

April 3, 1981

Mr. E. P. Balducci Assistant Pollution Control Engineer Department of Health, Welfare & Bio-Environmental Services 515 West 6th STreet Jacksonville, Florida 32206

Boiler Stack

RE: Jacksonville Brewery.

Dear Mr. Balducci:

Please find enclosed a check for \$20.00 and 5 copies of page 2 of our Application to Increase Stack Height. This takes care of items 1 & 2 in your letter of March 16, 1981 to Mr. J. Mueller. The remaining items, 3, 4, & 5 will be answered directly to you from Don DeHart in Corporate Headquarters, St. Louis.

Since the three boiler renewal permits were cancelled in lieu of consolidation, will we get credit for the \$60.00 application fees?

Very truly yours,

Tom Martin

Asst. Resident Engineer

TM:

Enclosure

CC: Mr. J. Mueller

Mr. D. DeHart

CC: Mr. Carl Back

Dept. Environmental Regulations

2600 Blairstone Road

Tallahassee, Fla. 32301



No.

DATE April 8, 1981

\$ **20.00

Florida Department of Environmental
Regulation

#2302938# #081000278# 00 0027 O#

H-BIME PROPERTY OF THE

DETACH THIS VOUCHER BEFORE PRESENTING CHECK

C.V. NO.			CKED	APP
INVOICE	AMOUNT	DISCOUNT	OTHER-	NET TO PAY
Application fee to increase boiler stack height. Boilers #1 - #4.	20.00			20.00
	٠			
			·	
				•
	,			ł
	·			· ·
			. ,	
	·			
	•			
	Anheuser-G	Busch, Inc.	.	

JACKSONVILLE, FLORIDA



AC 16-39951

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLITION SOURCES

Antioe	LO HON SOURCES
SOURCE TYPE: Air Pollution	[] New ¹ [X] Existing ¹
APPLICATION TYPE: [X] Construction [] Operation	[] Modification
COMPANY NAME: Anheuser-Busch, Inc.	COUNTY: Duval
dentify the specific emission point source(s) addressed in th No. 2, Gas Fired) Process Steam Boilers Nos.	nis application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit 1, 2, 3 and 4
SOURCE LOCATION: Street 111 Busch Drive	city <u>Jacksonville</u>
UTM: East 7437930	North 3366820 to 3366850
Latitude 30 o 25 · 59	"N Longitude 81 o 38 · 47 ·w
APPLICANT NAME AND TITLE: Mr. John Muelle	• • •
APPLICANT ADDRESS: P. O. Box 18017, A.M.	F. Jacksonville, FL 32229
	S BY APPLICANT AND ENGINEER
A. APPLICANT	A. L. B. L.
I am the undersigned owner or authorized representative	
I certify that the statements made in this application for	a Construction my knowledge and belief. Further, I agree to maintain and operate the
granted by the department, will be non-transferable and permitted establishment. Attach letter of authorization	Signed: John Mueller, Plant Manager
	Name and Title (Please Type)
·	Date: Telephone No. (904) 751-0700
. PROFESSIONAL ENGINEER REGISTERED IN FLOR	
This is to certify that the engineering features of this poll be in conformity with modern engineering principles appermit application. There is reasonable assurance, in merly maintained and operated, will discharge an effluent rules and regulations of the department. It is also agreed	Intion control project have been designed/examined by me and found to opplicable to the treatment and disposal of pollutants characterized in the professional judgment, that the pollution control facilities when proportion to propose with all applicable statutes of the State of Florida and the state that the undersigned will furnish, if authorized by the owner, the application of the pollution control facilities and, if applicable, pollution operation of the pollution control facilities and, if applicable, pollution Signed PAT NOLAN P.E. Name (Please Type) Pat Nolan & Associates Company Name (Please Type)
	8282 Western Way Circle, Suite 111
Florida Registration No. 19889	Mailing Address (Please Type) Jax., Fla. 322. Date: (904) Telephone No. 731-4288
Florida Registration No	Date: <u>(904)</u> Telephone No. <u>731–4288</u>

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

A. Raw Materials and Chemicals Used in your Process, if applicable:

D	Contaminants Utilization	Utilization	5	
Description	Туре	% Wt	Rate - lbs/hr	Relate to Flow Diagram

B.	Process Rate	if applicable:	(See Section V.	Item 1)
υ.	1 10Cc33 11atc	i appilicable.	foce pection 4	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,

1. Total Process Input Rate (lbs/hr): for each of four boilers - 90,000 lb/hr max (water-steam)

Airborne Contaminants Emitted: See attached Emission Calculations EACH boiler at 100 x 106 BTU/hr input

None of	Emission ¹		Allowed Emission ²	Allowable ³	Potential	Relate		
Name of Contaminant	Maximum Ibs/hr	Actual T/yr	Rate per Ch. 17-2, F.A.C.	Emission lbs/hr	lbs/hr	T/yr -	to Flow Diagram	
Particulate	17.2	36.5	Use 17-2,05(6) Table II	10	17.2	75.4	1,2,3,4	
Sulfur Dioxide	239	506	Source "E"(1)(b)	250	239	1046-	-	
		:	1.a.* (per Mr. E.					
•		ı	Balducci)					
Nitrogen Oxide	40.0	85	None specified	.'	40.0	175		

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles ⁵ Size Collected (in microns)	Basis for Efficiency (Sec. V, It ⁵
		,	-	
. :				
		,		

¹See Section V, Item 2.

²Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. — 0.1 pounds per million BTU heat input)

³Calculated from operating rate and applicable standard

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

^{5&}lt;sub>If Applicable</sub>

^{* 0.1} lb particulate per 10⁶ BTU heat input.

 $^{2.5~\}mathrm{lb}~\mathrm{SO_2}$ per $10^6~\mathrm{BTU}$ heat input

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

Raw Materials and Chemicals Used in your Process, if applicable:

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

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

1.	Total Process Input Rate (lbs/hr):	<u>for</u>	<u>each</u>	<u>of</u>	four	<u>boilers</u>	_	<u>90,000</u>	<u>lb/hr max</u>	<u>((water-</u>	<u>-steam)</u>
	Product Weight (lhs/hr):								lb/hr max		

2. Product Weight (lbs/hr): __ Airborne Contaminants Emitted: See attached Emission Calculations

EACH boiler at 100 x 106 BTU/hr input

Name of	Emission ¹		Allowed Emission ²	Allowable ³	Potential	Relate		
Contaminant	Maximum lbs/hr	Actual T/yr	Rate per Ch. 17-2, F.A.C.	Emission lbs/hr	lbs/hr	T/yr	to Flow Diagram	
Particulate	17.2	36.5	Use 17-2,05(6) Table II	10	17.2	75.4	1,2,3,4	
Sulfur Dioxide	239	506	Source "E"(1)(b)	250	239	1046	•	
			1.a.* (per Mr. E.	· · · · · · · · · · · · · · · · · · ·				
			Balducci)					
Nitrogen Oxide	40.0	85	None specified		40.0	175		

Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles ⁵ Size Collected (in microns)	Basis for Efficiency (Sec. V, It ⁵
			,	

¹See Section V, Item 2.

5_{If Applicable}

* 0.1 lb particulate per 10⁶ BTU heat

DER FORM 17-1.122(16) Page 3 of 10

²Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. — 0.1 pounds per million BTU heat input)

³Calculated from operating rate and applicable standard

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

 $^{2.5~\}mathrm{lb}~\mathrm{SO}_2~\mathrm{per}~\mathrm{10}^6~\mathrm{BTU}~\mathrm{heat}$ input

Type (Be Specific)	Consu	Maximum Heat Input	
	avg/hr	max./hr	(MMBTU/hr)
No. 6 fuel oil	8 bb1	16 bb1	100 per boiler
			-

Jnits Natural Gas, MMCF/hr; Fuel Oils, barro uel Analysis:	els/hr; Coal, lbs/hr		
2.28 (nominal base	d on 2.5 lb	ercent Ash: 0.1 max	· · · · · · · · · · · · · · · · · · ·
ensity: 8.2 (nominal) SO2	/ (10	ypical Percent Nitrogen:	
eat Capacity:			
ther Fuel Contaminants (which may cause ai	r pollution):		
		, , , , , , , , , , , , , , , , , , , ,	
If applicable, indicate the percent of fue	el used for space heating.	. Annual Average	Maximum
. Indicate liquid or solid wastes generated	and method of disposal		
	and method of disposal owdown is routed	I in the sanitary sewe	r system to the
About 10 GPM of boiler bl. District No. 2 City Sewag	and method of disposal owdown is routed e Treatment Plar	in the sanitary sewer	r system to the
About 10 GPM of boiler bl. District No. 2 City Sewag	and method of disposal owdown is routed e Treatment Plan aracteristics (Provide dat	in the sanitary sewernt. a for each stack): (same data	r system to the
About 10 GPM of boiler bl. District No. 2 City Sewag Emission Stack Geometry and Flow Char Stack Height: 100	and method of disposal owdown is routed e Treatment Plan aracteristics (Provide dat ft. S	in the sanitary sewer it. a for each stack): (same data stack Diameter: 4.5	r system to the a for each of four stac
About 10 GPM of boiler bl. District No. 2 City Sewag Emission Stack Geometry and Flow Cha	and method of disposal owdown is routed e Treatment Plan aracteristics (Provide datft. S	in the sanitary sewer it. a for each stack): (same data stack Diameter: 4.5	r system to the a for each of four stace ft.
About 10 GPM of boiler blue District No. 2 City Sewag Emission Stack Geometry and Flow Charack Height: 100 Gas Flow Rate: 33,100 (est.)	and method of disposal owdown is routed e Treatment Plan aracteristics (Provide datft. S	in the sanitary sewer it. a for each stack): (same data stack Diameter: 4.5	r system to the a for each of four stace ft.

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)		
Lbs/hr Incinerated									
Description of Wast							· · · · · · · · · · · · · · · · · · ·		
Total Weight Incine	rated (IDS/Nr) —	· · ·		Design Capacity (lbs/hr)					
Approximate Number of Hours of Operation per day				days/week					
Manufacturer									
Date Constructed			Model No						

Primary Chamber Secondary Chamber Stack Height:ft. Stack Diameter Stack Temp		Volume	Heat Release	<u> </u>	Fuel	Temperature
Stack Height: ft. Stack Diameter 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.):		(ft)3	(BTU/hr)	Туре	BTU/hr	
Stack Height:	Primary Chamber	· .				•
Gas Flow Rate:	Secondary Chamber					
Gas Flow Rate:	Stack Height:	1	ft. Stack Diameter		Stack Temp)
*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.):	*If 50 or more tons per o					
Brief description of operating characteristics of control devices: Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):	Type of pollution control	device: [] Cy	rclone [] Wet Scrub	iber [] Afterbu	rner [] Other (speci	· ·fv)
Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):						
Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):				<u>-</u> -		
Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):	-				· · · · · · · · · · · · · · · · · · ·	
Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):		-				
Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):					-	<u></u>
						•
<u> </u>	Ultimate disposal of any e	ffiuent other tha	n that emitted from th	e stack (scrubber i	water, ash, etc.):	• .
<u> </u>	· · · · · · · · · · · · · · · · · · ·					
<u> </u>		•	·		<u>.</u>	
					•	-
						· ·

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

- 1. Total process input rate and product weight show derivation.
- 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.
- 3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
- 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, etc.).
- 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).
- 6. An 8½" 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.
- An 8%" 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).
- 8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

- 9. An application fee of \$20, unless exempted by Section 17-4.05(3), F.A.C. 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

Contaminant	Rate or Concentration
	·
Has EPA declared the best available control tech	anology for this class of sources (If yes, attach copy) [] Yes [] No
Contaminant	Rate or Concentration
What emission levels do you propose as best ava	ilable control technology?
Contaminant	Rate or Concentration
	1
Describe the existing control and treatment tech	
Describe the existing control and treatment tech	
Describe the existing control and treatment tech 1. Control Device/System:	
Describe the existing control and treatment tech 1. Control Device/System: 2. Operating Principles:	nnology (if any).
Describe the existing control and treatment tech 1. Control Device/System: 2. Operating Principles: 3. Efficiency: *	nnology (if any). 4. Capital Costs:
Describe the existing control and treatment tech 1. Control Device/System: 2. Operating Principles: 3. Efficiency: * 5. Useful Life:	nnology (if any). 4. Capital Costs: 6. Operating Costs:
Describe the existing control and treatment tech 1. Control Device/System: 2. Operating Principles: 3. Efficiency: * 5. Useful Life: 7. Energy:	nnology (if any). 4. Capital Costs: 6. Operating Costs:
Describe the existing control and treatment tech 1. Control Device/System: 2. Operating Principles: 3. Efficiency: * 5. Useful Life: 7. Energy: 9. Emissions:	4. Capital Costs: 6. Operating Costs: 8. Maintenance Cost:

^{*}Explain method of determining D 3 above.

	10. Sta	ack Parameters				
	a.	Height:	ft.	b.	Diameter:	
	c.	Flow Rate:	ACFM	d.	Temperature:	
	e.	Velocity:	FPS			
E.	Describ	pe the control and treatmen	t technology available (As r	nany	types as applicable, use additional pages if	necessary).
	1.					
	a.	Control Device:				-
	b.	Operating Principles:				
	c.	Efficiency*:		d.	Capital Cost:	
	e.	Useful Life:		f.	Operating Cost:	•
	g.	Energy*:		h.	Maintenance Cost:	
	i.	Availability of constructi	on materials and process ch	emic	als:	ř
						•
	j.	Applicability to manufac	turing processes:			
	k.	Ability to construct with	control device, install in av	ailab	le space, and operate within proposed level	s: '
						-
	2.	•				-
	8.	Control Device:				
	b.	Operating Principles:	,			
	C.	Efficiency*:		d.	Capital Cost:	
	e.	Useful Life:		f.	Operating Cost:	
	g.	Energy**:	•	h.	Maintenance Costs:	
	i.	Availability of construction	on materials and process ch	emic	als:	
	j.	Applicability to manufact	turing processes:			
	k.	Ability to construct with	control device, install in av	ailab	le space, and operate within proposed levels	r:
- *Ex	plain me	ethod of determining efficie	ency.			
••En	ergy to I	be reported in units of elect	rical power – KWH design	rate.		
	3.				•	
	a.	Control Device:				
	b.	Operating Principles:				
	c.	Efficiency*:		đ.	Capital Cost:	
	€.	Life:		f,	Operating Cost:	
	g.	Energy:		h.	Maintenance Cost:	

٥F

^{*}Explain method of determining efficiency above.

		i.	Avail	ability of construction materials an	d process chemic	ca	ls:
		j.	Appl	icability to manufacturing processe	s:		•
		k.	Abili	ty to construct with control device	, install in availab	ble	space and operate within proposed levels:
	4.	Ť					
		a.	Cont	rol Device			
		b.	Oper	ating Principles:			
		C.	Effic	iency*:	đ.		Capital Cost:
		e.	Life:		f.		Operating Cost:
		g.	Energ	gy:	h.		Maintenance Cost:
		i.	Avail	ability of construction materials an	nd process chemic	ca	ls:
		j.	Appl	icability to manufacturing processe	es:		
		k.	Abili	ty to construct with control device	, install in availal	ы	e space, and operate within proposed levels:
F.	Des	scribe	the c	control technology selected:			
	1.	Con	trol [Device:			
	2.	Effi	cienc	y*;	3.		Capital Cost:
	4.	Life	:		5.		Operating Cost:
	6.	Ene	rgy:		7.		Maintenance Cost:
	8.	Mar	nufact	urer:			
	9.	Oth	er loc	ations where employed on similar p	processes:		
		a.					
			(1)	Company:			
			(2)	Mailing Address:			·
			(3)	City:	(4)	State:
			(5)	Environmental Manager:			
			(6)	Telephone No.:			
•E	xplai	n me		of determining efficiency above.			
			(7)	Emissions*:			
				Contaminant			Rate or Concentration
	_						
	_					_	<u> </u>
			(8)	Process Rate*:			•
		b.					
			(1)	Company:			
			(2)	Mailing Address:			
			(3)	City:	(4	l)	State:
*Ar		int m			able. Should this	s i	nformation not be available, applicant must state the reason(s

(5)	Environmental Manager:					
(6)	Telephone No.:					
(7)	Emissions*:					
	Contaminant		R	ate or Concentratio	'n	
		·				
		·				
						
(8)	Process Rate*:		·			_

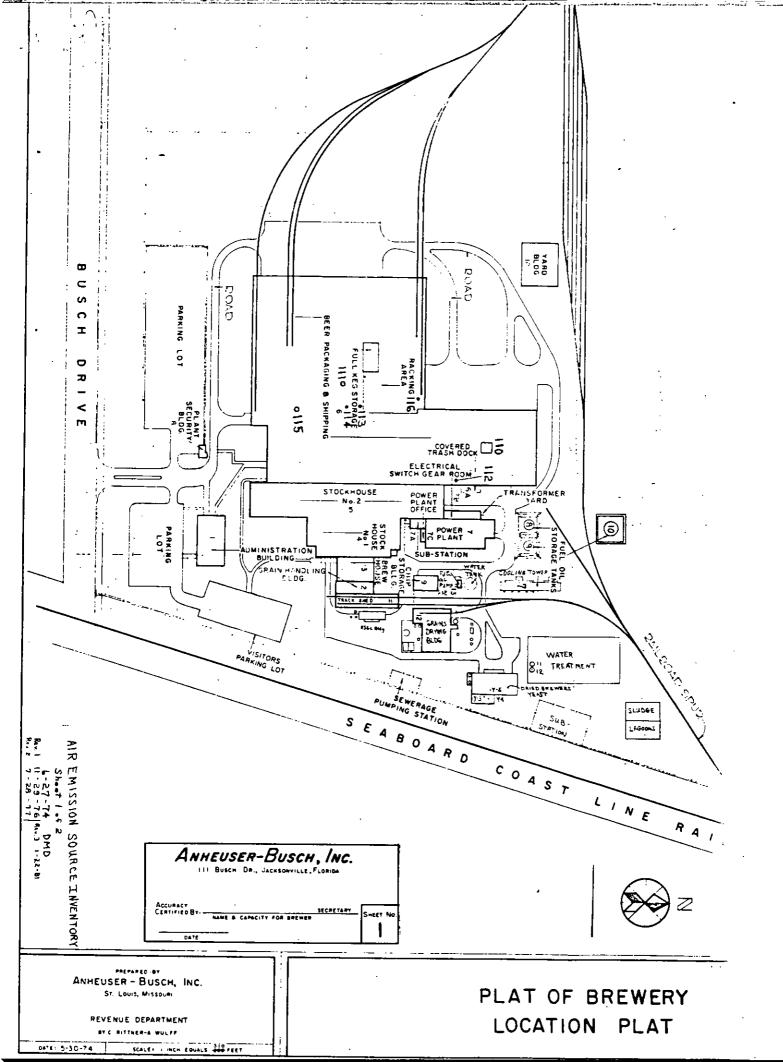
^{10.} Reason for selection and description of systems:

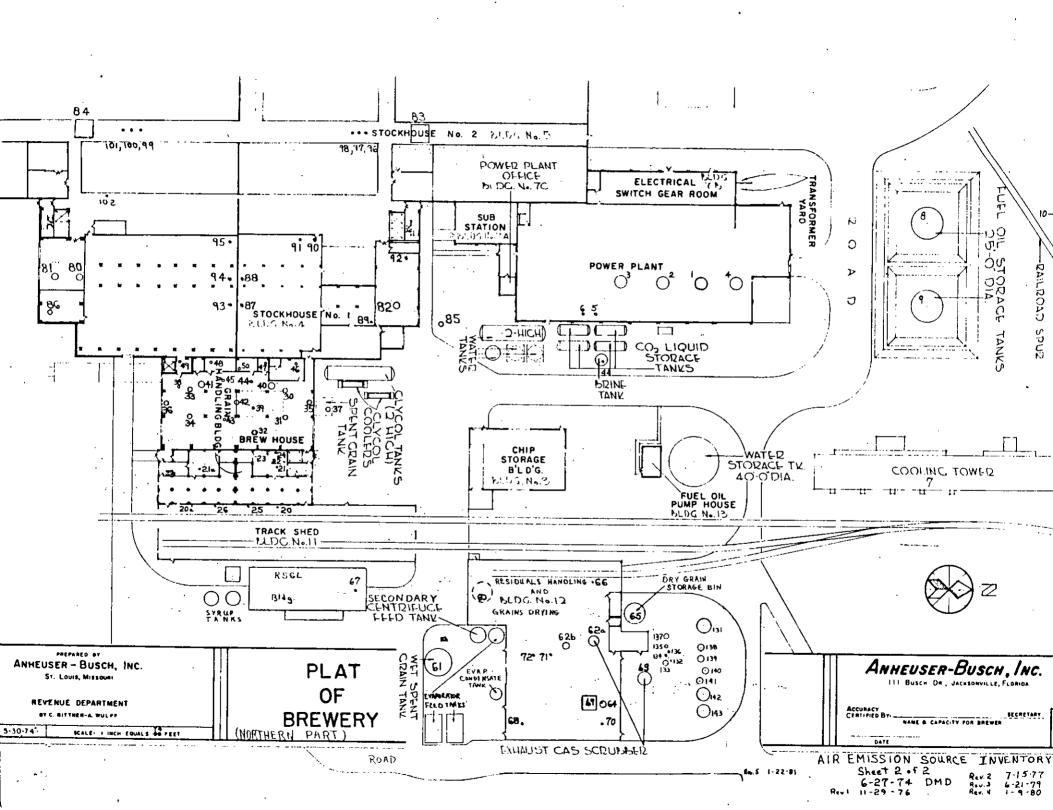
^{*}Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

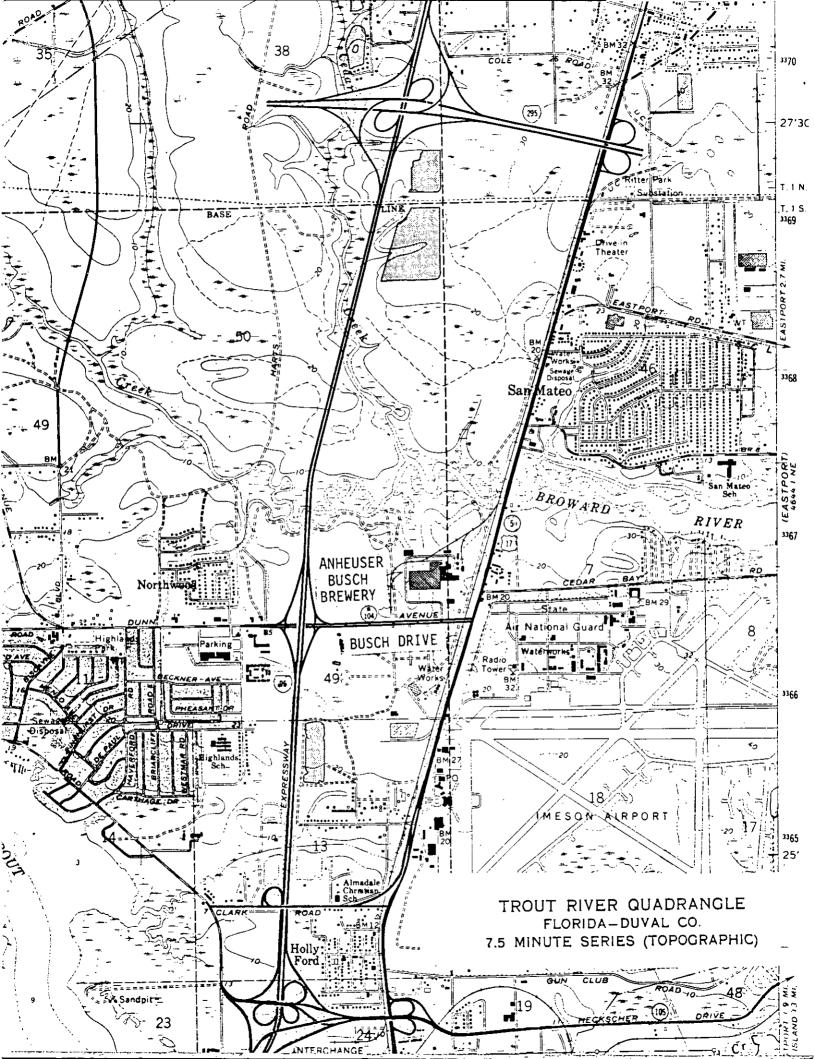
SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

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.
	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 on 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.
*Spe	ecify bubbler (B) or continuous (C).
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.







ANHEUSER-BUSCH, INC. JACKSONVILLE BREWERY EMISSION CALCULATIONS PER BOILER

(Section III C and E)

I. Section IIIC and E

A. Emission Factors

From AP-42, 3rd. Ed. Table 1.3-1 For Industrial Residual Oil. Here S equals the percent by weight of sulfur in the oil.

Pollutant	Emission 1b/1000 gal	Emission With 2.28% S oil, 1b/1000 gal
Particulate	10(5) + 3	25.8
Sulfur Dioxide	157(S)	358.0
Nitrogen Oxides	60	60.0
Carbon Monoxide	5	5.0
Hydrocarbons	1	1.0

B. Sulfur Limit of Oil

 SO_2 emissions limited to 2.5 lb $SO_2/10^6$ BTU input. This equates to:

$$\frac{2.5 \text{ 1b SO}_2}{10^6 \text{ BTU}} \times \frac{.15 \times 10^6 \text{ BTU}}{\text{gal oil}} \times \frac{\text{gal oil}}{8.2 \text{ 1b oil}} \times \frac{1 \text{b S}}{2 \text{ 1b SO}_2} = 0.02287 \frac{1 \text{b S}}{1 \text{b oil}} \text{ or } 2.28\% \text{ S}$$

C. <u>Maximum Oil Usage</u>

Bases: 100×10^6 BTU/hr max. input per boiler and 150,000 BTU/gal for No. 6 fuel oil.

$$\frac{100 \times 10^6 \text{ BTU}}{\text{hr}} \times \frac{\text{gal}}{0.15 \times 10^6 \text{ BTU}} = 667 \text{ gal/hr}.$$

D. Maximum Emissions

E. Actual Annual Emissions

Bases: 2,828,000 gallons of No. 6 fuel oil used in boiler No. 1 in 1979.

(Emission Factor) x (Oil Used) x
$$\left(\frac{1 \text{ ton}}{2000 \text{ lb}}\right)$$
 = Actual Emissions (1b/1000 gal) x (2,828 x 1000 gal)x $\left(\frac{1}{2000}\right)$

Particulate 25.8 x (2,828/2000) = 36.5 tons/yr

so ₂	358.0	x	(1.414)	=	506 tons/yr
NOX	60.0	x	(1.414)	=	84.8 tons/yr

F. Potential Emissions

- 1. Hourly Potential Emissions equal hourly Maximum Emissions (Par. D) as there are no additional emission control devices on the boilers.
- 2. Annual Potential Emissions assume continuous operation or 8760 hr/yr.

$$\begin{array}{c} \text{(Hourly \\ Potential)} \times \text{(Operating)} \times \left(\frac{1 \text{ ton}}{2000 \text{ lb}} \right) & = \text{ Annual Potential Emissions} \\ \text{(Ib/hr)} \times \left(\frac{8760}{\text{hr/yr}} \right) \times \left(\frac{1 \text{ ton}}{2000 \text{ lb}} \right) \\ \text{Particulate} & 17.2 \times \left(\frac{8760}{2000} \right) & = 75.4 \text{ tons/yr} \\ \end{array}$$

$$SO_2$$
 239.0 x (4.38) = 1046.0 tons/yr NO_x 40.0 x (4.38) = 175.0 tons/yr

G. Allowable Emissions

Chapter 17-2.05(6) Table II Source E(2) states "apply latest technology" for particulate, sulfur dioxide, and nitrogen oxides. For plant locality per Mr. Ed Balducci on 4/22/80, we are to use limits of 0.1 lb. particulate and 2.5 lb $\rm SO_2$ per $\rm 10^6$ BTU input over a 2-hr average. No limit is specified for $\rm NO_X$. From application, each boiler has input capacity of $\rm 100 \times 10^6$ BTU/hr.

(Emission Limit) x (Input Capacity) = Allowable Emissions (1b/10⁶ BTU) x (100 x 10⁶ BTU/hr) = 10 lb/hr

Particulate 0.1 x (100) = 10 lb/hr

S0₂ 2.5 x (100) = 250 lb/hr

II. Section III H

Percent water in flue gases

Reference: Steam, Its Generation and Use by Babcock and Wilcox Co. 37th Ed., 1963. Chapter 4, Table 5 (page 4 - 9).

For fuel oil per 10,000 BTU as fired.

Theoretical dry air -- 7.46 lb

Fuel -- 0.54 lb

Resulting Moisture -- 0.51 lb

Incoming moisture $\,$ -- 0.0132 lb $\rm H_2O/lb$ dry air 0 60% RH and 800 F. (wet air)

At 120 % of theoretical air (20% excess)

Total dry air -- 1.2(7.46) = 8.95 lb

Incoming $H_20 \longrightarrow 1.2(7.46)(0.0132) = 0.12 \text{ lb}$

Thus, in flue gases

Total water
$$--$$
 0.12 + 0.51 = 0.63 1b

Total gases --
$$0.63 + 8.95 + 0.54 = 10.12$$
1b

So, water in flue gases --
$$\frac{0.63}{10.12}$$
 (100%) = 6.2%

ALL

0.0

11//08/80, 16.36.17. LIST OF RESULTS

1PLANT NAME: AB JACKSONVILLE BREWERY POLLUTANT: SO2 EMISSION UNITS: GM/SEC AIR QUALITY UNITS: GM/M**3 THIS RUN COMBINES ALL 4 BOILER STACKS INTO A SINGLE SOURCE

MET FILE REQUESTED STN NO. YR STN NO. YR SURFACE 13889 70 13889 70 UPPER AIR 13861 70 13861 70 FLANT LOCATION: RURAL

NO TAPE OUTPUT

MET DATA WILL NOT BE PRINTED

TAY-- 1 1 1 1 1 1 1 1 1 1 1111111111 1111111111 1111111111 1111111111 1111111111 1111111111 1 1 1 1 1 1 1 1 1 1 1111111111 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1111111111

ALL TABLES, INCLUDING SOURCE CONTRIBUTION, THAT CONTAIN -ANNUAL- IN THE HEADING ARE BASED ONLY ON THOSE I

PLANT ELEVATION (METERS ABOVE SEA LEVEL)--

RING DISTANCES(KM)= .40 .60 .80 1.00 1.20

PLANT ELEVATION (FEET ABOVE SEA LEVEL) --

RECEPTOR ELEVATIONS (FEET ABOVE SEA LEVEL)

RECEPTOR ELEVATIONS (METERS ABOVE SEA LEVEL)

RECEPTOR ELEVATIONS (METERS ABOVE SEA LEVEL)

RECEPTOR ELEVATIONS (METERS ABOVE SEA LEVEL)

RING"1 RING"2 RING"3 RING"4 RING"5

RING"1 RING"2 RING"3 RING"4 RING"5

0.0

DIRECTION	RING"1	RING"2	RING"3	RING"4	RING"5	RING"1	RING"2	RING"3	RING"4	RING"5
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	~ 0.0	0.0	0.0			0.0-	0.0	0:0.	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15 ,	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	. 0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
.33	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
36	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1										

STACK " 1-- COMBINED BOILER STACK

STACK MONTH

EMISSION RATE (GMS/SEC)

HEIGHT (METERS) DIAMETER EXIT VELOCITY (METERS)

(M/SEC)

TEMP (DEG.K) VOLUMETRIC FLOW (M**3/SEC)

ALL

126.0000

30.50

10.60 483.00 15.63

PLANT NAME: AB JACKSONVILLE BREWERY

POLLUTANT: \$02

EMISSION UNITS: GM/SEC

AIR QUALITY UNITS: GM/M**3

M A X HOURLY MAX 24-HOUR

DAY «TRM#

CONCENTRATION DIRECTION DISTANCE(KM) HOUR CONCENTRATION DIRECTION DISTANCE(K RATIO

∘RDY# 5F,540

YEARLY MAXIMUM 24-HOUR CONC# 2.1508E-04 DIRECTION# 5 DISTANCE# 1.2 KM DA

-Y=223

*****ΕΠΥ#

≢F,584

YEARLY SECOND MAXIMUM 24-HOUR CONC= 2.0302E-04 DIRECTION= 5 DISTANCE= 1.0

KM DAY= 79

22 Has c MES

RDY

\$F,628 3-HOUR CONC= 6.9294E-04 DIRECTION= 31 DISTANCE= .6 KM YEARLY MAXIMUM

+ DAY=163 TIME PERIOD= 5 #RDV#

\$F,672 YEARLY SECOND MAXIMUM 3-HOUR CONC= 5.5427E-04 DIRECTION= 31 DISTANCE= + .8 KM DAY=202 TIME PERIOD= 4 *RDY*

UNS RESULTS

RDY

BYE

J. 33 SU-B = 12.4

CT = 01.03 SU-B KCH = 45 A541001 LOG OFF. 16.43.41.



APPLICATION TO OPERATE/CONSTRUCT

OURCE TYPE: Air Pollution	[] New ¹ [X] Existing ¹
PPLICATION TYPE: [X] Construction [] Operation	[] Modification
OMPANY NAME: Anheuser-Busch, Inc.	COUNTY: Duval .
	is application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit 1, 2, 3 and 4
OURCE LOCATION: Street 111 Busch Drive	cityJacksonville
UTM: East7437930	North 3366820 to 3366850
Latitude 30 o 25 · 59	_ "N Longitude 81 o 38 , 47 "W
PPLICANT NAME AND TITLE: Mr. John Mueller	
PPLICANT ADDRESS: P. O. Box 18017, A.M.I	
SECTION I: STATEMENTS	S BY APPLICANT AND ENGINEER
. APPLICANT	-
i am the undersigned owner or authorized representative	of Anheuser-Busch, Inc.
l certify that the statements made in this application for a	a Construction
granted by the department, will be non-transferable and permitted establishment. Attach letter of authorization	e department and revisions thereof. I also understand that a permit, if I will promptly notify the department upon sale or legal transfer of the Signed:
'	John Mueller, Plant Manager Name and Title (Please Type)
	Date: Telephone No. (904) 751-0700
PROFESSIONAL ENGINEER REGISTERED IN FLORI	Telephone No.
This is to certify that the engineering features of this pollibe in conformity with modern engineering principles appermit application. There is reasonable assurance, in my erly maintained and operated, will discharge an effluent trules and regulations of the department. It is also agreed	ution control project have been designed/examined by me and found to plicable to the treatment and disposal of pollutants.characterized in the professional judgment, that the pollution control facilities, when proposition complies with all applicable statutes of the State of Florida and the that the undersigned will furnish, if authorized by the owner, the applicable operation of the pollution control facilities and, it applicable, pollution Signed. Charles M. Nolan, F
(Affix Seal)	PAT NOLAN, P.E. Name (Please Type) Pat Nolan & Associates Company Name (Please Type) 8282 Western Way Circle, Suite 11
	Mailing Address (Please Type) Jax., Fla. 32
Florida Registration No. 19889	Date:(904) Telephone No731-4288

¹See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.) DER FORM 17-1.122(16) Page 1 of 10

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

Raw Materials and Chemicals Used in your Process, if applicable:

Diti	Contan	ninants	Utilization	515161
Description	Туре	% Wt	Rate - lbs/hr	Relate to Flow Diagram
		•	· · · · · · · · · · · · · · · · · · ·	

B.	Process Rate	if applicable:	(See Section V, Item 1	١,
ъ.	Frocess nate,	i applicable.	(See Section 4, Item)	٠,

1. Total Process Input Rate (lbs/hr): for each of four boilers - 90,000 lb/hr max (water-steam)

- 90,000 lb/hr max (steam) 2. Product Weight (lbs/hr): .

Airborne Contaminants Emitted: See attached Emission Calculations EACH boiler at 100×10^6 BTU/hr input

N	Emiss	ion [†]	Allowed Emission ²	Allowable ³	Potential	Emission ⁴	Relate
Name of Contaminant	Maximum lbs/hr	Actual T/yr	Rate per Ch. 17-2, F.A.C.	Emission lbs/hr	lbs/hr	T/yr_	to Flow Diagram
Particulate	17.2	36.5	Use 17-2.05(6) Table II	10	17.2	75.4	1,2,3,4
Sulfur Dioxide	239	506 •	Source "E"(1)(b)	250	239.	1046-	-
		<u> </u>	1.a.* (per Mr. E.				
` .		i I	Balducci)				
Nitrogen Oxide	40.0	85	None specified		40.0	175	

Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles ⁵ Size Collected (in microns)	Basis for Efficiency (Sec. V, 1t ⁵
			<u> </u>	
	,			

¹See Section V, Item 2.

DER FORM 17-1.122(16) Page 3 of 10

²Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table 11, E. (1), F.A.C. - 0.1 pounds per million BTU

³Calculated from operating rate and applicable standard

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

^{5&}lt;sub>If Applicable</sub>

^{* 0.1 1}b particulate per 10⁶ BTU heat input.

 $^{2.5 \}text{ 1b } \text{SO}_2 \text{ per } 10^6 \text{ BTU heat input}$

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

A. Raw Materials and Chemicals Used in your Process, if applicable:

Ointi	Contan	ninants	Utilization	
Description	Type	% Wt	Rate - lbs/hr	Relate to Flow Diagram
		·		
			·	

Ω	Process	Rate	if appl	icabia:	1000	Section	V	ltom	11	
5.	LLOCGEZZ	mate.	ir appi	icable.	(See	Section	٧.	item		

1. Total Process Input Rate (lbs/hr): .	for each of fou	<u>r boilers - 90,000</u>	<u>lb/hr max</u>	<u>(water-steam)</u>
2. Product Weight (lbs/hr):		- 90,000	1b/hr max	(steam)

Airborne Contaminants Emitted: See attached Emission Calculations

EACH boiler at 100 x 106 BTU/hr input

N	Emiss	ion ¹	Allowed Emission ²	Allowable ³	Potential	Emission ⁴	Relate:
Name of Contaminant	Maximum lbs/hr	Actual T/yr	Rate per Ch. 17-2, F.A.C.	Emission lbs/hr	lbs/hr	T/yr -	to Flow Diagram
Particulate	17.2	36.5	Use 17-2.05(6) Table II	10	17.2	75.4	1,2,3,4
Sulfur Dioxide	239	506	Source "E"(1)(b)	250	239	1046-	- ;
. !			1.a.* (per Mr. E.			,	• •
			Balducci)				
Nitrogen Oxide	40.0	85	None specified		40.0	175	

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles ⁵ Size Collected (in microns)	Basis for Efficiency (Sec. V, it ⁵
· · · · · · · · · · · · · · · · · · ·		-		,

¹See Section V, Item 2.

2.5 lb SO₂ per 10⁶ BTU heat input

²Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. — 0.1 pounds per million BTU heat input)

³Calculated from operating rate and applicable standard

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

⁵If Applicable

^{* 0.1} lb particulate per 10⁶ BTU heat input.



STATE OF FLORIDA CONTROL DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT

AIR POLLUTION SOURCES

SOURCE TYPE: Air Pollution	_ [] New ¹ [X] Exist	ing ¹
APPLICATION TYPE: [X] Construction [] Operation [] Modification	
COMPANY NAME: Anheuser-Busch, Inc.		COUNTY: Duval
Identify the specific emission point source(s) addressed in this (No. 2, Gas Fired) Process Steam Boilers Nos. 1,	application (i.e. Lime Kilr , 2, 3 and 4	No. 4 with Venturi Scrubber; Peeking Unit
SOURCE LOCATION: Street 111 Busch Drive		city <u>Jacksonville</u>
UŢM: East7437930	North	3366820 to 3366850
Latitude 30 o 25 · 59 ·	"N Longite	ude 81 o 38 · 47 ·w
APPLICANT NAME AND TITLE: Mr. John Mueller,	Plan t Manager	
APPLICANT ADDRESS: P. O. Box 18017, A.M.F.	. Jacksonville, F	L 32229
SECTION I: STATEMENTS I	BY APPLICANT AND EN	GINEER
I am the undersigned owner or authorized representative* of	of Anheuser-Buse	ch, Inc.
I certify that the statements made in this application for a	C+++	
Florida Statutes, and all the rules and regulations of the granted by the department will be non-transferable and the		
permitted establishment. Attach letter of authorization	will promptly notify the c	epartment upon sale or legal transfer of the
benuttreg eargnishment	Signed: John Muelle Nam	r, Plant Manager ee and Title (Please Type)
benuttreg eargnishment	Signed: John Muelle Nam	r, Plant Manager ee and Title (Please Type)
benuttreg eargnishment	Signed:Name	r, Plant Manager ee and Title (Please Type) Telephone No. (904) 751-0700
Attach letter of authorization	Signed: John Mueller Nam Date: A (where required by Chalicable to the treatment an orofessional judgment, that at complies with all applicate the undersigned will further the undersigned will be undersigned with the undersigned will be undersigned with the	r, Plant Manager ee and Title (Please Type) Telephone No. (904) 751-0700 Deter 471, F.S.) een designed/examined by me and found to disposal of pollutants characterized in the other pollution control facilities, when propable statutes of the State of Florida and the mish, if authorized by the owner, the application facilities and, it applicable, poliution Charles M. Nolan; P.E.
Attach letter of authorization 3. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA This is to certify that the engineering features of this pollution be in conformity with modern engineering principles application. There is reasonable assurance, in my erly maintained and operated, will discharge an effluent the rules and regulations of the department. It is also agreed the cant a set of instructions for the proper maintenance and opsources.	Signed: John Mueller Nam Date: A (where required by Char ion control project have beicable to the treatment and professional judgment, that at complies with all applicant the undersigned will fur peration of the poljution o	r, Plant Manager the and Title (Please Type) Telephone No. (904) 751-0700 the designed/examined by me and found to disposal of pollutants characterized in the the pollution control facilities, when propable statutes of the State of Florida and the mish, if authorized by the owner, the application facilities and, if applicable, poliution Charles M. Nolan; P.E. Nolan, P.E. Name (Please Type)
Attach letter of authorization 3. PROFESSIONAL ENGINEER REGISTERED IN FLORIDATE IN This is to certify that the engineering features of this pollution be in conformity with modern engineering principles applipermit application. There is reasonable assurance, in my perly maintained and operated, will discharge an effluent the rules and regulations of the department. It is also agreed the cant a set of instructions for the proper maintenance and operated.	Signed: John Mueller Nam Date: A (where required by Chalicable to the treatment and professional judgment, that at complies with all applicate the undersigned will further than the undersigned will be undersigned to the undersigned will be undersigned with the undersigned will be undersigned to the undersigned will be undersigned with the undersigned wi	r, Plant Manager te and Title (Please Type) Telephone No. (904) 751-0700 ter 471, F.S.) teen designed/examined by me and found to disposal of pollutants characterized in the the pollution control facilities, when propable statutes of the State of Florida and the mish, if authorized by the owner, the application facilities and, if applicable, pollution Charles M. Nolan; P.E. Nolan, P.E. Name (Please Type) Nolan & Associates
Attach letter of authorization 3. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA This is to certify that the engineering features of this pollution be in conformity with modern engineering principles application. There is reasonable assurance, in my erly maintained and operated, will discharge an effluent the rules and regulations of the department. It is also agreed the cant a set of instructions for the proper maintenance and opsources.	Signed: John Mueller Nam Date: A (where required by Chalicon control project have bicable to the treatment and trofessional judgment, that at complies with all applicant the undersigned will fuperation of the poljution of t	r, Plant Manager the and Title (Please Type) Telephone No. (904) 751-0700 the designed/examined by me and found to disposal of pollutants characterized in the the pollution control facilities, when propable statutes of the State of Florida and the mish, if authorized by the owner, the application facilities and, if applicable, poliution Charles M. Nolan; P.E. Nolan, P.E. Name (Please Type)
Attach letter of authorization 3. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA This is to certify that the engineering features of this pollution be in conformity with modern engineering principles application. There is reasonable assurance, in my erly maintained and operated, will discharge an effluent the rules and regulations of the department. It is also agreed the cant a set of instructions for the proper maintenance and opsources.	Signed: John Mueller Nam Date: A (where required by Chalicable to the treatment an orofessional judgment, that at complies with all applicate the undersigned will further the undersigned will be undersigned with the undersigned with the undersigned with the undersigned will be undersigned with the undersigned with the undersigned will be und	r, Plant Manager te and Title (Please Type) Telephone No. (904) 751-0700 ter 471, F.S.) teen designed/examined by me and found to disposal of pollutants characterized in the the pollution control facilities, when propable statutes of the State of Florida and the mish, if authorized by the owner, the applicable facilities and, if applicable, pollution Charles M. Nolan; P.E. Nolan & Associates pany Name (Please Type)

¹See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

DER FORM 17-1.122(16) Page 1 of 10

SECTION II: GENERAL PROJECT INFORMATION

This construction w The four identical						
Board No. 22857, 22						
						_
stacks will allow t	ne operation of al	tour boiler			•	
chedule of project covered in	this application (Construction	on Permit Applicatio	n Only) Flow	acity) wit	hout vio	latir
tart of ConstructionJul	y 1, 1981	Camplesian of C	··· • · · · · · · · · · · · · · · · · ·	Aug. 31. 1	DIENL AI	r qua stanc
		• •				
osts of pollution control sys roject serving pollution con	stem(s): (Note: Show break trol purposes, Information (down of estimated (on actual costs shall	costs only for i be furnished:	ndividual compo with the applica	onents/units	of the
ermit.)						
			·····			
	+		<u></u>			
	· .					
		•				
diameter DED						
ndicate any previous DER pe on dates.	ermits, orders and notices ass	sociated with the emi	ssion point, in	cluding permit is	suance and e	хріга-
A016-2435, -2436,	and -2437 expired	6/30/80. Rene	ewal reque	sted subject	ct to	
SO ₂ modeling evalu	ation. Renewals to	o be withdrawn	at the t	ime of thi	S	
application. A016	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	
	Albertania de Baralania		(5.5.1)			
nd Chapter 22F-2, Florida Ad	dministrative Code?	Yes X No				
nd Chapter 22F-2, Florida Ad Jormal equipment operating t	dministrative Code?; da time: hrs/day <u>24</u> ; da	Yes $\frac{x}{N}$ No ays/wk $\frac{7}{N}$; w	ks/yr <u>52</u>			
s this application associated wind Chapter 22F-2, Florida Advantage and Chapter 22F-2, Florida Advantage and Chapter and Chapt	dministrative Code?; da time: hrs/day <u>24</u> ; da	Yes $\frac{x}{N}$ No ays/wk $\frac{7}{N}$; w	ks/yr <u>52</u>			
nd Chapter 22F-2, Florida Ad Jormal equipment operating t	dministrative Code?; da time: hrs/day <u>24</u> ; da	Yes $\frac{x}{N}$ No ays/wk $\frac{7}{N}$; w	ks/yr <u>52</u>			
nd Chapter 22F-2, Florida Ad Jormal equipment operating t	dministrative Code?; da time: hrs/day <u>24</u> ; da	Yes $\frac{x}{N}$ No ays/wk $\frac{7}{N}$; w	ks/yr <u>52</u>			
nd Chapter 22F-2, Florida Adlormal equipment operating to seasonal, describe:	dministrative Code?; da	Yes <u>X</u> No ays/wk <u>7</u> ; w	ks/yr <u>52</u>			
nd Chapter 22F-2, Florida Adlormal equipment operating to seasonal, describe: this is a new source or major	time: hrs/day 24; day compared the football of	Yes X No ays/wk 7 ; w	ks/yr <u>52</u>			
nd Chapter 22F-2, Florida Adlormal equipment operating to seasonal, describe: this is a new source or major	time: hrs/day 24; day compared the football of	Yes X No ays/wk 7 ; w	ks/yr <u>52</u>			
nd Chapter 22F-2, Florida Adlormal equipment operating to seasonal, describe: this is a new source or major	time: hrs/day 24; day r modification, answer the fo	Yes X No ays/wk 7 ; w	ks/yr <u>52</u>			
ond Chapter 22F-2, Florida Address of the seasonal, describe: this is a new source or major of this source in a non-attain a. If yes, has "offset" been	time: hrs/day 24; day r modification, answer the fo	Yes X No ays/wk 7 ; w pllowing questions. (Y	ks/yr <u>52</u>			
ond Chapter 22F-2, Florida Address of this is a new source or major a. If yes, has "Lowest Achieves of the control of the cont	r modification, answer the formment area for a particular parable Emission Rate" been	Yes X No ays/wk 7 ; w pllowing questions. (Y	ks/yr <u>52</u>			
nd Chapter 22F-2, Florida Address of the seasonal, describe: this is a new source or major of this source in a non-attain a. If yes, has "offset" been	r modification, answer the formment area for a particular parable Emission Rate" been	Yes X No ays/wk 7 ; w pllowing questions. (Y	ks/yr <u>52</u>			
this is a new source or major. Is this source in a non-attain a. If yes, has "Lowest Achic. If yes, list non-attainment.	r modification, answer the formment area for a particular parapplied?	Yes X No ays/wk 7 ; w pilowing questions. (Y collutant? applied?	ks/yr 52 /es or No)			
this is a new source or major. Is this source in a non-attain a. If yes, has "Lowest Achic. If yes, list non-attainment.	r modification, answer the formment area for a particular parapplied?	Yes X No ays/wk 7 ; w pilowing questions. (Y collutant? applied?	ks/yr 52 /es or No)			
this is a new source or major a. If yes, has "Lowest Achic. If yes, list non-attainment. Does best available control Section VI.	r modification, answer the formment area for a particular particul	Yes X No ays/wk 7 ; w willowing questions. (Y collutant? applied?	ks/yr 52 /es or No)		t, hrs/yr	
this is a new source or major a. If yes, has "Lowest Achic. If yes, list non-attainment. Does best available control Section VI.	r modification, answer the formment area for a particular properties applied? ievable Emission Rate" been not pollutants.	Yes X No ays/wk 7 ; w willowing questions. (Y collutant? applied?	ks/yr 52 /es or No)	; if power plant	t, hrs/yr	
this is a new source or major. Is this source in a non-attain a. If yes, has "offset" been b. If yes, has "Lowest Achic. If yes, this is non-attainment. Does best available control Section VI. Does the State "Preventio apply to this source? If yes,	r modification, answer the formment area for a particular per pollutants. I technology (BACT) apply to of Significant Deterioriation, see Sections VI and VII.	Yes X No ays/wk 7 ; w pilowing questions. (Y collutant? applied? to this source? If yes ion" (PSD) requirem	ks/yr 52 (es or No)	; if power plant	t, hrs/yr	
Ind Chapter 22F-2, Florida Advanced Pormal equipment operating the seasonal, describe: If this is a new source or major and this source in a non-attain a. If yes, has "offset" been b. If yes, has "Lowest Achic. If yes, list non-attainment of the seasonal period of the seaso	r modification, answer the formment area for a particular per pollutants. I technology (BACT) apply to of Significant Deterioriation, see Sections VI and VII.	Yes X No ays/wk 7 ; w pilowing questions. (Y collutant? applied? to this source? If yes ion" (PSD) requirem	ks/yr 52 (es or No)	; if power plant	t, hrs/yr	

SECTION II: GENERAL PROJECT INFORMATION

This construction will extend the height of each boiler stace. The four identical boilers are Rabonek and Wilson Co. Madel	EN 1005 70 /** * * * *
The four identical boilers are Babcock and Wilcox Co., Model	FM 1035-79 (National
Board No. 22857, 22856, 22855 and 23814). Computer modeling	predicts that the high
stacks will allow the operation of all four boilers at 100 ${\sf x}$	•
(Cap chedule of project covered in this application (Construction Permit Application Only) Flor tart of Construction <u>July 1, 1981</u> Completion of Construction	acity) without violation ida SO2 ambient air qua Aug. 31, 1981 stand
osts of pollution control system(s): (Note: Show breakdown of estimated costs only for irroject serving pollution control purposes. Information on actual costs shall be furnished ermit.)	adjuidual components (units of the
•	
	
idicate any previous DER permits, orders and notices associated with the emission point, inc	luding permit issuence and evnira.
on dates.	
A016-2435, -2436, and -2437 expired 6/30/80. Renewal reque	sted subject to
SO ₂ modeling evaluation. Renewals to be withdrawn at the t	ime of this
application. A016-12824 expires 8/31/83.	
this application associated with or part of a Development of Regional Impact (DRI) pursuant Chapter 22F-2, Florida Administrative Code?YesXNo permal equipment operating time: hrs/day24; days/wk7; wks/yr52	; if power plant, hrs/yr;
this application associated with or part of a Development of Regional Impact (DRI) pursuant Chapter 22F-2, Florida Administrative Code?YesXNo ormal equipment operating time: hrs/day24; days/wk7; wks/yr52	; if power plant, hrs/yr;
this application associated with or part of a Development of Regional Impact (DRI) pursuant of Chapter 22F-2, Florida Administrative Code?YesXNo ormal equipment operating time: hrs/day24; days/wk7; wks/yr52seasonal, describe:	; if power plant, hrs/yr;
this application associated with or part of a Development of Regional Impact (DRI) pursuant Chapter 22F-2, Florida Administrative Code?YesXNo ormal equipment operating time: hrs/day24; days/wk7; wks/yr52	; if power plant, hrs/yr;
this application associated with or part of a Development of Regional Impact (DRI) pursuant Chapter 22F-2, Florida Administrative Code?YesXNo permal equipment operating time: hrs/day24; days/wk7; wks/yr52 seasonal, describe:	; if power plant, hrs/yr;
this application associated with or part of a Development of Regional Impact (DRI) pursuant Chapter 22F-2, Florida Administrative Code?YesXNo primal equipment operating time: hrs/day24; days/wk7; wks/yr52 seasonal, describe:	; if power plant, hrs/yr;
this application associated with or part of a Development of Regional Impact (DRI) pursuant Chapter 22F-2, Florida Administrative Code?YesXNo primal equipment operating time: hrs/day24; days/wk7; wks/yr52 seasonal, describe:	; if power plant, hrs/yr;
this application associated with or part of a Development of Regional Impact (DRI) pursuant of Chapter: 22F-2, Florida Administrative Code? YesX No permal equipment operating time: hrs/day 24; days/wk 7; wks/yr 52 seasonal, describe: this is a new source or major modification, answer the following questions. (Yes.or No) Is this source in a non-attainment area for a particular pollutant?	; if power plant, hrs/yr;
this application associated with or part of a Development of Regional Impact (DRI) pursuant Chapter 22F-2, Florida Administrative Code?YesXNo ormal equipment operating time: hrs/day24; days/wk7; wks/yr52seasonal, describe: this is a new source or major modification, answer the following questions. (Yes.or No) 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?	; if power plant, hrs/yr;
this application associated with or part of a Development of Regional Impact (DRI) pursuant Chapter 22F-2, Florida Administrative Code?YesXNo ormal equipment operating time: hrs/day24; days/wk7; wks/yr52seasonal, describe: this is a new source or major modification, answer the following questions. (Yes or No) Is this source in a non-attainment area for a particular pollutant? a. If yes, has "offset" been applied?	; if power plant, hrs/yr;
this application associated with or part of a Development of Regional Impact (DRI) pursuant d Chapter: 22F-2, Florida Administrative Code? Yes X No ormal equipment operating time: hrs/day 24; days/wk 7; wks/yr 52 seasonal, describe: this is a new source or major modification, answer the following questions. (Yes or No) 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.	; if power plant, hrs/yr;
this application associated with or part of a Development of Regional Impact (DRI) pursuant Chapter 22F-2, Florida Administrative Code?YesXNo ormal-equipment operating time: hrs/day24; days/wk7; wks/yr52	; if power plant, hrs/yr;
this application associated with or part of a Development of Regional Impact (DRI) pursuant Chapter 22F-2, "Florida Administrative Code?YesXNo ormal-equipment operating time: hrs/day24; days/wk7; wks/yr52	; if power plant, hrs/yr;

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

Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contar	ninants	Utilization	
Description	Туре	% Wt	Rate - lbs/hr	Relate to Flow Diagram
				· ·
_				

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

1. Total Process Input Rate (lbs/hr): for each of four boilers - 90,000 lb/hr max (water-steam)

- 90,000 lb/hr max (steam) 2. Product Weight (lbs/hr): _

Airborne Contaminants Emitted: See attached Emission Calculations EACH boiler at 100×10^6 BTU/hr input

Name of	Em	ission ¹	Allowed Emission ²	Allowable ³	Potential E	mission ⁴	Relate
Contaminant	Maximum lbs/hr	n Actual T/yr	Rate per Ch. 17-2, F.A.C.	Emission lbs/hr	lbs/hr	T/yr	to Flow Diagram
Particulate	17.2	36.5	Use 17-2.05(6) Table I	10	17.2	75.4	1,2,3,4
Sulfur Dioxide	239	506	Source "E"(1)(b)	250	239	1046	
		172 Inc	1.a.* (per Mr. E.				
		x4 · 688#1	Balducci)				
Nitrogen Oxide	40.0	. 85	None specified		40.0	175	. ,

Control Devices: (See Section V, Item 4)

	Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles ⁵ Size Collected (in microns)	Basis for Efficiency (Sec. V, It ⁵
		_			
_					
				, =	

¹See Section V, Item 2.

* 0.1 1b particulate per 10⁶ BTU heat

input.

5If Applicable

DER FORM 17-1.122(16) Page 3 of 10

²Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table 11, E. (1), F.A.C. — 0.1 pounds per million BTU heat input)

³Calculated from operating rate and applicable standard

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

^{2.5 1}b SO_2 per 10^6 BTU heatlinput

T (D- C:5-)	Consu	mption*	Maximum Heat Input
Type (Be Specific)	avg/hr	max./hr	(MMBTU/hr)
No. 6 fuel oil	8 bb1	16 bb1	100 per boiler
			<u>.</u>
			- .

·	Units Natural Gas,	MMCF/hr; Fuel	Oils, barrels/hr;	Coal, lbs/hr				
ther Fuel Contaminants (which may cause air pollution): If applicable, indicate the percent of fuel used for space heating. Annual Average	2.	28 (nomina	al based on	2.5 lb	Percent Ash:	0.1 max		
ther Fuel Contaminants (which may cause air pollution): If applicable, indicate the percent of fuel used for space heating. Annual Average	ensity:8.	2 (nominal) S02/10°	BTU) Ibs/gal	Typical Percent	Nitrogen:		
If applicable, indicate the percent of fuel used for space heating. Annual Average	<u>.</u> .			5.T. 1.61	. 150	1 000 (nomin	۵1۱	OTU/t
If applicable, indicate the percent of fuel used for space heating. Annual Average	ther Fuel Contami	nants (which m	ay cause air pollu	tion):				
Indicate liquid or solid wastes generated and method of disposal. About 10 GPM of boiler blowdown is routed in the sanitary sewer system to the District No. 2 City Sewage Treatment Plant. Emission Stack Geometry and Flow Characteristics (Provide data for each stack): (same data for each of four Stack Height: 100 ft. Stack Diameter: 4.5 ft. Gas Flow Rate: 33,100 (est.) ACFM Gas Exit Temperature: 410 of. Water Vapor Content: 6.2 % Velocity: 35 FPS SECTION IV: INCINERATOR INFORMATION Type of Waste Type 0 (Plastics) (Rubbish) (Refuse) (Garbage) (Pathological) (Liq & Gas By-prod.) Secription of Waste Prod.)						· . ·	· · ·	•
About 10 GPM of boiler blowdown is routed in the sanitary sewer system to the District No. 2 City Sewage Treatment Plant. Emission Stack Geometry and Flow Characteristics (Provide data for each stack): (same data for each of four stack Height: 100 ft. Stack Diameter: 4.5 ft. Gas Flow Rate: 33,100 (est.) ACFM Gas Exit Temperature: 410 of. Water Vapor Content: 6.2 % Velocity: 35 FPS SECTION IV: INCINERATOR INFORMATION Type of Waste Type O (Plastics) (Rubbish) Type II (Refuse) (Garbage) (Pathological) Type V (Liq & Gas By-prod.) Lbs/hr Incinerated Rescription of Waste	. If applicable, i	indicate the per	cent of fuel used	for space heatin	ng.	erage	Maximum .	
Emission Stack Geometry and Flow Characteristics (Provide data for each stack): (Same data for each of four Stack Height: 100 ft. Stack Diameter: 4.5 ft. Gas Flow Rate: 33,100 (est.) ACFM Gas Exit Temperature: 410 oF. Water Vapor Content: 6.2 % Velocity: 35 FPS SECTION IV: INCINERATOR INFORMATION Type of Waste Type O (Plastics) (Rubbish) Type II (Refuse) (Garbage) (Pathological) (Liq & Gas By-prod.) Lbs/hr Incinerated escription of Waste	. Indicate liquid	or solid wastes	generated and m	ethod of dispos	al.	•		
Emission Stack Geometry and Flow Characteristics (Provide data for each stack): (same data for each of four S Stack Height: 100	About 10	GPM of bot	iler blowdov	<u>vn is route</u>	ed in the s	anitary sew	<u>er system i</u>	to the
Emission Stack Geometry and Flow Characteristics (Provide data for each stack): (same data for each of four S Stack Height: 100	District	No. 2 City	/ Sewage Tre	eatment Pla	ant.			
Stack Height: 100 ft. Stack Diameter: 4.5 ft. Gas Flow Rate: 33,100 (est.) ACFM Gas Exit Temperature: 410 of. Water Vapor Content: 6.2 % Velocity: 35 FPS SECTION IV: INCINERATOR INFORMATION Type of Waste Type O (Plastics) Type I (Refuse) Type III (Refuse) Type IV (Liq & Gas By-prod.) Solid By-prod.) Lbs/hr ncinerated escription of Waste escription of Waste Park III (Refuse) Refuse Refus			·		. '	•		
Stack Height: 100	Emissia & Stand	. Coomotav one	I Flow Characteri	etice /Drovide d	ata for oach stan	w (same da	ta for each	n of four s
Gas Flow Rate: 33,100 (est.) ACFM Gas Exit Temperature: 410 OF. Water Vapor Content: 6.2 % Velocity: 35 FPS SECTION IV: INCINERATOR INFORMATION Type of Waste Type O (Plastics) Type I (Rubbish) Type II (Refuse) Type II (Garbage) Type IV (Liq & Gas By-prod.) Lbs/hr Incinerated Rose Exit Temperature: 410 OF. Water Vapor Content: 50 Type V (Pathological) Type V (Liq & Gas By-prod.) Type O (Plastics) Type II (Refuse) (Garbage) Py-prod.)		•				•		
Water Vapor Content: 6.2 % Velocity: 35 FPS SECTION IV: INCINERATOR INFORMATION Type of Waste Type O (Plastics) Type I (Rubbish) Type II (Refuse) Type II (Garbage) Type IV (Liq & Gas By-prod.) Lbs/hr Incinerated Rescription of Waste				f.	Ca-al- Dia			
SECTION IV: INCINERATOR INFORMATION Type of Waste Type O (Plastics) (Rubbish) Type !1 (Garbage) Type IV (Liq & Gas By-prod.) Lbs/hr Incinerated Pescription of Waste	_	-						
Type of Waste Type O (Plastics) Type I (Refuse) Type III (Garbage) Type IV (Liq & Gas By-prod.) Type V (Liq & Gas By-prod.) Solid By-prod.) Escription of Waste	Gas Flow Rat	e: <u>33,100</u>	(est.)	ACFM	Gas Exit Tempe	erature: 410		of.
Type of Waste Type O (Plastics) Type I (Refuse) Type III (Garbage) Type IV (Liq & Gas By-prod.) Type V (Liq & Gas By-prod.) Solid By-prod.) Escription of Waste	Gas Flow Rat	e: <u>33,100</u>	(est.)	ACFM	Gas Exit Tempe	erature: 410		of.
Type of Waste Type O (Plastics) Type I (Refuse) Type III (Garbage) Type IV (Liq & Gas By-prod.) Type V (Liq & Gas By-prod.) Sescription of Waste	Gas Flow Rat	e: <u>33,100</u>	(est.)	ACFM	Gas Exit Tempe	erature: 410		of.
Type of Waste (Plastics) (Rubbish) (Refuse) (Garbage) (Pathological) (Liq & Gas By-prod.) Lbs/hr Incinerated (Pastics) (Pastics) (Pathological) (Liq & Gas By-prod.)	Gas Flow Rat	e: <u>33,100</u>	(est.)	ACFM	Gas Exit Tempe	erature: 410		of.
Type of Waste (Plastics) (Rubbish) (Refuse) (Garbage) (Pathological) (Liq & Gas By-prod.) Lbs/hr Incinerated (Pastics) (Pastics) (Pathological) (Liq & Gas By-prod.)	Gas Flow Rat	e: <u>33,100</u>	(est.) .2	ACFM %	Gas Exit Tempor	erature: <u>410</u> 35		of.
Description of Waste	Gas Flow Rat	e: <u>33,100</u>	(est.) .2	ACFM %	Gas Exit Tempor	erature: <u>410</u> 35		of.
Description of Waste	Gas Flow Rat	e: 33,100 Content: 6	(est.) .2 SECTION	ACFM % IV: INCINER	Gas Exit Tempo Velocity: ATOR INFORM	35 IATION Type IV	Type V (Liq & Gas	Type VI
Fotal Weight Incinerated (lbs/hr) Design Capacity (lbs/hr)	Gas Flow Rat Water Vapor C	e: 33,100 Content: 6	(est.) .2 SECTION	ACFM % IV: INCINER	Gas Exit Tempo Velocity: ATOR INFORM	35 IATION Type IV	Type V (Liq & Gas	Type VI
	Gas Flow Rat Water Vapor C Type of Waste Lbs/hr Incinerated	e: 33,100 Content: 6 Type O (Plastics)	(est.) .2 SECTION Type I (Rubbish)	ACFM % IV: INCINER Type !! (Refuse)	Gas Exit Tempo Velocity: ATOR INFORM Type III (Garbage)	35 IATION Type IV	Type V (Liq & Gas	Type VI

_____ Model No. __

Manufacturer ___

Date Constructed _____

Fue	

Tues (Pa Sacrifia)	Consu	mption*	Maximum Heat Input
Type (Be Specific)	avg/hr	max./hr	(MMBTU/hr)
No. 6 fuel oil	8 bb1	16 bb1	100 per boiler
		·	
			•.

Units Natural Gas,	MMCF/hr; Fuel	Oils, barrels/hr; (Coal, Ibs/hr				
Fuel Analysis: Percent Sulfur: 2 Density: 8 Heat Capacity:			BTU/Ib	150	0.1 max Nitrogen: 0,000 (nomin	al)	BTU/gai
··						; ·	
3. Indicate liquion About 10	d or solid wastes GPM of bot	generated and m	ethod of dispos vn is rout	ed in the s	anitary sew		to the
							h of four stac
Gas Flow Ra	te: <u>33,100</u>	(est.)	ACFM	Gas Exit Tempe	erature: <u>410</u> 35		o _F
Gas Flow Ra	te: <u>33,100</u>	(est.) .2	ACFM	Gas Exit Tempe	35		o _F
Gas Flow Ra	te: <u>33,100</u>	(est.) .2	ACFM	Gas Exit Tempor	35		o _F
Gas Flow Ra Water Vapor	te: 33,100 Content: 6.	(est.) .2 SECTION	ACFM % IV: INCINER Type II	Gas Exit Temporal Velocity: ATOR INFORM Type III	.35 ATION Type IV	Type V (Liq & Gas	Type V!
Gas Flow Ra Water Vapor	Type O (Plastics)	(est.) 2 SECTION Type I (Rubbish)	ACFM % IV: INCINER Type II (Refuse)	Gas Exit Tempor Velocity: ATOR INFORM Type III (Garbage)	ATION Type IV (Pathological)	Type V (Liq & Gas	Type V!
Gas Flow Ra Water Vapor Type of Waste Lbs/hr Incinerated Description of Wast	Type O (Plastics)	(est.) 2 SECTION Type I (Rubbish)	ACFM % IV: INCINER Type !! (Refuse)	Gas Exit Tempe Velocity: ATOR INFORM Type III (Garbage)	. 35 IATION Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By prod.)
Gas Flow Ra Water Vapor Type of Waste Lbs/hr Incinerated Description of Waste otal Weight Incine	Type O (Plastics) erated (lbs/hr)	(est.) 2 SECTION Type I (Rubbish)	ACFM % IV: INCINER Type II (Refuse)	Gas Exit Tempor Velocity: ATOR INFORM Type III (Garbage) Design Capacity	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type V! (Solid By-prod.)
Gas Flow Ra Water Vapor Type of Waste	Type O (Plastics) e rated (lbs/hr) per of Hours of ((est.) 2 SECTION Type I (Rubbish)	ACFM % IV: INCINER Type II (Refuse)	Gas Exit Tempor Velocity: ATOR INFORM Type III (Garbage) Design Capacity	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type V! (Solid By-prod.)

	Volume	Heat Release		Fuel .	Temperature
	(ft)3	(BTU/hr)	Туре	BTU/hr	(oF)
Primary Chamber	'				
Secondary Chamber					
Stack Height:		ft. Stack Diameter		Stack Temp)
Gas Flow Rate:		ACFM		DSCFM* Velocity _	
					dry gas corrected to 50% ex-
Type of pollution control	device: [] Cy	yclone [] Wet Scru	bber [] Afterbi	urner [] Other (speci	ify)
					
				· · · · · · · · · · · · · · · · · · ·	
Ultimate disposal of any e					
Orthinate disposar or any e	THOUSE CHE	on that entitled from the	ne stack (scrubber	water, ash, etc.):	
<u> </u>					
		<u>.</u>	-,		· · · · · · · · · · · · · · · · · · ·
				· · · · · · · · · · · · · · · · · · ·	<u> </u>
	·				· · · · · · · · · · · · · · · · · · ·

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

- 1. Total process input rate and product weight show derivation.
- 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.
- 3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
- 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, etc.).
- 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).
- 6. An 8½" 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.
- An 8½" 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).
- 8. An 8%" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

- 9. An application fee of \$20, unless exempted by Section 17-4.05(3), F.A.C. 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

Contaminant	Rate or Concentration
	
•	
las EPA declared the best available control tec	hnology for this class of sources (If yes, attach copy) [] Yes [] No
Contaminant	Rate or Concentration
·	
What emission levels do you propose as best ava	ailable control technology?
Contaminant	Rate or Concentration
	
	•
· · · · · · · · · · · · · · · · · · ·	
Describe the existing control and treatment tec	chnology (if any).
1. Control Device/System:	
2. Operating Principles:	
3. Efficiency:*	4. Capital Costs:
5. Useful Life:	6. Operating Costs:
7. Energy:	8. Maintenance Cost:
9. Emissions:	
Contaminant	Rate or Concentration
	,

^{*}Explain method of determining D 3 above.

- 9. An application fee of \$20, unless exempted by Section 17-4.05(3), F.A.C. 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

Contaminant	Rate or Concentration
•	technology for this class of sources (If yes, attach copy) [] Yes [] No
Contaminant	Rate or Concentration
Vhat emission levels do you propose as best	
Contaminant	Rate or Concentration
	*
Describe the existing control and treatment 1. Control Device/System:	
Describe the existing control and treatment 1. Control Device/System: 2. Operating Principles:	
Describe the existing control and treatment 1. Control Device/System:	technology (if any).
Describe the existing control and treatment 1. Control Device/System: 2. Operating Principles: 3. Efficiency: **	technology (if any). 4. Capital Costs:
Describe the existing control and treatment 1. Control Device/System: 2. Operating Principles: 3. Efficiency: 5. Useful Life: 7. Energy:	technology (if any). 4. Capital Costs: 6. Operating Costs:
Describe the existing control and treatment 1. Control Device/System: 2. Operating Principles: 3. Efficiency: 5. Useful Life:	technology (if any). 4. Capital Costs: 6. Operating Costs:
Describe the existing control and treatment 1. Control Device/System: 2. Operating Principles: 3. Efficiency: 5. Useful Life: 7. Energy: 9. Emissions:	technology (if any). 4. Capital Costs: 6. Operating Costs: 8. Maintenance Cost:

^{*}Explain method of determining D 3 above.

	10. Sta	ack Parameters				•				
	a.	Height:	ft.	Ь.	Diameter:					
	C.	Flow Rate:	ACFM	d.	Temperature:					
	e.	Velocity:	FPS			·				
Ē. [Describe the control and treatment technology available (As many types as applicable, use additional pages if ne									
1	١.									
	a.	Control Device:	•							
	b,	Operating Principles:								
		•								
	C.	Efficiency*:		d.	Capital Cost:					
	e.	Useful Life:		f.	Operating Cost:					
	g.	Energy *:		h.	Maintenance Cost:					
	i.	Availability of construction mat	erials and process ch	emic	als:					
	j.	Applicability to manufacturing p								
	k.	Ability to construct with contro	l device, install in av	ailab	le space, and operate within	proposed levels:				
	_				,					
	2.				•	-				
	a.	Control Device:								
	b.	Operating Principles:	•	-	•	* * * * * * * * * * * * * * * * * * * *				
	_	Efficiency 9								
	C.	Efficiency*:		d.	Capital Cost:					
	e. -	Useful Life:		f.	Operating Cost:					
	g. :	Energy **:		h.	Maintenance Costs:					
	i.	Availability of construction mate	31 5 :	••						
•	J.	Applicability to manufacturing p	rocesses:							
	k.	Ability to construct with control	l device, install in av	dalia	e space, and operate within	proposed levels:				
-					•	•				
*Expl	lain me	thod of determining efficiency.				·				
*Ener	gy to l	pe reported in units of electrical po	ower – KWH design	rate.						
	3.									
	a.	Control Device:								
	b.	Operating Principles:								
			•		·					
	C.	Efficiency*:		d.	Capital Cost:					
•	€,	Life:		f.	Operating Cost:	•				
	g.	Energy:		h.	Maintenance Cost:	i				

۹0

^{*}Explain method of determining efficiency above.

		i.	Availa	ibility of construction materials and pi	rocess chemic	als:
		j	Appli	cability to manufacturing processes:		
	le space and operate within proposed levels:					
	4.					
		a.	Contr	ol Device		
		b .	Opera	iting Principles:		
		c.	Effici	ency*:	d.	Capital Cost:
		e.	Life:		f.	Operating Cost:
		g.	Energ	y:	h.	Maintenance Cost:
		i	Availa	ability of construction materials and p	rocess chemic	als:
		•		cability to manufacturing processes:	•	,
		k.	Abilit	ty to construct with control device, ins	itall in availab	le space, and operate within proposed levels:
	Des	cribe	the co	ontrol technology selected:		•
	1.	Cont	trol D	evice:		
	2.	Effic	eiency	r * :	3.	Capital Cost:
	4.	Life	:		5.	Operating Cost:
	6.	Ener	gy:		7.	Maintenance Cost:
	8.	Man	ufactı	urer:		
	9.	Othe	er loca	ations where employed on similar proc	esses:	
		a.				
			(1)	Company:		
			(2)	Mailing Address:		,
			(3)-	City:	(4)	State:
			(5)	Environmental Manager:		
			(6)	Telephone No.:		
•E	xplai	n met	hod o	of determining efficiency above.		
			(7)	Emissions*:		
				Contaminant		Rate or Concentration
	_			·		
	_					
			(8)	Process Rate*:		
		Ь.				
			(1)	Company:		
			(2)	Mailing Address:		
			(3)	City:	(4)) State:
' Ar	plica	nt mi	ust pr		. Should this	information not be available, applicant must state the reason(s

F.

	j.	Applicability to manufacturing processes:							
	 k. Ability to construct with control device, install in available space and operate within proposed levels: 4. 								
4.									
	a. Control Device					•			
-	ъ.	Oper	rating Principles:						
	C.	Effic	ciency*:		d.	Capital Cost:			
	e.	Life:	;		f.	Operating Cost:			
	g.	Ener	gy:		h.	Maintenance Cost:			
	i.	Avai	lability of construction mater	ials and process che	emic	els:			
	j.	App	licability to manufacturing pr	ocesses:		•			
	k.	Abili	ity to construct with control	device, install in ava	ailab	le space, and operate within proposed levels:			
F. De	scribe	the c	control technology selected:			•			
1.	Соп	trol [Device:						
2.	Effi	cienc	y*:		3.	Capital Cost:			
-4,	Life	: :			5.	Operating Cost:			
6.	Ene	Energy:			7.	Maintenance Cost:			
8.	Mar	nufaci	turer:	·					
9.	Oth	ther locations where employed on similar processes:							
	a.								
		(1)	Company:						
		(2)	Mailing Address:						
		(3)	City:		(4)	State:			
		(5)	Environmental Manager:						
		(6)	Telephone No.:						
*Explai	n me	thod	of determining efficiency abo	ve.					
		(7)	Emissions*:						
			Contaminant			Rate or Concentration			
					_				
_						· · · · · · · · · · · · · · · · · · ·			
		(8)	Process Rate*:						
	b.								
		(1)	Company:						
		(2)	Mailing Address:						
		(3)	City:		(4)	State:			
*Applica why.	int m	ust pi	rovide this information when	available. Should	this i	nformation not be available, applicant must state the reason(s)			

i. Availability of construction materials and process chemicals:

(5)	Environmental Manager:	
(6)	Telephone No.:	
(7)	Emissions*:	
	Contaminant	Rate or Concentration
	·	
(8)	Process Rate*:	
	the state of the state of the state of	

^{10.} Reason for selection and description of systems:

^{*}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

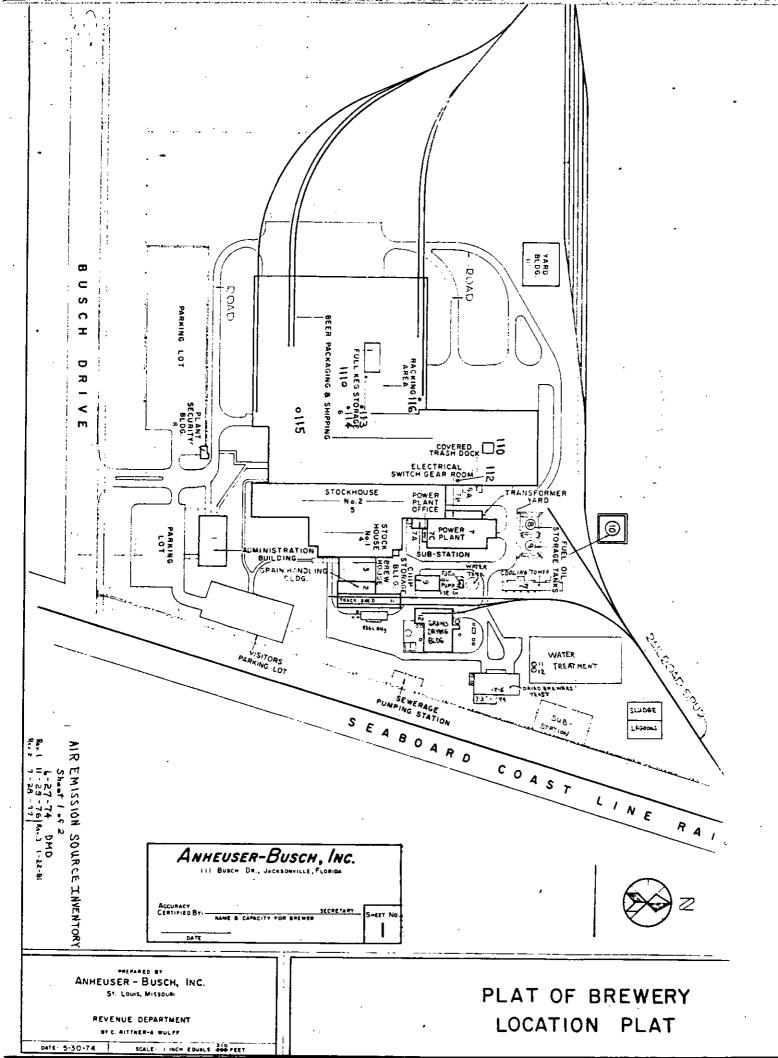
A.	Company Monitored Data	•
	1 no sites TSP	· · · · · · · · · · · · · · · · · · ·
	•	,
	Other data recorded	
•	Attach all data or statistical summaries to this applica	tion.
	2. Instrumentation, Field and Laboratory	
	a) Was instrumentation EPA referenced or its equi	valent? Yes No
	b) Was instrumentation calibrated in accordance w	rith Department procedures? Yes No Unknown
B.	Meteorological Data Used for Air Quality Modeling	
	1 Year(s) of data from/ / month_day_year	to / /
	• •	menti day yeu
	3. Upper air (mixing height) data obtained from (location	n)
÷	4. Stability wind rose (STAR) data obtained from (locat	tion)
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 UTM coordinates, stack data, allowable emissions, and n	is source name, description on point source (on NEDS point number), ormal operating time.
F.	Attach all other information supportive to the PSD review	w.
*Spe	ecify bubbler (B) or continuous (C).	
G.	Discuss the social and economic impact of the selected duction, taxes, energy, etc.). Include assessment of the e	technology versus other applicable technologies (i.e., jobs, payroll, pro- nvironmental impact of the sources.

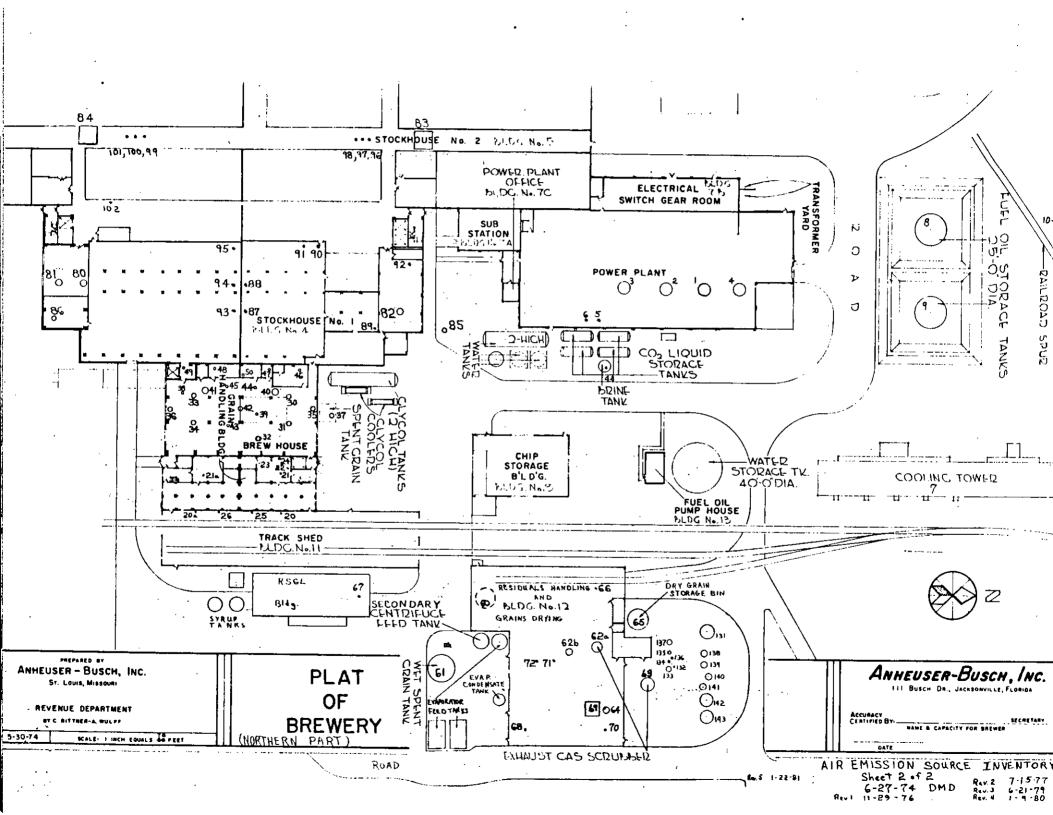
H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

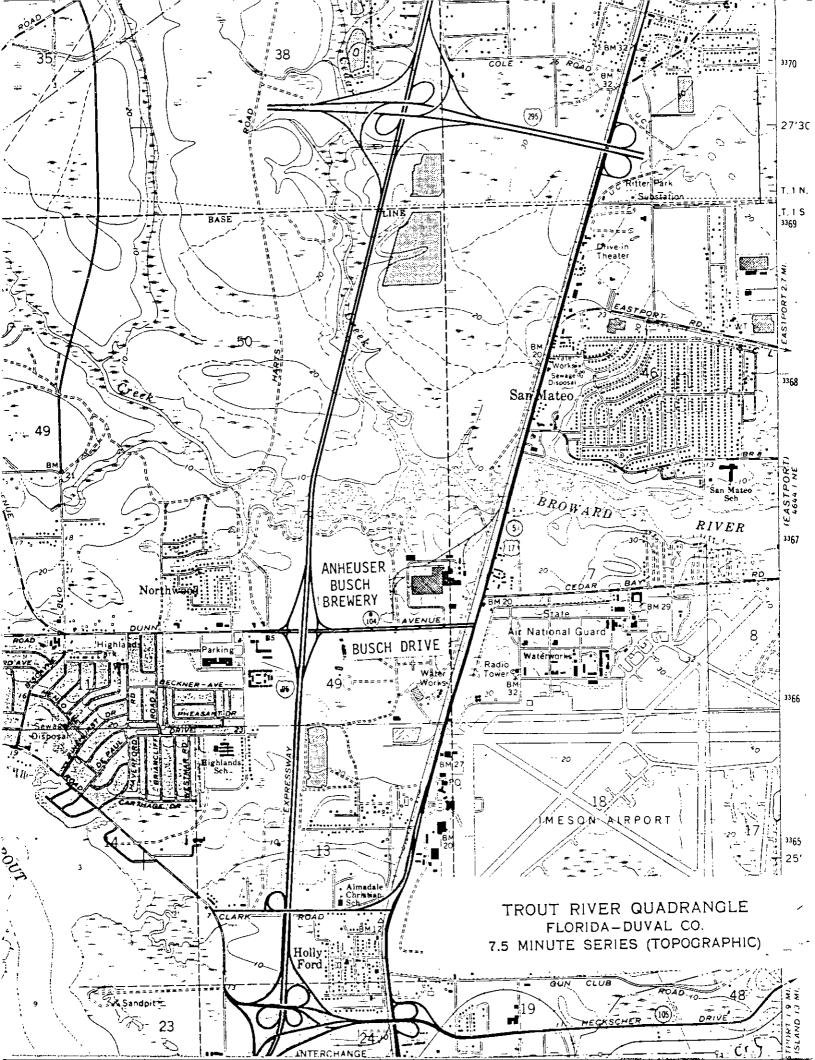
SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

A.	Company Monitored Data		·	
	1 no sites TS	SP	(so ² *	Wind spd/dir
	Period of monitoring / month d	/ tay year	month day year	
	Other data recorded	 	·· - · · · · · · · · · · · · · · 	
	Attach all data or statistical summaries to	this application.		
	2. Instrumentation, Field and Laboratory			
	a) Was instrumentation EPA referenced	d or its equivaler	nt? Yes No	•
	b) Was instrumentation calibrated in ac	cordance with [Department procedures?	Yes No Unknown
В.	Meteorological Data Used for Air Quality Mo	aeling		
	1 Year(s) of data from/ month d	t	0//	
	2. Surface data obtained from (location)			
	3. Upper air (mixing height) data obtained fr	om (location) _	<u> </u>	
-	4. Stability wind rose (STAR) data obtained	from (location)		
3.	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, rec	eptor locations, and principl	e output tables.
D.	Applicants Maximum Allowable Emission Da	ta		
	Pollutant		Emission Ra	ate
	TSP	_	<u></u>	grams/sec
	so ²	_		grams/sec
Ē.	Emission Data Used in Modeling			
	Attach fist of emission sources. Emission da UTM coordinates, stack data, allowable emiss	ta required is so sions, and norma	ource name, description on al operating time.	point source (on NEDS point number),
F.	Attach all other information supportive to th	e PSD review.		
Spe	cify bubbler (B) or continuous (C).			
3 .	Discuss the social and economic impact of t duction, taxes, energy, etc.). Include assessment	he selected techent of the enviro	nnology versus other application	able technologies (i.e., jobs, payroll, proces.
	•			·

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.







	·		
•			
	•		

ANHEUSER-BUSCH, INC. JACKSONVILLE BREWERY EMISSION CALCULATIONS PER BOILER

(Section III C and E)

I. Section IIIC and E

A. Emission Factors

From AP-42, 3rd. Ed. Table 1.3-1 For Industrial Residual Oil. Here S equals the percent by weight of sulfur in the oil.

<u>Pollutant</u>	Emission 1b/1000 gal	Emission With 2.28% S oil, 1b/1000 gal
Particulate	10(S) + 3	25.8
Sulfur Dioxide	157(S)	358.0
Nitrogen Oxides	60	60.0
Carbon Monoxide	5	5.0
Hydrocarbons	1	1.0

B. Sulfur Limit of Oil

 SO_2 emissions limited to 2.5 lb $SO_2/10^6$ BTU input. This equates to:

$$\frac{2.5 \text{ 1b SO}_2}{10^6 \text{ BTU}} \times \frac{.15 \times 10^6 \text{ BTU}}{\text{gal oil}} \times \frac{\text{gal oil}}{8.2 \text{ 1b oil}} \times \frac{1 \text{b S}}{2 \text{ 1b SO}_2} = 0.02287 \frac{1 \text{b S}}{1 \text{b oil}} \text{ or } 2.28\% \text{ S}$$

C. Maximum Oil Usage

Bases: 100×10^6 BTU/hr max. input per boiler and 150,000 BTU/gal for No. 6 fuel oil.

$$\frac{100 \times 10^6 \text{ BTU}}{\text{hr}} \times \frac{\text{gal}}{0.15 \times 10^6 \text{ BTU}} = 667 \text{ gal/hr}.$$

D. Maximum Emissions

E. Actual Annual Emissions

Bases: 2,828,000 gallons of No. 6 fuel oil used in boiler No. 1 in 1979.

(Emission Factor) x (0il Used) x
$$\left(\frac{1 \text{ ton}}{2000 \text{ lb}}\right)$$
 = Actual Emissions (1b/1000 gal) x (2,828 x 1000 gal)x $\left(\frac{1}{2000}\right)$

Particulate 25.8 x (2,828/2000) = 36.5 tons/yr
S0₂ 358.0 x (1.414) = 506 tons/yr
N0_x 60.0 x (1.414) = 84.8 tons/yr

F. Potential Emissions

- 1. Hourly Potential Emissions equal hourly Maximum Emissions (Par. D) as there are no additional emission control devices on the boilers.
- 2. Annual Potential Emissions assume continuous operation or 8760 hr/yr.

G. Allowable Emissions

Chapter 17-2.05(6) Table II Source E(2) states "apply latest technology" for particulate, sulfur dioxide, and nitrogen oxides. For plant locality per Mr. Ed Balducci on 4/22/80, we are to use limits of 0.1 lb. particulate and 2.5 lb $\rm SO_2$ per $\rm 10^6$ BTU input over a 2-hr average. No limit is specified for $\rm NO_X$. From application, each boiler has input capacity of $\rm 100 \times 10^6$ BTU/hr.

(Emission Limit) x (Input Capacity) = Allowable Emissions (1b/10⁶ BTU) x (100 x 10⁶ BTU/hr) = 10 1b/hr

Particulate 0.1 x (100) = 10 1b/hr

S0₂ 2.5 x (100) = 250 1b/hr

II. Section III H

Percent water in flue gases

Reference: Steam, Its Generation and Use by Babcock and Wilcox Co. 37th Ed., 1963. Chapter 4, Table 5 (page 4 - 9).

For fuel oil per 10,000 BTU as fired.

Theoretical dry air -- 7.46 lb

Fuel -- 0.54 lb

Resulting Moisture -- 0.51 lb

Incoming moisture $\,$ -- 0.0132 1b $\rm H_2O/1b$ dry air 0 60% RH and 80° F. (wet air)

At 120 % of theoretical air (20% excess)

Total dry air -- 1.2(7.46) = 8.95 1b

Incoming $H_2O -- 1.2(7.46)(0.0132) = 0.12 \text{ lb}$

Thus, in flue gases

Total water --
$$0.12 + 0.51$$
 = $0.63 \ 1b$

Total gases --
$$0.63 + 8.95 + 0.54 = 10.12 \text{ lb}$$

So, water in flue gases --
$$\frac{0.63}{10.12}$$
 (100%) = 6.2%

11/08/80. 16.36.17. LIST OF RESULTS

1PLANT NAME: AB JACKSONVILLE BREWERY > POLLUTANT: SO2
THIS RUN COMBINES ALL 4 BOILER STACKS INTO A SINGLE SOURCE EMISSION UNITS: GM/SEC AIR QUALITY UNITS: GM/M**3

MET FILE REQUESTED STN NO. YR 13889 70 13861 70 STN NO. YR SURFACE 13889 70 13861 70 UPPER AIR FLANT LOCATION: RURAL

NO TAPE OUTPUT

34 35

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

TET DATA WILL NOT BE PRINTED

TGY-- 1111111111 1111111111 1 1 1 1 1 1 1 1 1 1 1111111111 1111111111 1111111111 1111111111 1 1 1 1 1 1 1 1 1 1 1111111111 1111111111 1111111111 1111111111 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

* * * * * * * NOTE * * * * * * *

ALL TABLES, INCLUDING SOURCE CONTRIBUTION, THAT CONTAIN -ANNUAL- IN THE HEADING ARE BASED ONLY ON THOSE I DAYS MARKED BY [1] IN THE ABOVE TABLE

RING DISTANCES(KM)= .40 . 60 .80 1.00 1.20

"LANT ELEVATION (FEET ABOVE SEA LEVEL) --0.0 PLANT ELEVATION (METERS ABOVE SEA LEVEL) --

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

RECEPT	DR ELEVAT	IONS (FEET	ABOVE SE	A LEVEL)		RECEPTOR ELEVAT	IONS (MET	ERS ABOVE	SEA LEVEL	_)
THRECTION	RING"1	RING"2	RING"3	RING"4	RING"5	RING"1	RING"2	RING"3	RING"4	RING"5
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	o.o
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0			0:0			- 0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ŏ.ŏ
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ŏ.ŏ
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ō.ŏ
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
· 3 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34	0.0	0.0	0.0	~ ~	^ ^					4.0

STACK " 1-- COMBINED BOILER STACK

STACK MONTH

EMISSION RATE (GMS/SEC)

HEIGHT (METERS) DIAMETER EXIT VELOCITY (METERS)

(M/SEC)

TEMP (DEG.K) VOLUMETRIC FLOW (M##3/SEC)

ALL

126,0000

30.50

10.60 483.00 15.63

PLANT NAME: AB JACKSONVILLE BREWERY

30.50 1.37 10.60 483.00 POLLUTANT; SO2 EMISSION UNITS: GM/SEC

AIR QUALITY UNITS: GM/M**3

MAX HOURLY

24-HOUR

◆TRM#

RATIO

CONCENTRATION DIRECTION DISTANCE(KM) HOUR CONCENTRATION DIRECTION DISTANCE(K

√⊼ĐY**÷** 8F - 540

YEARLY MAXIMUM 24-HOUR CONC= 2.1508E-04 DIRECTION= 5 DISTANCE= 1.2 KM DA -y = 223

*RDY*****

≨F,584

YEARLY SECOND MAXIMUM 24-HOUR CONC= 2.0302E-04 DIRECTION= 5 DISTANCE= 1.0 + KM DAY= 79 *RDY*

DAJ 79 = 22 Hns. M = 3

YEARLY MAXIMUM 3-HOUR CONC= 6.9294E-04 DIRECTION= 31 DISTANCE= .6 KM + DAY=163 TIME PERIOD= 5

RDY

\$F,672

YEARLY SECOND MAXIMUM 3-HOUR CONC= 5.5427E-04 DIRECTION= 31 DISTANCE= + .8 KM DAY=202 TIME PERIOD= 4 *RDY*

UNS RESULTS

SU-B =

12.4

#RDY# BYE UT CT = 01.03 SU-B KCH = 45 A541001 LOG OFF. 16,43,41.

SECTION II: GENERAL PROJECT INFORMATION Rev. 1, 4/14/81

formance as a result of installation. State whether the project will result in full compliance.	
This construction will extend the height of each boiler s	tack from 52.5 ft to
100 ft. The 4 identical boilers are Babcock and Wilcox Co	
(National Board No. 22857, 22856, 22855 and 23814). Mode	
higher stacks will allow the operation of all 4 boilers a	
	capacity) without violat
Start of Construction July 1, 1981 Completion of Construction	ne Florida SO2 ambient a Aug. 31,1981 quality
Costs of pollution control system(s): (Note: Show breakdown of estimated costs only fo project serving pollution control purposes. Information on actual costs shall be furnished permit.)	Standari standaridus de standaridus de standaridus de standaridus de standaridus de standaridus de standaridus de standar
Extending boiler stacks from the present height of 52.5 f	t to 100 ft \$130,000
Indicate any previous DER permits, orders and notices associated with the emission point, it is not at the second of the second	
A016-2435, -2436, and -2437 expired 6/30/80. Renewal requ	
SO ₂ modeling evaluation. Renewals to be withdrawn at the	time of this
application. A016-12824 expires 8/31/83.	
	nt to Chapter 380, Florida Statutes,
Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52	; if power plant, hrs/yr;
Normal equipment operating time: hrs/day <u>24</u> ; days/wk <u>7</u> ; wks/yr <u>52</u> f seasonal, describe:	; if power plant, hrs/yr;
Normal equipment operating time: hrs/day 24; days/wk 7; wks/yr 52 f seasonal, describe: f this is a new source or major modification, answer the following questions. (Yes or No)	; if power plant, hrs/yr;
Normal equipment operating time: hrs/day 24; days/wk 7; wks/yr 52 f seasonal, describe: f this is a new source or major modification, answer the following questions. (Yes or No) . Is this source in a non-attainment area for a particular pollutant?	; if power plant, hrs/yr;
Normal equipment operating time: hrs/day 24; days/wk 7; wks/yr 52 f seasonal, describe: f this is a new source or major modification, answer the following questions. (Yes or No) Is this source in a non-attainment area for a particular pollutant? a. If yes, has "offset" been applied?	; if power plant, hrs/yr;
f seasonal, describe: f this is a new source or major modification, answer the following questions. (Yes or No) 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?	; if power plant, hrs/yr;
f seasonal, describe: f this is a new source or major modification, answer the following questions. (Yes or No) Is this source in a non-attainment area for a particular pollutant? a. If yes, has "offset" been applied?	; if power plant, hrs/yr;
Normal equipment operating time: hrs/day 24; days/wk 7; wks/yr 52 f seasonal, describe: f this is a new source or major modification, answer the following questions. (Yes or No) 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.	; if power plant, hrs/yr;
f seasonal, describe: f this is a new source or major modification, answer the following questions. (Yes or No) 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. C. Does best available control technology (BACT) apply to this source? If yes, see Section VI.	; if power plant, hrs/yr;
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 V1. 3. Does the State "Prevention of Significant Deterioriation" (PSD) requirements	No No

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be

considered questionable.

DER FORM 17-1.122(16) Page 2 of 10

- 9. An application fee of \$20, unless exempted by Section 17-4.05(3), F.A.C. 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 Rev. 1, 4/14/81

Contaminant	Rate or Concentration	
Has EPA declared the best available control te Contaminant	hnology for this class of sources (If yes, attach copy) [] Yes [(X] No Rate or Concentration	
What emission levels do you propose as best a Contaminant	ilable control technology? Rate or Concentration	
Sulfur dioxide	250 lb/hr/boiler or 1000 lb/hr (maximum	<u>n</u> r
Describe the existing control and treatment te 1. Control Device/System: None 2. Operating Principles:	inology (if any).	
·	anology (if any). 4. Capital Costs:	
Control Device/System: None Operating Principles:		
 Control Device/System: None Operating Principles: Efficiency: * 	4. Capital Costs:	
 Control Device/System: None Operating Principles: Efficiency: * Useful Life: 	4. Capital Costs: 6. Operating Costs:	
 Control Device/System: None Operating Principles: Efficiency: * Useful Life: Energy: 	4. Capital Costs: 6. Operating Costs:	

^{*}Explain method of determining D 3 above.

	Volume	Heat Release	<u> </u>	Fuel	Temperature	
	(ft)3	(BTU/hr)	Туре	BTU/hr	(OF)	
Primary Chamber						
Secondary Chamber						
Stack Height:		ft. Stack Diameter _		Stack Temp		
Gas Flow Rate:		ACFM		_ DSCFM* Velocity	FPS	
					dry gas corrected to 50% ex-	
Type of pollution control	device: [] Cy	/clone [] Wet Scrub	ber [] Afterbu	rner [] Other (eneci	fy)	
Brief description of operat						
·						
				<u> </u>		
			·		<u> </u>	
		<u> </u>				
Ultimate disposal of any e	ffluent other tha	in that emitted from the	e stack (scrubber v	water, ash, etc.):		
				•		
				···· <u>-</u>		

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

- 1. Total process input rate and product weight show derivation.
- 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.
- 3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
- 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, etc.).
- 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).
- An 8½" 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.
- An 8%" 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).
- 8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

					Rev. 1,	4/14/81
	10. S	tack Parameters At input of 66.1 x 106	BTL	J/hr (100 x 10 ⁶ BTU/hr	r)	
				. Diameter:	•	4.5 ft.
	C.	01 000 (00 too)				10) ° F
	e.	Velocity: 22 (35) FF	S		•	•
E.	Descri	be the control and treatment technology available (/	As mar	ny types as applicable, use additio	onal pages if necessary	r) .
	1.					
	a.	The state of the s				
	b.	()	till of	l less than GEP) will SO ₂ at ground level.	give	3.5 ft.
	C.	Efficiency*: NA (not applicable)	d.	Capital Cost: \$130,000	(est.)	
	e.	Useful Life: 20 years	f.	Operating Cost: ~ \$ 0	•	
	g.	Energy*: ~ \$ 0	h.	Maintenance Cost: none		
	i.	Availability of construction materials มิติต์สุดภาพยะเล	inetto:	comex stack materials	are available	
	j.	Applicability to manufacturing processes: NA				
	k.	Ability to construct with control device, install in	availal	ble space, and operate within pro	posed levels:	
	_	There is adequate space and su	ppor	t to install 100 ft.	stacks.	
	2.	a company and automorphisms				•
	1 .	Control Device: Lower oil sulfur cont				
	b.	Operating Principles: The SO ₂ emission directly proportional to the su	s fr lfur	om the firing of No. content of the oil.	6 fuel oil are	<u> </u>
	C.	Efficiency*: 33% (2.28 - 1.5) 100	d.	Capital Cost: None		
*	€.	Useful Life: NA 2.28	f.	Operating Cost: Est. \$30	0,000/yr (curr	ent prices
	g.	Energy**: None		Maintenance Costs: None		
	i.	Availability of construction materials and process is available in the Jacksonvill	chemic e ar	cals: No. 6 fuel oil wi ea.	th a 1.5% sulf	ur content
	j.	Applicability to manufacturing processes: NA				
	k.	Ability to construct with control device, install in	evallat	ple space, and operate within proj	posed levels: NA	
*Exp	lain me	ethod of determining efficiency.				
		be reported in units of electrical power — KWH design	ın rate			
	3.		•			
	8.	Control Device:				
	b.	Operating Principles:				
	C.	Efficiency*:	d.	Capital Cost:		

f. Operating Cost:

h. Maintenance Cost:

e. Life:

g. Energy:

^{*}Explain method of determining efficiency above.

	i.	Ava	ilability of construction ma	terials and process ch	emic	als:
	j.	App	olicability to manufacturing	Drocesses:		ı
	k.		•		ailab	le space and operate within proposed levels:
	4.			o. 307.00, mater m. av	2	· · · · · · · · · · · · · · · · · · ·
	a.	Con	trol Device			
	ъ.	Ope	rating Principles:			
	c.	Effi	ciency*:		d.	Capital Cost:
	e.	Life	:		f.	Operating Cost:
	g.	Ene	rgy:		h.	Maintenance Cost:
	i.	Ava	ilability of construction ma	terials and process ch	emic	als:
	j.	Арр	licability to manufacturing	processes:		T.
	k.	Abil	ity to construct with contro	ol device, install in av	eilab	le space, and operate within proposed levels:
F.	Describ	e the	control technology selected	l:		
	1. Co	ntrol	Device: Increasing b	oiler stack he	eig	nt to 100 ft. and decreasing outlet diameter
	2. Eff	iciend	: y* : NA		3.	Capital Cost: \$130,000 (est.) to 3.5 ft.
	4. Life	e: 2	20 years		5.	Operating Cost:
	6. En	ergy:	∼ \$ 0		7.	Maintenance Cost: None
	8. Ma	nufac	turer: Custom built			
	9. Oth a.	er loca	cations where employed on ations which have	similar processes: Tincreased stac	ſhe :k ∤	Corporation is not familiar with other neights specifically to meet ambient standards.
		(1)	Company:			
		(2)	Mailing Address:			
		(3)	City:		(4)	State:
		(5)	Environmental Manager:			
		(6)	Telephone No.:			
*Ex	plain me	thod	of determining efficiency al	bove.		
		(7)	Emissions*:			•
			Contaminant			Rate or Concentration
			· · · · · · · · · · · · · · · · · · ·			
		(8)	Process Rate*:			
	b.	,,,				
		(1)	Company:			
		(2)	Mailing Address:			
		(3)	City:		(4)	State:
*App				en available. Should t		nformation not be available, applicant must state the reason(s)

(5)	Environmental Manager:	Rev. 1, 4/14/81
(6)	Telephone No.:	
(7)	Emissions ⁴ :	
	Contaminant	Rate or Concentration
		
		- 11

Rev. 1, 4/14/81

(8) Process Rate*:

10. Reason for selection and description of systems:

Modeling results show that increasing the stacks on the four existing boilers to 100 ft. will allow all four boilers to operate simultaneously at capacity and not violate the Florida ambient air quality standards for SO_2 .

^{*}Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s)

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION Rev. 1, 4/14/81

A.	Company Monitored Data
	1 no sites TSP () SO ² * Wind spd/dir
	Period of monitoring / / to/ /
	Other data recorded
	Attach all data or statistical summaries to this application.
	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
В.	Meteorological Data Used for Air Quality Modeling Note: 5 years of data, 1970
	1. $\frac{1}{1}$ Year(s) of data from $\frac{01}{1}$, $\frac{01}{70}$ to $\frac{12}{12}$, $\frac{21}{70}$, $\frac{11}{1970}$ gave the highest annual
	1. 1 Year(s) of data from 1/2 / 01/70 to 12 / 21 / 70 thru 1974, were evaluated. 2. Surface data obtained from (location) 13889 Jacksonville, FL
	3. Upper air (mixing height) data obtained from (location) 13861 Waycross, GA
	4. Stability wind rose (STAR) data obtained from (location)
C,	Computer Models Used
	1. CRSTER (not modified) 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.	
<i>.</i>	Applicants Maximum Allowable Emission Data
	Pollutant Emission Rate
	TSP grams/sec
	So ² This is the total emission from all four (4) boilers
Ē,	Emission Data Used in Modeling operating continuously at capacity (100 x 106 BTU/hr each) at
	Attach list of emission sources. Emission data required is source name, description on point source (on NEDS point number),
F.	Attach all other information supportive to the PSD review. 2.5 1b S0 ₂ /10 ⁶ BTU.
•Spi	pecify bubbler (B) or continuous (C).
G.	Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production taxes energy at a local description taxes energy at a local description taxes.

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.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION Rev. 1, 4/14/81

A.	Company Monitored Data
	1 no sites TSP Wind spd/dir
	Period of monitoring to to
	month day year month day year Other data recorded
	Attach all data or statistical summaries to this application.
	2. Instrumentation, Field and Laboratory
	a) Was instrumentation EPA referenced or its equivalent?YesNo
_	b) Was instrumentation calibrated in accordance with Department procedures?YesNoUnknown Meteopological Data i lead for Air Quality ModelingNote: 5 years of data, 1970
8.	
	1. 1 Year(s) of data from 01 / 01/70 to 12 / 21 / 70 thru 1974, were evaluated. 1. 2 Year(s) of data from 01 / 01/70 to month day year month day year 1970 gave the highest annual 3 hr. concentrations.
	3. Upper air (mixing height) date obtained from (location) 13861 Waycross, GA
	·
_	4. Stability wind rose (STAR) data obtained from (location)
C.	Computer Models Used 1. CRSTER (not modified) 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 1
	TSPgrams/sec
	This is the total emission from all four (4) hoilers
Æ.	Emission Data Used in Modeling operating continuously at capacity (100 x 10 ⁶ BTU/hr each) at
	Attach list of emission sources. Emission data required is source name, description on point source (on NEDS point number). UTM coordinates, stack data, allowable emissions, and normal operating time. 2.5 1b S0 ₂ /10 ⁶ BTU.
F.	Attach all other information supportive to the PSD review.
*Sp	cify bubbler (B) or continuous (C).
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.

SECTION II: GENERAL PROJECT INFORMATION Rev. 2, 5/28/81

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. The applicant desires to increase the allowable maximum firing rate to 100 x 10⁶ * BTU/hr per boiler. This is the input capacity for each boiler as indicated on all previous permit applications. Each boiler is currently permitted to operate at a maximum of 66.1 x 10⁶ BTU/hr. The four (4) boilers are Babcock & Wilcox Co., Model FM 1035-79 (National Board No. 22857, 22856, 22855 and 23814). Modeling predicts that 100 ft. stacks will allow the operation of all 4 boilers at 100 x 10⁶ BTU/hr input each (capacity) without violating the Florida SO₂ ambient air quality standard.

В.	Schedule of project covered in th	is application (Construction Permit Application Only)	
	Start of Construction	Completion of Construction	n
C.	Costs of pollution control system project serving pollution control permit.)	n(s): (Note: Show breakdown of estimated costs only I purposes. Information on actual costs shall be furnisl	for individual components/units of the hed with the application for operation
D.	Indicate any previous DER perm	rits, orders and notices associated with the emission point	t, including permit issuance and expira-
	tion dates. A016-24352436 - and	d -2437 expired 6/30/80. Renewal req	wasted subject to SOs
		Renewals to be withdrawn at the time	
	. A016-12824 expires 8,		approacron.
	and Chapter 22F-2, Florida Admi Normal equipment operating time	or part of a Development of Regional Impact (DRI) purinistrative Code? Yes _X_ No e: hrs/day _24; days/wk _7; wks/yr _52	; if power plant, hrs/yr;
3 .	If this is a new source or major mo	odification, answer the following questions. (Yes or No)	
	1. Is this source in a non-attainme	ent area for a particular pollutant?	no
	a. If yes, has "offset" been app	plied?	
	b. If yes, has "Lowest Achieva	ble Emission Rate" been applied?	
	c. If yes, list non-attainment p	ollutants,	
	Does best available control ted Section VI.	chnology (BACT) apply to this source? If yes, see	no
	Does the State "Prevention o apply to this source? If yes, see	f Significant Deterioriation" (PSD) requirements Sections VI and VII.	?
	 Do "Standards of Parformanc this source? 	e for New Stationary Sources" (NSPS) apply to	no
	5. Do "National Emission Stand apply to this source?	dards for Hazardous Air Pollutants" (NESHAP)	no

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

•				

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

Raw Materials and Chemicals Used in your Process, if applicable:

Rev. 1, 5/28/81

Description	Contar	ninants	Utilization	D. L
Description	Туре	% Wt	Rate - Ibs/hr	Relate to Flow Diagram
				*
·			,	

- B. Process Rate, if applicable: (See Section V, Item 1)
 - 1. Total Process Input Rate (lbs/hr): for each of four boilers 90,000 lb/hr max (water-steam)
 - 2. Product Weight (lbs/hr): ___

-.90,000 lb/hr max (steam)

Airborne Contaminants Emitted: See attached Emission Calculations EACH boiler at 100×106 BTU/hr input

Name of	Emiss	ion ¹	Allowed Emission ²	Allowable ³	Potential	Emission ⁴	Relate
Contaminant	Maximum lbs/hr	Actual T/yr	Rate per Ch. 17-2, F.A.C.	Emission lbs/hr	lbs/hr	T/yr	to Flow Diagram
Particulate	10.0*	21.2	Use 17-2-05(6) Table II	10	10.0	43.8	1,2,3,4
Sulfur Dioxide	250**	530	Source "E"(1)(b)	250	250	1095	
			1.a.** (per Mr.				
			E. Balducci)				
Nitrogen Oxide	40.0	85	None specified		40.0	175	

Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles ⁵ Size Collected (in microns)	Basis for Efficiency (Sec. V, It ⁵

¹See Section V, Item 2.

Maximum allowable. Also see emission tests of April, 1981.

0.1 1b particulate per 10⁶ BTV heat input.

⁵If Applicable

 $2.5~\mathrm{lb}~\mathrm{SO}_2$ per $10^6~\mathrm{BTU}$ heat input

DER FORM 17-1.122(16) Page 3 of 10

Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. - 0.1 pounds per million BTU

³Calculated from operating rate and applicable standard

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

. ,,-	(Be Specific)		Consumption			Maximum Heat Input (MMBTU/hr)		
			avg/hr	max	./hr	(MMBTU	l/hr) 	
No. 6 fuel o	oil		8 bb1	16 bt	ol .	100 per	boiler	
,			~~					
	····		ν					
Units Natural Gas,	MMCF/hr; Fue	l Oils, barrels/hr;	Coal, Ibs/hr	·				
uel Analysis:			\$00	/10 ⁶ BTU)				
ercent Sulfur: 2.	.28 (nomina	al based on	2.5 lb 302	.' Percent Ash:	0.1 max.			
Pensity: 8.2 (r	nominal)		lbs/gal	Typical Percent	Nitrogen:			
leat Capacity:			BTU/Ib	150,00	OO (nominal)		BTU/gai	
ther Fuel Contami				_			-	
	,	,						
. If applicable,	indicate the per	rent of fuel used	for space heatin	n Annual Av	erage	Maximum		
		s generated and m						
					sanitary se	wer system	to the	
		ty Sewage Tr			Jantoury Se	<u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>	to the	
		55 56.74ge 11	- Cu dilicito 1 (
	100	d Flow Characteri						
Stack Height:	100		ft.	Stack Diameter	: 4.5 (3.5	at outlet	<u>) </u>	
Stack Height: Gas Flow Rat	100 e: 33,100	(est.)	ft. ACFM	Stack Diameter	: 4.5 (3.5 erature: 410	at outlet)ft 	
Stack Height:	100 e: 33,100	(est.)	ft. ACFM	Stack Diameter	: 4.5 (3.5	at outlet)ft 	
Stack Height: Gas Flow Rat	100 e: 33,100	(est.)	ft. ACFM	Stack Diameter	: 4.5 (3.5 erature: 410	at outlet)ft 	
Stack Height: Gas Flow Rat	100 e: 33,100	(est.) 6.2	ft. ACFM %	Stack Diameter Gas Exit Tempo Velocity:	: 4.5 (3.5 erature: 410 35	at outlet)ft 	
Stack Height: Gas Flow Rat	100 e: 33,100	(est.) 6.2	ft. ACFM	Stack Diameter Gas Exit Tempo Velocity:	: 4.5 (3.5 erature: 410 35	at outlet)ft 	
Stack Height: Gas Flow Rat Water Vapor C	100 e: 33,100 Content:	(est.) 6.2 SECTION	ftft%	Stack Diameter Gas Exit Tempo Velocity:	: 4.5 (3.5 erature: 410 35	at outlet)ft	
Stack Height: Gas Flow Rat	100 e: 33,100	(est.) 6.2	ft. ACFM %	Stack Diameter Gas Exit Tempo Velocity:	: 4.5 (3.5 erature: 410 35	at outlet)ft.	
Stack Height: Gas Flow Rat Water Vapor C	100 e: 33,100 Content: ((est.) 6.2 SECTION	Type II	Stack Diameter Gas Exit Tempo Velocity: ATOR INFORM Type III	: 4.5 (3.5 erature: 410 35	Type V	Type VI	
Stack Height: Gas Flow Rat Water Vapor C	100 e: 33,100 Content: ((est.) 6.2 SECTION	Type II	Stack Diameter Gas Exit Tempo Velocity: ATOR INFORM Type III	: 4.5 (3.5 erature: 410 35	Type V	Type VI	
Stack Height: Gas Flow Rat Water Vapor C	100 e: 33,100 Content: ((est.) 6.2 SECTION	Type II	Stack Diameter Gas Exit Tempo Velocity: ATOR INFORM Type III	: 4.5 (3.5 erature: 410 35	Type V	Type VI	
Stack Height: Gas Flow Rat Water Vapor C Type of Waste Lbs/hr Incinerated	Type O (Plastics)	(est.) 5.2 SECTION Type 1 (Rubbish)	Type II (Refuse)	Stack Diameter Gas Exit Tempo Velocity: ATOR INFORM Type III (Garbage)	: 4.5 (3.5 erature: 410 35	Type V	Type VI	
Stack Height: Gas Flow Rat Water Vapor C Type of Waste Lbs/hr Incinerated escription of Waste	Type O (Plastics)	(est.) 5.2 SECTION Type 1 (Rubbish)	ftACFM% IV: INCINERA Type II (Refuse)	Stack Diameter Gas Exit Tempo Velocity: ATOR INFORM Type III (Garbage)	HATION Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)	
Stack Height: Gas Flow Rat Water Vapor C Type of Waste Lbs/hr Incinerated Description of Waste Cotal Weight Inciner	Type O (Plastics)	(est.) 5.2 SECTION Type 1 (Rubbish)	Type II (Refuse)	Stack Diameter Gas Exit Tempo Velocity: ATOR INFORM Type II! (Garbage) Design Capacity	HATION Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)	
Stack Height: Gas Flow Rat Water Vapor C	Type O (Plastics) Type of (Plastics)	(est.) 6.2 SECTION Type 1 (Rubbish) Operation per day	Type II (Refuse)	Stack Diameter Gas Exit Tempo Velocity: ATOR INFORM Type II! (Garbage) Design Capacity	HATION Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)	

Typ	I HA SOACITICS				1	Maximum H	
	e (Be Specific)		avg/hr	ma	x./hr	(MMBT)	
No. 6 fuel	oil		8 bb1	16 b	bl	100 per	boiler
			······································				
	1						
			 .				·
Units Natural Gas,				<u>_</u>			
uel Analysis:	29 (nomin	al bacod on	2 = 1 SO2	(10° BTU)	0.1		
uel Analysis: Percent Sulfur:	ominal)	ai pased oii	2.5 10	Percent Ash: _	0.1 max.		
Density:			lbs/gal	Typical Percen	t Nitrogen:		
leat Capacity:			BTU/Ib	150,00	<u> 30 (nominal)</u>		BTU/gal
ther Fuel Contam	inants (which m	nay cause air pollu	ution):	·			
-							
Emission Stac Stack Height: Gas Flow Rat	k Geometry and 100	ty Sewage T	istics (Provide da	ant. Ita for each stack Stack Diameter Gas Exit Temp	(same data : 4.5 (3.5 erature: 410 35	at outlet)ft.
Distric Emission Stac Stack Height: Gas Flow Rai	k Geometry and 100	d Flow Character (est.)	istics (Provide da	ant. Ita for each stack Stack Diameter Gas Exit Temp Velocity: Type III	4.5 (3.5 erature: 410 35	Type V (Liq & Gas)ft
Distric Emission Stac Stack Height: Gas Flow Rat Water Vapor (k Geometry and 100 content:	ty Sewage Todd Flow Character (est.) 6.2 SECTION	istics (Provide daftACFM%	ant. Stack Diameter Gas Exit Temp Velocity:	4.5 (3.5 erature: 410 35	at outlet)ft
Distric Emission Stac Stack Height: Gas Flow Rat Water Vapor (k Geometry and 100 content:	ty Sewage Todd Flow Character (est.) 6.2 SECTION	istics (Provide daftACFM%	ant. Ita for each stack Stack Diameter Gas Exit Temp Velocity: Type III	4.5 (3.5 erature: 410 35	Type V (Liq & Gas)ft
Distric Emission Stac Stack Height: Gas Flow Rat Water Vapor (k Geometry and 100 e: 33,100 Content:	ty Sewage Todd Flow Character (est.) 6.2 SECTION Type I (Rubbish)	istics (Provide daftACFM% IV: INCINERA Type II (Refuse)	ant. Ita for each stack Stack Diameter Gas Exit Temp Velocity: Type III (Garbage)	4.5 (3.5 erature: 410 35	Type V (Liq & Gas)ft
Distric Emission Stac Stack Height: Gas Flow Rat Water Vapor () Type of Waste _bs/hr ncinerated	k Geometry and 100 e: 33,100 Content:	ty Sewage Todd Flow Character (est.) 6.2 SECTION Type I (Rubbish)	istics (Provide daftACFM% I IV: INCINERA Type II (Refuse)	ant. Ita for each stack Stack Diameter Gas Exit Temp Velocity: TOR INFORM Type III (Garbage)	erature: 410 35 MATION Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Distric Emission Stac Stack Height: Gas Flow Rat Water Vapor C Type of Waste Lbs/hr Incinerated escription of Waste otal Weight Incinerate	t No. 2 Ci k Geometry and 100 e: 33,100 Content: Type O (Plastics)	ty Sewage Todd Flow Character (est.) 6.2 SECTION Type I (Rubbish)	istics (Provide daftACFM% IV: INCINERA Type II (Refuse)	ant. Ita for each stack Stack Diameter Gas Exit Temp Velocity: TOR INFORM Type III (Garbage)	4.5 (3.5 erature: 410 35 ATION Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Distric Emission Stac Stack Height: Gas Flow Rat Water Vapor (Type O (Plastics) Type of (Plastics)	ty Sewage Todd Flow Character (est.) 6.2 SECTION Type I (Rubbish)	istics (Provide daftACFM% IV: INCINERA Type II (Refuse)	ant. Ita for each stack Stack Diameter Gas Exit Temp Velocity: TOR INFORM Type III (Garbage)	4.5 (3.5 erature: 410 35 ATION Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)

D. Maximum Emissions

(Florida allowable) x (capacity input) = Max. Emissions (1b/10⁶ BTU input) x (100 x 10^6 BTU/hr input)

Particulates 0.1 x 100 = 10.0 1b/hrS0₂ 2.5 x 100 = 250 1b/hr

NOTE: Particulate test results performed in April, 1981, confirm that the boilers meet this standard.

3

E. Actual Annual Emissions

Basis: 2,828,000 gallons of No. 6 fuel oil used in boiler No. 1 in 1979. At 150,000 BTU/gal, this is equivalent to 424.2×10^9 BTU input.

(Florida allowable) x (annual input) x $\left(\frac{1 \text{ ton}}{2000 \text{ ton}}\right)$ = Actual Emissions (1b/10⁶ BTU input) (424.2 x 10⁹ BTU)/2000 = 21.2 tons/yr SO₂ 2.5 x 212.1 = 530 tons/yr

F. Potential Emissions

- 1. Hourly Potential Emissions equal hourly Maximum Emissions (Par. D) as there are no additional emission control devices on the boilers.
- 2. Annual Potential Emissions assume continuous operation or 8760 hr/yr.

$$\begin{pmatrix} \text{Hourly Potential} \\ \text{Emissions} \end{pmatrix} \times \begin{pmatrix} \text{Operating} \\ \text{Time} \end{pmatrix} \times \begin{pmatrix} \frac{1 \text{ ton}}{2000 \text{ lb}} \end{pmatrix} = \text{Annual Potential Emissions}$$

$$(1b/hr) \times \begin{pmatrix} \frac{8760 \text{ hr}}{\text{yr}} \end{pmatrix} / 2000$$
Particulate 10.0 × (8760/2000) = 43.8 tons/yr
$$80_2 \qquad 250 \times (4.38) \qquad = 1095 \text{ tons/yr}$$