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AC 16-108262

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

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

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Coal-Fired Cogeneration [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Anheuser-Busch, Inc. COUNTY: Duval

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

SOURCE LOCATION: Street 111 Busch Drive City Jacksonville

UTM: East 437.840 North 3366.980

Latitude 30 ° 26 ' 8 "N Longitude 81 ° 38 ' 32 "W

APPLICANT NAME AND TITLE: John V. Stier, Supervisor, Environmental Affairs

APPLICANT ADDRESS: 202-4, One Busch Place, St. Louis, Missouri 63118

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Anheuser-Busch Co., Inc.

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

*Attach letter of authorization

Signed: John V. Stier

John V. Stier, Supervisor, Env. Affairs
Name and Title (Please Type)

Date: 7/25/85 Telephone No. 314-577-4170

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

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

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

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

Signed _____

Charles M. Nolan
Name (Please Type)

Charles M. Nolan
Company Name (Please Type)

11435 Mandarin Rd. Suite 4, Jacksonville, FL 32223
Mailing Address (Please Type)

Florida Registration No. 19889 Date: 8/12/85 Telephone No. (904)262-0743

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extant 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.

A coal-fired cogeneration facility is proposed. Air emissions from the boiler and the associated coal handling operations will be controlled with fabric filters. Two of the existing oil-fired boilers will not be in operation during firing of coal. The project will be in full compliance of the regulations.

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

Start of Construction March 1986 Completion of Construction June 1987

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

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

None

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E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ;

if power plant, hrs/yr_____; if seasonal, describe:_____

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? No

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

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

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

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

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

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? No

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? No

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? No

   a. If yes, for what pollutants?_____

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

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

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

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

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Ash Handling	Ash	100	20,000	A-1
Ash Loading	Ash	100	20,000	A-2
Ash Unloading	Ash	100	90,000	A-3

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

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

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

Name of Contaminant (Particulate)	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
Ash Handling	6.00	8.76			6.00	8.76	A-1
Ash Loading	Less than 0.01				Less than 0.01		A-2
Ash Unloading	1.69	2.46			1.69	2.46	A-3

*See Air Quality Impact report for complete emission inventory.

[1]See Section V, Item 2.

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

[3]Calculated from operating rate and applicable standard.

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

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

Name and Type (Model & Serial No.)	Contaminant (Particulate)	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
Cyclones/Fabric Filter	Ash Handling	80%/50%/99.7%		AP-42
Fabric Filter	Ash Silo Loading	99.7%		AP-42
Telescopic Chute/ Water Spray	Ash Silo Unloading	75%/50%		AP-42/CAPCD

CAPCD = Colorado Air Pollution Control District

E. Fuels

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

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

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

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

_____

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average _____ Maximum _____

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

_____

_____

_____

_____

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

Stack Height: _____ ft. Stack Diameter: _____ ft.

Gas Flow Rate: _____ ACFM _____ DSCFM Gas Exit Temperature: _____ °F.

Water Vapor Content: _____ % Velocity: _____ FPS

*See Air Quality Impact section for complete emission inventory.

SECTION IV: INCINERATOR INFORMATION

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

Description of Waste _____

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

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

Manufacturer _____

Date Constructed _____ Model No. _____

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

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

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

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

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

[ ] Other (specify) _____

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Brief description of operating characteristics of control devices: _____

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

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]

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, design pressure drop, 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 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).

8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

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

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

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

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

[ ] Yes [X] No

Contaminant	Rate or Concentration

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

[X] Yes [ ] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	Primary & Secondary Cyclone/Fabric Filter - 99.97%
	Fabric Filter - 99.7%
	Telescopic Chute/Water Spray - 87.5%

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

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:

Explain method of determining

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5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height: ft.

b. Diameter: ft.

c. Flow Rate: ACFM

d. Temperature: °F.

e. Velocity: FPS

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

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

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

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j. Applicability to manufacturing processes:

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

3.

a. Control Device: b. Operating Principles:

c. Efficiency:[1] d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy:[2] h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

4.

a. Control Device: b. Operating Principles:

c. Efficiency:[1] d. Capital Costs:

e. Useful Life: f. Operating Cost:

g. Energy:[2] h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

F. Describe the control technology selected:

1. Control Device: Cyclones/Fabric Filter 2. Efficiency:[1] 99.97%

3. Capital Cost: 4. Useful Life:

5. Operating Cost: 6. Energy:[2]

7. Maintenance Cost: 8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

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

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(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

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

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

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.

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

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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. 5 Year(s) of data from 1 / 1 / 70 to 12 / 31 / 74
month day year month day year

2. Surface data obtained from (location) Jacksonville, Florida

3. Upper air (mixing height) data obtained from (location) Waycross, Georgia

4. Stability wind rose (STAR) data obtained from (location) Jacksonville, Florida

C. Computer Models Used

1. ISCST Modified? If yes, attach description.

2. ISCLT 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	0.32	grams/sec
SO^2		grams/sec

E. Emission Data Used in Modeling

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

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

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

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

ANHEUSER-BUSCH COMPANIES

DER
AUG 07 1985
BAQM

July 22, 1985

Mr. Clair Fancy
Central Air Permitting Section
Department of Environmental Regulation
2600 Blairstone Road
Tallahassee, Florida 32301-8241

3

Dear Clair:

Attached is an air quality permit application and a check for $1000 for a proposed coal-fired cogeneration project at the Anheuser-Busch, Inc. brewery in Jacksonville. A 171 MMBTU/Hr spreader stoker boiler will be installed to provide 120,000 lbs/Hr steam to the brewery and generate 9 MW of electricity. The steam generated from coal-firing will offset combustion of residual fuel oil at the existing boilers. A permit condition to allow firing of residual oil on two existing boilers while the coal boiler is operating is proposed. If the coal boiler is down for repairs or maintenance, retention of the permits to fire all four existing boilers on residual oil is requested.

The boiler and associated coal and ash handling equipment have been designed to Best Available Control Technology. Particulate and nitrogen oxide emissions have been reduced to comply with the proposed NSPS for industrial boilers.

The air quality impact report has been prepared by Radian Corporation in Austin, Texas. The analysis indicates no violations of the Florida Ambient Air Quality Standards or federal PSD increments. The impact on the TSP non-attainment area and the Okefenokee Class I area is insignificant.

If you have any questions or comments, please call me in St. Louis at 314-577-4170.

Sincerely,

John V. Stier
Supervisor
Environmental Affairs

Enc.

cc: Mr. Jerry Woosely, BES - Jacksonville (w/att.)
Mr. John Brown, DER - Northeast District Office (w/att.)
Mr. John Wilchek, ABI - Jacksonville (w/att.)

7

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BES

Anheuser-Busch Companies, Inc.
Executive Offices
One Busch Place
St. Louis, MO U.S.A. 63118-1852
Telex 447 117 ANBUSCH STL

landfill
fluidized bed
LIMB Process
coal suppliers - steam may SO2
Lb/hr steam - increas?

DER

AUG 07 1985

BAQM

ANHEUSER-BUSCH COMPANIES

July 22, 1985

Mr. Clair Fancy
Central Air Permitting Section
Department of Environmental Regulation
2600 Blairstone Road
Tallahassee, Florida 32301-8241

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Sincerely,

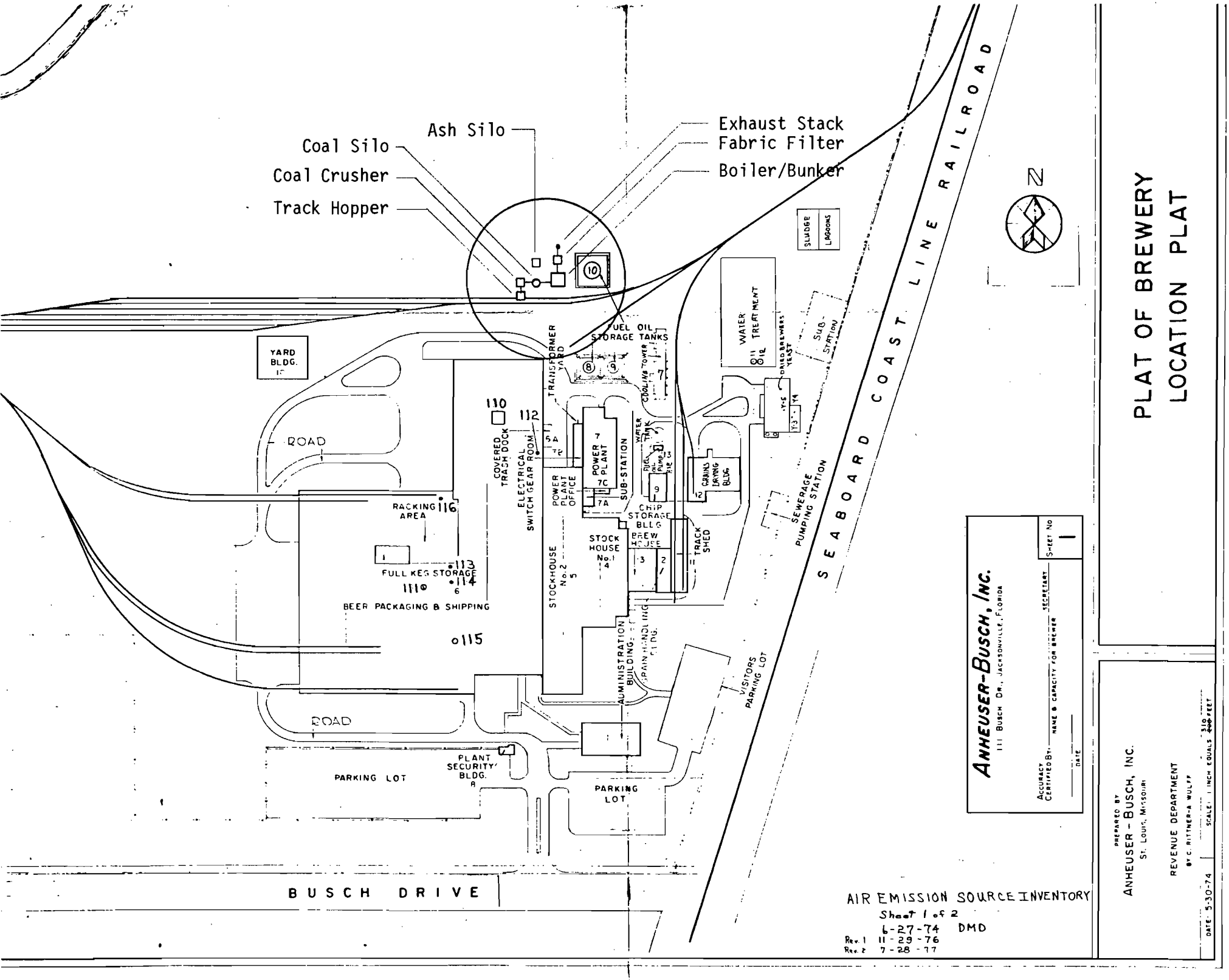
John V. Stier
Supervisor
Environmental Affairs

FAW -

Enc.

cc: Mr. Jerry Woosely, BES - Jacksonville (w/att.)
Mr. John Brown, DER - Northeast District Office (w/att.)
Mr. John Wilchek, ABI - Jacksonville (w/att.)

Anheuser-Busch Companies, Inc.
Executive Offices
One Busch Place
St. Louis, MO U.S.A. 63118-1852
Telex 447 117 ANBUSCH STL



PLAT OF BREWERY
LOCATION PLAT

ANHEUSER-BUSCH, INC.
111 BUSCH DR., JACKSONVILLE, FLORIDA

ACCURACY CERTIFIED BY: _____ SECRETARY
NAME & CAPACITY FOR BREWER
DATE

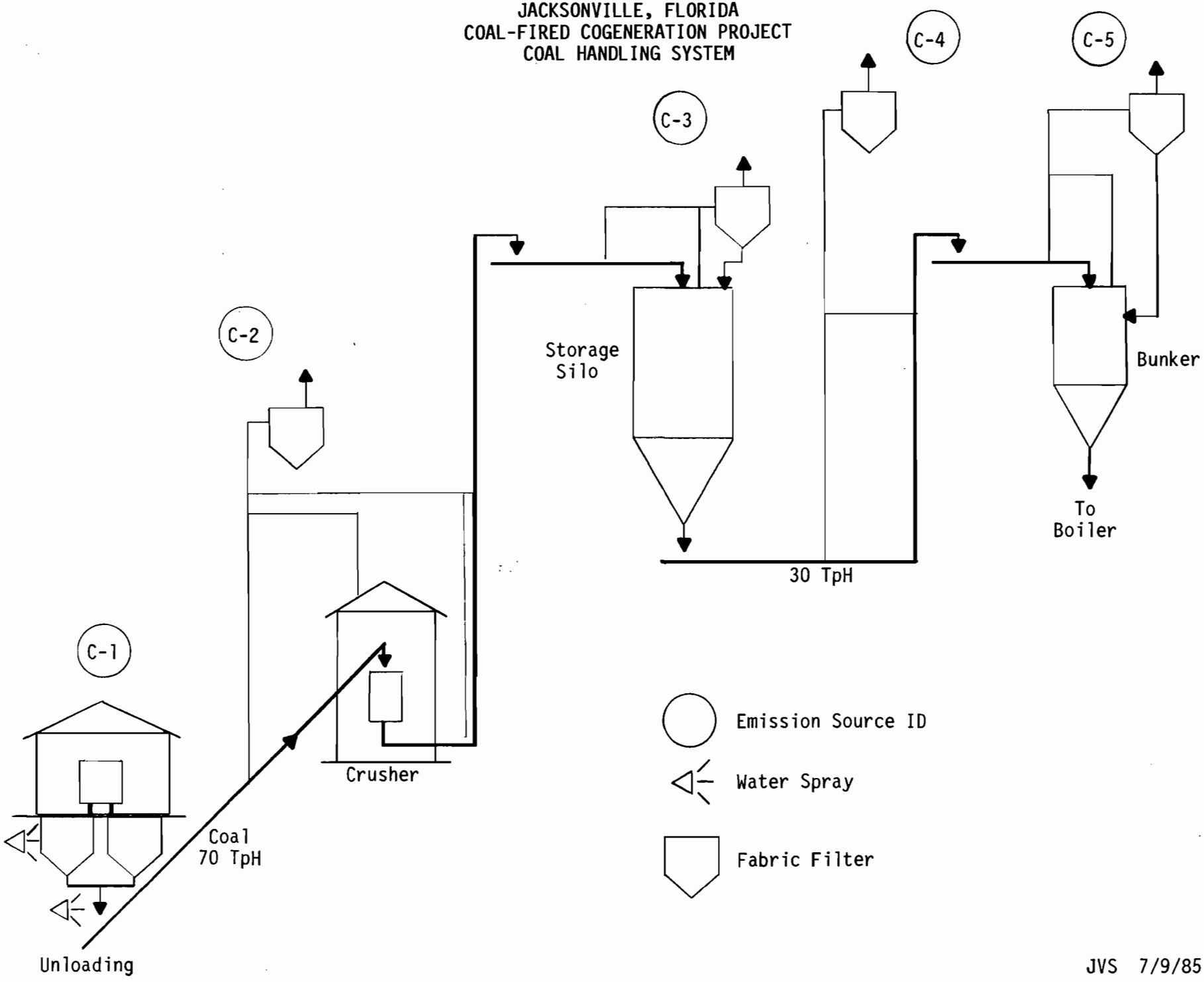
SHEET NO 1

PREPARED BY
ANHEUSER-BUSCH, INC.
ST. LOUIS, MISSOURI
REVENUE DEPARTMENT
BY C. RITTNER-A WULFF

DATE 5-30-74 | SCALE 1 INCH EQUALS 200 FEET

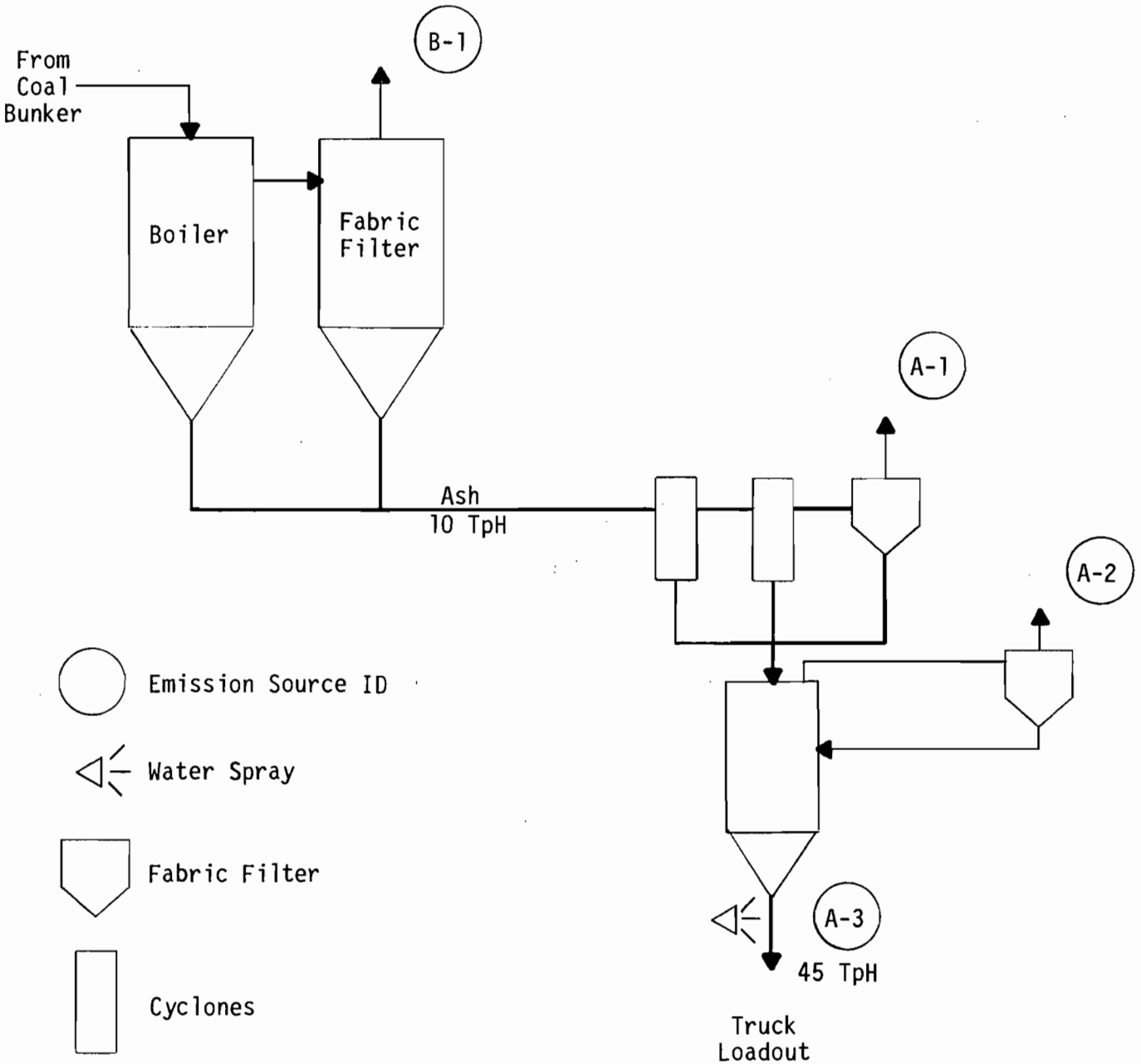
AIR EMISSION SOURCE INVENTORY
Sheet 1 of 2
6-27-74 DMD
Rev. 1 11-29-76
Rev. 2 7-28-77

ANHEUSER-BUSCH, INC.
JACKSONVILLE, FLORIDA
COAL-FIRED COGENERATION PROJECT
COAL HANDLING SYSTEM



JVS 7/9/85

ANHEUSER-BUSCH, INC.
JACKSONVILLE, FLORIDA
COAL-FIRED COGENERATION PROJECT
BOILER AND ASH HANDLING SYSTEM



JVS 7/9/85

ANHEUSER-BUSCH, INC.
JACKSONVILLE, FLORIDA COGENERATION PROJECT
BEST AVAILABLE CONTROL TECHNOLOGY DEMONSTRATION

The 120,000 lb/hr stoker boiler will fire coal with natural gas as an alternative fuel. A fabric filter will be used to control particulate matter emissions, and proper operation will minimize NO_x and CO formation. A stoker-fired boiler essentially stages combustion by the nature of its design. Control of particulate emissions from handling of coal and ash will be accomplished with closed conveyors, fabric filters, cyclones, and wet suppression systems. Material processing is controlled with the most current, efficient and economically suitable abatement measures available in the industry today. Further justification of their use as BACT is deemed unnecessary.

The BACT analysis for boiler sulfur dioxide emissions is based upon data in the March 1985 EPA document, "Summary of Regulatory Analysis New Source Performance Standards: Industrial-Commercial-Institutional Steam Generating Units of Greater than 100 Million BTU/hr Heat Input." Meeting the emission limitations contained in the June 19, 1984 proposal for particulate matter and nitrogen oxides is considered BACT.

The uncontrolled SO_2 emission rate for a high sulfur (3.5 percent by weight) coal burned in a spreader stoker unit is 5.70 lbs/MMBTU. Annual coal costs are estimated at $3.00 MM. The application of flue gas desulfurization during use of this coal would increase annualized costs as shown in the Economic Analysis table.

Combustion of the proposed coal to meet a 1.2 lb/MMBTU emission level will result in an annual cost of $3.15 MM. This is presented as a baseline level to evaluate alternate control techniques. An incremental cost effectiveness value was computed by determining the increased annual cost per ton of SO_2 removed over the proposed baseline case. As shown, values range from $1467 to $1943 per ton removed.

Sodium and dual alkali scrubbing both create solid wastes with sludge potentials for leaching and percolating of soluble components into groundwater and runoff to surface streams. Landfill disposal of the scrubber wastes requires processing of the sludge (either stabilization or fixation) to obtain a soil-like material that may be loaded, transported and placed as fill. Contaminants in the landfill or accidentally spilled on the surface can enter ground or surface water systems. The solid waste from dry lime scrubbing consists primarily as calcium or sodium salts with significant amounts of fly ash. Large tracts of landfill area are required for disposal. These areas are potential percolation beds for soluble salts to leach into groundwater supplies or runoff into receiving streams.

Utilizing low sulfur coal does not produce wastewater discharges or create demands for purchase of additional waters. Water pollution impacts from sodium scrubbing are created when the absorbed SO_2 reacts to form sodium sulfite and sodium sulfate. This creates a wastewater typically containing 5 percent dissolved solids. Evaporation ponds are currently used to treat the wastewater from most sodium based systems. Other on-site treatments of these large wastewater volumes are sulfite oxidation and

pH neutralization. Wastewater from the dual akali scrubbing system is primarily in the form of a sludge comprised of 50 percent solids of calcium sulfate salts. Present on site disposal techniques in use are ponding and landfilling.

The major electrical usage for scrubbing systems is the power required to run flue gas fans, process pumps and atomizers. In addition, lights, heat, etc. for each scrubber exert an energy demand. Energy costs also include conveyors, mixers, and slurry preparation tanks. Scrubbing systems also use large quantities of chemicals. Lime must be calcined off site. This process requires a 25 percent increase in energy usage. Transportation of chemicals to the site and disposal of scrubber wastes also require energy consumption in the form of diesel truck fuel.

In summary, the use of low sulfur coal to achieve an emission limit of 1.2 lbs/MMBTU is presented as BACT. The reduction in atmospheric sulfur dioxide emissions from the use of a scrubbing system is greatly offset by the economic, energy and other environmental impacts.

ANHEUSER-BUSCH, INC.

JACKSONVILLE, FLORIDA COGENERATION PROJECT

BACT ECONOMIC ANALYSIS

Control Technique	Emission Rate (lb/MMBTU)	Annual SO_2 Emissions (tons)	Capital Costs ($MM)	Annualized Costs* ($MM)	Incremental Cost Effectiveness ($/ton Removed)
Low Sulfur Coal	1.2	899	--	3.15	Baseline
Flue Gas Desulfurization**					
Sodium	0.5	374	0.92	3.92	1467
Dual Alkali	0.5	374	2.41	4.17	1943
Dry Lime	0.5	374	1.55	4.09	1790

* Includes annual cost of coal.

** 90% removal on combustion of a 5.54 lb/MMBTU coal.

Costs per Table 6, p.96 of EPA report.

5.64

AP-42 (38S/TON)

2% (38)(7) = 532 SO_2/HR $\frac{8760}{2000}$ = 2330 TPY

4% (38)(7) = 1064 4660 TPY

5% (38)(7) = 1330 5825 TPY

.75% (38)(7) = 200 (Baseline) 874 TPY

SO_2 Removed	#	$/Ton Removed
1456	5.64/1456	3874
3786	5.64/3786	1490
4951	5.64/4951	1139

ANHEUSER-BUSCH, INC.

JACKSONVILLE, FLORIDA COGENERATION PROJECT

BACT ECONOMIC ANALYSIS

Control Technique	Emission Rate (lb/MMBTU)	Annual SO_2 Emissions (tons)	Capital Costs ($MM)	Annualized Costs* ($MM)	Incremental Cost Effectiveness ($/ton Removed)
Low Sulfur Coal	1.2	899	--	3.15	Baseline
Flue Gas Desulfurization**					
Sodium	0.5	374	0.92	3.92	1467
Dual Alkali	0.5	374	2.41	4.17	1943
Dry Lime	0.5	374	1.55	4.09	1790

* Includes annual cost of coal.

** 90% removal on combustion of a 5.54 lb/MMBTU coal.

Costs per Table 6, p.96 of EPA report.

AIR QUALITY IMPACT ANALYSIS

Impacts on ambient air quality due to emissions from pollutant sources associated with the proposed cogeneration facility were assessed using atmospheric dispersion modeling. The analysis demonstrates that emissions from the proposed facility will be in compliance with applicable federal and state ambient air quality standards and the available federal and state Prevention of Significant Deterioration increments.

The dispersion models and modeling techniques utilized in the analysis are those recommended by the U.S. Environmental Protection Agency (EPA, 1984) and approved by the Florida Department of Environmental Regulation - Bureau of Air Quality Management (Florida DER, 1984). The modeling approach was developed to quantify the amount of SO_2 and particulate matter increment available to the proposed cogeneration facility; quantify the increment consumption by the proposed facility; determine compliance with the ambient air quality standards; determine whether the proposed modification will have a significant impact on the TSP nonattainment area south of the brewery; and identify the potential for any adverse impact on the Okefenokee Wilderness Area, a PSD Class 1 area (approximately 50 kilometers northwest of the brewery).

The modeling methodology and model inputs used to accomplish these objectives and the subsequent results of the analyses are presented in the sections which follow.

Methodology

The ambient air quality and increment analysis was accomplished using the Industrial Source Complex (ISC) dispersion model (Bowers, et al., 1979). The evaluation of annual impacts was performed using the long term version of ISC (ISCLT) and the short-term (24-hour and 3-hour) analysis utilized the short-term version (ISCST).

The ISCLT model was used to estimate the impacts of the proposed modification alone and in combination with existing and permitted sources on annual average concentrations of SO_2, NO_x, and TSP. In modeling the impact of NO_x emissions, it was conservatively assumed that all NO_x was emitted as, or immediately converted to NO_2. The ISCLT modeling determined the extent of the facility's impact and its compliance with the federal and state annual increments and standards.

A joint frequency distribution of wind speeds, wind direction and stability classes was compiled for each year from 1970 through 1974 from surface meteorological data measured at Jacksonville National Weather Service (NWS) station. Mixing height data summaries were also obtained from measurements at Jacksonville (Holzworth, 1972). These meteorological data were input to the ISCLT model.

The ISCST model was used to determine the brewery's short term SO_2 and TSP increment consumption and compliance with federal and state SO_2 and TSP standards. Those days identified by ISCST as having meteorological conditions which would produce the highest 24-hour and 3-hour concentrations from the facility's SO_2 and PM emissions were modeled for the short term analysis. The ISCST model was also used to identify the meteorological conditions which would result in interaction of SO_2 and PM emissions from the proposed brewery and other sources.

The ISCST model requires hourly observations of wind speed, wind direction, stability class, and mixing heights. Five years (1970-1974) of these data were compiled into preprocessed meteorological data files from observations taken at the Jacksonville and Waycross, Georgia NWS stations and utilized in the short term analysis.

Since CO impacts were expected to be a small fraction of the applicable significance levels and ambient air quality standards, dispersion modeling using five years of hourly data was not performed. The impacts of CO

emissions (1-hour and 8-hour) were estimated utilizing a "roll back" technique. The maximum modeled 3-hour SO_2 impact was apportioned by the ratio of the CO to SO_2 emission rates to arrive at a maximum 3-hour CO concentration. This level was conservatively assumed to be the 8-hour maximum CO impact. The highest any 1-hour concentration can be is three times the 3-hour level. Therefore, the maximum 1-hour CO concentration was conservatively assumed to be three times the 8-hour level.

The emission rates and stack characteristics for the proposed cogeneration facility as shown in Table 1 were modeled to determine annual and short term impacts. Other existing and permitted sources which would affect air quality in the brewery's area of significance were also modeled. The emission rates and stack parameters of these sources are presented in the Emissions Inventory section. These emission rates are based on continuous operation at maximum capacity, unless otherwise specified.

Stack Height. The good engineering practice (GEP) stack height regulations promulgated by EPA address the maximum stack heights which can be constructed to ensure that high pollutant concentrations caused by downwash, wakes, and eddies are avoided and that sources do not utilize excessive stack heights as a dispersion technique. GEP stack height is currently defined as the greater of 65 meters or the height calculated from an algorithm based on the configuration of nearby building(s) which could affect the plume. The nearest building which could interfere with the plume from the stack will be the boiler powerhouse located approximately 110 feet south of the stack. The powerhouse will be 80 feet wide, 60 feet long and 80 feet tall.

Applying the GEP stack height algorithm of:

$$Hg = H + 1.5L$$

where:

Hg = GEP stack height
H = height of nearby structure
L = lesser dimension of height or projected width of nearby structure

yields a height of 200 feet or 61 meters.

TABLE 1. ANHEUSER-BUSCH JACKSONVILLE COGENERATION FACILITY EMISSIONS INVENTORY

	Source	UTM Coordinates (km) Easting	UTM Coordinates (km) Northing	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/sec)	Exit Temp (°K)	PM Emissions (gm/sec)	SO_2 Emissions (gm/sec)	NO_x Emissions (gm/sec)	CO Emissions (gm/sec)	HC Emissions (gm/sec)
B-1	Boiler	437.86	3367.00	65.0	1.2	25.8	435.8	1.08	25.85	12.93	4.31	0.09
C-1	Coal Unloading	437.82	3366.95	1.0	0.01	0.01	Ambient	0.01	-	-	-	-
C-2	Coal Crushing	437.82	3366.95	6.1	0.3	12.9	Ambient	0.05	-	-	-	-
C-3	Silo Loading	437.85	3366.95	21.3	0.2	14.6	Ambient	0.02	-	-	-	-
C-4	Silo Unloading	437.85	3366.95	21.3	0.3	12.9	Ambient	0.02	-	-	-	-
C-5	Bunker Loading	437.85	3366.95	21.3	0.2	14.6	Ambient	0.01	-	-	-	-
A-1,2	Ash Handling*	437.84	3366.98	6.1	1.2	14.5	Ambient	0.25	-	-	-	-
A-3	Ash Loadout*	437.84	3366.98	5.0	0.01	0.01	Ambient	0.07	-	-	-	-

*Maximum operation 8 hours per day.

Thus, a stack of 213 feet (65 meters) would be the tallest allowed under good engineering practice regulations. Modeling was performed for a 65 meter stack. However, to ensure a conservative analysis, the dispersion modeling was performed using the building wake effects option of the ISC models since the plume of this stack may be affected by the boiler house under certain meteorological conditions.

Increment Consumption and Standards Compliance. The available annual SO_2 and TSP increments were determined by modeling all increment consuming SO_2 and particulate matter (PM) sources identified in the emissions inventory. The amount of increment consumed by other sources was combined with the impact from the brewery to determine the maximum consumption of the annual SO_2 and TSP increment.

Compliance with the ambient air quality standards was conservatively evaluated by modeling all sources in the inventories combined with the proposed modification's sources to determine the maximum projected pollutant concentrations. Ambient background concentrations were then added to the maximum projected levels to obtain the total concentration at the point of maximum impact.

The analyses were performed with receptor grid spacing of one kilometer in the proposed modification's areas of significance. Refined grids of 250 meter spacing were centered about those coarse grid receptors which showed the highest concentrations. This analysis was performed for each of the five years to determine the maximum impact.

The ISCST modeling for the proposed modification's impacts was also performed with one kilometer grid spacing. The model was run with the five one year sets of hourly meteorological data to determine those periods for which the interaction of the modification's sources' emissions and other sources' emissions would cause the highest short-term concentrations. The meteorological conditions which produced those concentrations were input to

the ISCST model to determine the maximum impacts. This modeling was performed with receptor spacing of 250 meters with the grid centered about the coarse grid receptors which showed the highest concentrations.

Ambient Background Air Quality Levels. Accurate assessment of the overall air quality impact of the proposed facility necessitates the addition of an ambient background concentration to the modeled concentrations. Table 2 presents the background levels which were recommended by the Jacksonville Bio-Environmental Services Division - Air and Water Pollution Control (Jacksonville BESD, 1985). These levels are based upon levels of TSP and SO_2 recorded at the Cedar Bay Road monitoring site and NO_2 levels recorded at Kooker Park. The CO level is a conservative estimate by the BESD.

TABLE 2. AMBIENT BACKGROUND CONCENTRATIONS

Pollutant	Concentration (ug/m^3)
TSP	35.0
SO_2	18.3
NO_2	31.4
CO	3433.0

Source: Jacksonville BES, 1985.

Emissions Inventory. An inventory of existing and permitted sources of SO_2 and PM (pollutants for which impacts are significant) which could have a potential effect on air quality in the proposed cogeneration facility's area of significance was compiled. Table 3 presents the emissions from existing sources at the brewery, and Table 4 presents other existing and permitted sources which could potentially contribute to the maximum impact in the modification's area of significance.

TABLE 4. EXISTING AND PERMITTED SOURCE EMISSIONS INVENTORY

Facility Name	UTM Coordinates (km) Easting	Northing	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/sec)	Exit Temp (°K)	PM Emissions (gm/sec)	SO_2 Emissions (gm/sec)
SURPP Units 1 & 2*	446.90	3366.30	194.2	10.1	18.3	327.6	44.90	1176.60
SURPP Aux. Boiler*	447.04	3366.57	85.4	2.1	12.2	441.0	1.01	25.60
Union Comp*	441.80	3365.60	15.5	1.2	10.7	492.0	1.00	7.30
Container Corp*	456.20	3394.15	75.6	3.4	14.4	485.0	0.00**	174.60
Container Corp*	456.20	3394.15	103.7	4.5	12.9	441.0	12.86	154.36
Container Corp*	456.20	3394.15	87.9	2.7	18.7	484.0	10.50	31.20
JEA NS Unit 1	446.90	3364.90	76.2	5.0	20.1	401.0	34.90	690.35
JEA NS Unit 2	446.90	3364.90	91.4	5.3	13.1	394.0	29.64	586.78
JES NS Unit 3	446.90	3364.90	106.7	7.0	19.2	438.8	63.42	1255.64
JEA NS Turbines	446.90	3364.90	10.2	6.6	18.3	780.0	45.41	231.59
JEA SS Units 1 & 2	437.67	3353.90	40.7	2.4	16.2	462.0	9.58	105.34
JEA SS Unit 3	437.67	3353.90	40.7	3.1	14.3	444.0	7.26	79.83
JEA SS Unit 4	437.67	3353.90	43.9	3.4	16.2	405.0	10.03	110.33
JEA SS Unit 5	437.67	3353.90	44.2	3.1	16.8	415.0	18.90	207.90
JEA Kennedy Units 8 & 9	440.08	3359.15	45.7	3.2	10.7	396.0	13.63	149.97
JEA Kennedy Unit 10	440.08	3359.15	41.5	2.7	13.7	411.0	16.82	185.03
JEA Kennedy Turbines	440.08	3359.15	13.7	5.8	8.8	715.0	37.50	191.22
Alton Box Board	439.90	3359.30	76.2	3.8	9.2	477.0	12.10	37.90
Alton Box Board	439.90	3359.30	56.7	3.2	10.0	424.0	11.20	16.50
Jax Kraft	441.80	3365.60	32.3	2.1	16.1	443.0	8.53	146.70
Jax Kraft	441.80	3365.60	41.5	2.4	11.4	500.0	14.54	101.75
Jax Kraft	441.80	3365.60	19.8	2.6	14.9	389.0	19.42	35.90
Jax Kraft	441.80	3365.60	22.9	1.8	9.5	350.0	6.05	3.00

*Increment consuming sources.
**Fuel switch resulting in net decrease in PM emissions.

TABLE 3. ANHEUSER-BUSCH JACKSONVILLE BREWERY EXISTING SOURCE EMISSIONS INVENTORY*

Source	UTM Coordinates (km) Easting	Northing	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/sec)	Exit Temp (°K)	PM Emissions (gm/sec)	SO_2 Emissions (gm/sec)
Oil-fired boiler**	437.92	3366.81	30.4	1.1	16.2	488.9	2.27	27.28
Oil-fired boiler**	437.92	3366.81	30.4	1.1	16.2	488.9	2.27	27.28
Grain Dryer #1	438.01	3366.79	21.3	1.7	9.6	322.0	0.88	7.66
Grain Dryer #2	438.02	3366.80	21.3	2.0	9.0	327.0	1.26	11.72
Grain Unloading	437.98	3366.70	9.8	0.3	14.2	Ambient	0.023	-
Grain Conveying	437.97	3366.70	9.8	0.2	17.0	Ambient	0.009	-
Grain Dust Collection	437.95	3366.70	36.6	0.3	36.2	Ambient	0.028	-
Vacuum Cleaning	437.95	3366.70	36.6	0.2	5.7	Ambient	0.28	-
Grain Dust Conveying	438.00	3366.73	18.3	0.3	2.8	Ambient	0.06	-
Cooling Collectors	438.02	3366.80	15.2	0.5	15.3	Ambient	0.013	-
Dried Grain Handling	438.02	3366.80	15.5	0.2	12.7	Ambient	0.024	-
Lime Unloading	437.97	3366.80	14.0	0.2	6.4	Ambient	0.019	-
Salt Unloading	437.97	3366.80	4.9	0.5	1.5	Ambient	0.048	-

*Emission rates reflect operating conditions associated with operation of cogeneration facility.

**Power requirements will be equivalent to two of four existing boilers operating at rating.

Emissions data for the existing brewery sources were provided by Anheuser-Busch. Coincident with the addition of the cogeneration facility, Anheuser-Busch will realize reduced power requirements from the four existing oil fired boilers. The maximum power required from existing boilers will be equivalent to two of these four 100 million Btu per hour boilers operating at rating. The modeled inventory of existing brewery sources reflected this reduction. Sulfur dioxide emissions from these boilers are based upon combustion of fuel oil with a sulfur content of 2.0 percent by weight. Particulate matter emissions are based upon a rate of 0.18 pounds per million Btu, as requested by Anheuser-Busch in the January 30, 1985 letter to the Jacksonville BESD.

The data presented in Table 4 was compiled from examination of the Jacksonville BESD and Florida DER - Northeast District air permit files and extensive discussions with air quality engineers from the Tallahassee and Northeast District DER, Jacksonville BESD, and staff at various facilities. Discrepancies and missing or anomalous data were resolved through discussions with agency and/or facility personnel. Increment consuming sources were identified by agency personnel and verified by permit file inspection.

Impact Analysis Results

The modeling methodologies and model input described in the previous sections were implemented to determine the proposed modification's impact on the air quality of the Jacksonville area. Attachment A presents copies of the final modeling runs. The results of the dispersion modeling were evaluated with respect to the objectives previously outlined.

Increment Consumption. The modeling analysis indicated that the proposed modifications to the brewery will not cause or contribute to any violation of the annual, 24-hour, or 3-hour SO_2 or the annual or 24-hour TSP federal and state Class II increments. Potential impacts on the nearest Class I area are discussed in a later section.

All SO_2 increment consuming sources were modeled to determine the available increments and the proposed cogeneration facility itself was modeled to estimate its consumption of the available increments. Table 5 presents a summary of the increment analysis results. The analysis results show that emissions of SO_2 from the brewery will not cause violations of any applicable PSD and Florida increments. The maximum modeled annual SO_2 concentration from the proposed facility was 0.9 ug/m^3. This value is less than the significant impact criterion, thus further analysis was unnecessary.

Those sources which consume TSP increment were modeled along with the proposed boiler and fugitive particulate sources at the brewery to determine maximum consumption of TSP increments. The results of the analysis are presented in Table 5 and indicate that the modification's PM emissions will not generate concentrations in excess of the annual and 24-hour TSP increments.

Compliance with Ambient Air Quality Standards. The proposed cogeneration sources were modeled to determine compliance with the applicable ambient air quality standards. The modeling indicated that maximum concentrations of all pollutants, including background levels, will be well below all applicable standards. See Table 6. The maximum annual NO_2 impact predicted from the proposed facility was 0.5 ug/m^3, less than the 1.0 ug/m^3 significant impact level, thus precluding the need for further modeling. Similarly, the maximum predicted 1-hour and 8-hour CO levels, 27.6 ug/m^3 and 9.2 ug/m^3, respectively, are well below the significance criteria of 2000 ug/m^3 and 500 ug/m^3.

Nonattainment Area Evaluation. Particulate matter sources from the proposed modification were modeled to determine the impact on the TSP nonattainment area south of the brewery. The modeling indicated that the proposed modification will have an insignificant impact on the area. For conservatism, the modification sources alone were modeled and the emission reductions at the existing boilers from the reduced power requirements were not included.

TABLE 5. SULFUR DIOXIDE AND TOTAL SUSPENDED PARTICULATE INCREMENT CONSUMPTION (ug/m^3)

Pollutant	Averaging Time	Maximum Increment Consumed: Proposed Cogeneration Facility	Maximum Increment Consumed: Total From All Sources*	Allowable Federal and Florida Class II Increment
Sulfur Dioxide	Annual	**	--	20
	24-Hour	10.3	24.8	91
	3-Hour	55.7	126.3	512
Total Suspended Particulate	Annual	1.6	1.7	19
	24-Hour	13.9	14.0	37

*At point of highest increment consumption in proposed modification's impact area.

**Maximum impact from proposed modification is insignificant, precluding full air quality impact analysis.

TABLE 6. COMPLIANCE WITH THE SO_2, NO_2, TSP, AND CO AMBIENT AIR QUALITY STANDARDS (ug/m^3)

Pollutant	Averaging Time	Maximum Modeled Impact*	Background	Total Projected Air Quality	Federal Standard	Florida Standard
SO_2	Annual	**	--	--	80	60
	24-Hour	135.5	18.3	153.8	365	260
	3-Hour	447.9	18.3	466.2	1300	1300
NO_2	Annual	**	--	--	100	100
TSP	Annual	15.3	35.0	50.3	60	60
	24-Hour	86.0	35.0	121.0	150	150
CO	8-Hour	**	--	--	10000	10000
	1-Hour	**	--	--	40000	40000

*At point of highest concentrations within proposed modification's impact area.

**Maximum impact from proposed modification is insignificant, precluding full air quality impact analysis.

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Class I Impact Analysis

The proposed brewery site is approximately 51 kilometers from the nearest boundary of the Okefenokee Wilderness Area, a PSD Class I area. Modeling indicated that SO_2 and TSP impacts from the proposed modification will be well below the significance levels for these pollutants. Thus, the cogeneration facility will be in compliance with the applicable Class I increments.

The impacts of the proposed modification on visibility of the Class I area were estimated using the Level I visibility screening analysis developed by Latimer and Ireson (1980). This analysis utilizes conservative screening calculations to identify a source's potential for adverse or significant visibility impairment. If a source passes these tests, visibility impairment is unlikely, and further analysis is unnecessary. If a source does not pass this first screening test, additional screening analyses must be performed to assess potential impacts.

The Level-1 screening procedures were followed to calculate plume contrast against the sky, plume contrast against terrain, and chance in sky/terrain contrast caused by primary and secondary aerosol. Plume-sky contrast and plume-terrain contrast are calculated from particulate and NO_x emissions, while the change in sky-terrain contrast is determined from particulate and SO_2 emissions. If the absolute values of any of these contrast values exceed 0.10, the emissions source has a potential for significant visibility impairment, and further analysis is required.

The results of the analysis compared to the criteria are presented in Table 7. Since all the contrast parameters are less than the 0.10 criteria, the emissions will not adversely affect visibility in the Okefenokee Wilderness Area.

TABLE 7. LEVEL-1 VISIBILITY SCREENING ANALYSIS RESULTS - OKEFENOKEE WILDERNESS AREA

Contrast Parameter	Calculated Value	Screening Criterion[a]
Plume-Sky	0.0034	0.1000
Plume-Terrain	0.0025	0.1000
Sky-Terrain Change	0.0005	0.1000

[a]If exceeded, the source has the potential for adverse visibility impacts.

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REFERENCES

Environmental Protection Agency, Guideline on Air Quality Models (Revised); Research Triangle Park, North Carolina; 1984.

Florida Department of Environmental Regulation; preapplication meeting with Bureau of Air Quality Management personnel; Tallahassee, Florida; December 19, 1984.

Bowers, J. F., et al; Industrial Source Complex (ISC) Dispersion Model User's Guide; U. S. Environmental Protection Agency; Research Triangle Park, North Carolina; 1979.

Holzworth, G. C.; Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution Throughout the Contiguous United States; U. S. Environmental Protection Agency, Research Triangle Park, North Carolina; 1972.

Jacksonville Bio-Environmental Services; correspondence from M. DeGrove; Jacksonville, Florida; April 1, 1985.

Anheuser-Busch, Inc.
ONE OF THE ANHEUSER-BUSCH COMPANIES

DATE	VENDOR NO.	AMOUNT OF CHECK
07/17/85	2919796	******$1,000.00

AMOUNT OF CHECK: ONE THOUSAND AND 00/100**********

NAME AND ADDRESS — CHECK NO. [redacted]

PAY TO THE ORDER OF

FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION

TALLAHASSEE FL 32301

Gerald C. Hagen

American Bank

[redacted]

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

No 76083

RECEIPT FOR APPLICATION FEES AND MISCELLANEOUS REVENUE

Received from Anheuser-Busch, Inc. Date August 9, 1985

Address 202-4 One Busch Place St. Louis Missouri 63118 Dollars $ 1,000.00

Applicant Name & Address Same as above

Source of Revenue

Revenue Code 001031 Application Number AC 16-109904

By Patricia G. Adams

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AC 16-108261

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

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

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Coal-Fired Cogeneration [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Anheuser-Busch, Inc. COUNTY: Duval

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

SOURCE LOCATION: Street 111 Busch Drive City Jacksonville

UTM: East 437.860 North 3367.000

Latitude 30 ° 26 ' 8 "N Longitude 81 ° 38 ' 32 "W

APPLICANT NAME AND TITLE: John V. Stier, Supervisor, Environmental Affairs

APPLICANT ADDRESS: 202-4, One Busch Place, St. Louis, Missouri 63118

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Anheuser-Busch Co., Inc.

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

*Attach letter of authorization

Signed: John V. Stier

John V. Stier, Supervisor, Env. Affairs
Name and Title (Please Type)

Date: 8/25/85 Telephone No. 314-577-4170

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

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

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

DER
AUG 14 1985
BAQM

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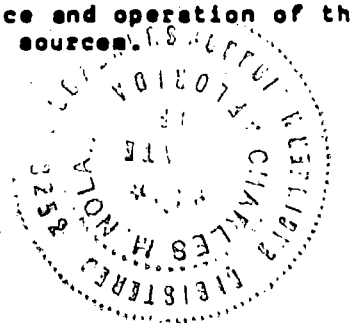
the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the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



Signed

Charles M. Nolan

Name (Please Type)

Charles M. NOlan

Company Name (Please Type)

11435 Mandarin Rd., Suite 4, Jacksonville, FL 32223

Mailing Address (Please Type)

Florida Registration No. 19889 Date: 8/12/85 Telephone No. (904)262-0743

SECTION II: GENERAL PROJECT INFORMATION

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

A coal-fired cogeneration facility is proposed. Air emissions from the boiler and the associated coal handling operations will be controlled with fabric filters. Two of the existing oil-fired boilers will not be in operation during firing of coal. The project will be in full compliance of the regulations.

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

Start of Construction March 1986 Completion of Construction June 1987

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

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

None

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ;

if power plant, hrs/yr_____; if seasonal, describe:_____

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? No

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

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

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

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

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

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

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? No

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? No

   a. If yes, for what pollutants?_____

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

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

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

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

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt (Average)		
Coal	Ash	9	13,680	B-1
	Sulfur	0.75		
	Nitrogen			

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

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

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

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
Particulate	8.55	37.45			8.55	37.45	B-1
Sulfur Dioxide	205.20	898.78			205.20	898.78	B-1
Nitrogen Diox.	102.60	449.39			102.60	449.39	B-1
Carbon Monoxide	34.20	149.80			34.20	149.80	B-1
Hydrocarbon	0.68	3.00			0.68	3.00	B-1

[1]See Section V, Item 2.

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

[3]Calculated from operating rate and applicable standard.

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

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
Fabric Filter	Particulate	99		Proposed NSPS

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Coal	13,680	13,680	171

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

Fuel Analysis: (Average)

Percent Sulfur: 0.75 Percent Ash: 9

Density: _____ lbs/gal Typical Percent Nitrogen: 1.5

Heat Capacity: 12,500 BTU/lb _____ BTU/gal

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

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average _____ Maximum _____

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

Ash generated will be conveyed to an approved landfill.

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

Stack Height: 213 ft. Stack Diameter: 4.0 ft.

Gas Flow Rate: 64,000 ACFM 43,210 DSCFM Gas Exit Temperature: 325 °F.

Water Vapor Content: _____ % Velocity: 85 FPS

SECTION IV: INCINERATOR INFORMATION

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

escription of Waste _____

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

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

Manufacturer _____

Date Constructed _____ Model No. _____

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

Stack Height: _____ ft. Stack 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) _____

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Brief description of operating characteristics of control devices: _____

_____

_____

_____

_____

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

_____

_____

_____

_____

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]

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, design pressure drop, 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 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).

8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

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

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

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

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

[X] Yes [ ] No

Contaminant	Rate or Concentration
Particulate Matter	0.05 lb/MMBTU
Nitrogen Oxide	0.6 lb/MMBTU

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

[X] Yes [ ] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	0.05 lb/MMBTU
Nitrogen Oxide	0.6 lb/MMBTU
Sulfur Dioxide	1.2 lb/MMBTU
Carbon Monoxide	0.2 lb/MMBTU

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

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:

Explain method of determining

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5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height: ft.

b. Diameter: ft.

c. Flow Rate: ACFM

d. Temperature: °F.

e. Velocity: FPS

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

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

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

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j. Applicability to manufacturing processes:

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

3.

a. Control Device: b. Operating Principles:

c. Efficiency:[1] d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy:[2] h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

4.

a. Control Device: b. Operating Principles:

c. Efficiency:[1] d. Capital Costs:

e. Useful Life: f. Operating Cost:

g. Energy:[2] h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

F. Describe the control technology selected:

1. Control Device: Fabric Filter 2. Efficiency:[1] 99%

3. Capital Cost: 4. Useful Life:

5. Operating Cost: 6. Energy:[2]

7. Maintenance Cost: 8. Manufacturer: To be determined

9. Other locations where employed on similar processes: Numerous

a. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

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

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(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

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

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

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.

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

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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. 5 Year(s) of data from 1 / 1 / 70 to 12 / 31 / 74
month day year month day year

2. Surface data obtained from (location) Jacksonville, Florida

3. Upper air (mixing height) data obtained from (location) Waycross, Georgia

4. Stability wind rose (STAR) data obtained from (location) Jacksonville, Florida

C. Computer Models Used

1. ISCST Modified? If yes, attach description.

2. ISCLT 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	1.08	grams/sec
SO^2	25.85	grams/sec

E. Emission Data Used in Modeling

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

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

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

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

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AC 16-107904

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

DER

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

AUG 07 1985

BAQM

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Coal-Fired Cogeneration [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Anheuser-Busch, Inc. COUNTY: Duval

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

SOURCE LOCATION: Street 111 Busch Drive City Jacksonville

UTM: East 437.820 North 3366.950

Latitude 30 ° 26 ' 8 "N Longitude 81 ° 38 ' 32 "W

APPLICANT NAME AND TITLE: John V. Stier, Supervisor, Environmental Affairs

APPLICANT ADDRESS: 202-4, One Busch Place, St. Louis, Missouri 63118

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Anheuser-Busch Co., Inc.

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

*Attach letter of authorization

Signed: J. V. Stier

John V. Stier, Supervisor, Env. Affairs
Name and Title (Please Type)

Date: 7/25/85 Telephone No. 314-577-4170

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

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

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

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

Signed _____

Charles M. Nolan
Name (Please Type)

Charles M. Nolan
Company Name (Please Type)

11435 Mandarin Rd. Suite 4, Jacksonville, FL 32223
Mailing Address (Please Type)

Florida Registration No. 19889 Date: 8-5-85 Telephone No. (904) 262-0743

SECTION II: GENERAL PROJECT INFORMATION

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

A coal-fired cogeneration facility is proposed. Air emissions from the boiler and the associated coal handling operations will be controlled with fabric filters. Two of the existing oil-fired boilers will not be in operation during firing of coal. The project will be in full compliance of the regulations.

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

Start of Construction March 1986 Completion of Construction June 1987

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

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

None

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E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ;

if power plant, hrs/yr_____; if seasonal, describe:_____

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? No

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

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

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

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

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

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? No

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? No

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? No

   a. If yes, for what pollutants?_____

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

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

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

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

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Coal Unloading	Ash	9	140,000	C-1
Coal Crushing	Ash	9	140,000	C-2
Silo Loading	Ash	9	140,000	C-3
Silo Unloading	Ash	9	60,000	C-4
Bunker Loading	Ash	9	60,000	C-5

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

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

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

Name of Contaminant (Particulate)	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
Coal Unloading	0.11	0.46			0.11	0.46	C-1
Coal Crushing	0.34	1.49			0.34	1.49	C-2
Silo Loading	0.16	0.70			0.16	0.70	C-3
Silo Unloading	0.13	0.57			0.13	0.57	C-4
Bunker Loading	0.07	0.31			0.07	0.31	C-5

*See Air Quality Impact report for complete emission inventory

[1]See Section V, Item 2.

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

[3]Calculated from operating rate and applicable standard.

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

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

Name and Type (Model & Serial No.)	Contaminant (Particulate)	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
Partial Enclosure/ Water Spray	Coal Unloading	85%		CAPCD
Total Enclosure/ Fabric Filter	Coal Crushing	99%/99.7%		CAPCD/AP-42
Total Enclosure/ Fabric Filter	Silo Loading	99%/99.7%		CAPCD/AP-42
Total Enclosure/ Fabric Filter	Silo Unloading	99%		CAPCD
Total Enclosure/ Fabric Filter	Bunker Loading	99%/99.7%		CAPCD/AP-42

CAPCD = Colorado Air Pollution Control District

E. Fuels

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

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

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

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

_____

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average _____ Maximum _____

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

_____

_____

_____

_____

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

Stack Height: _____ ft. Stack Diameter: _____ ft.

Gas Flow Rate: _____ ACFM _____ DSCFM Gas Exit Temperature: _____ °F.

Water Vapor Content: _____ % Velocity: _____ FPS

*See Air Quality Impact report for complete emission inventory

SECTION IV: INCINERATOR INFORMATION

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

escription of Waste _____

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

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

Manufacturer _____

Date Constructed _____ Model No. _____

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

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

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

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

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

[ ] Other (specify) _____

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Brief description of operating characteristics of control devices: _____

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

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

Pleaee provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]

. 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, design preasure drop, etc.)

5. With conatruction 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 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

7. An 8 1/2" x 11" plot plan showing the location of the establishment, end 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 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

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

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

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

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

[ ] Yes [X] No

Contaminant	Rate or Concentration

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

[X] Yes [ ] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	Partial Enclosure/Water Spray - 85% Removal
	Total Enclosure to Fabric Filter - 99% Removal
	Fabric Filter - 99.7% Removal

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

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:

*Explain method of determining

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5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height: ft.

b. Diameter: ft.

c. Flow Rate: ACFM

d. Temperature: °F.

e. Velocity: FPS

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

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

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

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j. Applicability to manufacturing processes:

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

3.

a. Control Device: b. Operating Principles:

c. Efficiency:[1] d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy:[2] h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

4.

a. Control Device: b. Operating Principles:

c. Efficiency:[1] d. Capital Costs:

e. Useful Life: f. Operating Cost:

g. Energy:[2] h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

F. Deacribe the control technology selected:

1. Control Device: Fabric Filters 2. Efficiency:[1] 99.7%

3. Capital Cost: 4. Useful Life:

5. Operating Cost: 6. Energy:[2]

7. Maintenance Cost: 8. Manufacturer:

9. Other locationa where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

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

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(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

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

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

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.

pecify bubbler (B) or continuous (C).

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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. 5 Year(s) of data from 1 / 1 / 70 to 12 / 31 / 74
month day year month day year

2. Surface data obtained from (location) Jacksonville, Florida

3. Upper air (mixing height) data obtained from (location) Waycross, Georgia

4. Stability wind rose (STAR) data obtained from (location) Jacksonville, Florida

C. Computer Models Used

1. ISCST Modified? If yes, attach description.

2. ISCLT 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	0.11	grams/sec
SO^2		grams/sec

E. Emission Data Used in Modeling

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

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

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

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

Adams, Patty

From: Holtom, Jonathan
Sent: Friday, October 22, 2004 2:04 PM
To: Adams, Patty
Cc: Ron Roberson
Subject: FW: Anheuser-Busch

Patty,

I couldn't find these permits on the PSD search page, but Ron says they were issued form our office. Do you know where they might be?

-Jonathan

-----Original Message-----
From: Ron Roberson [mailto:ROBERSON@coj.net]
Sent: Friday, October 22, 2004 1:51 PM
To: Holtom, Jonathan
Subject: Anheuser-Busch

The Anaerobic Pretreatment Facility
Permits AC16-170992 thru 170995 (Construction Revision)
Permits ACi16-119130 thru 119132

ANHEUSER-BUSCH COMPANIES

DER

MAR 6 1986

BAQM

February 28, 1986

Mr. Clair Fancy
Central Air Permitting Section
Department of Environmental Regulation
2600 Blairstone Road
Tallahassee, Florida 32301-8241

Re: Jacksonville Brewery
Coal-Fired Cogeneration Permit Application

Dear Clair:

Anheuser-Busch Companies, Inc. has re-evaluated the feasibility of installing a coal-fired cogeneration project at the Jacksonville brewery and has decided not to pursue this opportunity. Please return the permit application dated July 12, 1985 to my attention.

Your assistance in this matter is greatly appreciated.

Sincerely,

John V. Stier
Supervisor
Environmental Affairs

JVS/bkb

cc: Mr. Jerry Woosely, BESD - Jacksonville
Mr. John Wilchek, ABI - Jacksonville

Anheuser-Busch Companies, Inc.
Executive Offices
One Busch Place
St. Louis, MO U.S.A. 63118-1852
Telex 447 117 ANBUSCH STL

P 085 152 649

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to Mr. John V. Stier	
Street and No.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	
Return receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date 9/6/85	

PS Form 3800, Feb. 1982 ☆ U.S.G.P.O. 1984-446-014

PS Form 3811, July 1983

SENDER: Complete items 1, 2, 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

1. ☐ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery.

3. Article Addressed to:
Mr. John V. Stier
Anheuser-Busch Co.
One Busch Place (202-4)
St. Louis, Missouri 63118

4. Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Article Number
P 085 152 649

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Addressee
X

6. Signature — Agent
X

7. Date of Delivery

8. Addressee's Address *(ONLY if requested and fee paid)*

ST. LOUIS, MO. BRANCH GARDENS STA. USPO SEP 9 1985

DOMESTIC RETURN RECEIPT

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

September 6, 1985

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. John V. Stier
Supervisor - Environmental Affairs
Anheuser-Busch Companies
One Busch Place (202-4)
St. Louis, Missouri 63118

Dear Mr. Stier:

Re: File Nos. AC 16-108261, 108262, 107904

The Bureau of Air Quality Management has made a preliminary review of the three applications for permits to construct a coal handling system, coal-fired boiler, and ash handling system at Anheuser-Busch, Inc.'s Jacksonville, Florida plant. We need more information to process these applications. Please complete the applications by supplying the information requested below.

General

1. The processing fee for the boiler application is $1,000 (potential emissions greater 100 TPY) and $100 each for the coal and ash handling systems (potential emissions less than 25 TPY). Please send a check for $200 payable to the Department of Environmental Regulation for the processing fees for the coal and ash handling system applications.

2. Please provide the following information on each air pollution control device proposed.

   a. Water spray systems: Sketch of piping, number of nozzles used, GPM/nozzle, water pressure, process sheet or description of the water circulation/disposal system, a copy of the Colorado Air Pollution Control District publication that was used as the basis for the efficiency determination, a copy of the calculations that determined the efficiency and emissions from the system, estimated cost of each system, and how you propose to determine compliance with the emission standards requested.

b. Cyclones: Sketch (plan/elevation) showing general layout and dimensions, basis for efficiency determination (i.e., AP-42, Section 1.2, Table 1.2-1), a copy of the calculations that established the proposed efficiency and emissions from each system, and its estimated cost.

c. Fabric filters: Brochure or specifications on the collectors that show their parameters (air/cloth ratio, volumetric flow), basis of the efficiency determinations, a copy of the calculations that determined the efficiency and emissions for each collector, and their estimated cost.

Ambient Air Quality Modeling

1. All modeling output and hand calculations should be included in the application package.

2. On the refined model runs, maximum concentrations frequently occur on a grid border. This is not acceptable since it is not possible to verify that these are in fact the maximum values. For refined modeling we suggest a grid size of 100m. For coarse-grid modeling we suggest a grid size of 250m. Please remodel using these grids.

3. Attachment A does not contain any information regarding the annual TSP Class I increment. Please supply this information.

4. The visibility modeling results are missing from Attachment A. Please supply this information.

5. The 3-hour SO_2 Class I analysis is unclear. At one point, data from 1970 is used in the model resulting in a predicted maximum concentration of 6.5 ug/m^3. In the following section, titled Class I Impacts-Maximum 24-hour SO_2, the 3-hour maximum is also calculated, using 1973 data. The maximum 3-hour concentration, using this data set, is 6.6 ug/m^3. The questions that need to be addressed are: In which year did the 3-hour maximum concentration occur and why the apparent discrepancies?

6. Impacts on soils and vegetation need to be addressed. (Rule 17-2.500(5)(e)1., FAC). Please supply this information.

7. Growth-related air quality impacts need to be addressed. (Rule 17-2.500(5)(e)2., FAC). Please supply this information.

8. Since the modeling was performed at 65m the stack must be at least 65m high when built. Remodel at the appropriate stack heights.

9. Modeling results indicating the impact of the net emissions increase on the TSP nonattainment area south of the brewery need to be presented (Rule 17-2.510(2)(a)2.b., FAC). What is the predicted maximum concentration in the nonattainment area or at what distance from the source do the concentrations become insignificant? A map of the area of significant concentration would be most useful.

10. If concentrations predicted to occur on plant property are excluded from your analysis, a map of the facility showing the plant property lines and barriers that preclude public access inside this area is needed.

Coal Handling System (File No. 16-10704)

1. Please provide a description and drawings of the conveyors and elevators used to transport coal from the unloading pit to the bunker and the method used to control fugitive emissions from each section and transfer point - i.e., enclosed belt conveyor exhausted to a baghouse.

2. Please provide a brochure or general description and specifications of the crusher giving the type of unit and its maximum capacity.

3. Is the crusher building under negative pressure?

4. What are the dimensions and capacity of the storage silo?

5. What is the maximum quantity of coal (TPY) that the system can handle (capacity)? What is the maximum quantity of coal that will be handled by this system?

6. Will coal be stored anywhere on the plant property other than the bunker? If so, please describe the method that will be used to control fugitive emissions and estimate the emissions from the coal piles.

Coal-Fired Boiler (File No. 16-108261)

1. Please provide a brochure or specifications of the proposed boiler and generator. If the boiler is not new, when was it constructed?

2. Will all the electrical power generated by this unit be used in the plant?

3. What will be the pressure and temperature of the steam produced by the boiler?

4. Are there any plans to fire plant by-products or fuel oil in the proposed boiler? If so, estimate the emissions from the combustion of these fuels.

5. What is the design and maximum heat input to the boiler when firing coal? Natural gas? Other fuels that may be used in the future? Will several different types of fuels be burned concurrently in the boiler? Will the boiler be operated at above design levels?

6. What physical restraints prevent the heat input to the proposed boiler from exceeding 250 MMBtu/hr?

7. Will the two oil fired units that are removed from service when the coal fired unit is operating be on cold shut-down or hot standby? If on hot standby, what will be the hourly fuel consumption and emissions for each unit?

8. Please describe the operating scenario for bringing the proposed boiler on line and shutting down the two existing oil-fired boilers and vice versa. If all four existing and proposed boilers are in operation during any part of the scenario, estimate the maximum time this will occur.

9. Why was 1.2 lb SO_2/MMBtu selected as BACT?

10. Please explain why a fluidized bed combustion unit was not considered as BACT to control SO_2 emissions?

11. Does the design of the boiler system allow for retrofit of a flue gas desulfurization system? What are the Company's contingency plan in the event low sulfur coal is not available?

12. Is the boiler stack equipped with separate ports for a continuous emission monitor and compliance testing? What make/model continuous emission monitors will be installed on the boiler?

13. The plant site is designated nonattainment for ozone. Are there any other sources of hydrocarbon emissions associated with this project other than the 3.0 TPY emissions from the boiler?

Ash Handling System (File AC 16-108262)

1. Please provide a general description of how the ash handling system operates.

2. How many hours per day will the ash handling system operate? Why did the modeling assume the system only operated 8 hours per day instead of continuously as stated in the application?

3. What type of conveyor is used to transport the ash from the boiler and baghouse to the truck load out station?

4. At maximum steam production, the boiler uses less than 14,000 lb/hr of coal which contains 1,230 lb/hr of ash. The ash handling system has a design rate of 20,000 lb/hr listed in the application. Are these rates correct and, if so, why is the capacity of the ash handling system so great?

5. What precautions will be taken to minimize fugitive emissions during the hauling and dumping of the ash at the landfill?

6. What approved landfill will be used to dispose of the ash?

As soon as we receive the above requested information, we will resume processing your applications. If you have any questions regarding the information requested, please call Max Linn on the modeling or Willard Hanks on the other questions at (904)488-1344 or write to me at the Department's Tallahassee address.

Sincerely,

C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

CHF/WH/s

cc: J. Woosley
J. Cole

TO: Willard Hanks

FROM: Ed Palagyi

DATE: August 22, 1985

SUBJECT: Anheuser - Busch Coal Fired Boiler - Questions

1. What is the design heat input to the spreader stoker furnace when firing coal? When firing natural gas?

2. What model SO_2 CEM will be installed to assure compliance with a SO_2 emission limit of 1.2 lb/10^6 BTU.

3. Please describe the companies contingency plan to meet the SO_2 emission limit in the event of an extreme cold spell or a possible need to increase plant production, either of which case would increase the plants steam requirements beyond the combined design rate of the two oil fired boilers and the coal fired boiler.

4. If the design rate of the coal fired boiler is 171 million BTU per hour will it be possible to operate above design level? If possible, what would be the <u>maximum</u> heat input when firing coal or natural gas. Does the company anticipate a possible later need to operate at above design levels?

5. Please explain why a fludized bed combustor would not be BACT for the control of SO_2 emissions.

6. Please explain the companies contingency plan in the event 0.75 percent sulfur coal becomes unavailable. Does the inital design allow for retrofit of a SO_2 emission control device.

7. Please submit the proposed operating scenario when bringing the coal fired unit on line and shut down of the two oil fired inits, and vice versa. Estimate how long a peroid will the 4 oil fired units and the coal fired unit be operating during turnaround.

8. Will the two oil fired units, that are removed from service, when the coal fired unit is operating, be on cold shut down. Or on hot standby? If on hot standby, what will be the hourly fuel consumption for each unit.

9. The utilization rate of the ash handling system is 20,000 pounds per hour, the amount of coal fired is 14,000 pounds per hour having an ash content of 9 percent. Is the 20,000 figure a design rate? And if so, what is the estimated ash production hourly rate.

10. Are there any future plans to fire plant by-products in the coal fired boiler? If so, describe the expected emissions from the combustion of the plant waste.

11. What is the date the coal fired boiler was constructed?

12. Does the company consider 1.2 pounds SO_2 per million BTU heat input is BACT considering state-of-the-art technology that is available?