) [ ] Odor

7) [ ] Hydrocarbons 8) [ ] Volatile Organic Compounds

9) [ ] Other (Specify) _____

B. Raw Materials and Chemicals Used (Be Specific)

Description	Utilization Rate lbs./hr.	Approximate Contaminant Content		Relate to Flow Diagram
		Type	% Wt.	
None				

C. Process Rate:

1) Total Process input Rate* N.A. Units.
2) Product Weight* electricity (megawatts) Units.
3) Normal Operating Time 24 hrs/day, 7 days/wk, if seasonal describe: N.A.
   hrs./day ____ days/wk. ____ wks/yr. ____

D. Airborne Contaminants Discharged:

Name of Contaminant	Actual** Discharge		Discharge Criteria Rate*	Allowable Discharge Lbs./hr.	Relate to Flow Diagram
	lbs./hr.	T/yr.			
Sulfur dioxide	946.9	2134.2	lbs/MMBTU	1211.1	3
Particulate	44.0	99.3	lbs/MMBTU	110.1	3

*Refer to Chapter 17-2.04(2), Florida Administrative Code.
(Discharge Criteria: Rate=#/ton P_2O_5, #/M BTU/hr., etc.)
**Estimate only if this is an application to construct.

D. Airborne Contaminants Discharged. (Cont'd.)

Name of Contaminant	Hourly Emission (lb./hr.)	Daily Emission (lb./day)	Yearly Emission (T/yr.)	Basis for Emission Estimate (Test Data, Material Balance)
Sulfur Dioxide	0.86	See previous page		Test data from April 5-6 stack test
Particulates	0.04	See previous page		Test data from April 5-6 stack test

E. Control Devices:

Name and Type (Model and Serial No.)	Contaminant	Efficiency*	Conditions of Operations	Basis for Efficiency Operational Data, Test, Design, Data)
Research Cottrell	fly ash	90%		Design
The precipitator had originally been installed to collect fly ash from a coal-fired boiler. With the conversion to oil firing, the precipitator has been kept operational even though it is not required to meet compliance with particulate emission standards. Efficiency has not been tested while burning oil and the precipitator manufacturer does not make any guarantees of efficiency while burning oil.				

*See required supplement.
(Include any test data and/or design data for efficiency substantiation)

F. Fuels

Type (Be Specific, includes %S, etc.)	Daily Consumption * gal/hr.		Maximum Heat Input MBTU/hr.
	Avg./hr. 1	Max./hr. 1	
#6 oil (1% S annual average)	4746	8044	1257
Note: (1) from 1977 ICEPC Emissions Inventory			

* Units: Natural Gas - MCF/hr.; Fuel Oils, Coal - lbs./hr.

Fuel Analysis: from April 5-6 stack test

Percent Sulfur 0.90 Percent Ash N.A.

Density N.A. lb./gal.

Heat Capacity 18690 BTU/lb. BTU/gal.

Other Fuel Contaminants

G. Describe briefly, without revealing trade secrets, the processes/operations generating the airborne emissions identified in this application.

Oil is burned to generate steam which is used to generate electricity.

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

None

I. Emission Stack Geometry and Flow Characteristics, (Provide Date for each Stack).

Stack Height 306' ft, Stack Diameter 10.0 ft.

Gas Flow Rate 372,000 ACFM max. 228,000 ACFM avg for 1977 ACFM, Gas Exit Temperature 309 °F

J. Required Supplements:

1. Total process input rate and product weight – show deviation. Max. design heat input is 1,257 X 10^6 BTU/hr. Operating range is from approximately 35% load to 100% load.
2. Efficiency Estimation.
   N.A.
3. An 8½" x 11" flow diagram, which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate whether raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particulates are evolved and where finished products are obtained.
   See Figure 1
4. An 8½" x 11" plot plan showing the exact location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.
   See Figure 2
5. An 8½" x 11" plot plan showing the exact location of the establishment, and points of airborne emissions in relation to the surrounding area, residences and other permanent structures and roadways.
   See Figure 3
6. If applicable, provide a brief description of the control device or treatment system serving the discharge point for airborne contaminants identified in this application. Include details of the manufacturer, model, size, type and capacity for control/treatment device and the features of the discharge point (height above ground, diameter, period(s) of discharge and discharge temperature).
   N.A.
7. Plans for storm water control during and after construction.
   N.A.

INCINERATOR INFORMATION

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Patho-logical)	Type V (Liq. & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs./Hr. incinerated							

Description of Waste _____

Total Weight Incinerated lbs./hr. _____ Design Capacity lbs./hr. _____

Approximate Number of Hours of Operation per Day _____, days/week _____

Manufacturer _____ Model No.: _____

Date Constructed: _____

	Volume (ft. *)³	Heat Release (BTU/hr.)	Fuel		Temp. (° F)
			Type	BTU/hr.	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diameter: _____ Stack Temp.: _____ °F

Type of Pollution Control Device [ ] Cyclone [ ] Wet scrubber [ ] Afterburner
[ ] Other (Specify): _____

Brief Description of Operating Characteristics of Control Device: _____

_____

_____

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

_____

_____

_____

_____

GANNON STATION NO. 1 OPERATING
PERMIT APPLICATION

ACTUAL DISCHARGE

SO_2 0.86 lbs/MMBTU X 1101 $\frac{MMBTU}{Hr.}$ = 946.86 $\frac{lbs\ SO_2}{Hr.}$

946.86 $\frac{lbs\ SO_2}{Hr.}$ X $\frac{1\ ton}{2000\ lbs}$ X 4508 $\frac{hrs}{Yr.}$ = 2134.22 $\frac{tons\ SO_2}{Yr.}$

Part. 0.04 lbs/MMBTU X 1101 $\frac{MMBTU}{Hr.}$ = 44.04 $\frac{lbs\ part}{Hr.}$

44.04 $\frac{lbs\ part}{Hr.}$ X $\frac{1\ ton}{2000\ lbs}$ X 4508 $\frac{hrs}{Yr.}$ = 99.27 $\frac{tons\ part}{Yr.}$

ALLOWABLE DISCHARGE

SO_2 1.1 lbs/MMBTU X 1101 $\frac{MMBTU}{Hr.}$ = 1211.1 $\frac{lbs\ SO_2}{Hr.}$

Part. 0.1 lbs/MMBTU X 1101 $\frac{MMBTU}{Hr.}$ = 110.1 $\frac{lbs\ part}{Hr.}$

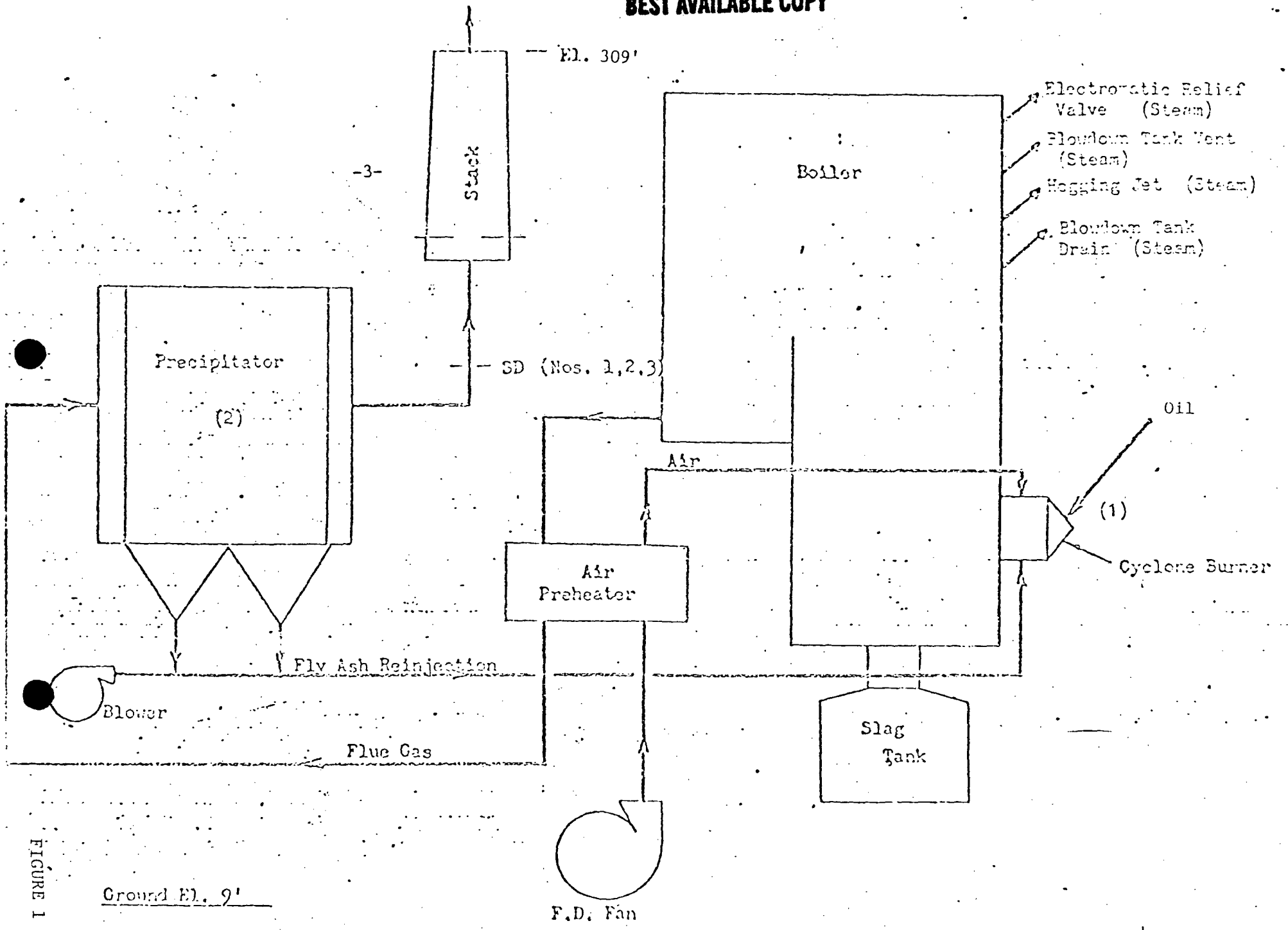


FIGURE 1

FLOW DIAGRAM
BOILER NO. 1 - GANNON STATION

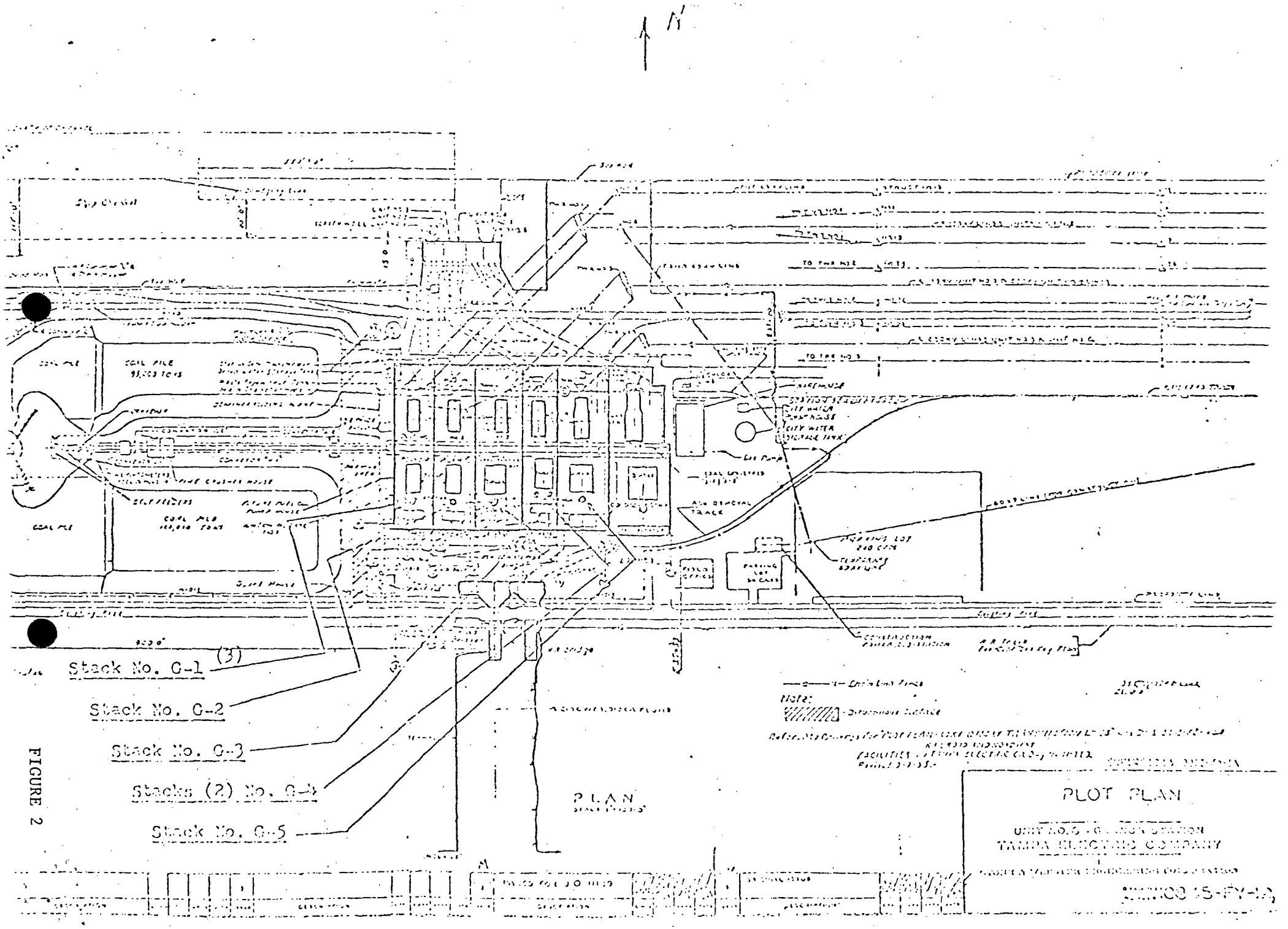
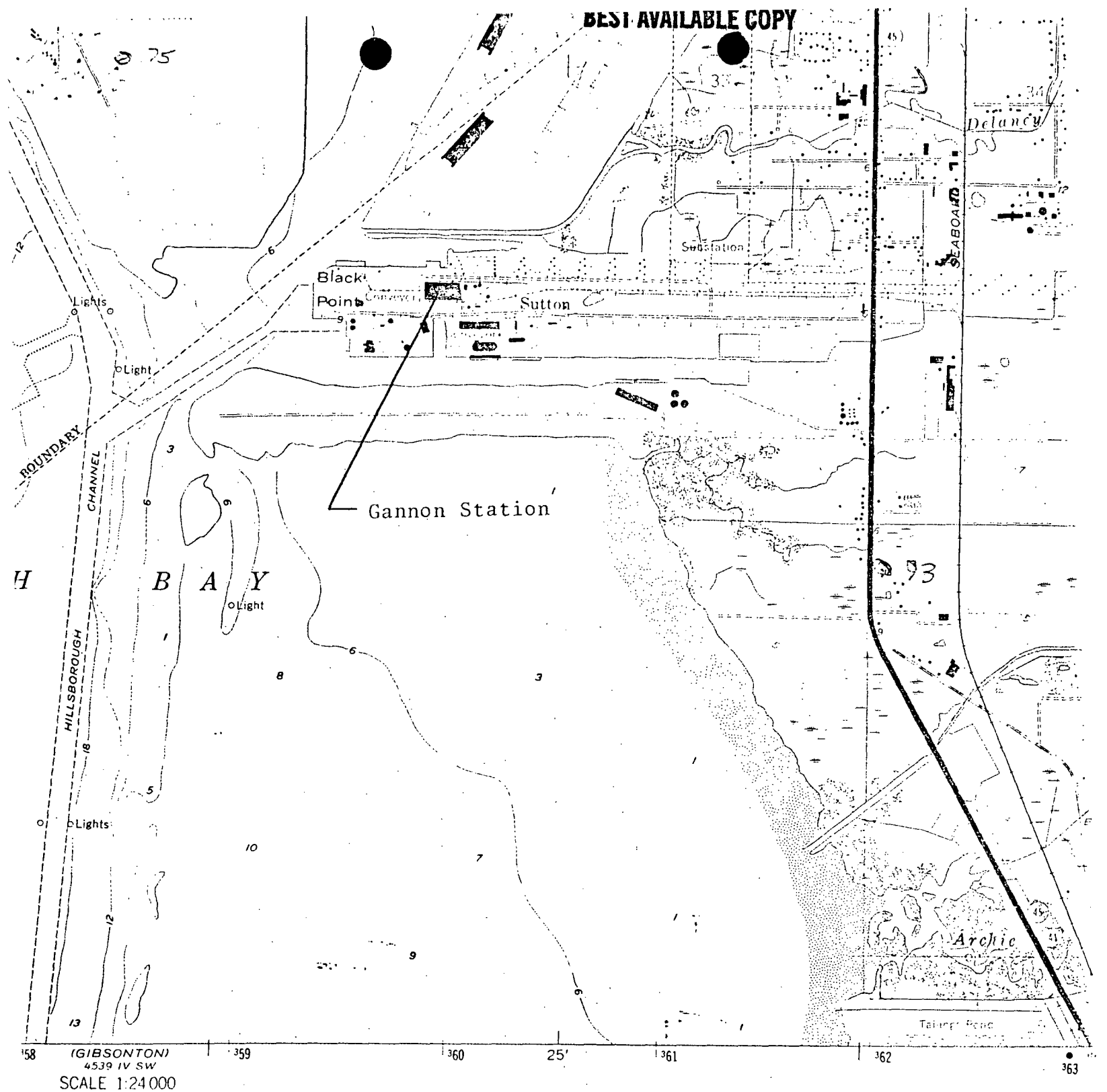
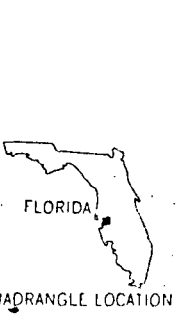


FIGURE 2



NTOUR INTERVAL 5 FEET
DATUM IS MEAN SEA LEVEL
UNDINGS IN FEET—DATUM IS MEAN LOW WATER
RESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
RANGE OF TIDE IS APPROXIMATELY 2 FEET

S WITH NATIONAL MAP ACCURACY STANDARDS
EOLOGICAL SURVEY, WASHINGTON, D. C. 20242
RAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



QUADRANGLE LOCATION

Heavy-du
Medium-
Inte

Figure 3