Date Report Submitted: March 1, 1974

ENVIRONMENTAL PROTECTION AGENCY
AIR POLLUTANT EMISSIONS REPORT

FORM APPROVED
OMB NUMBER 158-R75

SECTION I - GENERAL INFORMATION

For Official Use Only:

Date Sent: _____

Date Returned: _____

UTM Grid Coordinates: _____

SIC No.: _____

Source ID: _____

Plant, institution, or establishment name: Tampa Electric Company (Gannon Station)

Plant, institution, or establishment address: P.O. Box 111 (Street or Box Number) Tampa (City) Florida (State) 33601 (Zip)

Person to contact regarding this report: Jeff Rankin Title: Environmental Engineer Telephone: (813) 876-4111

Mailing address: P. O. Box 111 (Street or Box Number) Tampa (City) Florida (State) 33601 (Zip)

Approximate number of employees at plant, institution, or establishment location: ☐ Less than 100 ☒ 100 or more.

Elevation of plant, institution, or establishment in relationship to mean sea level: 9.0 feet above mean sea level, _____ feet below mean sea level.

Information is representative of calendar year: 1973

Land area at plant location: 103 acres. Enclose a sketch of layout if there is more than one building. (See Attachment "A")

Plant location: (give nearest cross streets, describe by landmarks or enclose a map, engineering drawing, or sketch) See Attachment "B"

☐ Air pollutants of the type indicated in the instructions for the completion of this report, i.e., _____ are not emitted at this plant, institution or establishment. Therefore, no other Sections of the report need be completed.

_____ (Signed) _____ (Title)

Please return all sections of this report to: _____

Additional forms may be obtained from the above address.

NOTE: Please read reverse side of this page. Use additional sheets if necessary. Retain last copy.

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ENVIRONMENTAL PROTECTION AGENCY
AIR POLLUTANT EMISSIONS REPORT

FORM APPROVED
OMB NUMBER 158-R73

SECTION II - FUEL COMBUSTION FOR GENERATION OF HEAT, STEAM, AND POWER

Plant, institution, or establishment name: Tampa Electric Company (Gannon Station)

Normal operating schedule for fuel use: 24 Hours per day 7 Days per week -- Weeks per year -- Hours per year.

Dates of annually occurring shutdowns of operations: No specific annual date. Additional operating information enclosed ☐.

Source[a,e] Code	Number of Combustion Sources[b,e] (Boilers)	Size of Unit (Input)[c,e] 10^6BTU/hr.	Type of Unit[d,e]	Installation Date[e]	Percent Excess Air Used In Combustion (Design)[e]	Power Output Megawatts[e,f]
Gannon 1	1	1432	Cyclone;wet bottom/fly ash reinj.	1957	13	115
Gannon 2	1	1432	"	1958	13	125
Gannon 3	1	1851	"	1960	16	175
Gannon 4	1	2042	"	1963	16	210
Gannon 5	1	2691	Pulverized wet bottom/ash reinj.	1965	15	265
Gannon 6	1	4361	"	1967	15	425

a. List a separate code number to represent each source (e.g., II-a, II-b, II-c, etc.), then enter the same code number and the required data on the continuation of this Section on Page 3, and in Sections V and VI.

b. Multiple sources may be grouped if units are similar in size and type, burn the same fuel, or are vented to the same stack.

c. Nameplate data are sufficient (give rated or maximum capacity, whichever is greater).

d. Hand-fired, underfeed, overfeed, traveling-grate or spreader stoker; cyclone furnace; pulverized, wet or dry bottom with or without fly ash reinjection; rotary or gun type oil burner; etc.

e. List separately future equipment and expected date of installation.

f. Power generation only.

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Date Report Submitted: March 1, 1974

ENVIRONMENTAL PROTECTION AGENCY
AIR POLLUTANT EMISSIONS REPORT

FORM APPROVED
OMB NUMBER 158-R75

SECTION II - FUEL COMBUSTION FOR GENERATION OF HEAT, STEAM, AND POWER (continued)

Plant, institution, or establishment name: Tampa Electric Company (Gannon Station)

Source Code[a]	Type of Fuel[b]	Annual Consumption[c]					Hourly Consumption[d]		Percent Used for Space Heat	Heat Content BTU/Quan.[e]	Percent Sulfure,[f] See Note	Percent Ash (Solid Fuel Only)[e,f]	Delivered Cost of Fuel $/Quantity	Future Use[g]
		Quantity[d]	Percent Distribution by Season				Maximum	Average						
			Spring March/ May	Summer June/ Aug.	Fall Sept./ Nov.	Winter Dec./ Febr.								
Gan1	Bitum Coal	259,124	26.9	23.8	22.1	27.2	49.7	33.3	0	11,298	3.15	11.23	11.06	.7
Gan2	Bitum Coal	150,394	8.4	0	42.9	48.7	49.7	35.4	0	11,298	3.15	11.23	11.06	0
Gan3	Bitum Coal	271,263	10.1	24.4	33.3	32.2	64.9	49.3	0	11,298	3.15	11.23	11.06	.5
Gan4	Bitum Coal	345,977	24.4	31.9	18.8	24.9	71.3	55.5	0	11,298	3.15	11.23	11.06	.1
Gan5	Bitum Coal	591,178	23.5	25.6	24.3	26.6	93.4	78.6	0	11,298	3.15	11.23	11.06	4.6
Gan6	Bitum Coal	628,324	24.5	29.7	33	12.8	151.4	109	0	11,298	3.15	11.23	11.06	4.3

a. List code numbers corresponding to each source referred to on page 2, (e.g., II-a, II-b, II-c, etc.), then enter required data on this page, and for the same code number sources in Sections V and VI.
b. Coke, bituminous coal, anthracite coal, lignite; No. 1, 2, 4, 5 and 6 fuel oil; natural gas; LPG; refinery or coke oven gas; residual coke; wood; bark; sludge; etc. (Note: Indicate if two or more fuels are burned in the same boiler and provide all data pertinent to each fuel type.)
c. Fuel data are to be reported on an "as burned" basis.
d. Solid fuel, tons; liquid fuel, gallons; gaseous fuel, 1000 cubic feet.
e. If unknown, please give name and address of fuel supplier.
f. Sulfur and ash content for each fuel should be a weighted average.
g. Estimated percent increase or decrease in fuel usage (by fuel type) per year for the five years after the calendar year for which this report is completed. If increase is due to new equipment, please list this equipment separately on page 2 and the expected fuel use on this page.

NOTE: The maximum percent sulfur we receive or anticipate receiving is approximately 4.5% Sulfur on a per cargo basis with the annual average maximum expected to be approximately 3.5% sulfur.

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ENVIRONMENTAL PROTECTION AGENCY
AIR POLLUTANT EMISSIONS REPORT

FORM APPROVED
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SECTION III - COMBUSTIBLE SOLID AND LIQUID WASTES DISPOSAL

NOT APPLICABLE

Plant, institution, or establishment name: Tampa Electric Company (Gannon Station)

Combustible solid and liquid wastes disposed of ☐ on site, ☐ off site, ☐ both on and off site. If off site, location of disposal site and/or name of hauler: _____

_____ (If disposal of solid and liquid wastes is partly or wholly on site, complete remainder of this page and Sections IV, V and VI; otherwise, skip to Section IV.)

Normal on-site combustion operating schedule: _____ Hours per day _____ Days per week _____ Weeks per year _____ Hours per year.

Seasonal and/or peak operation period: (Specify) _____

Dates of annually occurring shutdowns of operations: _____. Additional operating information enclosed ☐.

Source Code[a]	Waste Material			Method of Disposal[d]	Installation Date	Hourly Burning Rate, lbs.		Auxiliary Fuel Used[e]	Percent Excess Air Used in Combustion (Design)	Future Disposal[f]
	Type[b]	Amount Per Year[c]	Percent Combustible			Average	Maximum			
				NOT APPLICABLE						

a. List a separate code number to represent each source (e.g., III-a, III-b, III-c, etc.), then enter required data on this page and for the same code number sources in Section V and VI.
b. Rubbish, garbage, mixed garbage and rubbish, waste paper, wood chips or sawdust, etc.
c. Tons, pounds, or gallons/year.
d. Open burning dump; incinerator, single chamber; etc. (See instructions for examples and use appropriate identification numbers; other non-listed methods, specify.)
e. Indicate whether auxiliary fuel is used in incinerators and pit burning, and the amount.
f. Estimated increase or decrease in combustible solid and liquid wastes disposal rate for the five years after the calendar year for which this report is completed. If increase is due to new equipment, please list this equipment separately.

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ENVIRONMENTAL PROTECTION AGENCY
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FORM APPROVED
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SECTION IV - PROCESS/OPERATIONS EMISSIONS

NOT APPLICABLE

Plant, institution, or establishment name: Tampa Electric Company (Gannon Station)

Normal operating schedule: _____ Hours per day _____ Days per week _____ Weeks per year _____ Hours per year.

Seasonal and/or peak operation period: _____

Dates of annually occurring shutdowns of operations: _____. Additional operating information enclosed ☐.

Source Code[a]	Processes or Operations Releasing Pollutants to the Atmosphere[b,c,d]	Date Installation Went on Line	Raw Materials[e] Used for Processes or Operations				Products[g] of Processes or Operations				Intermittent Operation Only: Average Hours/week[h]	Future[j] Increase or Decrease in Process Rate
			Type	Quantity			Type	Annual Average[f]	Quantity			
				Annual Average[f]	Hourly Process Rate, lbs.				Hourly Process Rate, lbs.			
					Design	Maximum			Design	Maximum		
				NOT APPLICABLE								

a. List a separate code number to represent each source (e.g., IV-a, IV-b, IV-c, etc.) then enter required data on this page and for the same code number sources in Sections V and VI.
b. Multiple sources may be grouped if similar in size and type.
c. Sulfuric acid-contact; aluminum smelting-crucible furnace; cement manufacturing-dry process; etc. (See instruction for examples and use appropriate identification numbers; other non-listed processes and operations, specify.)
d. The pollutants to be covered in this report are listed in the accompanying instructions.
e. Sulfur burned; pig, foundry returns, or scrap aluminum melted; limestone, cement rock, clay, iron ore used; etc.
f. Pounds, tons, gallons, barrels, etc.
g. Sulfuric acid produced; aluminum ingots produced; cement produced; etc.
h. For intermittent processes, indicate average number of hours per week of operation so that estimates of yearly emissions may be obtained.
j. Estimated percent increase or decrease in process rate on a total plant basis for the five years after the calendar year for which this report is completed. If increase is due to new equipment, please list this equipment separately.

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ENVIRONMENTAL PROTECTION AGENCY
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SECTION V - AIR CLEANING EQUIPMENT

Plant, institution, or establishment name: Tampa Electric Company (Gannon Station)

Source Code[a]	Type of Air Cleaning Equipment[b,c]	Installation Date[c]	Pollutant Removed[c,d]	Efficiency[e]		Inlet Gas Temperature, °F	Inlet Gas Flow Rate,[f] CFM X10-3	Exit Gas Pressure, PSI
				Design Percent	Operating Percent			
Gan 1	011	1957	Particulates	90.0	91.3	309	248.2	atmospheric
Gan 2	011	1958	Particulates	90.0	91.3	309	263.3	atmospheric
Gan 3	011	1960	Particulates	93.0	85.4	266	346.6	atmospheric
Gan 4	010	1963	Particulates	95.5	81.9	286	401.1	atmospheric
Gan 5	010	1965	Particulates	98.5	97.2	288	569.2	atmospheric
Gan 6	010	1967	Particulates	98.5	91.4	291	792.3	atmospheric

a. List code numbers corresponding to each emissions source reported in Sections II, III, and IV.

b. Wet scrubber, electrostatic precipitator, fabric filter, etc. (See instructions for examples and use appropriate identification numbers; other non-listed type, specify.)

c. Please list future equipment separately.

d. The pollutants to be covered in this survey are specified in the accompanying instructions.

e. Give efficiency in terms of pollutant removed.

f. At actual flow conditions.

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ENVIRONMENTAL PROTECTION AGENCY
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SECTION VI - STACK AND POLLUTANT EMISSIONS DATA

Plant, institution, or establishment name: Tampa Electric Company (Gannon Station)

STACK DATA							ESTIMATE OF POLLUTANT EMISSIONS[e]			
Source Code[a]	Height Above Grade ft.	Inside Diameter at Top, ft.	Exit Gas Velocity,[b] ft./sec.	Exit Gas Temperature,[b] °F	Exit Gas Flow Rate, CFM[c]		Pollutant[d]	Quantity		
					Average X10^{-3}	Maximum X10^{-3}		Tons Per Year	Lbs. Per Hour Average	Lbs. Per Hour Maximum
Gan 1	200	14.1	26.5	309	248.2	372	Particulates	750	190	290
							SO_2	16,300	4,200	6,300
Gan 2	250	10.0	55.9	309	263.3	372	Particulates	470	220	310
							SO_2	9,500	4,500	6,300
Gan 3	250	10.6	65.5	266	346.6	469	Particulates	920	330	440
							SO_2	17,100	6,200	8,200
Gan 4	2 stacks each 235	9.6	46.2	286	401.1	529	Particulates	1450	464	600
							SO_2	21,800	7000	9000
Gan 5	230	14.6	56.7	288	569.2	681	Particulates	3160	840	1,000
							SO_2	37,200	9900	11,800
Gan 6	306	17.6	54.3	291	792.3	1,120	Particulates	6270	2170	3020
							SO_2	39,600	13,700	19,100

a. List code numbers corresponding to each emissions source reported in Sections II, III, and IV.

b. Values should be representative of average flow conditions for hours of operation.

c. At actual flow conditions.

d. The pollutants to be covered in this survey are specified in the accompanying instructions.

e. Give stack test data if available (indicate stack sampling method used), otherwise, specify basis used. If unknown, please do not complete these columns.

NOTE: *Please read reverse side of this page. Use additional sheets if necessary. Retain last copy.*

Gan

Part. Emissions count.

$\frac{\#\ part.}{10^6\ Btu} \times \frac{\#\ coal}{} \times \frac{Btu\ (10^6)}{\#\ coal} = \#\ part/unit\ time$

Gan #1 (a) $259{,}124\ \frac{TONS}{YR} \times 2000\ \frac{\#}{TON} \times .011298\ \frac{Btu \times 10^6}{\#} \times 0.25\ \frac{\#\ part.}{10^6\ Btu} \times \frac{1\ TON}{2000\ \#} = 750\ \frac{TONS}{YR}$

(b) $33.3\ \frac{TON}{HR} \times 2000\ \frac{\#}{TON} \times 0.011298\ \frac{Btu \times 10^6}{\#} \times 0.257\ \frac{\#\ part.}{10^6\ Btu} = 190\ \frac{\#\ part}{HR}$

(c) $49.7\ \frac{TON}{HR} \times 2000\ \frac{\#}{TON} \times 0.011298\ \frac{Btu \times 10^6}{\#} \times 0.257\ \frac{\#\ part.}{10^6\ Btu} = 290\ \frac{\#\ part}{HR}$

Gan #2 (a) $150{,}394 \times 2000 \times 0.011298 \times 0.274 \times \frac{1}{2000} = 470$

(b) $35.4 \times 2000 \times 0.011298 \times 0.274 = 220$

(c) $49.7 \times 2000 \times 0.011298 \times 0.274 = 310$

Gan #3 (a) $271{,}263 \times 2000 \times 0.011298 \times 0.299 \times \frac{1}{2000} = 920$

(b) $49.3 \times 2000 \times 0.011298 \times 0.299 = 530$

(c) $64.9 \times 2000 \times 0.011298 \times 0.299 = 440$

Gan #4 (a) $345{,}977 \times 2000 \times 0.011298 \times 0.370 \times \frac{1}{2000} = 1{,}450$

(b) $55.5 \times 2000 \times 0.011298 \times 0.370 = 464$

(c) $71.3 \times 2000 \times 0.011298 \times 0.370 = 600$

Gan #5 (a) $591{,}178 \times 2000 \times 0.011298 \times 0.473 \times \frac{1}{2000} = 3{,}160$

(b) $78.4 \times 2000 \times 0.011298 \times 0.473 = 840$

(c) $93.4 \times 2000 \times 0.011298 \times 0.473 = 1{,}000$

Gan #6 (a) $628{,}324 \times 2000 \times 0.011298 \times 0.775 \times \frac{1}{2000} = 6{,}270$

(b) $109 \times 2000 \times 0.011298 \times 0.775 = 2{,}170$

(c) $151.4 \times 2000 \times 0.011298 \times 0.775 = 3{,}020$

Particulate Emissions

$$\left[\frac{36.39 \text{ mole DFG}}{100 \text{ \# coal}} \times \frac{1 \text{ \# coal}}{11{,}283 \text{ Btu}} \times \frac{359 \text{ ft}^3}{\text{mole}} \times \frac{528^\circ \text{R}}{492^\circ \text{R}} \times \frac{1 \text{ \#}}{7000 \text{ gr}} \times 10^6\right] \times \frac{A \text{ gr}}{\text{ft}^3 \text{ (std)}} = \frac{\text{\# part}}{10^6 \text{ Btu}}$$

$= 1.77$

where A = ppm. test value @ max load during testing (gr/scf to adjust) (see 1971 NCSPC Emission Inv.

Gen #1

$$A = 0.160 \frac{\text{gr}}{\text{scf}} \times \frac{11.23}{12.35} = 0.145 \text{ gr/scf}$$

$\therefore 1.77 \times 0.145 = 0.257 \frac{\text{\# part.}}{10^6 \text{ Btu}}$

Gen #2 $A = 0.170 \frac{\text{gr}}{\text{scf}} \times \frac{11.23}{12.35} = 0.155 \text{ gr/scf}$

$\therefore 1.77 \times 0.155 = 0.274 \text{ \# part/10}^6 \text{ Btu}$

#3 $A = 0.187 \times \frac{11.23}{12.46} = 0.169$

$\therefore 1.77 \times 0.169 = 0.299 \text{ \# part/10}^6 \text{ Btu}$

#4 $A = 0.255 \times \frac{11.23}{13.72} = 0.209$

$\therefore 1.77 \times 0.209 = 0.370 \text{ \# part/10}^6 \text{ Btu}$

#5 $A = 0.258 \times \frac{11.23}{12.13} = 0.239 \text{ gr/scf}$

$\therefore 1.77 \times 0.239 = 0.423 \text{ \# part/10}^6 \text{ Btu}$

#6 $A = 0.500 \times \frac{11.23}{12.71} = 0.449 \text{ gr/scf}$

$\therefore 1.77 \times 0.449 = 0.883 \text{ \# part/10}^6 \text{ Btu}$

DKK

SO_2 Emission Rates

Gen #1

(a) $254,124 \frac{\text{TONS}}{\text{YR}} \times 0.0315 \frac{\text{TONS}}{\text{TON COAL}} \times 2 \frac{\text{TON } SO_2}{\text{TONS}} = 16,325$ TPY

(b) $38.3 \frac{\text{TON}}{\text{HR}} \times 2000 \frac{\#}{\text{TON}} \times 0.0315 \frac{\#S}{\#\text{COAL}} \times 2 \frac{\#\ SO_2}{\#S} = 4,196$ $\frac{\#}{\text{HR}}$ AVG.

(c) $49.7 \times 2000 \times 0.0315 \times 2 = 6,262$ $\frac{\#}{\text{HR}}$ MAX

Gen #2

(a) $150,344 \times 0.0315 \times 2 = 9,475$

(b) $35.4 \times 2000 \times 0.0315 \times 2 = 4,460$

(c) $49.7 \times 2000 \times 0.0315 \times 2 = 6,262$

Gen #3

(a) $271,263 \times 0.0315 \times 2 = 17,090$

(b) $49.3 \times 2000 \times 0.0315 \times 2 = 6,212$

(c) $64.9 \times 2000 \times 0.0315 \times 2 = 8,177$

Gen #4

(a) $345,977 \times 0.0315 \times 2 = 21,797$

(b) $55.5 \times 2000 \times 0.0315 \times 2 = 6,993$

(c) $71.3 \times 2000 \times 0.0315 \times 2 = 8,984$

Gen #5

(a) $591,179 \times 0.0315 \times 2 = 37,244$

(b) $78.6 \times 2000 \times 0.0315 \times 2 = 9,904$

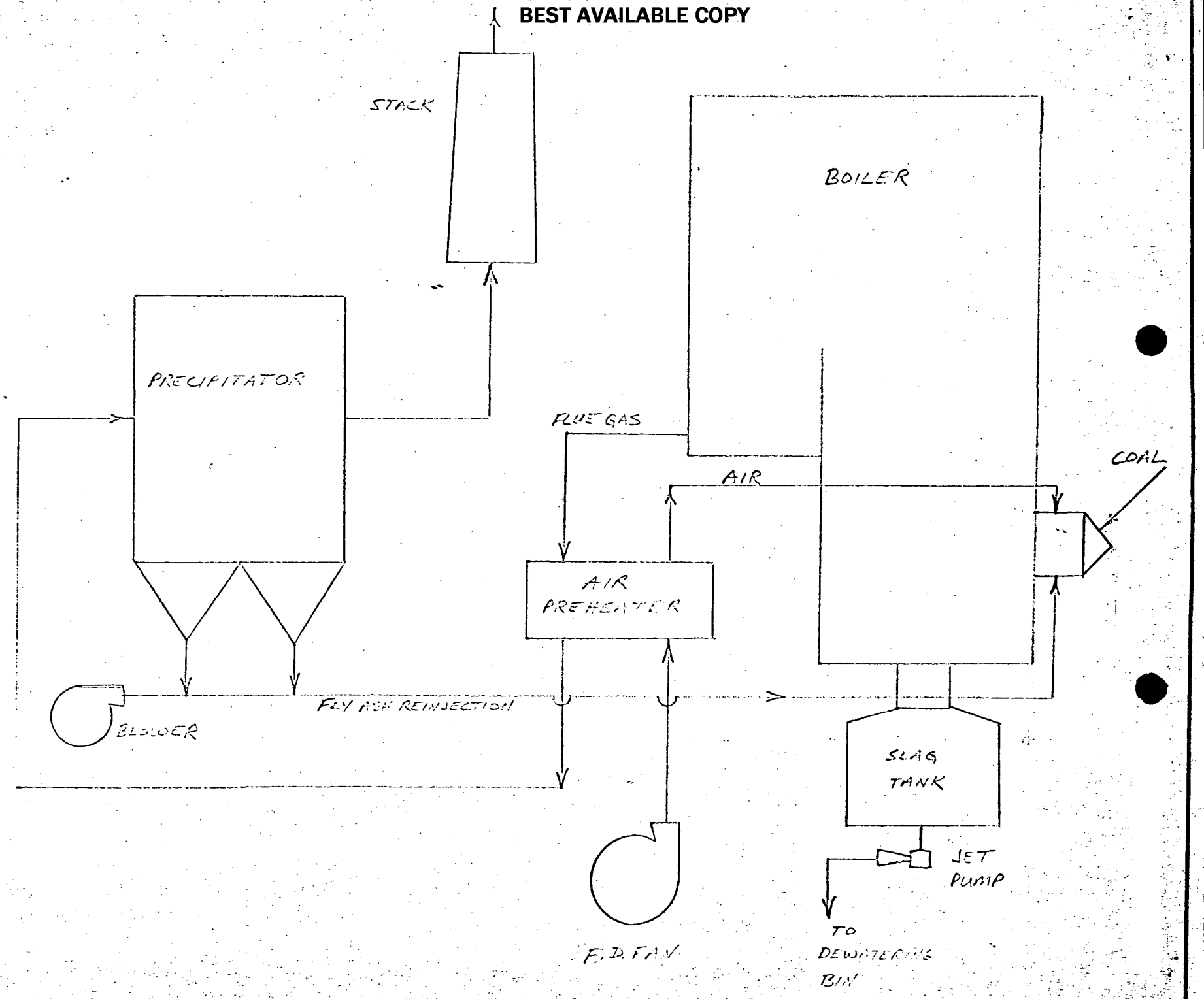
(c) $93.4 \times 2000 \times 0.0315 \times 2 = 11,768$

Gen #6

(a) $628,324 \times 0.0315 \times 2 = 39,574$

(b) $109 \times 2000 \times 0.0315 \times 2 = 13,734$

(c) $151.4 \times 2000 \times 0.0315 \times 2 = 19,076$



FLOW DIAGRAM

GANNON STATION BOILER # 1 # 2 & # 3

TAMPA ELECTRIC COMPANY

DATE:

APPR:

DR

TAMPA ELECTRIC COMPANY

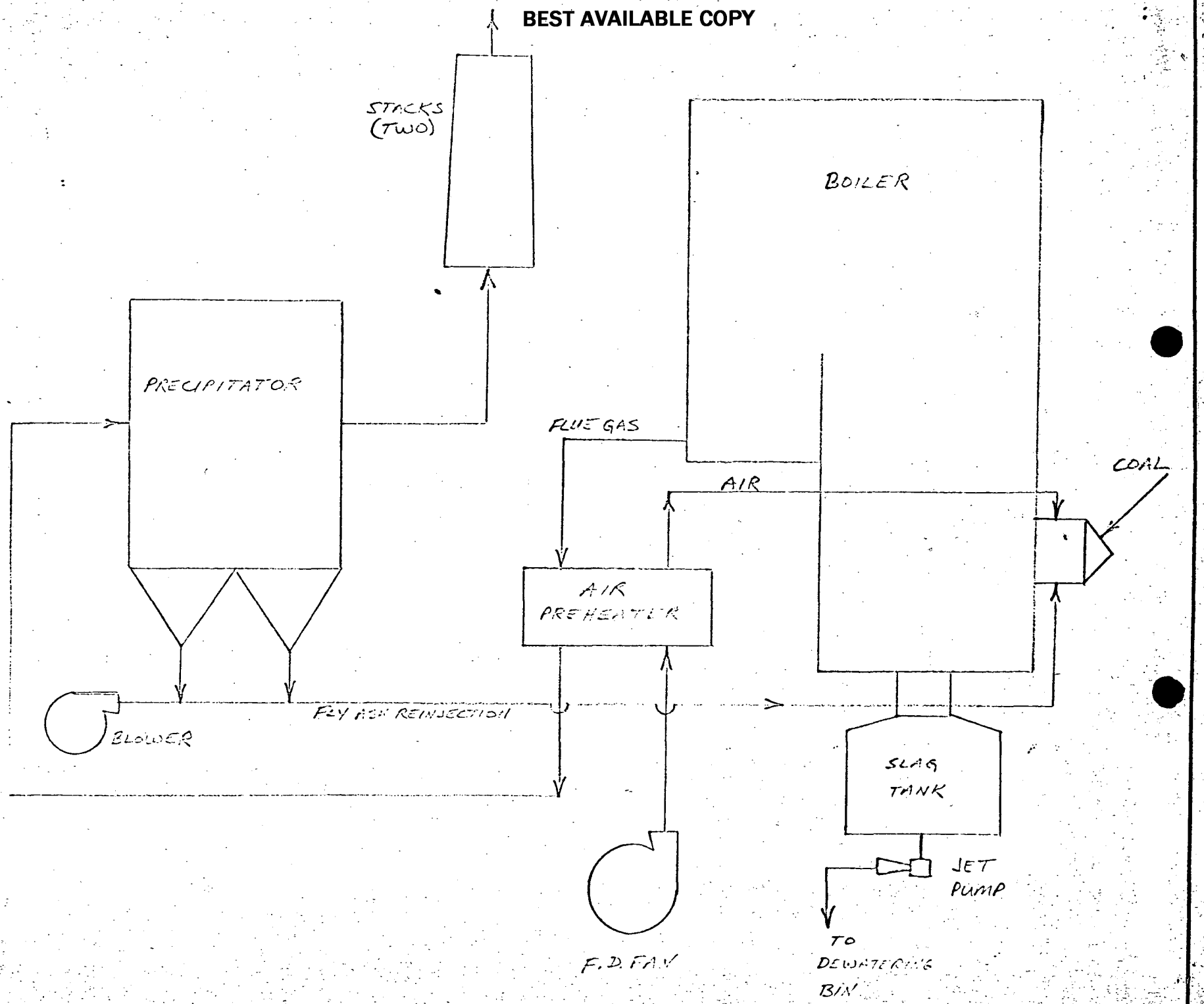
GANNON STATION BOILER #4

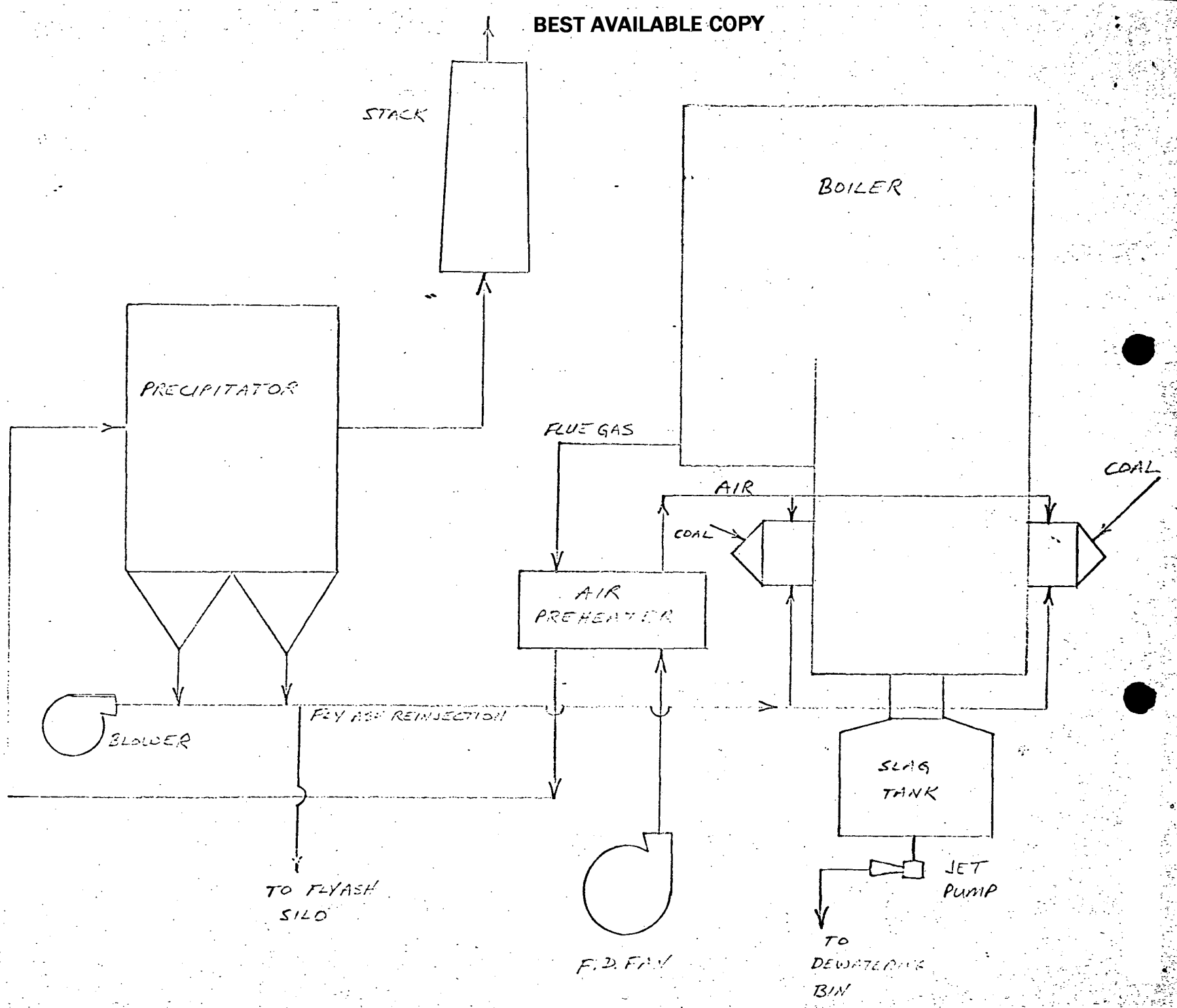
FLOW DIAGRAM

DATE: 2-16-72

APPR:

DRK





FLOW DIAGRAM

GANNON STATION BOILER # 1 & 6

TAMPA ELECTRIC COMPANY

DATE: 2-26-74

APPR: