OCCIDENTAL CHEMICAL COMPANY, FLORIDA OPERATIONS, Post Office Box 300, White Springs, Florida 32096, Telephone 904 397-8101

March 7, 1988

RECEIVED
MAR 08 1988
DER - BAQM

Mr. C. H. Fancy, P. E.
Deputy Chief
Bureau of Air Quality Management
Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301-8241

Dear Mr. Fancy:

Enclosed are the completed construction applications for "A", "C" & "D" Sulfuric Acid plants. Also enclosed is $3,000 (2 checks, $1,000 & $2,000) to cover the processing fees for these permits.

The enclosed permits reflect Occidental's desire to move ahead with rate increase for "A", "C", & "D" Sulfuric Acid plants as outlined in Charles Pults' letters of February 18, & 19, 1988. We are aware that this arrangement will deplete the production capacity of the "B" Sulfuric Acid plant. We are further aware that additional emission control equipment would be required in the event we should ever request repermitting of the 'B" plant.

The "A" Sulfuric permit is a complete 12 page form with attachments. The "C" & "D" Sulfuric permits are abbreviated, at the suggestion of Pradeep Raval, to use only the first six pages showing signatures and calculations. All pertinent flow sheets, maps, and calculations are already on file with the previous "C" & "D" Sulfuric construction permits.

If Occidental may be of further assistance in expediting the completion of these permits, please do not hesitate to call me (904/397-8270) or Charles Pults (904/397-8442).

Sincerely,

Gene McNeill

R. E. McNeill
Director of Safety, Health
and Environmental Control
for Ag Products Group

psb

cc: Ernie Frey, FDER, Jacksonville, FL
Mike Fitzsimmons, FDER, Jacksonville, FL
Bill Stewart, FDER, Jacksonville, FL
Pradeep Raval, FDER, Tallahassee, FL

## TABLE 1

## EMISSION RATE COMPARISONS

| | CURRENT PERMITTED RATE | | | PROPOSED MODIFICATIONS | | |
|---|---|---|---|---|---|---|
| | TPD | $SO_2$ (lb/ton) | MIST (lb/ton) | TPD | $SO_2$ (lb/ton) | MIST (lb/ton) |
| "A" Sulfuric | 800 | 29<br>(23200 PPD) | 0.50<br>(400 PPD) | 1000 | 29<br>(29000 PPD) | 0.50<br>(500 PPD) |
| "B" Sulfuric | 800 | 29<br>(23200 PPD) | 0.50<br>(400 PPD) | 0<br>0 | 0<br>0 | 0<br>0 |
| "C" Sulfuric | 2000 | 4<br>(8000 PPD) | 0.14<br>(280 PPD) | 2300 | 4<br>(9200 PPD) | 0.14<br>(322 PPD) |
| "D" Sulfuric | 2000 | 4<br>(8000 PPD) | 0.14<br>(280 PPD) | 2300 | 4<br>(9200 PPD) | 0.14<br>(322 PPD) |

### CURRENTLY PERMITTED:

All plants (A + B + C + D) operating = 5600 TPD $H_2SO_4$
Maximum $SO_2$ Permitted = 62400 lb/day
Maximum Mist Permitted = 1360 lb/day

### REQUESTED MODIFICATIONS:

Plants (A + C + D) operating = 5600 TPD $H_2SO_4$
Maximum $SO_2$ Permitted = 47400 lb/day
Maximum Mist Permitted = 1144 lb/day

### EMISSION DIFFERENCES:

By shifting production to the currently operating plants a **NET REDUCTION** in total emissions to the environment occurs.

$SO_2$ (Max) 62400 - 47400 = **15000 lb/day**
Mist (Max) 1360 - 1144 = **216 lb/day**

Receipt # 117527
$1000.00
AC24-146400

STATE OF FLORIDA
# DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER DISTRICT
3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803

RECEIVED
MAR 08 1988
DER - BAQM

BOB GRAHAM
GOVERNOR
VICTORIA J. TSCHINKEL
SECRETARY
ALEX SENKEVICH
DISTRICT MANAGER

## APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Sulfuric Acid Production [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Occidental Chemical COUNTY: Hamilton

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) Sulfuric Acid Plant "A"

SOURCE LOCATION: Street SR 137 City White Springs

UTM: East (17) 328,320 North 3,368,820

Latitude 32 ° 26 ' 27 "N Longitude 82 ° 47 ' 16 "W

APPLICANT NAME AND TITLE: Occidental Chemical

APPLICANT ADDRESS: P. O. Box 300, White Springs, FL 32096-0300

## SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Occidental Chemical

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 contro facilities in such a manner as to comply with the provision of Chapter 403, Florid Statutes, and all the rules and regulations of the department and revisions thereof. also understand that a permit, if granted by the department, will be non-transferabl and I will promptly notify the department upon sale or legal transfer of the permitte establishment.

*Attach letter of authorization

Signed: Hudson C. Smith

Hudson C. Smith, Vice President & General Mgr.
Name and Title (Please Type)

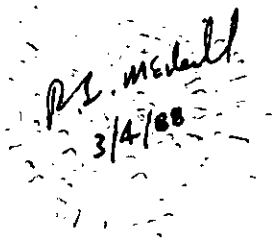
Date: 2/7/88 Telephone No. 904/397-8101

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 hav been designed/examined by me and found to be in conformity with modern engineerin principles applicable to the treatment and disposal of pollutants characterized in th permit application. There is reasonable assurance, in my professional judgment, tha

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

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



Signed R. E. McNeill

R. E. McNeill
Name (Please Type)

Occidental Chemical Corporation
Company Name (Please Type)

P. O. Box 300, White Springs, FL 32096-0300
Mailing Address (Please Type)

Florida Registration No. 12813 Date: 3/4/88 Telephone No. 904/397-8101

## 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.

The production rate of "A" Sulfuric Acid plant is being increased from 800 to 1000 tons per day. The increased so2, Acid Mist, and NOx emissions will be offset by reducing the permitted production capacity of "B" Sulfuric Acid from 800 to 600 TPD.

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

Start of Construction March 1988 Completion of Construction April 1988

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.)

Existing control system will be adequate to control emissions at the higher rate.

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

A024-2462 issued 9/5/75 and expiring 8/31/80

A024-33055 issued 7/28/80 and expiring 7/28/85

A024-103966 issued 7/18/85 and expiring 7/18/90; Rev. 10/19/87

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. No

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. No

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.

## 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 | | |
| Sulfur | Ash | Approx. 0.005% | 27,764 | 1 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

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

1. Total Process Input Rate (lbs/hr): 27,764

2. Product Weight (lbs/hr): 89,606

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 | |
| Sulfur dioxide | 1208 | 5291 | 17-2.05(6) | 1208 | 1208 | 5291 | 1 |
| H2SO4 Mist | 20.8 | 91 | 17-2.05(6) | 20.8 | 346 | 1517 | 1 |
| VE | 10% | | 17-2.05(6) | 10% | | | |
| | | | | | | | |
| | | | | | | | |

[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).

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) |
|---|---|---|---|---|
| Single Absorption | SO2 | 98% | NA | Design & test |
| Contact H2SO4 Dorr- | | | | |
| Oliver Plant | | | | |
| | | | | |
| York Demister in | H2SO4 Mist | 94% | 0-10 | Test |
| exit of absorber | | | | |

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.

None

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

Stack Height: 200 ft. Stack Diameter: 5.92 ft.

Gas Flow Rate: 80,000 ACFM 68,129 DSCFM Gas Exit Temperature: 160 °F.

Water Vapor Content: 0 % Velocity: 48.5 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) | | | | | | | |

Description of Waste _____

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

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

Manufacturer _____

Date Constructed _____ Model No. _____

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

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

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

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

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

[ ] Other (specify) _____

Brief description of operating characteristics of control devices: _____

_____

_____

_____

_____

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

_____

_____

_____

_____

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

## SECTION V: SUPPLEMENTAL REQUIREMENTS (SEE ATTACHMENTS 2-4)

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.

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

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

## SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY (Not Applicable)

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

[ ] Yes [ ] No

| Contaminant | Rate or Concentration |
|---|---|
| | |
| | |
| | |
| | |

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

[ ] Yes [ ] No

| Contaminant | Rate or Concentration |
|---|---|
| | |
| | |
| | |
| | |

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

| Contaminant | Rate or Concentration |
|---|---|
| | |
| | |
| | |
| | |

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

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

*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

| Contaminant | Rate or Concentration |
|---|---|
| | |
| | |
| | |
| | |

10. Stack Parameters

a. Height: ft.

b. Diameter: ft.

c. Flow Rate: ACFM

d. Temperature: °F.

e. Velocity: FPS

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

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. 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.

j. Applicability to manufacturing processes:

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

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

F. Describe the control technology selected:

1. Control Device:

2. Efficiency:[1]

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:[2]

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

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

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

| Contaminant | Rate or Concentration |
|---|---|
| | |
| | |
| | |

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

| Contaminant | Rate or Concentration |
|---|---|
| | |
| | |
| | |

(8) Process Rate:[1]

13. Reason for selection and description of systems:

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

## SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION (NOT APPLICABLE)

A. Company Monitored Data

1. _____ no. sites _____ TSP _____ ( ) $SO^2$* _____ Wind spd/dir

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

Other data recorded _____

Attach all data or statistical summaries to this application.

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

PRODUCT RATE: 1000 Short Tons Per Day (STPD) of 100% $H_2SO_4$ as 93% $H_2SO_4$ - or -

$$\frac{1000 \text{ ton}}{\text{day}} \times \frac{1}{.93} \times \frac{\text{day}}{24 \text{ hr.}} \times \frac{2000 \text{ lb.}}{\text{ton}} = 89{,}606 \text{ lb/hr}$$

PROCESS INPUT: 1000 STPD of 100% $H_2SO_4$ equivalent to 326.5 STPD of sulfur (1000 x 32/98) at an efficiency of 98% requires 333.2 STPD of sulfur (326.5/0.98) - or -

$$\frac{333.2 \text{ ton}}{\text{day}} \times \frac{\text{day}}{24 \text{ hr.}} \times \frac{2000 \text{ lb.}}{\text{ton}} = 27764 \text{ lb/hr}$$

EMISSIONS CALCULATIONS:

$$\frac{1000 \text{ ton}}{\text{day}} \times \frac{\text{day}}{24 \text{ hr.}} = 41.67 \text{ ton/hr.}$$

$SO_2$

29 lb/ton x 41.67 ton/hr. = 1208 lb/hr.

$$1208 \text{ lb/hr.} \times 24 \text{ hr/day} \times 365 \text{ day/yr.} \times \frac{\text{ton}}{2000 \text{lb}} = 5291 \text{ ton/yr.}$$

MIST

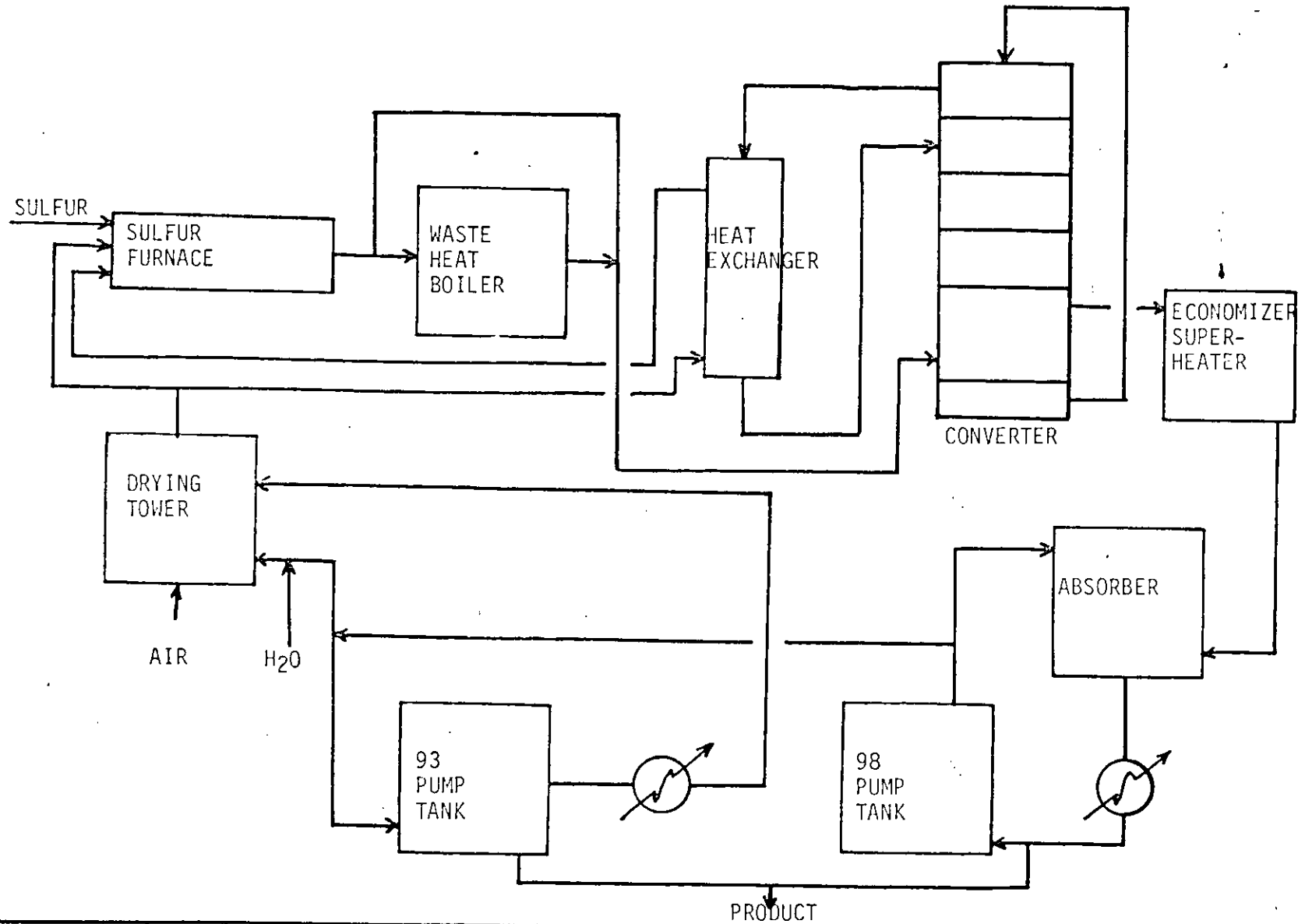
0.5 lb/ton x 41.67 ton/hr. = 20.8 lb/hr.

$$20.8 \text{ lb/hr} \times 24 \text{ hr/day} \times 365 \text{ day/yr} \times \frac{\text{ton}}{2000 \text{lb}} = 91.1 \text{ ton/yr}$$

$$\text{DSCFM} = \text{ACFM} \times \frac{\text{Tstd}}{\text{Ts}} = 80000 \times \frac{528}{620} = 68129 \text{ DSCFM}$$

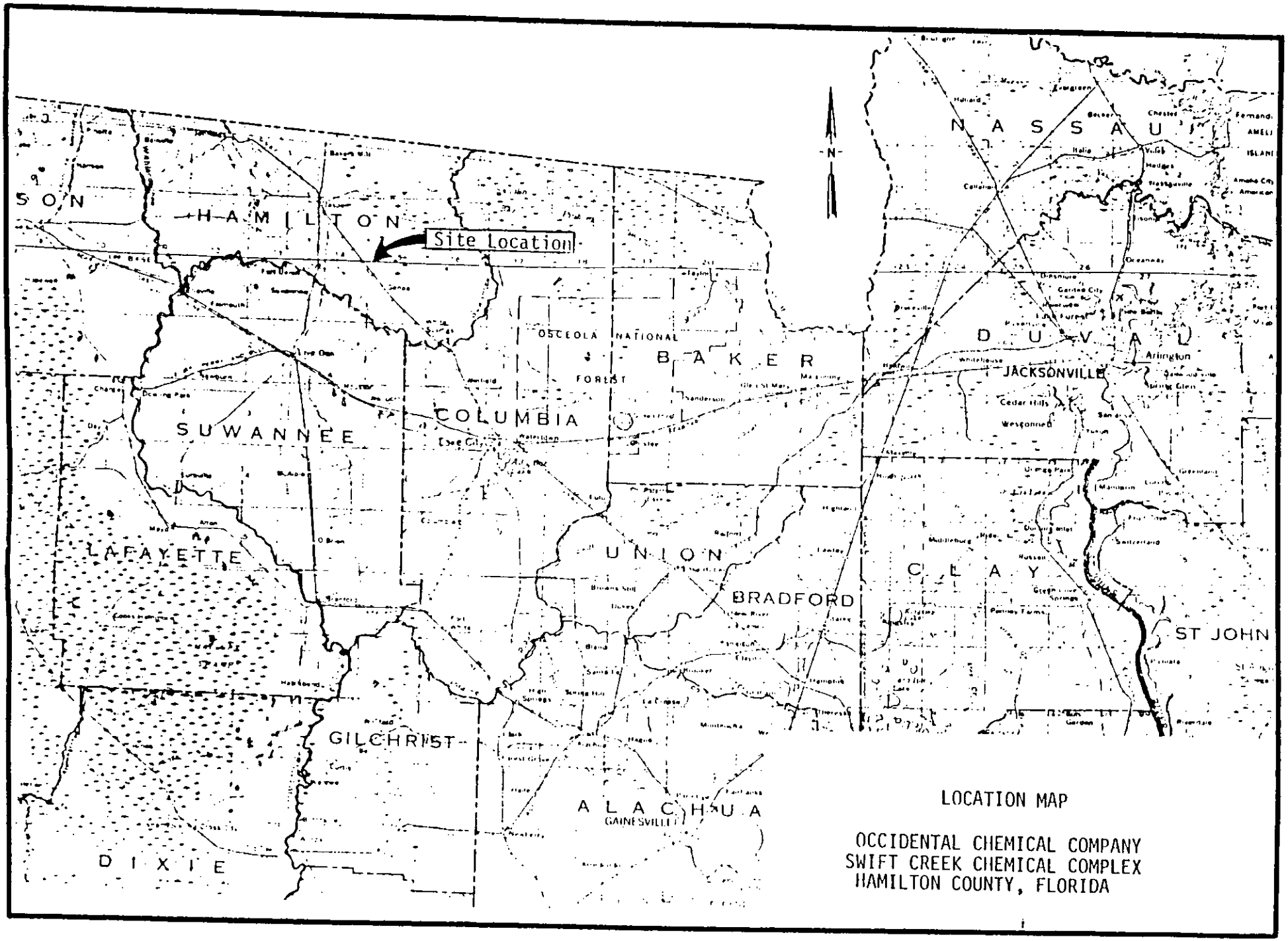
Tstd = 528°K

Ts = 620°K (460 + 160)




SINGLE CONTACT SULFURIC ACID MANUFACTURE

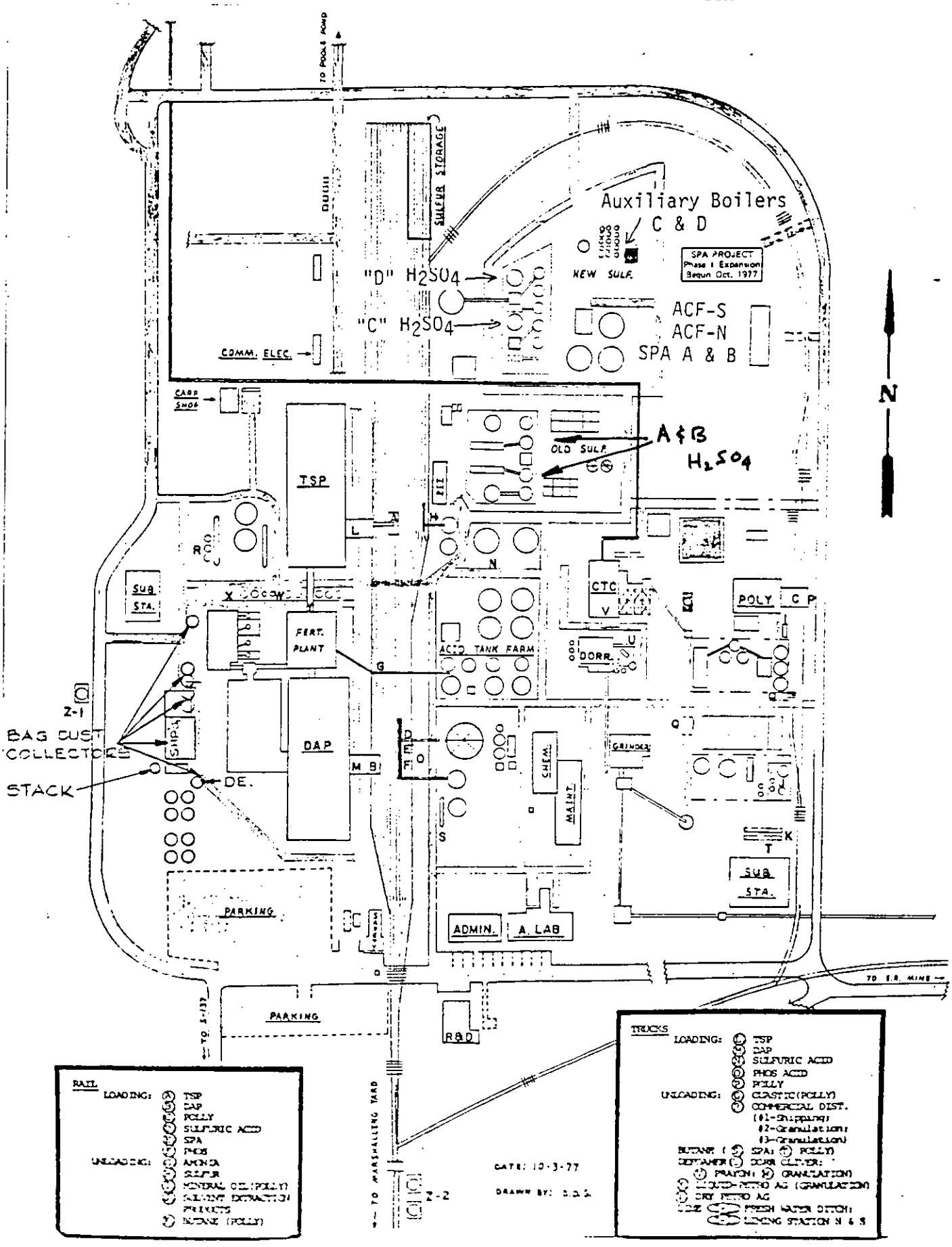
ATTACHMENT 2




LOCATION MAP

OCCIDENTAL CHEMICAL COMPANY
SWIFT CREEK CHEMICAL COMPLEX
HAMILTON COUNTY, FLORIDA

ATTACHMENT 3


TO POOLE POND
SULFUR STORAGE
Auxiliary Boilers
C & D
SPA PROJECT
Phase I Expansion
Begun Oct. 1977
NEW SULF.
"D" $H_2SO_4$
"C" $H_2SO_4$
ACF-S
ACF-N
SPA A & B
COMM. ELEC.
CARR SHOP
A & B
$H_2SO_4$
OLD SULF.
TSP
FIRE
SUB STA.
FERT. PLANT
ACID TANK FARM
CTC
DORR.
POLY
C P
Z-1
BAG DUST COLLECTORS
STACK
DE.
DAP
SHEM.
MAINT.
GRINDER
PARKING
ADMIN.
A. LAB
SUB STA.
TO E.R. MINE
TO S-1
TO MARSHALLING YARD
Z-2
DATE: 10-3-77
DRAWN BY: D.D.S.
N
RAIL
LOADING: TSP, DAP, POLLY, SULFURIC ACID, SPA, PHOS
UNLOADING: AMONIA, SULFUR, MINERAL OIL (POLLY), SOLVENT EXTRACTION PRODUCTS, SCRUBBER (POLLY)
TRUCKS
LOADING: TSP, DAP, SULFURIC ACID, PHOS ACID, POLLY
UNLOADING: CAUSTIC (POLLY), COMMERCIAL DIST. (#1-Shipping; #2-Granulation; #3-Granulation)
BUTANE (S) SPA: (P) POLLY
DEFTANKER (C) DORR CLARIFIER:
(P) PRAYON; (G) GRANULATION
LIQUID-AMMO AG (GRANULATION)
DRY AMMO AG
FRESH WATER DITCH
LOADING STATION N & S

Subcode 01 Receipt# 17527
$1000.00
AC24-146402

STATE OF FLORIDA

# DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER DISTRICT
3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803

RECEIVED
MAR 08 1988
DER - BAQM

BOB GRAHAM
GOVERNOR
VICTORIA J. TSCHINKEL
SECRETARY
ALEX SENKEVICH
DISTRICT MANAGER

## APPLICATION TO ~~OPERATE~~/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Double Absorption Sulfuric Acid [ ] New[1] [X] Existing[1]

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

COMPANY NAME: Occidental Chemical Corporation COUNTY: Hamilton

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) Sulfuric Acid Plant "C"

SOURCE LOCATION: Street SR 137 City White Springs

UTM: East (17) 328,320 North 3,368,820

Latitude 32 ° 26' 27 "N Longitude 82 ° 47' 16 "W

APPLICANT NAME AND TITLE: Occidental Chemical Corporation

APPLICANT ADDRESS: P. O. Box 300, White Springs, FL 32096-03-0

## SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Occidental Chemical Corp.

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. Furthe I agree to maintain and operate the pollution control source and pollution contr facilities in such a manner as to comply with the provision of Chapter 403, Flori Statutes, and all the rules and regulations of the department and revisions thereof. also understand that a permit, if granted by the department, will be non-transferab and I will promptly notify the department upon sale or legal transfer of the permitt establishment.

*Attach letter of authorization

Signed: Hudson C. Smith

Hudson C. Smith, Vice President & General Mgr.
Name and Title (Please Type)

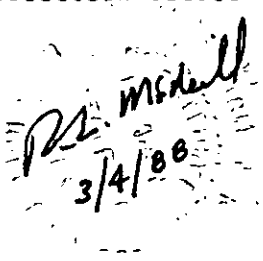
Date: 2/7/88 Telephone No. 904/397-8101

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 hav been designed/examined by me and found to be in conformity with modern engineerin principles applicable to the treatment and disposal of pollutants characterized in th permit application. There is reasonable assurance, in my professional judgment, tha

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

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




Signed R. E. McNeill

R. E. McNeill
Name (Please Type)

Occidental Chemical Corporation
Company Name (Please Type)

P. O. Box 300, White Springs, FL 32096-0300
Mailing Address (Please Type)

Florida Registration No. 12813 Date: 3/4/88 Telephone No. 904/397-8269

## 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.

The production rate of "C" sulfuric acid is being increased from 2000 TPD to 2300 TPD of 100% acid. The increased SO2, acid mist, and NOx emissions will be offset by reducing the permitted production rate of the "B" sulfuric acid plant by 300 TPD as stipulated in previous letters to the Department. This increase is concurrent with similar increases at "A" and "C" sulfuric acid plants. Total reduction at "B" sulfuric acid plant will be 800 TPD.

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

Start of Construction _____ Completion of Construction _____

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

Existing control systems (double absorption towers and high efficiency mist eliminators) will be adequate to control emissions at the higher rate.

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

AC24-2131 issued 11/6/73 expiring 6/30/75; AO24-2548 revised 3/1/76 expiring 1/31/81

AO24-34851 issued 12/23/81 expiring 12/23/86

AO24-125595 issued 12/12/86 expiring 12/23/91; AC24-131271 issued 9/29/87 ~~expiring 7~~/1/88

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. No

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. No

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.

## 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 | | |
| Sulfur | Ash | Approx. 0.005% | 62775 | 1 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

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

1. Total Process Input Rate (lbs/hr): 62775

2. Product Weight (lbs/hr): 206,093 of 93% H2SO4

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 | |
| Sulfur Dioxide | 383.3 | 1678.4 | 17-2.600(2)(b) | 383.3 | 383.3 | 1678.4 | 1 |
| H2SO4 Mist | 14.4 | 63 | " | 14.4 | 254.4 | 1114.2 | 1 |
| VE | 10% | | " | 10% | | | |
| | | | | | | | |
| | | | | | | | |

[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 opereted without control (See Section V, Item 3).

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) |
|---|---|---|---|---|
| Double Absorption | SO2 | 99.7% | NA | Design & Test |
| Contact H2SO4 Parsons | | | | |
| Plant | | | | |
| | | | | |
| Brinks ES mist | H2SO4 Mist | 94% | 0-10 | Test |
| Eliminator | | | | |

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.

None

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

Stack Height: 150 ft. Stack Diameter: 9.0 ft.

Gas Flow Rate: 112,750 ACFM 93,750 DSCFM Gas Exit Temperature: 175 °F.

Water Vapor Content: 0 % Velocity: 29.5 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) | | | | | | | |

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) _____

ATTACHMENT 1

PRODUCT RATE: 2300 Short Tons Per Day (STPD) of 100% $H_2SO_4$ as 93% $H_2SO_4$ - or -

$$\frac{2300 \text{ ton}}{\text{day}} \times \frac{1}{.93} \times \frac{\text{day}}{24 \text{ hr.}} \times \frac{2000 \text{ lb.}}{\text{ton}} = 206093 \text{ lb/hr}$$

PROCESS INPUT 2300 STPD of 100% $H_2SO_4$ equivalent to 751 STPD of sulfur (2300 x 32/98) at an efficiency of 99.7% requires 753.3 STPD of sulfur (751/0.997) - or -

$$\frac{753.3 \text{ ton}}{\text{day}} \times \frac{\text{day}}{24 \text{ hr.}} \times \frac{2000 \text{ lb.}}{\text{ton}} = 62775 \text{ lb/hr}$$

EMISSIONS CALCULATIONS:

$$\frac{2300 \text{ ton}}{\text{day}} \times \frac{\text{day}}{24 \text{ hr.}} = 95.83 \text{ ton/hr.}$$

$SO_2$

4 lb/ton x 95.83 ton/hr. = 383.3 lb/hr.
383.3 lb/hr x 24 hr/day x 365 day/yr x ton/2000 lb = 1678.4 ton/yr

MIST

0.15 lb/ton x 95.83 ton/hr. = 14.38 lb/hr.

$$14.38 \text{ lb/hr} \times 24 \text{ hr/day} \times 365 \text{ day/yr} \times \frac{\text{ton}}{2000 \text{lb}} = 62.98 \text{ ton/yr}$$

Receipt #117527
$1000.00
AC24-146404

STATE OF FLORIDA

# DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER DISTRICT
3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803

RECEIVED
MAR 08 1988
DER - BAQM

BOB GRAHAM
GOVERNOR
VICTORIA J. TSCHINKEL
SECRETARY
ALEX SENKEVICH
DISTRICT MANAGER

## APPLICATION TO ~~OPERATE~~/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Double Absorption Sulfuric Acid [ ] New[1] [X] Existing[1]

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

COMPANY NAME: Occidental Chemical Corporation COUNTY: Hamilton

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) Sulfuric Acid Plant "D"

SOURCE LOCATION: Street SR 137 City White Springs

UTM: East (17) 328,320 North 3,368,820

Latitude 32 ° 26 ' 27 "N Longitude 82 ° 47 ' 16 "W

APPLICANT NAME AND TITLE: Occidental Chemical Corporation

APPLICANT ADDRESS: P. O. Box 300, White Springs, FL 32096-0300

## SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Occidental Chemical Corp.

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. Furthe I agree to maintain and operate the pollution control source and pollution contr facilities in such a manner as to comply with the provision of Chapter 403, Flori Statutes, and all the rules and regulations of the department and revisions thereof. also understand that a permit, if granted by the department, will be non-transferab and I will promptly notify the department upon sale or legal transfer of the permitt establishment.

*Attach letter of authorization

Signed: Hudson C. Smith

Hudson C. Smith, Vice President & General Mgr
Name and Title (Please Type)

Date: 2/7/88 Telephone No. 904/397-8101

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 ha been designed/examined by me and found to be in conformity with modern engineeri principles applicable to the treatment and disposal of pollutants characterized in t permit application. There is reasonable assurance, in my professional judgment, th

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

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

R. E. McNeill 3/4/88.

Signed R. E. McNeill

R. E. McNeill

Name (Please Type)

Occidental Chemical Corporation

Company Name (Please Type)

P. O. Box 300, White Springs, FL 32096-0300

Mailing Address (Please Type)

Florida Registration No. 12813 Date: 3/4/88 Telephone No. 904/397-8269

## 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.

The production rate of "D" Sulfuric acid is being increased from 2000 TPD to 2300 TPD of 100% acid. The increased SO2, acid mist, and NOx emissions will be offset by reducing the permitted production rate of the "B" Sulfuric acid plant by 300 TPD as stipulated in previous letters to the Department. This increase is concurrent with similar increases at "A" and "C" Sulfuric acid plants. Total reductions at "B" sulfuric acid plant will be 800 TPD.

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

Start of Construction March 1988 Completion of Construction April 1988

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.)

Existing control systems (double absorption towers and high efficiency mist eliminators) will be adequate to control emissions at the higher rate.

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

AO24-2132 issued 11/6/73 expiring 6/30/75; AO24-2485 issued 10/9/75 expiring 9/30/80

AO24-34185 issued 1/15/81 expiring 9/30/85

AO24-107480 issued 8/22/85 expiring 8/26/90; AC24-131270 issued 9/29/87 expiring 7/1/88

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. No

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. No

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.

## 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 | | |
| Sulfur | Ash | Approx. 0.005% | 62775 | 1 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

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

1. Total Process Input Rate (lbs/hr): 62775

2. Product Weight (lbs/hr): 206,093 of 93% H2SO4

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 | |
| Sulfur Dioxide | 383.3 | 1678.4 | 17-2.600(2)(b) | 383.3 | 383.3 | 1678.4 | 1 |
| H2SO4 Mist | 14.4 | 63 | " | 14.4 | 254.4 | 1114.2 | 1 |
| VE | 10% | | " | 10% | | | |
| | | | | | | | |
| | | | | | | | |

[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).

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) |
|---|---|---|---|---|
| Double Absorption | SO2 | 99.7% | NA | Design & Test |
| Contact H2SO4 Parsons | | | | |
| Plant | | | | |
| | | | | |
| Brinks ES mist | H2SO4 Mist | 94% | 0-10 | Test |
| Eliminator | | | | |

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.

None

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

Stack Height: 150 ft. Stack Diameter: 9.0 ft.

Gas Flow Rate: 112,750 ACFM 93,750 DSCFM Gas Exit Temperature: 175 °F.

Water Vapor Content: 0 % Velocity: 29.5 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) | | | | | | | |

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) _____

ATTACHMENT 1

PRODUCT RATE: 2300 Short Tons Per Day (STPD) of 100% $H_2SO_4$ as 93% $H_2SO_4$ - or -

$$\frac{2300 \text{ ton}}{\text{day}} \times \frac{1}{.93} \times \frac{\text{day}}{24 \text{ hr.}} \times \frac{2000 \text{ lb.}}{\text{ton}} = 206093 \text{ lb/hr}$$

PROCESS INPUT 2300 STPD of 100% $H_2SO_4$ equivalent to 751 STPD of sulfur (2300 x 32/98) at an efficiency of 99.7% requires 753.3 STPD of sulfur (751/0.997) - or -

$$\frac{753.3 \text{ ton}}{\text{day}} \times \frac{\text{day}}{24 \text{ hr.}} \times \frac{2000 \text{ lb.}}{\text{ton}} = 62775 \text{ lb/hr}$$

EMISSIONS CALCULATIONS:

$$\frac{2300 \text{ ton}}{\text{day}} \times \frac{\text{day}}{24 \text{ hr.}} = 95.83 \text{ ton/hr.}$$

$SO_2$

4 lb/ton x 95.83 ton/hr. = 383.3 lb/hr.
383.3 lb/hr x 24 hr/day x 365 day/yr x ton/2000 lb = 1678.4 ton/yr

MIST

0.15 lb/ton x 95.83 ton/hr. = 14.38 lb/hr.

$$14.38 \text{ lb/hr} \times 24 \text{ hr/day} \times 365 \text{ day/yr} \times \frac{\text{ton}}{2000 \text{lb}} = 62.98 \text{ ton/yr}$$