Technical Evaluation

and

Preliminary Determination

Occidental Chemical Company

Swift Creek Chemical Complex

Hamilton County, Florida

Permit Numbers

STATE

Sulfuric Acid Plant "F" AC 24-56209
Auxiliary Boiler "E" AC 24-56210
Sulfuric Acid Plant "E" AC 24-56211

FEDERAL

Sulfuric Acid Plant Production Rate Increase PSD-FL-082
and
Auxiliary Boiler "E" Fuel Conversion

Florida Department of Environmental Regulation

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Central Air Permitting

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NOTICE OF PROPOSED AGENCY ACTION

The Department of Environmental Regulations gives notice of its intent to issue permits to Occidental Chemical Company. These permits will allow an increase in the production of two existing sulfuric acid plants and the use of fuel oil containing a higher percentage of sulfur than they are currently permitted to use in four existing steam boilers and a diammonium phosphate dryer. These sources are located at the Suwannee River (SRCC) and Swift Creek Chemical Complexes (SCCC) near White Springs in Hamilton County, Florida. No physical modifications to the plant equipment is required to accomplish these operational changes.

A best available control technology (BACT) determination was required for sulfur dioxide (SO_2).

Emission of criteria pollutants from the two chemical complexes will increase by the quantities in tons per year (TPY), listed below.

	SO_2
SRCC	443.9
SCCC	951

Emissions from the modified sources will consume increment but will not violate any state or federal ambient air quality standards. The maximum increment consumption, in micrograms per cubic meter (ug/m^3), and percent of available increment are listed below.

	SRCC		SCCC	
	ug/m^3	Percent	ug/m^3	Percent
SO_2				
Three hours	256	50	416	81
24-hours	73	80	79	87
Annual	12	60	8	40

A person who is substantially affected by the Department's proposed permitting decision may request a hearing in accordance with Section 120.57, Florida Statutes, and Chapter 17-1 and 28-5 Florida Administrative Code. The request for hearing must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Twin Towers Office Building, Tallahassee, Florida 32301, within (14) days of publication of this notice. Failure to file a request for hearing within this time period shall constitute a waiver of any right such person may have to request hearing under Section 120.57, Florida Statutes.

By authority of the U. S. Environmental Protection Agency, the Florida Department of Environmental Regulation (FDER) has reviewed the proposed construction under Federal Prevention of Significant Deterioration Regulations (40 CFR 52.21). The FDER has made a preliminary determination that the construction can be approved provided certain conditions are met. A summary of the basis for this determination and the application for a permit submitted by Occidental Chemical Company are available for public review in the following FDER offices:

Department of Environmental Regulation
Northeast District
3426 Bills Road
Jacksonville, Florida 32207

Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

Columbia County Public Library
490 N. Columbia Street
Lake City, Florida

Any person may send written comments on the proposed action to Mr. Clair Fancy at the Department's Tallahassee address. All comments mailed within 30 days of publication of this notice will be considered in the Department's final determination.

I. SYNOPSIS OF APPLICATION

A. Name and Address of Applicant

Occidental Chemical Company
P. O. Box 300
White Springs, Florida 32096

B. Source Location

The proposed source is located at Occidental Chemical Company's Swift Creek Chemical Complex; at SR 137, White Springs, Hamilton County, Florida. The UTM coordinates are 320.860 km East and 3,369.750 km North.

C. Project Description

Occidental proposes to increase the production of sulfuric acid from 2 existing sulfuric acid plants at the Swift Creek Chemical Complex (SCCC) and to increase the sulfur content of the fuel oil used to fire the existing sulfuric acid plants auxiliary boiler.

The proposed production capacity of the two sulfuric acid plants ("E" and "F") will be increased from 2,000 tons per day to 2,500 tons per day each of 100 percent sulfuric acid. The proposed modifications to the "E" auxiliary boiler will result in a change to fuel oil with a maximum of 1.0 percent sulfur and an increase in the annual operating factor from 93.0 to 97.5 percent.

D. Process and Controls

The principal steps in the sulfuric acid manufacturing process consist of burning sulfur (S) in air to form sulfur dioxide (SO_2), combining the sulfur dioxide with oxygen (O_2) to form sulfur trioxide (SO_3), and combining the sulfur trioxide with water (H_2O) to form sulfuric acid (H_2SO_4). The chemical reactions are:

$S + O_2 = SO_2$	In sulfur furnace
$SO_2 + 1/2\ O_2 = SO_3$	In converter
$SO_3 + H_2O = H_2SO_4$	In two absorption towers

The dual absorption process selected by the applicant is the best demonstrated control technology for SO_2 emissions from sulfuric acid plants. The high efficiency acid mist eliminator is the best demonstrated control technology for acid mist emissions. These controls will reduce the total emissions from the proposed source to a level that is in compliance with the federal New Source Performance Standards (NSPS) requirements of 40 CFR 60, Subpart H.

II. RULE APPLICABILITY

A. Federal Regulations

The proposed project is subject to preconstruction review under federal Prevention of Significant Deterioration (PSD) regulations, Section 52.21 of Title 40 of the Code of Federal Regulations as amended in the Federal Register of August 7, 1980 (45 CFR 52676). Specifically, the proposed project involves three major stationary sources (40 CFR 52.21(b)(1) located in an area currently designed as attainment in accordance with 40 CFR 81.310 for all criteria pollutants regulated under the Clean Air Act (CAA).

The proposed project will be a major modification (40 CFR 52.21(b)(2)) for sulfur dioxide (SO_2), and sulfuric acid mist. Emissions of SO_2 and sulfuric acid mist will increase above the significant criteria set in the PSD regulations. Therefore, the proposed project is subject to PSD review for these pollutants.

The emission rates increases for particulate matter, nitrogen oxides, carbon monoxide and hydrocarbons are below the de minimus levels established for these pollutants.

The PSD review consists of a determination of Best Available Control Technology (BACT) and, unless otherwise exempted, an analysis of the air quality impact of the increased emissions.

The review also includes an analysis of the project's impacts on soils, vegetation and visibility along with air quality impacts resulting from associated commercial, residential and industrial growth.

The proposed project is also subject to the provisions of the federal New Source Performance Standard (NSPS) for sulfuric acid plants (40 CFR 60, Subpart H).

B. State Regulations

The proposed project is subject to preconstruction review under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2, Florida Administrative Code.

The proposed project location, Hamilton County, is an area currently designed as attainment in accordance with Section 17-2.420 FAC for all criteria pollutants.

The sources comprise a major emitting facility for sulfur dioxide (SO_2), sulfuric acid mist and nitrogen oxides (NO_x) as defined in Chapter 17-2, because the potential

emissions of each exceed 100 tons per year (TPY). The project is subject to the provisions of Subsection 17-2.650, FAC, Table II. Emission Limiting Standards, and Subsection 17-2.500 Prevention of Significant Deterioration PSD Review which requires the use of Best Available Control Technology (BACT).

The sources are also subject to the provisions of the federal New Source Performance Standard (NSPS) for sulfuric acid plants, 40 CFR 60, Subpart H. This NSPS has been adopted by reference in Section 17-2.660, FAC.

III. SOURCE IMPACT ANALYSIS

A. Emission Limitations

The regulated pollutant emissions from the two sulfuric acid plants are sulfur dioxide, acid mist and opacity. Organic compounds, nitrogen oxides, nitrosyl sulfuric acid and water vapor may also be present in the emission from the plants.

The operation of the 156 MMBTU/hr auxiliary boiler will produce emissions of particulate matter (PM), sulfur dioxide (SO_2) nitrogen oxides (NO_x), carbon monoxide (CO) and volatile organic compounds (VOC) to the atmosphere.

Table 1 summarizes potential to emit all pollutants regulated under the act which are affected by the proposed project.

As the table shows, the proposed emissions increase of SO_2 and sulfuric acid mist exceeds the significance levels set in the PSD regulations. Although the other regulated pollutants are exempt from a PSD review because their emissions do not increase, they are required to meet all applicable emission limits and standards of performance under the Florida State Implementation Plan.

Best Available Control Technology (BACT) has been determined for SO_2 and sulfuric acid mist for the Sulfuric acid plant and SO_2, for the auxiliary boiler "E". The emission limiting standard selected as BACT and made a condition of the permits are listed in Table 2. Justification for the standards selected is included in Technical Appendix A.

The permitted emission, including those determined as BACT, are in compliance with all applicable requirements of Chapter 17-2 and with New Source Performance Standard (NSPS) requirements of 40 CFR 60, Subpart H.

B. Air Quality Impact Analysis

The air quality impact analysis required for SO_2 and sulfuric acid mist consists of:

- An analysis of existing air quality;
- A PSD increment analysis (for SO_2 only);
- A National and Florida Ambient Air Quality Standards (AAQS) analysis;

Table 1
SUMMARY OF EMISSIONS
(Tons per year)

SOURCE	Pollutant Emissions					
	SO_2	PM	H_2SO_4 Mist	NO_x	CO	VOC
"E" Sulfuric Acid Plant						
Proposed Emission	1825	--	68.3	64.8	0.5	---
Permitted Emission	1460	--	54.8	51.7	0.4	---
Increase[1]	365	--	13.5	13.1	0.1	---
"F" Sulfuric Acid Plant						
Proposed Emission	1825	--	68.3	64.8	0.5	---
Permitted Emission	1460	--	54.8	51.7	0.4	---
Increase[1]	365	--	13.5	13.1	0.1	---
"E" Auxiliary Boiler						
Proposed Emission	729	59	---	273	23	5
Existing Emission	508	64	---	260	21	4
Increase[1]	221	-5	---	13	2	1
Fugitive Emission[2]	----	--	---	<1	1	<1
Net Increase from Proposed Modification	951	-5	27	39.2	3	1
PSD Significance Level[3]	40	25	7	40	100	40

(1) Applicant's estimate of emission rate increases that will result from increasing the production capacity of the "E" and "F" sulfuric acid plants from 2,000 TPD to 2,500 TPD each and from increasing the sulfur content of the fuel to the "E" auxiliary boiler to 1.0 percent.

(2) Vehicle Traffic.

(3) 40 CFR 52.21.

Table 2

ALLOWABLE EMISSION LIMITS

SOURCE	POLLUTANT EMISSION						
	SO_2	PM	Mist	NO_x	CO	VOC	BASIS
"E" Sulfuric Acid Plant							
Standard	4 lb/ton 100% acid	--	0.15 lb/ton 100% acid	---	---	---	NSPS and BACT
Emission Rate(lb/hr)	416.7	--	15.6	14.8	0.1	---	
"F" Sulfuric Acid Plant							
Standard	4 lb/ton 100% acid	--	0.15 lb/ton 100% acid	---	---	---	NSPS and BACT
Emission Rate(lb/hr)	416.7	--	15.6	14.8	0.1	---	
"E" Auxiliary Boiler							
Emission Rate	1.1 $lb/10^6$ BTU heat input and 170.7 lb/hr	--	----	---	---	---	
		13.9	----	64	5.3	1.1	BACT and Emission rates as estimated by the applicant

- An analysis of impacts on soils, vegetation and visibility and of growth-related air quality impacts; and

- A "good engineering practice (GEP)" stack height evaluation.

The analysis of existing air quality generally relies on preconstruction ambient air monitoring data collected in accordance with EPA-approved methods. The PSD increment and AAQS analyses depend on air quality modeling carried out in accordance with EPA guidelines.

Based on these required analyses, the Department has reasonable assurance that the proposed Occidental Chemical Company Swift Creek Chemical Complex (SCCC) modification, as described in this permit and subject to the conditions of approval proposed herein, will not cause or contribute to a violation of any PSD increment or ambient air quality standard. A discussion of the modeling methodology and required analyses follows.

1. Modeling Methodology

Four EPA-approved atmospheric dispersion models were used to predict ground-level pollutant concentrations. The Single-Source (CRSTER) model and the PTMTPW model were used for short-term (24 hours or less) averages to predict maximum concentrations in the vicinity of the facility. CRSTER was used first to establish the meteorological conditions resulting in the highest, second- high impacts. PTMTPW was then run for these days of critical meteorology to further refine the results using all possible sources which may significantly interact with the facility, along with a finer receptor grid spacing (0.1 km).

The Air Quality Display Model (AQDM) was used to predict annual concentrations. Receptors for this modeling were placed at 1.0 km intervals.

The Industrial Source Complex Short-Term (ISCST) model was used to predict short and long term concentrations on the nearest Class I area, the Okefenokee National Wildlife Refuge in southeast Georgia. This model was used to take advantage of the pollutant decay feature written into the program. An SO_2 half-life of 12 hours was used. This additional refinement was needed to show that Class I PSD increments would not be violated.

The surface meteorological data used in the models were National Weather Service (NWS) data collected at Valdosta, Georgia for the period 1972-1976. Upper-air meteorological data were collected at the NWS Waycross, Georgia station for the same period.

Stack parameters and emission rates used in evaluating the proposed modification are given in Tables 1 and 2. Table 1 lists all the SO_2 emission units at both the SCCC and the Suwannee River Chemical Complex (SRCC) facilities at the emission rates to be allowed after the proposed modifications to both facilities. Table 2 lists all SO_2 increment consuming emission units at both facilities for that part of their emission rates which consume increment.

2. Analysis of Existing Air Quality

Under the State regulations (Rule 17-2.500(5)(f)FAC) the applicant is required to submit preconstruction monitoring data for all pollutants for which a significant increase in annual emissions is proposed and for which an ambient air quality standard exists. For the SCCC facility only SO_2 is subject to this rule. (The Department has determined that preconstruction monitoring for sulfuric acid mist is not necessary.) The monitoring must be continuous and in general comprise a one-year period. The Department may reduce the length of this period to no less than four months when sufficient justification warrants. Due to the rural setting of this facility and its remoteness from other SO_2 emitting sources, the Department has determined that four months of continuous monitoring data at one site is sufficient to satisfy the requirement. A similar federal regulation requiring preconstruction monitoring (40 CFR 52.21(m)) is not applicable to the federal permit because a complete application was submitted by the applicant before this regulation went into effect.

The applicant has elected to use an existing monitor operated by the Department to satisfy the monitoring requirement. The monitor is continuous and satisfies the EPA site selection criteria guidelines. Four months of data (April 1982 through July 1982)* have been analysed from this monitor, and are summarized summarized in the following table.

Averaging Period	Highest (ug/m^3)	2nd Highest (ug/m^3)
1-hour	371	357
3-hour	314	180
24-hour	67	26
4-month	4	

*Monitor began operation April, 1982.

A determination of the background concentration of SO_2 for the area surrounding the SCCC facility can be obtained by averaging the monitored SO_2 values over all hours for which the monitor was not influenced by the SCCC and SRCC sources. This background value is calculated to be 0 ug/m^3.

Table 1

SUMMARY OF SULFUR DIOXIDE EMISSIONS
OCCIDENTAL CHEMICAL COMPANY
SRCC & SCCC

SOURCE NAME	EMISSION RATE LB/HR	EMISSION RATE (G/SEC)	STACK HT. (M)	STACK TEMP. (DEG-K)	EXIT VEL. (M/SEC)	STACK DIA. (M)
Sulfuric Acid A	1208.3	152.25 (1)	61.0	350.0	15.50	1.80
Sulfuric Acid B	1208.3	152.25 (1)	61.0	350.0	15.50	1.80
Sulfuric Acid C	300.0	37.80 (2)	45.7	356.0	28.70	1.59
Sulfuric Acid D	300.0	37.80 (2)	45.7	356.0	28.70	1.59
DAP 1	11.1	1.40 (4)	36.6	322.0	12.20	2.13
DAP 2	11.8	1.49 (4)	42.7	325.0	13.10	2.44
GTSP/Dical	11.1	1.40 (10)	32.3	314.0	13.10	2.13
Auxiliary Boiler A	102.4	12.90 (5)	12.2	466.0	12.50	1.13
Pollyphos Feed Prep.	4.9	0.62 (4)	28.7	342.0	14.90	1.07
Pollyphos Reactor A	5.0	0.63 (6)	30.5	322.0	10.10	1.22
Pollyphos Reactor B	5.0	0.63 (6)	30.5	322.0	10.10	1.22
SPA #1	0.8	0.10 (6)	30.5	318.0	17.80	0.43
Rock Dryer #3 (SCCC)	38.1	4.80 (10)	15.2	317.0	17.20	2.16
Rock Dryer East	28.7	3.61 (10)	18.3	343.0	5.70	2.95
Rock Dryer West	28.7	3.61 (10)	18.3	343.0	5.70	2.95
Auxiliary Boiler B	174.9	22.00 (7)	10.7	468.0	9.50	1.46
Auxiliary Boilers C&D	262.2	33.00 (8)	31.7	468.0	15.20	1.98
Sulfuric Acid E(SCCC)	416.7	52.50 (3)	61.0	356.0	9.30	2.90
Sulfuric Acid F(SCCC)	416.7	52.50 (3)	61.0	356.0	9.30	2.90
Auxiliary Boiler E (SCCC)	170.8	21.50 (4)	15.3	428.0	15.90	1.60

(1) At 1000 tpd 100% H_2SO_4 and 29 lb SO_2/ton of acid.
(2) At 1800 tpd 100% H_2SO_4 and 4 lb SO_2/ton of acid.
(3) At 2500 tpd 100% h_2SO_4 and 4 lb/SO_2/ton of acid.
(4) At 1.5% sulfur fuel and 80% SO_2 sorption.
(5) At 62.5 x 10^6 BTU/hr and 1.5% sulfur fuel. A 25% operating factor is imposed when Sulfuric Acid Plants A and B are operating at rated capacity.
(6) Based on emission measurements.
(7) At 160 x 10^6 BTU/hr and 1.0% sulfur fuel.
(8) Two boilers at 120 x 10^6 BTU/hr each and 1.0% sulfur fuel.
(9) At 156 x 10^6 BTU/hr and 1.0% sulfur fuel.
(10) Actual emissions with 1.5% sulfur fuel.

Table 2

SUMMARY OF INCREMENT CONSUMING EMISSIONS

Emission Unit	SO_2 Increment Consuming Emission(g/s)
Sulfuric Acid E (SCCC)	52.5
Sulfuric Acid F (SCCC)	52.5
Auxiliary Boiler E (SCCC)	21.5
Auxiliary Boiler B (SRCC)	22.0
Auxiliary Boilers C and D (SRCC)	33.0
DAP 2 "Z"-train (SRCC)	0.69(1)

(1) Only 0.69 g/s of the total SO_2 emission of 1.49 g/s contributes to increment consumption.

3. PSD Increment Analysis

The SCCC facility is located in an area where the Class II PSD increments apply. The nearest Class I area is the Okefenokee National Wildlife Refuge located approximately 40 kilometers to the northeast. Both a Class II and a Class I PSD increment analysis for SO_2 is required.

The emission units at the SCCC facility which consume SO_2 increment are the E and F sulfuric acid plants and the E auxiliary boiler. Increment consuming sources at the SRCC facility have been modeled along with the SCCC sources due to the close proximity of these facilities. No other sources of SO_2 significantly impact this area.

The results of the Class II modeling analysis are contained in the following table.

Pollutant and Time Average	Class II Increment(ug/m^3)	Predicted Increase(ug/m^3)	Percent Increment Consumed
SO_2			
Three-hour(1)	512	416	81
24-hour(1)	91	79	87
Annual	20	8	40

(1) Not to be exceeded more than once per year.

A more refined modeling analysis was performed to assess the impact of the proposed emission increases on the Okefenokee Class I area. Due to the long distance (approximately 40 km) and, hence the longer transport time of the plume to the Class I area, conversion of some of the SO_2 to sulfates will be realized, thereby lessening the ground-level concentrations of SO_2. The method by which this conversion is simulated in the model is by introducing an appropriate half-life for SO_2--in this case, 12 hours. The results of this modeling analysis are summarized in the following table.

Pollutant and Time Average	Class I Increment(ug/m^3)	Predicted Increase(ug/m^3)	Percent Increment Consumed
SO_2			
Three-hour(1)	25	25	100
24-hour(1)	5	5	100
Annual	2	1	50

1 Not to be exceeded more than once per year.

No violation of a PSD allowable increment is predicted as a result of the proposed modification at the SCCC facility.

4. AAQS Analysis

An AAQS analysis is required for all pollutants for which a significant increase in annual emissions is proposed. The analysis includes an evaluation of the background concentrations of the subject pollutants and a modeling evaluation of all sources of those pollutants at both the modified facility and any surrounding facilities (within 50 km) which may impact the area.

An evaluation for SO_2 and sulfuric acid mist is required at the SCCC facility. An estimate of the background concentration of SO_2 is obtained from the preconstruction monitoring described in a previous section. A value of 0 ug/m^3 for all averaging times is obtained. The maximum ground-level concentrations in the vicinity of the SCCC facility are summarized in the following table.

Pollutant and Time Average	Florida AAQS	National AAQS	Predicted Impact
SO_2 (ug/m^3)			
Three-hour(1)	1300	1300(2)	425
24-hour(1)	260	365	195
Annual	60	80	10
Sulfuric Acid Mist (ug/m^3)			
Three-hour	-----	-----	11
24-hour	-----	-----	2
Annual	-----	-----	<1

(1) Not to be exceeded more than once per year
(2) Secondary Standard.

5. Analysis of Impacts on Soils, Vegetation, and Visibility and Growth-Related Air Quality Impacts

The maximum ground-level concentrations predicted to occur as a result of the proposed modifications at SCCC are below the applicable National and Florida AAQS for SO_2, including the secondary standard designed to protect public welfare-related values. Therefore, no adverse impacts on soils and vegetation are expected.

The SCCC is located within 40 kilometers of a Class I area' however, no adverse impact on visibility is expected. Significant emission increases will be realized for SO_2 only. Visibility degradation is related much more to particulate and nitrogenoxides emissions.

The proposed modification at the SCCC will result in no new jobs. As a result no growth-related air quality impacts will occur.

6. GEP Stack Height Evaluation

Regulations published by EPA in the Federal Register of February 8, 1982, define GEP stack height as the highest of:

1. 65 meters; or
2. The maximum nearby building height plus 1.5 times the building height or width, whichever is less.

While the actual stack height employed can exceed this height, the stack height used in modeling to determine compliance with the AAQS and PSD increments cannot. As seen in Table 1, all stacks at SCCC are less than the GEP limit of 65 meters.

IV. CONCLUSIONS

Based on the review of the data submitted by Occidental Chemical Company for the modification of two double absorption type sulfuric acid plants, and the increase in the sulfur content of the fuel oil in the "E" auxiliary boiler, the FDER concludes that compliance with all applicable federal and State air quality regulations will be achieved provided certain specific conditions are met. The 1% sulfur content in the fuel oil and the NSPS emission limits proposed by the applicant of 4 pounds of sulfur dioxide per ton of 100% acid produced, 0.15 pounds of acid mist per ton of 100% acid produced, and 10 percent opacity have been determined to be the Best Available Control Technology (BACT). The impact of the sulfuric acid plants and auxiliary boiler "E" emissions will not cause or contribute to a violation of any ambient air quality standard or PSD increment.

The FDER therefore proposes that an authorization to construct be issued to Occidental Chemical Company for the proposed sulfuric acid plants "E" and "F" and auxiliary boiler "E" subject to specific conditions to insure compliance with all applicable regulations. Appendix B includes the proposed conditions.

TECHNICAL APPENDIX A

BACT DETERMINATION

Best Available Control Technology (BACT) Determination
Part I of III
Occidental Chemical Company
Hamilton County

The applicant plans to increase production from the sulfuric acid plants "E" and "F" located at their fertilizer grade phosphate rock processing facility at the Swift Creek Chemical Complex near White Springs, Florida. The production capacity of each acid plant is to be increased 25 percent to 2500 tons per day of 100% acid. Both acid plants have inherent in the initial design a production rate of 2300 tons per day with no major equipment modifications. It will be necessary to modify the economizer, gas handling and catalyst loading systems to achieve the 2500 tons per day production rate.

Air pollutants emitted from the sulfuric acid plants will be SO_2, NO_x, CO and sulfuric acid mist increasing the annual ambient air burden by 730,26,1, and 27 tons, respectively. Sulfur dioxide and sulfuric acid mist emissions increase exceeds the significant emission rate and requires a Best Available Control Technology determination as set forth in 17-2.500(2)(f), FAC.

The applicant has submitted several applications that require a BACT determination. Three determinations have been made by combining similar sources as follows:

PART I - Sulfuric Acid Plants,
PART II - Boiler Fuel Conversions
PART III - DAP Dryer Fuel Conversion.

BACT Determination Requested by the Applicant:

Sulfuric Acid Plant E and F.

Pollutant	Emission Limit
SO_2	4.0 lb/ton 100% acid
H_2SO_4 mist	0.15 lb/ton 100% acid

Sulfur dioxide emissions will be controlled by double absorption with catalyst screening and make up every three to five years.

Sulfuric acid mist emissions will be controlled with HV mist eliminators.

Date of Receipt of a BACT application:

May 27, 1982

Date of Publication in the Florida Administrative Weekly:

June 11, 1982

Review Group Members:

The final determination was based upon comments received from the New Source Review Section and the Air Modeling Section.

BACT Determined by DER:

Sulfur dioxide emissions from sulfuric acid plants E and F not to exceed 4 pounds per tons of 100% sulfuric acid produced.

Sulfuric acid mist emissions from sulfuric acid plants E and F not to exceed 0.15 pounds per ton of 100% sulfuric acid produced.

Visible emissions to be less than 10% opacity.

Test methods and procedures per the NSPS, 40 CFR Part 60, Subpart H, Subsections 60.84 and 60.85.

Justification of DER Determination:

Sulfur dioxide and sulfuric acid mist emissions are subject to standards of performance for sulfuric acid plants (40 CFR 60.80) promulgated in 1971. U. S. EPA reviewed the standard in 1979 (44 FR15742) and decided not to change the emission limits.

BACT for the sulfuric acid plants E and F is determined to be equal to New Source Performance Standards (NSPS) for sulfuric acid plants, 40 CFR 60, Subpart H.

Details of the Analysis May be Obtained by Contacting:

Edward Palagyi, BACT Coordinator
Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

Recommended By:

for _____
Steve Smallwood, Chief BAQM

Date: 11/2/82

Approved:

_____
Victoria J. Tschinkel, Secretary

Date: _____

Best Available Control Technology (BACT) Determination
Part II of III
Occidental Chemical Company
Hamilton County

The applicant plans to fire a higher sulfur content fuel in four fossil-fuel fired steam generators located at their facilities near White Springs, Florida. Boiler E is at the Swift Creek Complex and boilers B, C, D are at the Suwannee River Complex. The existing sources are as follows.

1. Gas fired auxiliary steam boiler "B" is rated at 160 million BTU per hour heat input. The steam produced is used to augment the steam produced by the sulfuric acid plants B and C. Boiler B is operated at 25% of rated capacity when the sulfuric acid plants are in operation. No. 6 oil is used as a stand-by fuel, the sulfur content of which is limited by permit conditions at 0.8% maximum.

2. Gas fired auxiliary steam boiler "C" is rated at 120 million BTU per hour heat input. The steam produced is used in the superphosphoric acid evaporators. No. 6 oil is used as a stand-by fuel, the sulfur content of which is limited by permit conditions at 0.8% maximum.

Boiler "C" has recently been modified to fire a coal-oil mixture (COM), also a stand-by fuel for this unit. The sulfur content of the COM is limited by permit conditions at 0.7% maximum.

3. Gas fired auxiliary steam boiler "D" is rated at 120 million BTU per hour heat input. The steam produced is used in the superphosphoric acid evaporators. No. 6 oil is used as a stand-by fuel, the sulfur content of which is limited by permit conditions at 0.8% maximum.

The combustion gases from boiler "C" and boiler "D" exhaust through a common stack. There is a fabric filter baghouse which is used to control particulate emissions only when COM is fired.

4. Oil fired auxiliary steam boiler "E" is rated at 156 BTU per hour heat input. The steam produced is used to augment the steam produced by the sulfuric acid plants. No. 6 oil is fired, the sulfur content of which is limited by permit conditions at 0.8% maximum.

Emission Evaluation: (1)

Pollutant	Boiler B	Boiler C	Boiler D	Boiler E
Particulates	lb/hr	lb/hr	lb/hr	lb/hr
current	12.01	9.01	9.01	11.55
proposed	14.20	10.65	10.65	13.9
increase	2.19	1.64	1.64	2.35
SO_2	lb/hr	lb/hr	lb/hr	lb/hr
current	137.16	102.87	102.87	131.88
proposed	174.8	128.58	128.58	170.7
increase	37.64	25.71	25.71	38.82
Fuel Use	GPH	GPH	GPH	GPH
MAX	1092	819	819	1050
AVE	273	210	210	252
COM		922		

(1) AP-42 Emission Factors, Table 1.3.1

The applicant plans to fire No. 6 oil having a sulfur content of 1.0 percent instead of the 0.8 percent maximum presently allowed. The increase in sulfur dioxide emissions, as a result of burning the higher sulfur fuel, exceeds the significant emission rate of 40 tons per year and requires a BACT determination (17-2.500(5)(c)FAC) for the pollutant sulfur dioxide.

The applicant has submitted several applications that require a BACT determination. Three determinations have been made by combining similar sources as follows:

PART I - Sulfuric Acid Plants,
PART II - Boiler Fuel Conversions
PART III - DAP Dryer Fuel Conversion.

BACT Determination Requested by the Applicant:

Boilers, B, C, D, and E

Pollutant	Emission Limit
SO_2 (oil)	1.1 lb/million BTU heat input (1% sulfur content)
SO_2 (com)	0.9% sulfur content

Date of Receipt of a BACT application:

May 27, 1982

Date of Publication in the Florida Administrative Weekly:

June 11, 1982

Review Group Members:

The final determination was based upon comments received from the New Source Review Section and the Air Modeling Section.

BACT Determined by DER:

Auxiliary boiler E - Swift Creek Complex
Auxiliary boiler B, C, D - Suwannee River Complex

Sulfur dioxide emissions controlled by limiting the sulfur content of the No. 6 oil fired to a maximum of 1.0 percent and the COM fuel to 0.9 percent.

Compliance with the SO_2 emission limit will be based upon the Sulfur content of the fuel fired. Each shipment of fuel delivered to the facility will be sampled and the sulfur content determined and recorded. A certified analysis from the applicants fuel supplier may be substituted for on-site analysis. Applicable test methods by the American Society for Testing Material (A.S.T.M.) will be used.

Justification of DER Determination:

The facility is within 50 kilometers of the Okefenokee National Wilderness area, a Class 1 area. Air modeling indicates that at the conditions determined as BACT, the impact of sulfur dioxide emissions from the facility will be just less than the maximum allowable increase for a Class 1 area.

Details of the Analysis May Be Obtained by Contacting:

Edward Palagyi, BACT Coordinator
Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

Recommended By:

for _____
Steve Smallwood, Chief BAQM

Date: 11/7/82

Approved:

_____
Victoria J. Tschinkel, Secretary

Date: _____

BEST AVAILABLE CONTROL TECHNOLOGY (BACT) DETERMINATION

PART III OF III

OCCIDENTAL CHEMICAL COMPANY

HAMILTON COUNTY

The applicant plans to increase the sulfur content of the fuel oil fired in the diammonium phosphate plant (DAP) dryer. The dryer is in the Suwannee River complex located near White Springs, Florida. The existing dryer is gas fired with No. 6 residual oil fired only during periods of gas curtailment. The sulfur content of the oil is to be increased to 1.5 percent from the presently permitted maximum of 0.8 percent.

At maximum dryer capacity No. 6 oil is fired at a rate of 246 gallons per hour. SO_2 emissions, at this rate of oil consumption (assume 80% SO_2 absorption), when firing 0.8% and 1.5% sulfur content oil is 6.3 and 11.8 pounds per hour respectively. The increase in SO_2 emissions would be 5.5 pounds per hour.

A Venturi scrubber in series with a packed tail-gas scrubber is used to reduce the air pollutants emitted in the dryer exhaust gases. Sulfur dioxide emissions are reduced by the control system, and, in addition, by reaction with the material being dried.

The applicant has submitted several applications that require a BACT determination. Three determinations have been made by combining similar sources as follows:

PART I - Sulfuric Acid Plants,
PART II - Boiler Fuel Conversions
PART III - DAP Dryer Fuel Conversion.

BACT Determination Requested by the Applicant:

Pollutant	Emission Limit
SO_2	0.41 lb/ton P_2O_5 input (fuel with 1.5% sulfur)

Date of Receipt of a BACT Application:

May 27, 1982

Date of Publication in the Florida Administrative Weekly:

June 11, 1982

Review Group Members:

The final determination was based upon comments received from the New Source Review Section and the Air Monitoring Section.

BACT Determined by DER:

Diammonium Phosphate Plant No. 2 product rotary dryer.
Suwannee River Chemical Complex

Sulfur dioxide emissions controlled by limiting the sulfur content of the No. 6 oil fired to a maximum of 1.5 percent, and SO_2 emissions to 0.20 lb. SO_2/ton DAP.

The applicant shall prepare a procedure to prevent the unloading of No. 6 oil containing 1.5% sulfur into the tank(s) which contain No. 6 oil having a lower sulfur content. A record will be kept of the amount of 1.5% oil received and the DAP dryer oil consumption rate. The records shall be made available to the department upon request.

Compliance with the SO_2 emission limit will be based upon the sulfur content of the fuel fired. Each shipment of fuel delivered to the facility will be sampled and the sulfur content determined and recorded. A certified analysis from the applicants fuel supplier may be substituted for on-site analysis. Applicable test methods by the American Society for Testing Material (A.S.T.M.) will be used.

Justification of DER Determination:

To reiterate per the BACT determination, Part II, the facility is within 50 kilometers of the Okefenokee National Wilderness area, a Class I area. Air modeling indicates that at the conditions determined as BACT, the impact of sulfur dioxide emissions from the facility will be just less than the maximum allowable increase for a Class 1 area.

The quantity of controlled SO_2 emissions from the dryer, when firing 1.5% sulfur content oil, is comparable to the amount of uncontrolled SO_2 emissions when firing 1.0% sulfur content oil. Oil is the stand-by fuel for this unit and would be fired only during periods of gas curtailment.

The use of the same grade fuel oil, but with different sulfur contents, will require, at the minimum, two fuel oil storage tanks. The applicant will have to set up a fuel oil handling procedure to prevent the transfer of the higher sulfur content oil to the wrong tank or other sources.

The department has determined, in this case, that the increase in the sulfur content of the oil fired (0.8% to 1.5%) is reasonable.

provided the anticipated 80% reduction in SO_2 emissions is documented.

Details of the Analysis May be Obtained by Contacting:

Edward Palagyi, BACT Coordinator
Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

Recommended By:

(C.H. Fancy)

for Steve Smallwood, Chief BAQM

Date: 11/2/82

Approved:

Victoria J. Tschinkel, Secretary

Date:

APPENDIX B

SPECIFIC CONDITIONS

FDER proposes a preliminary determination of approval with conditions for the project requested by Occidental Chemical Company in the permit applications submitted on June 8, 1981 (federal application) and May 21, 1982 (state application).

Special conditions listed in the state permits AC 24-56209, AC 24-56210, AC 24-56211 are adopted as special conditions for the federal permit, PSD-FL-082, for these sources.

The attached General Conditions (federal) are also made a part of the proposed federal permit PSD-FL-082.

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

APPLICANT: Occidental Chemical Company
P. O. Box 300
White Springs, Florida 32096

PERMIT/CERTIFICATION
NO. AC 24-56209

COUNTY: Hamilton

PROJECT: Sulfuric Acid Plant "F"

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2, Florida Administrative Code. The above named applicant, hereinafter called Permittee, is hereby authorized to perform the work or operate the facility shown on the approved drawing(s), plans, documents, and specifications attached hereto and made a part hereof and specifically described as follows:

For the modification of a 2500 TPD double absorption type Sulfuric Acid Plant located at Occidental Chemical Swift Creek Complex in Hamilton County, Florida. The UTM coordinates are 320.860 Km E and 3,369,750 Km N.

Construction shall be in accordance with the permit application and plans, documents, and drawings, except as otherwise noted on pages 3 and 5 "Specific Conditions".

Attachments are as follows:

1. Application to Construct Air Pollution Sources, DER Form 17-2.122(16).

2. Occidental Chemical's letters of June 18, 1981, November 24, 1981, December 7, 1981, April 26, 1981, June 25, 1982 and September 15, 1982 (Responses to technical discrepancies).

PERMIT NO.: AC 24-56211
APPLICANT: Occidental Chemical Company

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions:, and as such are binding upon the permittee and enforceable pursuant to the authority of Section 403.161(1), Florida Statutes. Permittee is hereby placed on notice that the department will review this permit periodically and may initiate court action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations indicated in the attached drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit shall constitute grounds for revocation and enforcement action by the department.

3. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information: (a) a description of and cause of non-compliance; and (b) the period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the department for penalties or revocation of this permit.

4. As provided in subsection 403.087(6), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

5. This permit is required to be posted in a conspicuous location at the work site or source during the entire period of construction or operation.

6. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or department rules, except where such use is proscribed by Section 403.111, F.S.

7. In the case of an operation permit, permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or department rules.

8. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant, or aquatic life or property and penalities therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, except where specifically authorized by an order from the department granting a variance or exception from department rules or state statutes.

9. This permit is not transferable. Upon sale or legal transfer of the property or facility covered by this permit, the permittee shall notify the department within thirty (30) days. The new owner must apply for a permit transfer within thirty (30) days. The permittee shall be liable for any non-compliance of the permitted source until the transferee applies for and receives a transfer of permit.

10. The permittee, by acceptance of this permit, specifically agrees to allow access to permitted source at reasonable times by department personnel presenting credentials for the purposes of inspection and testing to determine compliance with this permit and department rules.

11. This permit does not indicate a waiver of or approval of any other department permit that may be required for other aspects of the total project.

12. This permit conveys no title to land or water, nor constitutes state recognition or acknowledgement of title, and does not constitute authority for the reclamation of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

13. This permit also constitutes:

[X] Determination of Best Available Control Technology (BACT)
[X] Determination of Prevention of Significant Deterioration (PSD)
[ ] Certification of Compliance with State Water Quality Standards (Section 401, PL 92-500)

PERMIT NO.: AC 24-56211
APPLICANT: Occidental Chemical Company

SPECIFIC CONDITIONS:

Sulfuric Acid Plant "E"

1. Maximum production rate will be 2500 tons of 100 percent H_2SO_4 per day for each sulfuric acid plant.

2. Emission of sulfur dioxide from the sulfuric acid plant shall not exceed 416.7 pounds per hour at the maximum allowable operating rate of 104.2 tons per hour of 100% H_2SO_4. At lower operating rates, the emissions shall not exceed 4 pounds per ton of 100% H_SO_4 produced.

3. Emission of acid mist from the sulfuric acid plant shall not exceed 15.6 pounds per hour at the maximum allowable operating rate of 104.2 tons per hour of 100% H_2SO_4. At lower operating rates, the emissions shall not exceed 0.15 pounds per ton 100% H_2SO_4.

4. A continuous monitoring system for the measurement of sulfur dioxide shall be installed, calibrated, maintained, and operated by the applicant. The pollutant gas used to prepare calibration gas mixture under paragraph 2.1 Performance Specification 2 and for calibration checks under 60.13(d) to this part, shall be sulfur dioxide (SO_2). Reference Method 8 shall be used for conducting monitoring system performance evaluations under 60.13(c) except that only the sulfur dioxide portion of the Method 8 results shall be used. The span shall be set at 1000 ppm of sulfur dioxide.

5. The applicant shall establish a conversion factor for the purpose of converting monitoring data into units of the applicable standard (kg/metric ton, lb/short ton). The conversion factor shall be determined, as a minimum, three times daily by measuring the concentration of sulfur dioxide entering the converter using suitable methods and calculating the appropriate conversion factor for each eight hour period as follows:

$$CF = K \frac{(1.000 - 0.015r)}{r-s}$$

6. The applicant shall record all conversion factors and values under paragraph (b) as set forth in 60.84 Subpart H - Standards of Performance for Sulfuric Acid Plant.

7. For the purpose of report under 60.7(c), periods of excess emission shall be all three-hour periods (or the arithmetic average of three consecutive one-hour periods) during which the integrated average sulfur dioxide emissions exceed the applicable standards under 60.82.

PERMIT NO.: AC 24-56211
APPLICANT: Occidental Chemical Company

SPECIFIC CONDITIONS:

8. The applicant shall comply with all requirements of 40 CFR 60, Subpart H, Standards of Performance for sulfuric acid plants.

9. Compliance with all emission limits shall be determined by performance tests scheduled in accordance with the attached General Conditions. Except as provided under 40 CFR 60.8(b), the performance tests shall be conducted in accordance with the provisions of the following reference methods which are described in Appendix A of 40 CFR 60:

    a. Method 1 for sample and velocity traverses;
    b. Method 2 for volumetric flow rate;
    c. Method 3 for gas analysis;
    d. Method 7 for nitrogen oxides
    e. Method 8 for concentration of SO_2 and acid mist; and
    f. Method 9 for visible emissions.

    A compliance test shall consist of the average of three consecutive runs. The maximum sample time and volume per run will be as specified in the NSPS (40 CFR 60.85). The facility shall operate within 10 percent of maximum capacity during sampling. The parameters for the operating rate and control equipment variables and all continuous monitoring results shall be recorded during compliance testing and made a part of the test report. The Department will be notified 30 days in advance of the compliance test.

10. Visible emissions from the sulfuric acid plant shall not exceed 10% opacity.

11. This permit replaces operating permit No. AO 24-34847. The applicant shall return this operating permit to the Northeast District office within three (3) months of start-up of the unit.

12. The applicant will demonstrate compliance with the condition of the construction permit and submit a complete application for an operating permit to the Northeast District prior to 90 days of the expiration date of the construction permit. The permittee may continue to operate in compliance with all terms of the construction permit until its expiration date or issuance of an operating permit.

13. Upon obtaining an operating permit, the applicant will be required to submit periodic test reports on the actual operation and emissions of the facility.

14. Stack sampling facilities will include the eyebolt and angle described in Chapter 17-2.700, FAC.

15. The plant shall be allowed to operate continuously (8736 hours per year).

16. The source shall comply with the provisions and requirements of the attached general conditions.

Expiration Date: July 30, 1983

_____ Pages Attached.

Issued this _____ day of _____, 19_____.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

_____
Signature

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

APPLICANT:

Occidental Chemical Company
P. O. Box 300
White Springs, Florida 32096

PERMIT/CERTIFICATION
NO. AC 24-56210

COUNTY: Hamilton

PROJECT:

156 MMBTU/hr
Auxiliary Boiler "E"

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2, Florida Administrative Code. The above named applicant, hereinafter called Permittee, is hereby authorized to perform the work or operate the facility shown on the approved drawing(s), plans, documents, and specifications attached hereto and made a part hereof and specifically described as follows:

For the modification, use of fuel with 1.0 percent sulfur, of a 156 MMBTU/hr auxiliary boiler "E" located at Occidental Chemical Swift Creek complex in Hamilton County, Florida. The UTM Coordinates are 321.300 Km E and 3,369.830 Km N.

Construction shall be in accordance with the permit application and plans, documents, and drawings, except as otherwise noted on pages 3 through 4, "Specific Conditions", listed below.

1. Application to Construct Air Pollution Sources, DER Form 17-1.122(16).

2. Occidental Chemical's letters of June 18, 1981, November 24, 1981, December 7, 1981, April 26, 1981, June 25, 1982 and September 15, 1982, (Responses to technical discrepancies).

PERMIT NO.: AC 24-56210
APPLICANT: Occidental Chemical Company

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions:, and as such are binding upon the permittee and enforceable pursuant to the authority of Section 403.161(1), Florida Statutes. Permittee is hereby placed on notice that the department will review this permit periodically and may initiate court action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations indicated in the attached drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit shall constitute grounds for revocation and enforcement action by the department.

3. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information: (a) a description of and cause of non-compliance; and (b) the period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the department for penalties or revocation of this permit.

4. As provided in subsection 403.087(6), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

5. This permit is required to be posted in a conspicuous location at the work site or source during the entire period of construction or operation.

6. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or department rules, except where such use is proscribed by Section 403.111, F.S.

7. In the case of an operation permit, permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or department rules.

8. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant, or aquatic life or property and penalities therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, except where specifically authorized by an order from the department granting a variance or exception from department rules or state statutes.

9. This permit is not transferable. Upon sale or legal transfer of the property or facility covered by this permit, the permittee shall notify the department within thirty (30) days. The new owner must apply for a permit transfer within thirty (30) days. The permittee shall be liable for any non-compliance of the permitted source until the transferee applies for and receives a transfer of permit.

10. The permittee, by acceptance of this permit, specifically agrees to allow access to permitted source at reasonable times by department personnel presenting credentials for the purposes of inspection and testing to determine compliance with this permit and department rules.

11. This permit does not indicate a waiver of or approval of any other department permit that may be required for other aspects of the total project.

12. This permit conveys no title to land or water, nor constitutes state recognition or acknowledgement of title, and does not constitute authority for the reclamation of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

13. This permit also constitutes:

[x] Determination of Best Available Control Technology (BACT)
[X] Determination of Prevention of Significant Deterioration (PSD)
[ ] Certification of Compliance with State Water Quality Standards (Section 401, PL 92-500)

PERMIT NO.: AC 24-56210
APPLICANT: Occidental Chemical Company

SPECIFIC CONDITIONS:

1. The auxiliary boiler shall be allowed to operate 97.5 percent of the time (8,518 hours per year). Maximum steam production shall be 125,000 lb/hr and maximum heat input shall be 156 MMBTU/hr.

2. The boiler will be fired with natural gas, and No. 6 fuel oil. Emissions shall not exceed the allowable emission listed in Table II of the Preliminary Determination for SO_2, NO_x, PM, VOC, and CO.

3. The sulfur content of fuel oil fired in the boiler shall not exceed 1.0 percent.

4. Compliance with all allowable emission limits (Table II) shall be determined by performance tests scheduled in accordance with the attached General Conditions. Except as provided under 40 CFR 60.8(b), the performance tests shall be in accordance with the provisions of the following reference method in Appendix A of 40 CFR 60 or other State approved methods.

   a. Method 1. Sample and Velocity Traverses
   b. Method 2. Volumetric Flow Rate
   c. Method 3. Gas Analysis
   d. Method 5. Determination of Particulate Emissions for Stationary Sources
   e. Method 6. Determination of Sulfur Dioxide Emissions from Stationary Sources
   f. Method 7. Determination of Nitrogen Oxide Emissions from Stationary Sources
   g. Method 9. Determination of the Opacity of Emissions from Stationary Sources
   h. Method 10. Determination of Carbon Monoxide Emissions from Stationary Sources.

   A compliance test shall consist of the average of three consecutive runs. The boiler shall operate within 10 percent of maximum capacity during sampling, using the fuel that most likely will emit the greater quantity of pollutants being sampled. The Department shall be notified 30 days in advance of the compliance test.

5. Performance tests for NO_x, and CO to determine emission compliance status shall be requested by the Department when deemed necessary.

6. The opacity of the boiler flue gases shall not exceed 20 percent except for one six-minute period per hour during which the opacity shall not exceed 27 percent.

7. The applicant should report any delay in modification of this unit to the Department.

8. This permit replaces operating permit No. AO24-34186. The applicant shall return any current operating permit from the boiler to the Northeast District office within three (3) months of modification of the unit.

9. The applicant will demonstrate compliance with the condition of the construction permit and submit a complete application for an operating permit to the Northeast District prior to 90 days of the expiration date of the construction permit. The permittee may continue to operate in compliance with all terms of the construction permit until the expiration date or issuance of an operating permit.

10. Upon obtaining an operating permit, the applicant will be required to submit periodic reports on the actual operation and emission of the facility. These reports will give emission test data, emission test result, hour of operation, maximum and average fuel oil consumption and sulfur content.

11. Stack sampling facilities will include the eyebolt and angle described in Chapter 17-2.700 FAC.

12. The source shall comply with the provisions and requirements of the attached general conditions.

Expiration Date: July 30, 1983

Issued this _____ day of _____, 19_____.

_____ Pages Attached.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

_____
Signature

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

APPLICANT: Occidental Chemical Company
P. O. Box 300
White Springs, Florida 32096

PERMIT/CERTIFICATION
NO. AC 24-56211

COUNTY: Hamilton

PROJECT: Sulfuric Acid Plant "E"

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2, Florida Administrative Code. The above named applicant, hereinafter called Permittee, is hereby authorized to perform the work or operate the facility shown on the approved drawing(s), plans, documents, and specifications attached hereto and made a part hereof and specifically described as follows:

For the modification of a 2500 TPD double absorption type Sulfuric Acid Plant located at Occidental Chemical Swift Creek Complex in Hamilton County, Florida. The UTM coordinates are 321.110 Km E and 3,369.800 Km N.

Construction shall be in accordance with the permit application and plans, documents, and drawings, except as otherwise noted on pages 3 through 5 "Specific Conditions", listed below.

1. Application to Construct Air Pollution Sources, DER Form 17-1.122(b).

2. Occidental Chemical's letters of June 18, 1981, November 24, 1981, December 7, 1981, April 26, 1981, June 25, 1982, September 15, 1982, (Responses to technical discrepancies).

PERMIT NO.: AC 24-56209
APPLICANT: Occidental Chemical Company

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions:, and as such are binding upon the permittee and enforceable pursuant to the authority of Section 403.161(1), Florida Statutes. Permittee is hereby placed on notice that the department will review this permit periodically and may initiate court action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations indicated in the attached drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit shall constitute grounds for revocation and enforcement action by the department.

3. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information: (a) a description of and cause of non-compliance; and (b) the period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the department for penalties or revocation of this permit.

4. As provided in subsection 403.087(6), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

5. This permit is required to be posted in a conspicuous location at the work site or source during the entire period of construction or operation.

6. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or department rules, except where such use is proscribed by Section 403.111, F.S.

7. In the case of an operation permit, permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or department rules.

8. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant, or aquatic life or property and penalities therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, except where specifically authorized by an order from the department granting a variance or exception from department rules or state statutes.

9. This permit is not transferable. Upon sale or legal transfer of the property or facility covered by this permit, the permittee shall notify the department within thirty (30) days. The new owner must apply for a permit transfer within thirty (30) days. The permittee shall be liable for any non-compliance of the permitted source until the transferee applies for and receives a transfer of permit.

10. The permittee, by acceptance of this permit, specifically agrees to allow access to permitted source at reasonable times by department personnel presenting credentials for the purposes of inspection and testing to determine compliance with this permit and department rules.

11. This permit does not indicate a waiver of or approval of any other department permit that may be required for other aspects of the total project.

12. This permit conveys no title to land or water, nor constitutes state recognition or acknowledgement of title, and does not constitute authority for the reclamation of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

13. This permit also constitutes:

[X] Determination of Best Available Control Technology (BACT)
[X] Determination of Prevention of Significant Deterioration (PSD)
[ ] Certification of Compliance with State Water Quality Standards (Section 401, PL 92-500)

PERMIT NO.: AC 24-56209
APPLICANT: Occidental Chemical Company

SPECIFIC CONDITIONS:

Sulfuric Acid Plant

1. Maximum production rate will be 2500 tons of 100 percent H_2SO_4 per day for each sulfuric acid plant.

2. Emission of sulfur dioxide from the sulfuric acid plant shall not exceed 416.7 pounds per hour at the maximum allowable operating rate of 104.2 tons per hour of 100% H_2SO_4. At lower operating rates, the emissions shall not exceed 4 pounds per ton of 100% H_SO_4 produced.

3. Emission of acid mist from the sulfuric acid plant shall not exceed 15.6 pounds per hour at the maximum allowable operating rate of 104.2 tons per hour of 100% H_2SO_4. At lower operating rates, the emissions shall not exceed 0.15 pounds per ton 100% H_2SO_4.

4. A continuous monitoring system for the measurement of sulfur dioxide shall be installed, calibrated, maintained, and operated by the applicant. The pollutant gas used to prepare calibration gas mixture under paragraph 2.1 Performance Specification 2 and for calibration checks under 60.13(d) to this part, shall be sulfur dioxide (SO_2). Reference Method 8 shall be used for conducting monitoring system performance evaluations under 60.13(c) except that only the sulfur dioxide portion of the Method 8 results shall be used. The span shall be set at 1000 ppm of sulfur dioxide.

5. The applicant shall establish a conversion factor for the purpose of converting monitoring data into units of the applicable standard (kg/metric ton, lb/short ton). The conversion factor shall be determined, as a minimum, three times daily by measuring the concentration of sulfur dioxide entering the converter using suitable methods and calculating the appropriate conversion factor for each eight hour period as follows:

$$CF = K \frac{(1.000 - 0.015r)}{r-s}$$

6. The applicant shall record all conversion factors and values under paragraph (b) as set forth in 60.84 Subpart H - Standards of Performance for Sulfuric Acid Plant.

7. For the purpose of report under 60.7(c), periods of excess emission shall be all three-hour periods (or the arithmetic average of three consecutive one-hour periods) during which the integrated average sulfur dioxide emissions exceed the applicable standards under 60.82.

PERMIT NO.: AC 24-56209
APPLICANT: Occidental Chemical Company

SPECIFIC CONDITIONS:

8. The applicant shall comply with all requirements of 40 CFR 60, Subpart H, Standards of Performance for sulfuric acid plants.

9. Compliance with all emission limits shall be determined by performance tests scheduled in accordance with the attached General Conditions. Except as provided under 40 CFR 60.8(b), the performance tests shall be conducted in accordance with the provisions of the following reference methods which are described in Appendix A of 40 CFR 60:

    a. Method 1 for sample and velocity traverses;
    b. Method 2 for volumetric flow rate;
    c. Method 3 for gas analysis;
    d. Method 7 for nitrogen oxides;
    e. Method 8 for concentration of SO_2 and acid mist; and
    f. Method 9 for visible emissions.

    A compliance test shall consist of the average of three consecutive runs. The maximum sample time and volume per run will be as specified in the NSPS (40 CFR 60.85). The facility shall operate within 10 percent of maximum capacity during sampling. The parameters for the operating rate and control equipment variables and all continuous monitoring results shall be recorded during compliance testing and made a part of the test report. The Department will be notified 30 days in advance of the compliance test.

10. Visible emissions from the sulfuric acid plant shall not exceed 10% opacity.

11. This permit replaces operating permit No. AO 24-34847. The applicant shall return this operating permit to the Northeast District office within three (3) months of start-up of the unit.

12. The applicant will demonstrate compliance with the condition of the construction permit and submit a complete application for an operating permit to the Northeast District office prior to 90 days of the expiration date of the construction permit. The permittee may continue to operate in compliance with all terms of the construction permit until its expiration date or issuance of an operating permit.

13. Upon obtaining an operating permit, the applicant will be required to submit periodic test reports on the actual operation and emissions of the facility.

14. Stack sampling facilities will include the eyebolt and angle described in Chapter 17-2.700, FAC.

15. The plant shall be allowed to operate continuously (8736 hours per year).

16. The source shall comply with the provisions and requirements of the attached general conditions.

Expiration Date: July 30, 1983

_____ Pages Attached.

Issued this _____ day of _____, 19____.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

_____
Signature

GENERAL CONDITIONS

1. The permittee shall notify the permitting authority in writing of the beginning of construction of the permitted source within 30 days of such action and the estimated date of start-up of operation.

2. The permittee shall notify the permitting authority in writing of the actual start-up of the permitted source within 30 days of such action and the estimated date of demonstration of compliance as required in the specific conditions.

3. Each emission point for which an emission test method is established in this permit shall be tested in order to determine compliance with the emission limitations contained herein within sixty (60) days of achieving the maximum production rate, but in no event later than 180 days after initial start-up of the permitted source. The permittee shall notify the permitting authority of the scheduled date of compliance testing at least thirty (30) days in advance of such test. Compliance test results shall be submitted to the permitting authority within forty-five (45) days after the complete testing. The permittee shall provide (1) sampling ports adequate for test methods applicable to such facility, (2) safe sampling platforms, (3) safe access to sampling platforms, and (4) utilities for sampling and testing equipment.

4. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specified in the specific conditions of this permit for a minimum of two (2) years from the date of recording.

5. If, for any reason, the permittee does not comply with or will not be able to comply with the emission limitations specified in this permit, the permittee shall immediately notify the State District Manager by telephone and provide the District Office and the permitting authority with the following information in writing within four (4) days of such conditions:

   (a) description for noncomplying emission(s),

   (b) cause of noncompliance,

   (c) anticipated time the noncompliance is expected to continue or, if corrected, the duration of the period of noncompliance,

(d) to sample at reasonable times any emission of pollutants;

and

(e) to perform at reasonable times an operation and maintenance inspection of the permitted source.

9. All correspondence required to be submitted to this permit to the permitting agency shall be mailed to:

Mr. James T. Wilburn
Chief, Air Management Branch
Air & Waste Management Division
U.S. EPA, Region IV
345 Courtland Street, NE
Atlanta, GA 30365

10. The conditions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

The emission of any pollutant more frequently or at a level in excess of that authorized by this permit shall constitute a violation of the terms and conditions of this permit.

(d) steps taken by the permittee to reduce and eliminate the noncomplying emission,

and

(e) steps taken by the permittee to prevent recurrence of the noncomplying emission.

Failure to provide the above information when appropriate shall constitute a violation of the terms and conditions of this permit. Submittal of this report does not constitute a waiver of the emission limitations contained within this permit.

6. Any change in the information submitted in the application regarding facility emissions or changes in the quantity or quality of materials processed that will result in new or increased emissions must be reported to the permitting authority. If appropriate, modifications to the permit may then be made by the permitting authority to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause violation of the emission limitations specified herein.

7. In the event of any change in control or ownership of the source described in the permit, the permittee shall notify the succeeding owner of the existence of this permit by letter and forward a copy of such letter to the permitting authority.

8. The permittee shall allow representatives of the State environmental control agency or representatives of the Environmental Protection Agency, upon the presentation of credentials:

(a) to enter upon the permittee's premises, or other premises under the control of the permittee, where an air pollutant source is located or in which any records are required to be kept under the terms and conditions of the permit;

(b) to have access to any copy at reasonable times any records required to be kept under the terms and conditions of this permit, or the Act;

(c) to inspect at reasonable times any monitoring equipment or monitoring method required in this permit;

AC 24-56209

May 7, 1982

DER

MAY 27 1982

BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

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

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

COMPANY NAME: Occidental Chemical Company COUNTY: Hamilton

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Sulfuric Acid Plant "E"

SOURCE LOCATION: Street U.S. 41 City White Springs

UTM: East 320.860 km North 3,369.750 km

Latitude ____ ° ____ ' ____ "N Longitude ____ ° ____ ' ____ "W

APPLICANT NAME AND TITLE: Occidental Chemical Company

APPLICANT ADDRESS: Post Office 300, White Springs, FL 32096

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

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

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: [signature]

M.P. McArthur, V.P. & General Manager
Name and Title (Please Type)

Date: 5/24/82 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 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 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: [signature]

John B. Koogler, Ph.D., P.E.
Name (Please Type)

(Affix Seal)

SHOLTES & KOOGLER ENVIRONMENTAL CONSULTANTS
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 5/14/82 Telephone No. (904) 377-5822

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

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.

Sulfur burning sulfuric acid plant is vented through an SO_2 - SO_3 converter, a double absorption tower and demister for product recovery and sulfur dioxide and sulfuric acid mist emission control. Plant is currently permitted to produce 2000 TPD of 100 percent H_2SO_4; proposed production rate is 2500 TPD. (CONTINUED ON PAGE 2a)

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

Start of Construction July 1982 Completion of Construction July 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.)

There will be no physical modification to the existing absorption tower or mist eliminators.

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

Unit was previously permitted under AC-24-2715 issued 2/28/78 and expiring 12/31/80; and AO-24-34847 issued 5/28/81 and expiring 12/30/85.

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

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ; if seasonal, describe: permitted for 8760 hours/year operation

G. 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) requirements 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

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

SECTION II: A (Continued)

To achieve the increased production rate the size of the economizer will be increased, the gas handling system will be increased and the catalyst loading will be increased. The absorption towers and mist eliminators will not be modified.

With no modification the plant can operate at a rate of 2,250-2,300 TPD. the physical modifications described will permit a production rate of 2,500 TPD. Because of present market conditions it is planned to operate the plants up to 2,250-2,300 TPD as necessary for the next 2-3 years and then make the modifications necessary to increase the capacity to 2,500 TPD. This schedule explains the July 1987 Completion of Construction Date.

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

(See Attachment 1)

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	App. 0.005%	68,232	A (Attachment 3)

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

1. Total Process Input Rate (lbs/hr): 68,232

2. Product Weight (lbs/hr): 212,585 (98% acid); 208,333 (100% acid)

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Sulfur Dioxide	416.7	1825	NSPS	416.7	416.7	1825	B
H_2SO_4 Mist	15.6	68.3	NSPS	15.6	15.6	683	B
NO_x	14.8	64.8	BACT	14.8	14.8	64.8	B
CO	0.1	0.5	BACT	0.1	0.1	0.5	B

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5])
Double Absorption	SO_2	99.7%	---	Design & Test
Contact H_2SO_4Monsanto				
Plant				
Brink Demister in	H_2SO_4	90 + %		Vendor
exist of absorber				Guarantee

[1]See Section V, Item 2.

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

[3]Calculated from operating rate and applicable standard

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

[5]If Applicable

E. Fuels NOT APPLICABLE

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

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, 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: 9.5 ft.

Gas Flow Rate: 129,700 ACFM Gas Exit Temperature: 181 °F.

Water Vapor Content: 0 % Velocity: 30.5 FPS

SECTION IV: INCINERATOR INFORMATION

NOT APPLICABLE

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste _____

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

Approximate Number of Hours of Operation per day _____ days/week _____

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) _____

Brief description of operating characteristics of control devices: _____

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight – show derivation. ATTACHMENT 1
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. ATTACHMENT 2
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). ATTACHMENT 2
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, etc.). N/A
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). ATTACHMENT 1
6. An 8½" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained. ATTACHMENT 3
7. An 8½" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map). ATTACHMENT 4
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. ATTACHMENT 5

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

(Also see PSD-FL-082)

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
SO_2	4.0 lb SO_2/ton 100% acid
H_2SO_4 Mist	0.15 lb mist/ton 100% acid

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
SO_2	4.0 lb SO_2/ton 100% acid
H_2SO_4 Mist	0.15 lb mist/ton 100% acid

D. Describe the existing control and treatment technology (if any). - Double absorption towers for SO_2 absorption and Brinks HV mist eliminators for acid mist control

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration
SO_2	4.0 lb SO_2/ton 100% acid
H_2SO_4	0.15 lb mist/ton 100% acid

*Explain method of determining D 3 above.

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*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy*: 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*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy**: h. Maintenance Costs:

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:

*Explain method of determining efficiency.

**Energy to be reported in units of electrical power – KWH design rate.

3.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Life: f. Operating Cost:

g. Energy: h. Maintenance Cost:

*Explain method of determining efficiency above.

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*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

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*:

3. Capital Cost:

4. Life:

5. Operating Cost:

6. Energy:

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above.

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

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

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems:

See PSD-FL-082

*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

See PSD-FL-082

A. Company Monitored Data

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

Period of monitoring ___/___/___ (month day year) to ___/___/___ (month day year)

Other data recorded _____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? _____ Yes _____ No

b) Was instrumentation calibrated in accordance with Department procedures? _____ Yes _____ No _____ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from ___/___/___ (month day year) to ___/___/___ (month day year)

2. Surface data obtained from (location) _____

3. Upper air (mixing height) data obtained from (location) _____

4. Stability wind rose (STAR) data obtained from (location) _____

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	_____ grams/sec
SO^2	_____ grams/sec

E. Emission Data Used in Modeling

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

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

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

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

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

ATTACHMENT 1

PRODUCTION RATE CALCULATION

PRODUCT: Sulfuric Acid as 98% H_2SO_4

PRODUCT RATE: 2500 Short tons per day (STPD) of 100% H_2SO_4 as 98% H_2SO_4

-or-

212,585 lbs/hr (2500 ÷ 0.98 x 2,000 ÷ 24) of 98% Sulfuric Acid

PROCESS LOSSES: 0.005% equivalent to ash content of sulfur (consider negligible). Recovery is 99.7% equivalent to emission of 4# SO_2 per ton of 100% H_2SO_4 produced.

PROCESS INPUT:

SULFUR: 2500 STPD of 100% H_2SO_4 equivalent to 816 STPD of Sulfur (2000 x 32/98) which at an efficiency of 99.7% requires 819 STPD of Sulfur (816 ÷ 0.997).

-or-

68,232 lbs/hr (819 x 2,000 ÷ 24)

SULFUR RECOVERY EFFICIENCY: Input - 68,232 lb/hour
Stack - 416.7 lb/hr of SO_2 or 208.4 lb/hr or S

Efficiency = (68,232 - 208.4)/68,232 x 100

= 99.7%

ATTACHMENT 2

POLLUTANT EMISSION RATE CALCULATIONS

OPERATING FACTOR = 8,760 hrs/yr

PRODUCTION RATE = 2,500 TPD 100% H_2SO_4

SULFUR DIOXIDE @ 4.0 lb/ton acid

Hourly = 4.0 x 2,500/24
= 416.7 lb/hr

Annual = 416.7 x 8,760/2000
= 1,825 TPY

MIST @ 0.15 lb/ton acid

Hourly = 0.15 x 2,500/24
= 15.6 lb/hr

Annual = 15.6 x 8,760/2000
= 68.3 TPY

NO_X @ 2.1×10^{-6} lb/SCF (test results on an existing sulfuric acid plant)

Typical Stack Gas Characteristics

SO_2 - 230 ppm
O_2 - 7%

GAS FLOW RATE

= $11,800/[0.263 - 0.0126(O_2\%)]$

= $11,800/[0.263 - 0.0126(7)]$

= 67,500 SCF/ton of acid

EMISSION RATE

Hourly = $2,500/24 \times 67,500 \times 2.1 \times 10^{-6}$
= 14.8 lb/hr

Annual = 14.8 x 8,760/2000
= 64.8 TPY

CO

Sulfur consumption = 0.335 tons/ton Acid including losses.

Carbon content of sulfur ∿ 0.25% (assume to be "petroleum")

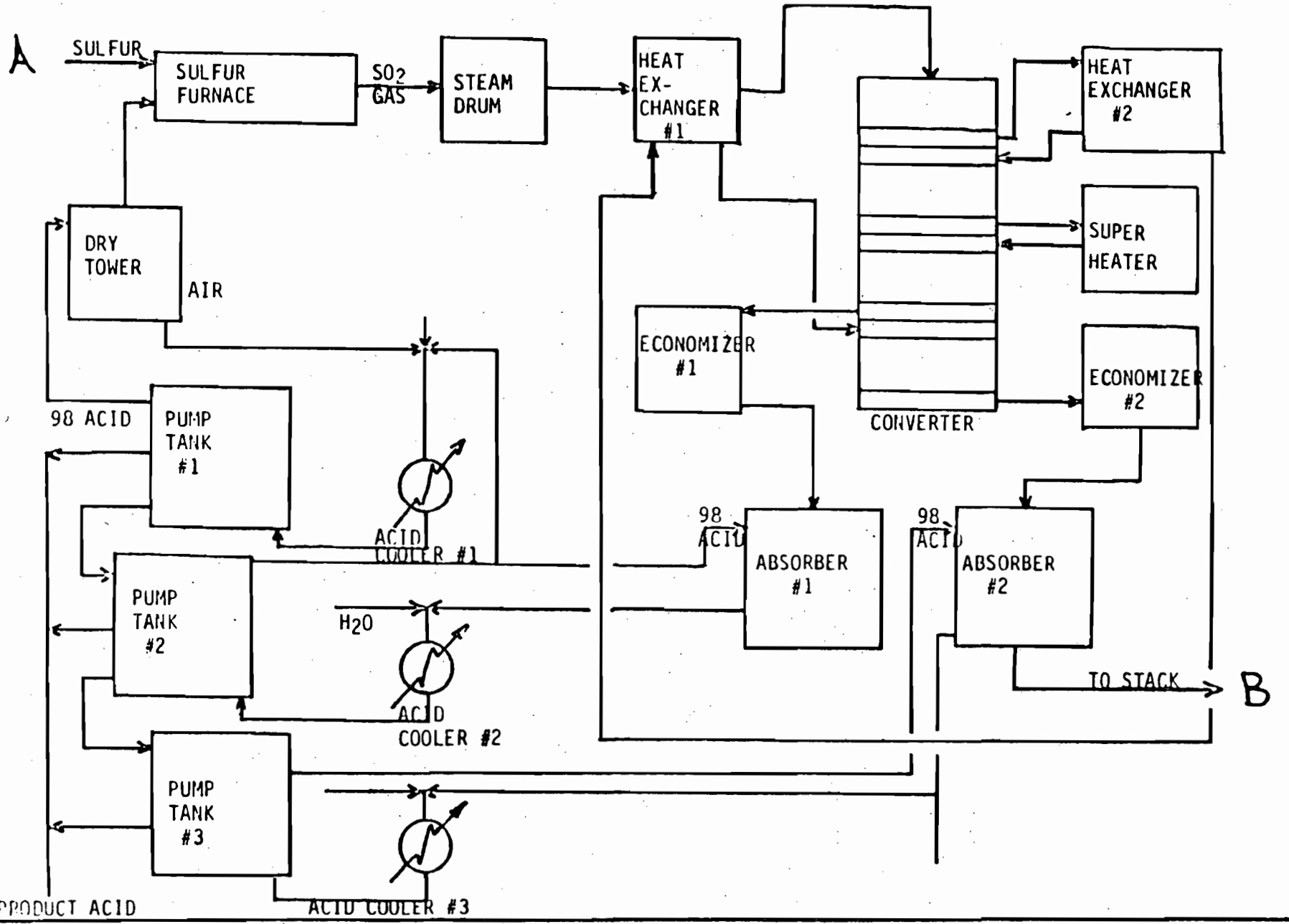
"Petroleum" content of Sulfur

= 2,500/4 x 0.335 x 0.0025
x 2000 lb/ton
= 174.5 lb/hr
x 1/8 lb/gal
= 21.8 equivalent gal/hr

EMISSION RATE @ 5 lb CO/1000 gal

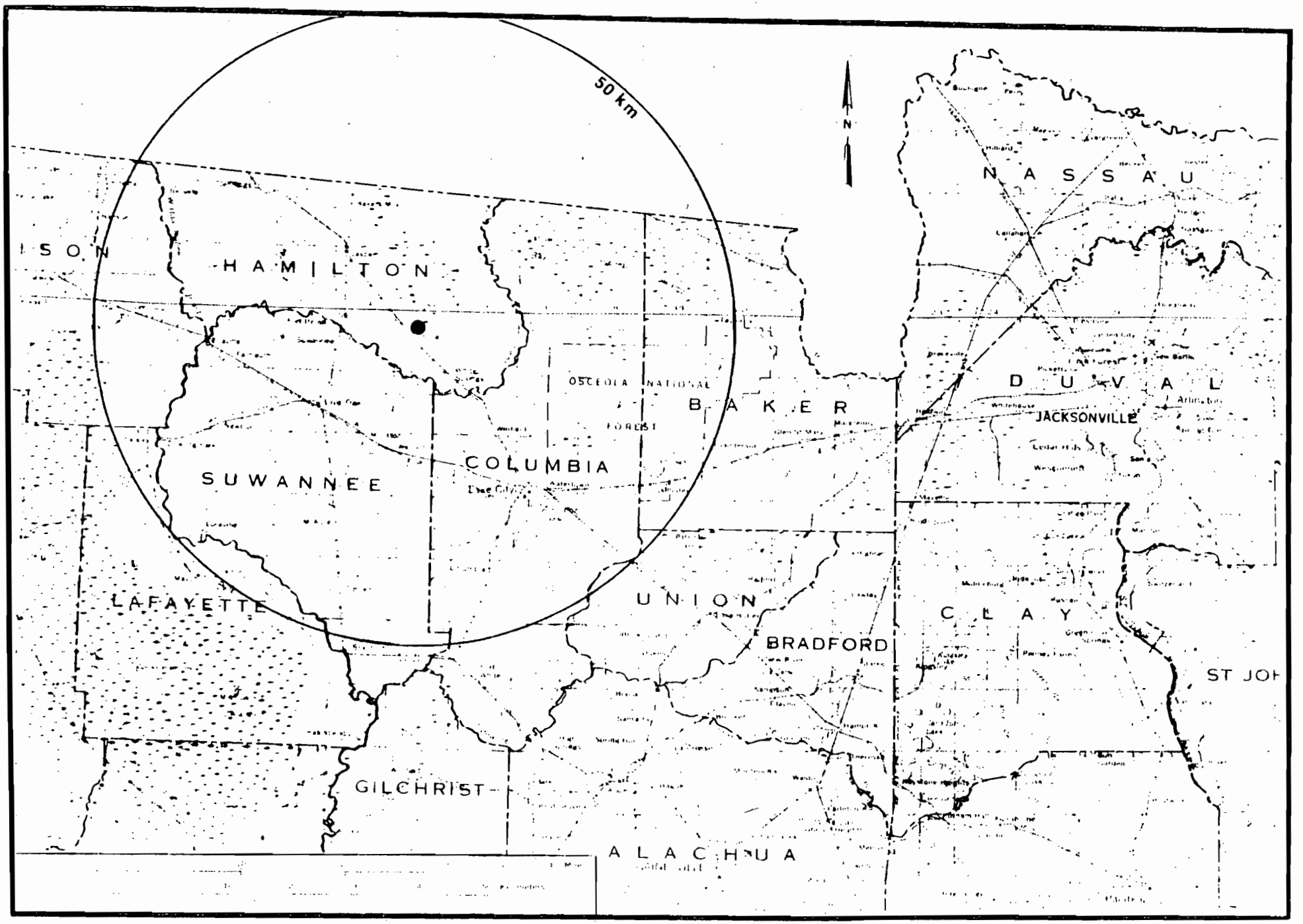
Hourly = 21.8/1000 x 5
= 0.11 lb/hr

Annual = 0.11 8,760/2000
= 0.5 TPY



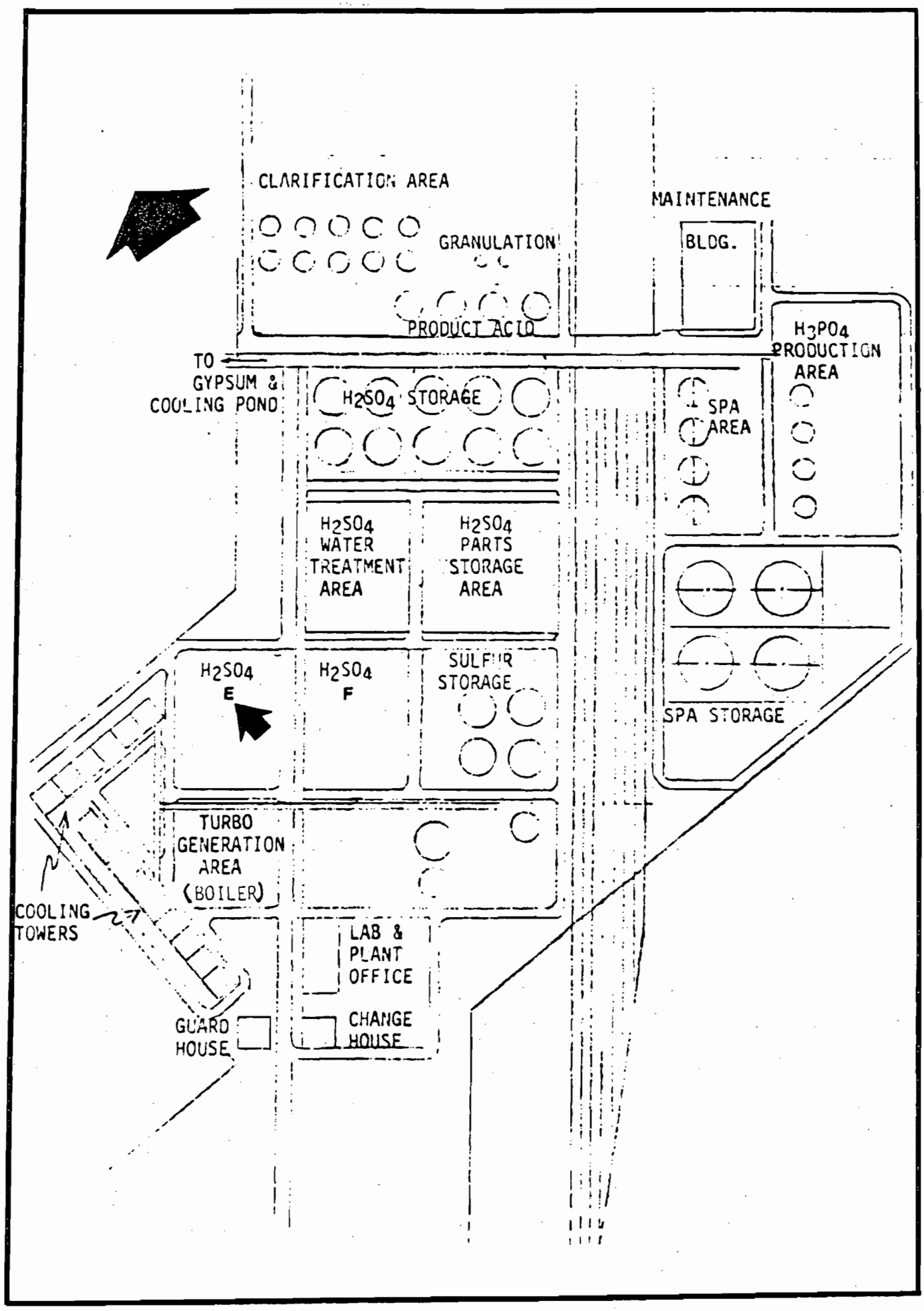
DOUBLE CONTACT/DOUBLE ABSORPTION - SULFURIC ACID MANUFACTURE

ATTACHMENT 3



ATTACHMENT 4

ATTACHMENT 5



AC24-56210

May 6, 1982

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

DER

MAY 27 1982

BAQM

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

SOURCE TYPE: Auxiliary Boiler [ ] New[1] [X] Existing[1]

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

COMPANY NAME: Occidental Chemical Company COUNTY: Hamilton

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

SOURCE LOCATION: Street US 41 City White Springs

UTM: East 321.300 km North 3,369.830 km

Latitude ____ ° ____ ' ____ "N Longitude ____ ° ____ ' ____ "W

APPLICANT NAME AND TITLE: Occidental Chemical Company

APPLICANT ADDRESS: Post Office Box 300, White Springs, Florida 32096

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

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

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: [signature]

M. P. McArthur, V.P. & General Manager
Name and Title (Please Type)

Date: 5/24/82 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 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 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: [signature]

John B. Koogler, P.E.
Name (Please Type)

(Affix Seal)

SHOLTES & KOOGLER ENVIRONMENTAL CONSULTANTS
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 5/14/82 Telephone No. (904) 377-5822

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

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.

Oil fired auxiliary steam boiler will be used to augment steam produced from the sulfuric acid plants to provide operating flexibility in the phosphoric acid production and evaporation process. It is proposed to increase the sulfur content of the fuel fired to the boiler from 0.8% to 1.0%.

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

Start of Construction July, 1982 Completion of Construction July, 1982

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.)

NOT APPLICABLE - No add on pollution control equipment.

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

Unit was previously permitted under FDER No. AC-24-2717 issued 2/28/78 and expiring on 12/31/80 and AO-24-34846 issued 5/7/81 and expiring 9/30/85.

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

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ; if seasonal, describe: Annual operating factor is 97.5%.

G. 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) requirements 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

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: NOT APPLICABLE

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

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

1. Total Process Input Rate (lbs/hr): NOT APPLICABLE

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Sulfur Dioxide	170.7	729	BACT	170.7	170.7	729	1 (Att.3)
Part. Matter	13.9	59	BACT	13.9	13.9	59	
NO_X	64.0	273	BACT	64.0	64.0	273	
CO	5.3	23	BACT	5.3	5.3	23	
HC	1.1	5	BACT	1.1	1.1	5	

D. Control Devices: (See Section V, Item 4) NOT APPLICABLE

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

[1]See Section V, Item 2.

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

[3]Calculated from operating rate and applicable standard

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

[5]If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Oil	6.0	25	156

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, lbs/hr

Fuel Analysis: (Oil)

Percent Sulfur: 1.0 Percent Ash: 0.09

Density: 8 lbs/gal Typical Percent Nitrogen: Nil

Heat Capacity: 18,300 BTU/lb 146,400 BTU/gal

Other Fuel Contaminants (which may cause air pollution): None

F. If applicable, indicate the percent of fuel used for space heating. Annual Average N/A Maximum

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

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

Stack Height: 50 ft. Stack Diameter: 5.25 ft.

Gas Flow Rate: 67,000 ACFM Gas Exit Temperature: 311 °F.

Water Vapor Content: 9 % Velocity: 51.8 FPS

SECTION IV: INCINERATOR INFORMATION

NOT APPLICABLE

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste

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

Approximate Number of Hours of Operation per day days/week

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) _____

Brief description of operating characteristics of control devices: _____

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight – show derivation. NOT APPLICABLE
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). ATTACHMENT 2
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, etc.). NOT APPLICABLE
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). NOT APPLICABLE
6. An 8½" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained. ATTACHMENT 3
7. An 8½" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map). ATTACHMENT 4
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. ATTACHMENT 5

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

(Also See PSD-FL-082)

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) [ ] Yes XX No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Sulfur Dioxide	1.1 lb/10^6BTU input; use of 1.0% sulfur fuel oil.

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

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Presently No. 6 fuel oil with an 0.8% sulfur content is used to control sulfur dioxide emissions.

Contaminant	Rate or Concentration
Sulfur Dioxide	0.9 lb/10^6BTU input; 0.8% sulfur fuel oil

*Explain method of determining D 3 above.

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*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy*: 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*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy**: h. Maintenance Costs:

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:

*Explain method of determining efficiency.

**Energy to be reported in units of electrical power – KWH design rate.

3.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Life: f. Operating Cost:

g. Energy: h. Maintenance Cost:

*Explain method of determining efficiency above.

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*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

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*:

3. Capital Cost:

4. Life:

5. Operating Cost:

6. Energy:

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above.

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

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

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems:

SEE PSD APPLICATION PSD-FL-082.

*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

(SEE PSD-FL-082)

A. Company Monitored Data

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

Period of monitoring ____/____/____ to ____/____/____
month day year month day year

Other data recorded _____ _____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? ____ Yes ____ No

b) Was instrumentation calibrated in accordance with Department procedures? ____ Yes ____ No ____ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from ____/____/____ to ____/____/____
month day year month day year

2. Surface data obtained from (location) _____

3. Upper air (mixing height) data obtained from (location) _____

4. Stability wind rose (STAR) data obtained from (location) _____

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	_____ grams/sec
SO^2	_____ grams/sec

E. Emission Data Used in Modeling

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

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

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

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

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

ATTACHMENT 1

FUEL USE RATES

FUEL:	Oil at 0.8% Sulfur
PRODUCT:	125,000 lbs/hr steam @ 1,000 BTU/lb.
EFFICIENCY:	80%
HEAT INPUT	156 MM BTU/hr. (125,000 ÷ 0.8 x 1000)
FUEL INPUT:	
Oil:	8538 lbs/hr (156 MM ÷ 18,300) or 25 BBLS/hr (156 MM ÷ 146,000 ÷ 42)

ATTACHMENT 2

POLLUTANT EMISSION RATE CALCULATIONS

OPERATING FACTOR = 8,760 hrs/yr x 0.975

PRODUCTION RATE (STEAM) = 125,000 lbs/hr.

SULFUR DIOXIDE:

Hourly: = 1.0% Sulfur fuel
= 125,000 lbs steam/hr x 1000 BTU/lb steam x 1/0.8 efficiency x 1/18,300 BTU/lb 0.1 x (0.01 x 2) lbs SO_2/lb oil
= 170.7 lbs/hr.

Annual: = 170.7 x 8,760/2000 x 0.975
= 729 TPY.

PARTICULATE MATTER:

Hourly: = 8,538 lbs fuel/hr (from above) x 1/8 lb/gal x 1/1000 x [10(1.0) + 3]
= 13.9 lbs/hr.

Annual: = 13.9 lbs/hr x 8,760/2000 x 0.975
= 59 TPY.

NO_X:

Hourly: = 8,538 lbs fuel/hr x 1/8 x 1/1000 x 60 lb NO_X/1000 gal.
= 64.0 lbs/hr.

Annual: = 64.0 x 8,760/2,000 x 0.975
= 273 TPY.

CO:

Hourly = 8,538 x 1/8 x 1/1000 x 5 lbs CO/1000 gal.
= 5.3 lbs/hr.

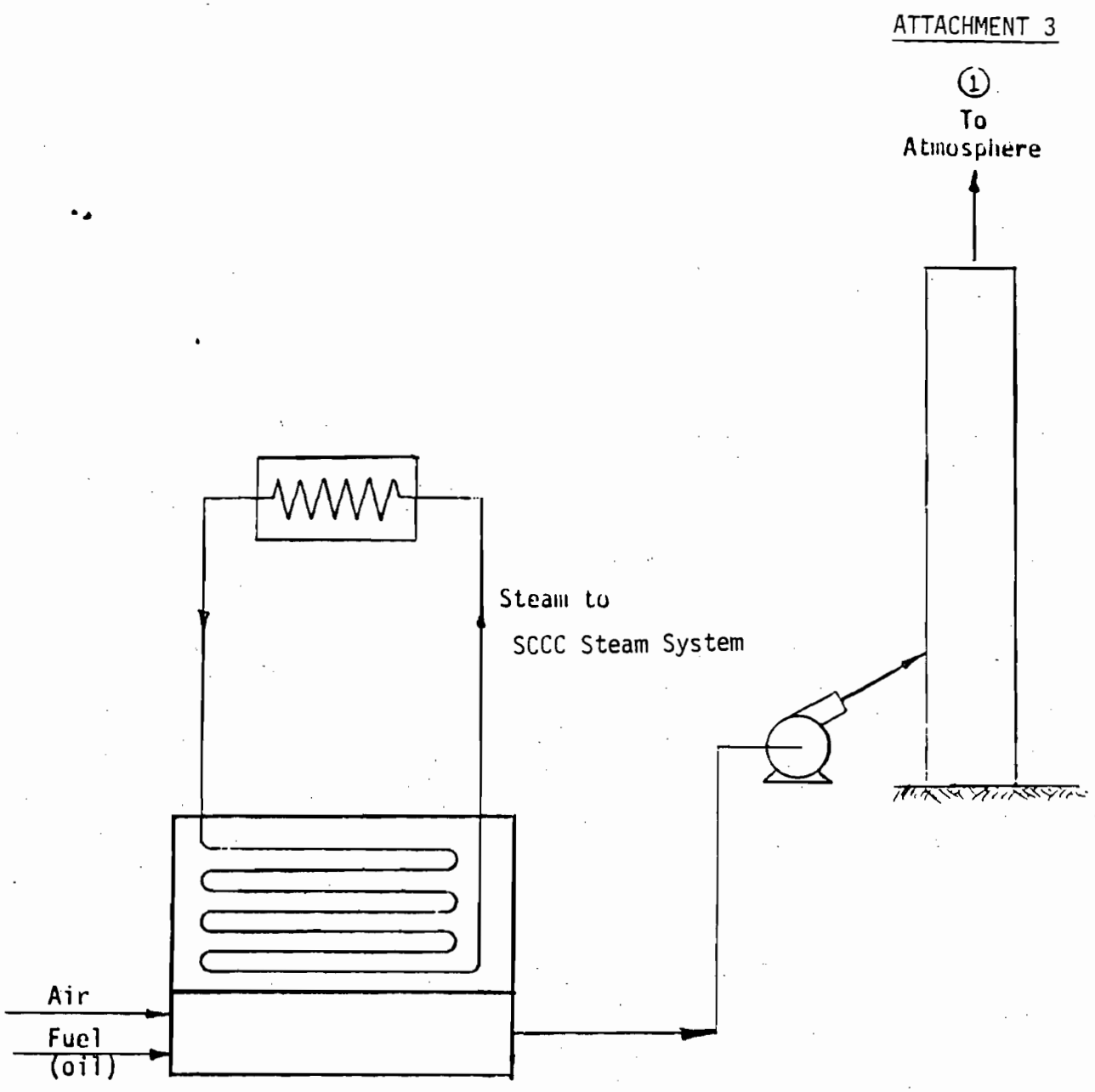
Annual: = 5.3 x 8,760/2000 x 0.975
= 23 TPY.

HYDROCARBONS:

Hourly: = 8,538 x 1/8 x 1/1000 x 1 lb/1000 gal.
= 1.1 lbs/hr.

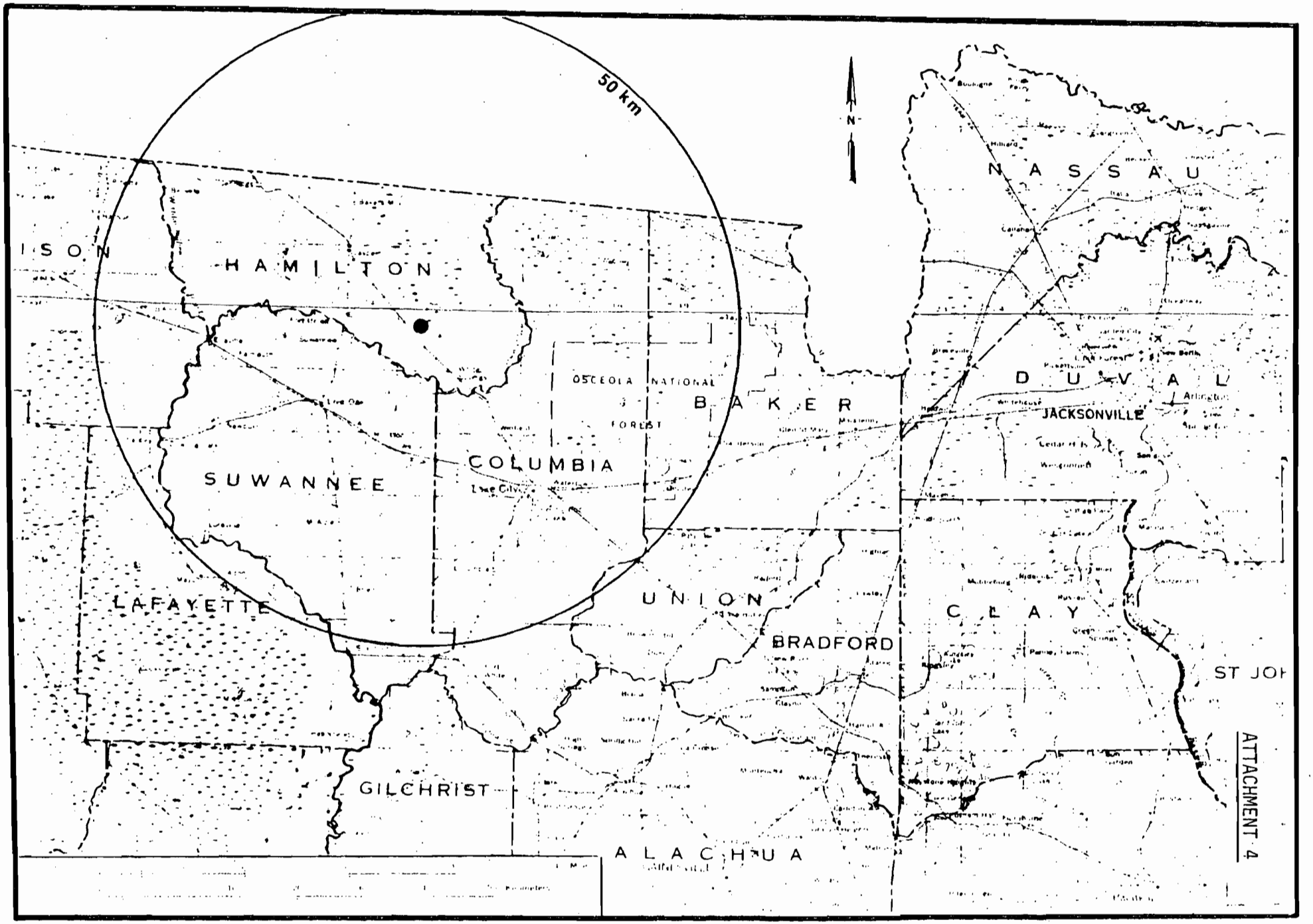
Annual: = 1.1 x 8,760/2000 x 0.975
= 5 TPY.

ATTACHMENT 3

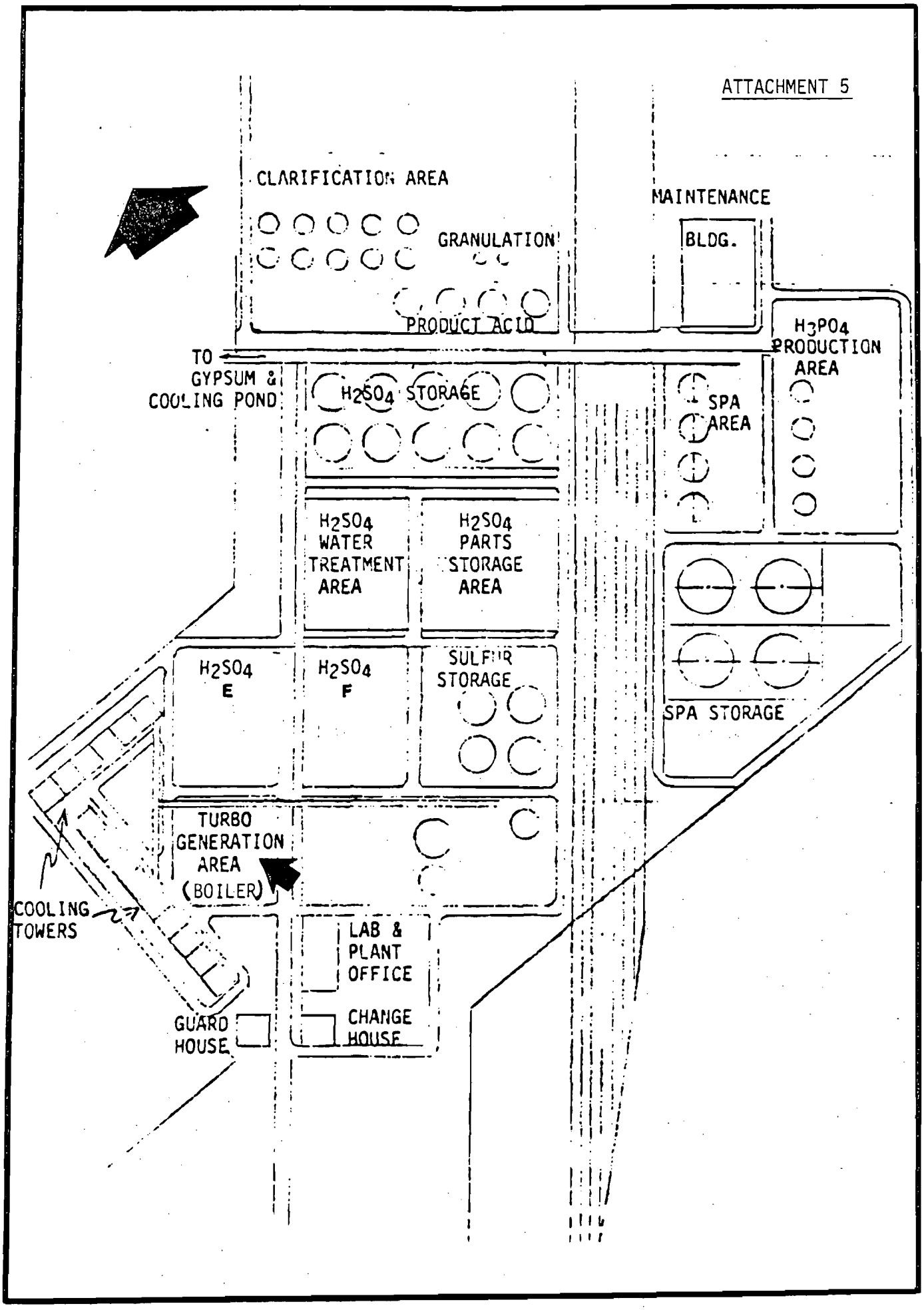


PROCESS FLOW DIAGRAM

SULFURIC ACID PLANT AUXILIARY BOILER
OXY/SPA CHEMICAL COMPLEX


50 km
N
NASSAU
ISON
HAMILTON
OSCEOLA NATIONAL FOREST
BAKER
DUVAL
JACKSONVILLE
COLUMBIA
SUWANNEE
LAFAYETTE
UNION
CLAY
BRADFORD
ST JOH
GILCHRIST
ALACHUA
ATTACHMENT 4

ATTACHMENT 5



AC 24-56211

May 7, 1982

DER

MAY 27 1982

BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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

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

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

COMPANY NAME: Occidental Chemical Company COUNTY: Hamilton

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Sulfuric Acid Plant "F"

SOURCE LOCATION: Street U.S. 41 City White Springs

UTM: East 321.110 km North 3,369.800 km

Latitude ____ ° ____ ' ____ "N Longitude ____ ° ____ ' ____ "W

APPLICANT NAME AND TITLE: Occidental Chemical Company

APPLICANT ADDRESS: Post Office Box 300, White Springs, FL 32096

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

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

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: [signature]

M.P. McArthur, V.P. & General Manager
Name and Title (Please Type)

Date: 5/24/82 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 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 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: [signature]

John B. Koogler, Ph.D., P.E.
Name (Please Type)

(Affix Seal)

SHOLTES & KOOGLER ENVIRONMENTAL CONSULTANTS
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 5/14/82 Telephone No. (904) 377-5822

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

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.

Sulfur burning sulfuric acid plant is vented through an SO_2 - SO_3 converter, a double absorption tower and demister for product recovery and sulfur dioxide and sulfuric acid mist emission control. Plant is currently permitted to produce 2000 TPD of 100 percent H_2SO_4; proposed production rate is 2500 TPD. (CONTINUED ON PAGE 2a)

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

Start of Construction July 1982 Completion of Construction July 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.)

There will be no physical modification to the existing absorption tower or mist eliminators.

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

Unit was previously permitted under AC-24-2715 issued 2/28/78 and expiring 12/31/80; and AO-24-34847 issued 5/28/81 and expiring 12/30/85.

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

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ; if seasonal, describe: permitted for 8760 hours/year operation

G. 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) requirements 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

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

SECTION II: A (Continued)

To achieve the increased production rate the size of the economizer will be increased, the gas handling system will be increased and the catalyst loading will be increased. The absorption towers and mist eliminators will not be modified.

With no modification the plant can operate at a rate of 2,250-2,300 TPD. the physical modifications described will permit a production rate of 2,500 TPD. Because of present market conditions it is planned to operate the plants up to 2,250-2,300 TPD as necessary for the next 2-3 years and then make the modifications necessary to increase the capacity to 2,500 TPD. This schedule explains the July 1987 Completion of Construction Date.

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

(See Attachment 1)

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	App. 0.005%	68,232	A (Attachment 3)

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

1. Total Process Input Rate (lbs/hr): 68,232

2. Product Weight (lbs/hr): 212,585 (98% acid); 208,333 (100% acid)

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Sulfur Dioxide	416.7	1825	NSPS	416.7	416.7	1825	B
H_2SO_4 Mist	15.6	68.3	NSPS	15.6	15.6	683	B
NO_x	14.8	64.8	BACT	14.8	14.8	64.8	B
CO	0.1	0.5	BACT	0.1	0.1	0.5	B

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5])
Double Absorption	SO_2	99.7%	---	Design & Test
Contact H_2SO_4Monsanto				
Plant				
Brink Demister in	H_2SO_4	90 + %		Vendor
exist of absorber				Guarantee

[1]See Section V, Item 2.

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

[3]Calculated from operating rate and applicable standard

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

[5]If Applicable

E. Fuels NOT APPLICABLE

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

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, 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: 9.5 ft.

Gas Flow Rate: 129,700 ACFM Gas Exit Temperature: 181 °F.

Water Vapor Content: 0 % Velocity: 30.5 FPS

SECTION IV: INCINERATOR INFORMATION

NOT APPLICABLE

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.)
Lbs/hr Incinerated							

Description of Waste _____

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

Approximate Number of Hours of Operation per day _____ days/week _____

Manufacturer _____

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) _____

Brief description of operating characteristics of control devices: _____

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight – show derivation. ATTACHMENT 1
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. ATTACHMENT 2
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). ATTACHMENT 2
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, etc.). N/A
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). ATTACHMENT 1
6. An 8½" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained. ATTACHMENT 3
7. An 8½" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map). ATTACHMENT 4
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. ATTACHMENT 5

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

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

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

(Also see PSD-FL-082)

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
SO_2	4.0 lb SO_2/ton 100% acid
H_2SO_4 Mist	0.15 lb mist/ton 100% acid

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
SO_2	4.0 lb SO_2/ton 100% acid
H_2SO_4 Mist	0.15 lb mist/ton 100% acid

D. Describe the existing control and treatment technology (if any). - Double absorption towers for SO_2 absorption and Brinks HV mist eliminators for acid mist control

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration
SO_2	4.0 lb SO_2/ton 100% acid
H_2SO_4	0.15 lb mist/ton 100% acid

*Explain method of determining D 3 above.

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*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy*: 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*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy**: h. Maintenance Costs:

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:

*Explain method of determining efficiency.

**Energy to be reported in units of electrical power – KWH design rate.

3.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Life: f. Operating Cost:

g. Energy: h. Maintenance Cost:

*Explain method of determining efficiency above.

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*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

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*:

3. Capital Cost:

4. Life:

5. Operating Cost:

6. Energy:

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above.

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

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

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems:

See PSD-FL-082

*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

See PSD-FL-082

A. Company Monitored Data

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

Period of monitoring ____/____/____ to ____/____/____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? ____ Yes ____ No

b) Was instrumentation calibrated in accordance with Department procedures? ____ Yes ____ No ____ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. ____ Year(s) of data from ____/____/____ to ____/____/____
month day year month day year

2. Surface data obtained from (location) _____

3. Upper air (mixing height) data obtained from (location) _____

4. Stability wind rose (STAR) data obtained from (location) _____

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	_____ grams/sec
SO^2	_____ grams/sec

E. Emission Data Used in Modeling

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

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

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

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

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

ATTACHMENT 1

PRODUCTION RATE CALCULATION

PRODUCT:	Sulfuric Acid as 98% H_2SO_4
PRODUCT RATE:	2500 Short tons per day (STPD) of 100% H_2SO_4 as 98% H_2SO_4
	-or-
	212,585 lbs/hr (2500 ÷ 0.98 x 2,000 ÷ 24) of 98% Sulfuric Acid
PROCESS LOSSES:	0.005% equivalent to ash content of sulfur (consider negligible). Recovery is 99.7% equivalent to emission of 4# SO_2 per ton of 100% H_2SO_4 produced.
PROCESS INPUT:	
SULFUR:	2500 STPD of 100% H_2SO_4 equivalent to 816 STPD of Sulfur (2000 x 32/98) which at an efficiency of 99.7% requires 819 STPD of Sulfur (816 ÷ 0.997).
	-or-
	68,232 lbs/hr (819 x 2,000 ÷ 24)
SULFUR RECOVERY EFFICIENCY:	Input - 68,232 lb/hour Stack - 416.7 lb/hr of SO_2 or 208.4 lb/hr or S
	Efficiency = (68,232 - 208.4)/68,232 x 100
	= 99.7%

ATTACHMENT 2

POLLUTANT EMISSION RATE CALCULATIONS

OPERATING FACTOR = 8,760 hrs/yr

PRODUCTION RATE = 2,500 TPD 100% H_2SO_4

SULFUR DIOXIDE @ 4.0 lb/ton acid

Hourly = 4.0 x 2,500/24
= 416.7 lb/hr

Annual = 416.7 x 8,760/2000
= 1,825 TPY

MIST @ 0.15 lb/ton acid

Hourly = 0.15 x 2,500/24
= 15.6 lb/hr

Annual = 15.6 x 8,760/2000
= 68.3 TPY

NO_x @ 2.1×10^{-6} lb/SCF (test results on an existing sulfuric acid plant)

Typical Stack Gas Characteristics

SO_2 - 230 ppm
O_2 - 7%

GAS FLOW RATE

= $11,800/[0.263 - 0.0126(O_2\%)]$

= $11,800/[0.263 - 0.0126(7)]$

= 67,500 SCF/ton of acid

EMISSION RATE

Hourly = $2,500/24 \times 67,500 \times 2.1 \times 10^{-6}$
= 14.8 lb/hr

Annual = 14.8 x 8,760/2000
= 64.8 TPY

CO

Sulfur consumption = 0.335 tons/ton Acid including losses.

Carbon content of sulfur ∿ 0.25% (assume to be "petroleum")

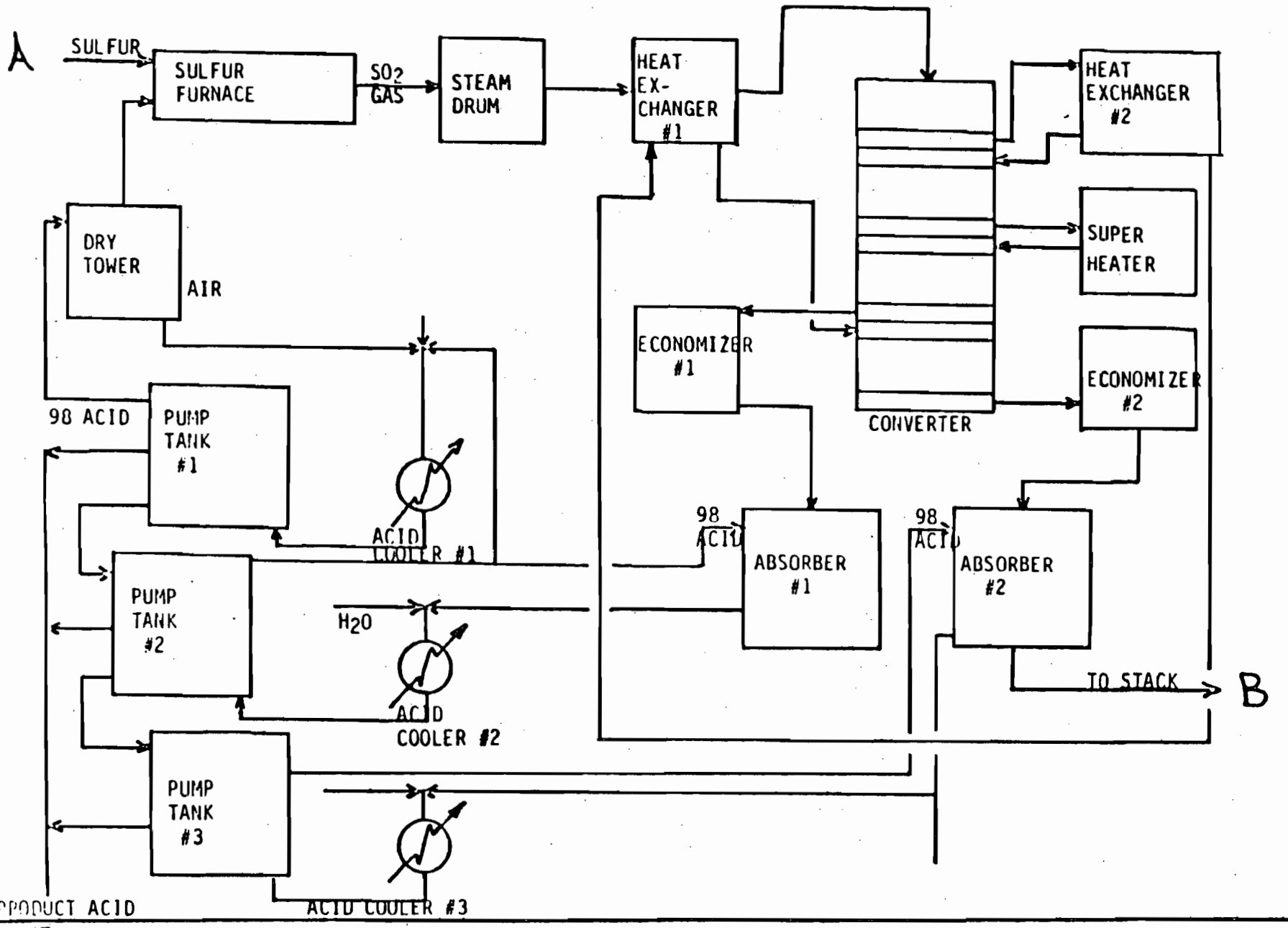
"Petroleum" content of Sulfur

= 2,500/4 x 0.335 x 0.0025
x 2000 lb/ton
= 174.5 lb/hr
x 1/8 lb/gal
= 21.8 equivalent gal/hr

EMISSION RATE @ 5 lb CO/1000 gal

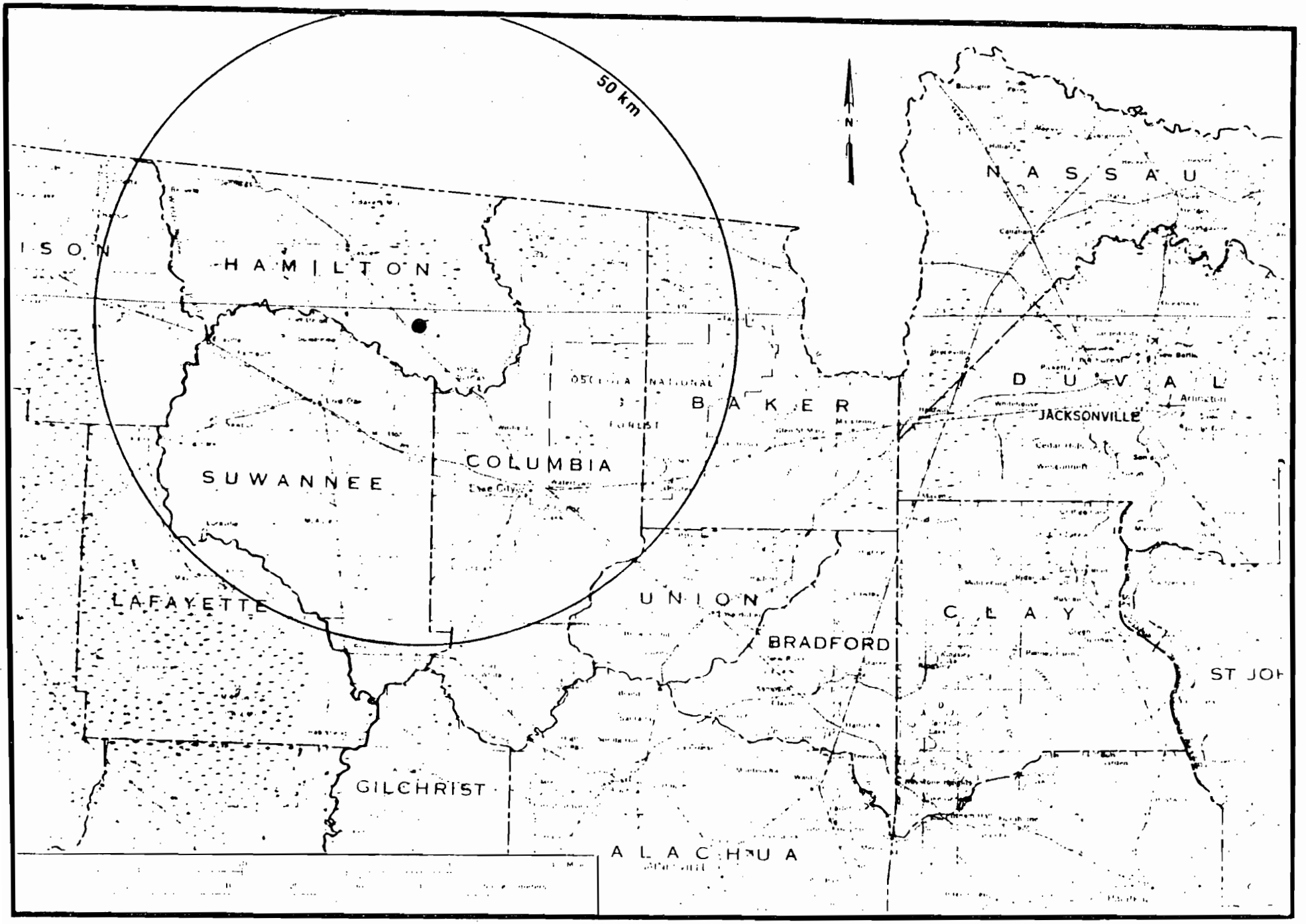
Hourly = 21.8/1000 x 5
= 0.11 lb/hr

Annual = 0.11 8,760/2000
= 0.5 TPY



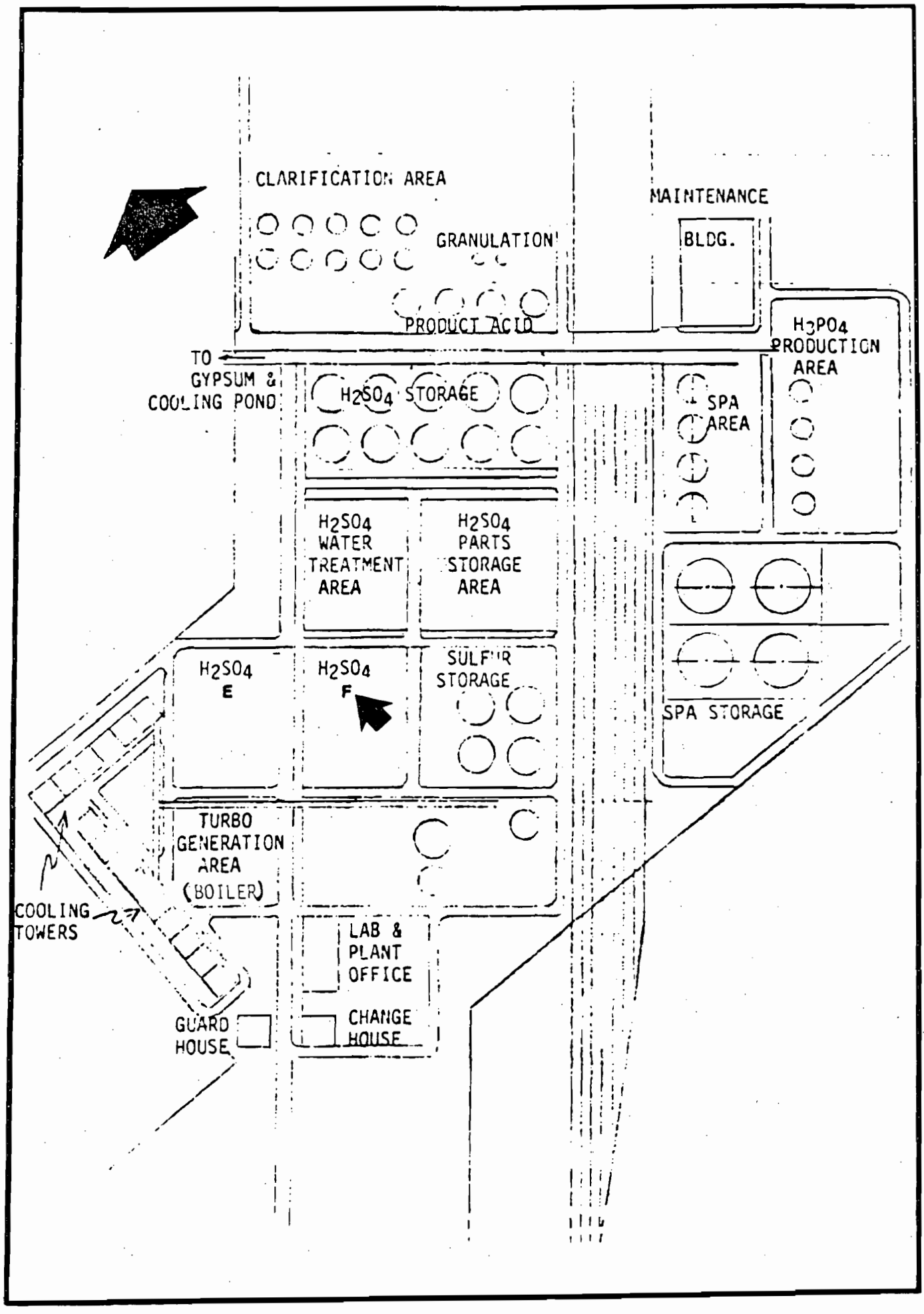
DOUBLE CONTACT/DOUBLE ABSORPTION - SULFURIC ACID MANUFACTURE

ATTACHMENT 3



ATTACHMENT 4

ATTACHMENT 5



SKOUBOE & KOOGLER, ENVIRONMENTAL CONSULTANTS
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822

SKEC 102-81-08

June 18, 1981

Mr. Steve Smallwood, Chief
Bureau of Air Quality Management
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

Subject: Application for Federal PSD Approval
Occidental Chemical Company
Swift Creek Chemical Complex
Hamilton County, Florida

Dear Mr. Smallwood:

On June 8, 1981 we submitted to your office an application for Federal PSD Approval for a sulfuric acid production rate increase and for the use of a fuel oil with a higher sulfur content at the Occidental Chemical Company, Swift Chemical Complex in Hamilton County, Florida. At the time this application was submitted we requested that we be able to retain Volume II of the application, the computer printouts generated during the Air Quality Review, so that we could make copies of this material for our file. This material has been copied and I am returning, under this letter, the original computer printouts as submitted to your office on June 8, 1981. We appreciate the use of this material for copying purposes.

In reviewing Volume I of the application we noted some typographical errors which we would like to bring to your attention. These are described on the attached Errata sheet. We have corrected some of the pages containing errors and have attached four sets of corrected copies of these pages. These pages can be inserted into the application received in your office on June 8. The errors noted in no way change the content of the application or the conclusions reached therein.

If there any questions regarding the corrections referenced in the Errata sheet or the pages attached hereto or any questions regarding the

application itself, please feel free to contact us. We are willing to work with your staff in anyway possible to assist in the review of this application.

Very truly yours,

SHOLTES & KOOGLER
ENVIRONMENTAL CONSULTANTS

John B. Koogler, Ph.D., P.E.

JBK:ls

cc: W. W. Atwood, Occidental Chemical Company

ERRATA

Page 2-8, line 4 - "1.3 pounds" should read "91.3 pounds"
line 6 - "3.9 pounds per hour or 17 tons . . ." should read "1.5 pounds per hour or 6.7 tons . . ."

Appendix 2-2 - Operating permit application for "B" Auxillary boiler is duplicated; duplicate should be removed.

Appendix 2-4 - Emission Summary - Hourly particulate matter emissions for Boiler "B"; Proposed should read "17.5 lb/hr" not "19.7 lb/hr" and Increase should read "1.5 lb/hr" not "3.7 lb/hr".

Page 5-2, Auxillary Boiler $B^{(2)}$
(C & D Sulfuric) - Maximum emission rate of 28.64 gr/sec is at 100 percent of maximum rate; not at 25 percent of maximum rate.

Page 6-5, last paragraph, line 2 - "at this rate;" should read "at these rates;"

permitted to fire No. 6 fuel with a 1.5 percent sulfur content in some of the sources and No. 6 fuel oil with 0.8 percent sulfur content in other sources. Due to the increased difficulty in maintaining a reliable supply of No. 6 fuel oil with a 0.8 percent sulfur content and because of a more rapid rate in the cost of this fuel, Occidental is requesting, by this permit application, permit modifications that will permit the use of fuel oil with a 1.3 percent sulfur content in all sources at the SRCC presently permitted to use 0.8 percent sulfur oil. The sources that will be affected by this proposed modification are the No. 2 DAP plant, the "B" auxillary boiler serving the "C" and "D" sulfuric acid plants and the "C" and "D" boilers used primarily for providing auxillary steam to the SPA evaporators.

The proposed fuel change will affect sulfur dioxide and particulate matter emissions. The increases in the emission rates of both of these pollutants will exceed de minimus levels as established in 40 CFR 52.21 (Table 2-1). Because of this the proposed fuel change is subject to Federal PSD Review.

Other pollutants emitted from the affected sources include nitrogen oxides, carbon monoxide and hydrocarbons generated by fuel burning and fluorides from the No. 2 DAP plant. The emission rates of none of these pollutants will be affected by the proposed fuel conversion.

In the following paragraphs each of the affected sources are described and emission rate increases resulting from the proposed fuel change are estimated.

TABLE 6-1

SUMMARY OF AIR QUALITY REVIEW FOR SULFUR DIOXIDE & PARTICULATE MATTER

OCCIDENTAL CHEMICAL COMPANY
SUWANNEE RIVER CHEMICAL COMPLEX
HAMILTON COUNTY, FLORIDA

Pollutant	CLASS II Max. New Source Impact (ug/m^3)	CLASS II Max. Impact of all Sources (ug/m^3)	CLASS II Max. Increase From Proposed Fuel Conversion (ug/m^3)	CLASS I Max. New Source Impact (ug/m^3)
Sulfur Dioxide				
Annual	5	25 (at SRCC)	2	1
24-Hour	47*	259*(at SRCC)	19*	4.9
3-Hour	208	915 (at SRCC)	94	19.4
Particulate Matter				
Annual	Not Significant	--	--	--
24-Hour	Not Significant	--	--	--

* With boiler "B" at 60 percent operating factor

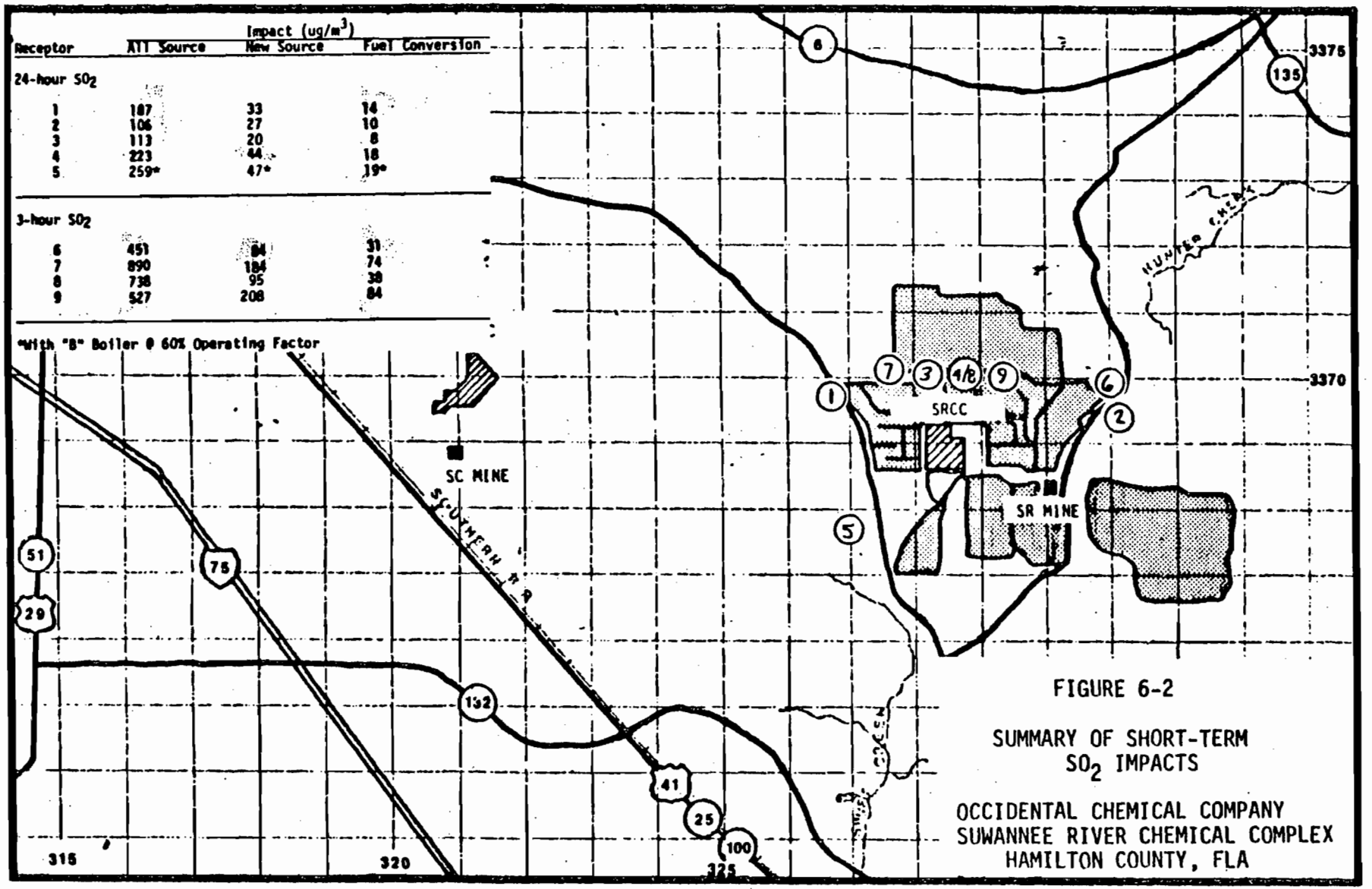


FIGURE 6-2

SUMMARY OF SHORT-TERM SO_2 IMPACTS

OCCIDENTAL CHEMICAL COMPANY
SUWANNEE RIVER CHEMICAL COMPLEX
HAMILTON COUNTY, FLA

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

November 24, 1981

W. W. Atwood
Occidental Chemical Company
P. O. Box 300
White Springs, Florida 32096

Re: Permit Applications (PSD-FL-082) and (PSD-FL-083)

Dear Mr. Atwood:

An incompleteness letter concerning the subject permit applications was sent to your firm and your consultant on July 24, 1981. As of this date we have not received a response. The Bureau would appreciate an update on the status of the permit applications.

Also, as you may recall, we discussed briefly in your visit here in early July, the use of a half-life in the modeling for SO_2. In your model runs evaluating the impact on the Okeefenokee National Wildlife Refuse, you used a half-life of eight hours. The use of this half-life is unacceptable without documentation as to its accuracy. A 12-hour half-life has been accepted by the Bureau in the past and would also be accepted in this case without further documentation. I am enclosing a copy of an alternative method for determining SO_2 depletion that was used by Trinity Consultants for a project in South Carolina. This method was accepted by EPA and may also be useful for this project or future projects.

Sincerely,

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

CF/TR/bjm

cc: J. Koogler (w/enclosure)

KLEINFELDER & KOOGLER, ENVIRONMENTAL CONSULTANTS
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822

SKEC 102-81-08

December 7, 1981

Mr. Clair Fancy
Bureau of Air Quality Management
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

Subject: Occidental Chemical Company
PSD-FL-082, Swift Creek Chemical Complex
PSD-FL-083, Suwannee River Chemical Complex

Dear Mr. Fancy:

On July 24th, 1981, your office sent the Occidental Chemical Company a letter requesting additional information so that the processing of the two subject PSD applications could be completed. The attachments to this letter respond, using the same enumeration used in your July 24th letter, to the six issues addressed by your letter.

Items 1 and 2 are related to BACT for sulfur dioxide emissions from fuel burning sources. These items apply to both PSD applications PSD-FL-082 and PSD-FL-083. The Items 3A, 3B, and 3C reference PSD application PSD-FL-083; the Suwannee River Chemical Complex application. The Item identified as "A" refers to PSD application PSD-FL-082; the Swift Creek Chemical Complex application.

In addition to the material attached hereto, a response is being prepared to your letter dated November 24th, 1981 addressing the sulfur dioxide half-life used in the model runs evaluating the sulfur dioxide impact on the Okeefenokee National Wildlife Refuge. We are also preparing State Air Pollution Source Construction Permit Applications for the sources addressed in the two PSD applications. These should be in your office within two weeks.

If there are any questions regarding the material attached hereto, please feel free to contact me.

Very truly yours,

SHOLTES & KOOGLER
ENVIRONMENTAL CONSULTANTS

John B. Koogler, Ph.D., P.E.

JBK:sc
Attachments

cc: Mr. W. W. Atwood

ITEMS 1 & 2

Occidental has requested the use of fuel oil with an increased sulfur content in one source covered by PSD application PSD-FL-082 (SCCC); and in four sources covered by PSD application PSD-FL-083 (SRCC). The SCCC source and three of the four sources at the SRCC are boilers. The fourth source at the SRCC is a DAP plant which uses fuel oil in a product dryer.

Best Available Control Technology for sulfur dioxide control in boilers of the size operated by Occidental (120-160 million Btu per hour heat input) involves varying the sulfur content of the boiler fuel. Varying the sulfur content of the fuel is more practical, particularly in the case at Occidental, than injecting an absorbent into the fire box of the boiler or adding a flue gas desulfurization system. The use of absorbents for sulfur dioxide control is effective on coal fired units which none of the Occidental boilers or the DAP plant are. The use of scrubbers for flue gas desulfurization would add completely new pieces of process equipment and would compound water treatment and disposal problems at Occidental.

The feasible alternative available to Occidental for controlling sulfur dioxide from the effected sources is through the control of the sulfur content of fuels used in the sources. At the SCCC the alternative fuels that Occidental could consider are coal, oil and a coal-oil mix (COM). At the SRCC the available alternative fuels include coal, oil, COM and natural gas.

Coal is not considered a feasible alternative by Occidental at either of the chemical complexes at the present time because of the problems encountered in storing and handling a solid fuel. At the SRCC in particular, space constraints are such that it would be virtually impossible to store a necessary stockpile of coal. In addition, the transfer of coal at the SRCC to the four individual sources which are the subject of PSD application PSD-FL-083 would be very cumbersome. At the SCCC coal storage and coal transfer would not be as severe a problem as at the SRCC; however, it would be severe enough to preclude the consideration of coal as a feasible alternative fuel.

The use of COM fuel would be feasible at both chemical complexes. Occidental recently had the operating permit for the "C" boiler at the SRCC (one of the sources addressed in PSD application PSD-FL-083) revised to permit the use of COM with a 0.8 percent sulfur content as an alternative fuel. After some operating experience has been gained with this fuel Occidental may very well request permit modifications for some or all fuel burning sources to allow the use of COM as an alternative fuel. Until operating experience is gained with this fuel, however, Occidental is hesitant to consider this fuel as an alternative for other sources.

At the SRCC natural gas is available and is used as an alternative fuel in most all fuel burning sources when it is available. Natural gas is presently the most ideal fuel available because of present pricing and because the combustion of the fuel results in practically no sulfur dioxide or particulate matter emissions. The problem with this fuel is

the availability. Occidental, as with virtually all industrial users of natural gas, is on an interruptable service. This means the gas supply can be interrupted when gas is needed to provide energy for residential and other non-interruptable services. Occidental has experienced a greater frequency of interruptions in recent years because of the energy situation in this country.

The only fuel other than natural gas at the SRCC, that Occidental would consider at this particular time is No. 6 fuel oil. All of the subject sources are permitted to use this fuel with a 0.8 percent sulfur content or less. Occidental is requesting the use of a No. 6 fuel oil with a sulfur content of 1.3 percent. The request by Occidental is based on these factors; one being the existing cost differential between fuel oil with a 0.8 percent sulfur content and fuel oil with a 1.3 percent content; the second being the anticipated difficulty in obtaining low sulfur fuel oil at any reasonable price on the future market; and the third is the fact that Occidental owns or leases all property within several miles of both chemical complexes and has no sensitive sulfur dioxide receptors on the property.

Occidental obtained quotations for No. 6 fuel oil with varying sulfur contents in mid-August, 1981 and updated these price quotations by telephone conversation in early December, 1981. These price quotations are appended hereto as Attachment 1.

Based on quoted fuel oil prices and the heat input required by the four boilers and the DAP plant, annual fuel costs were calculated assuming the use of fuel oil with 0.8 percent sulfur (currently permitted conditions) and the use of fuel oil with 1.3 percent sulfur. The fuel costs, the fuel use by each source and the annual fuel costs are summarized in Attachment 2.

For the five sources involved, the annual fuel cost for No. 6 oil with 0.8 percent sulfur content ranges between $13.8 and $14.8 million per year depending upon the price quotation used. For a fuel oil with 1.3 percent sulfur content the annual fuel costs ranged between $12.4 million and $12.8 million; or an averaged annual cost differential over 0.8 percent sulfur fuel of $1,712,772 or 12.0 percent.

The maximum impacts on air quality resulting from the use of fuel oil with a 1.3 percent sulfur content over the impacts resulting from the use of 0.8 percent sulfur fuel oil are 74-84 micrograms per cubic meter, 3-hour average; 19-26 micrograms per cubic meter, 24-hour average; and 1.4-2.0 micrograms per cubic meter, annual average. The ranges stated take into account the impacts at both the SRCC and the SCCC.

Taking the average of these increased impacts and the annual costs associated with the fuels, the annual costs associated with increased sulfur dioxide levels were calculated. Burning fuel oil with a 0.8 percent sulfur rather than fuel oil with 1.3 percent sulfur is costing Occidental $10,900 per year for each microgram per cubic meter the maximum 3-hour sulfur dioxide level is decreased; $38,500 per year for each microgram per cubic meter the maximum 24-hour sulfur dioxide level

is decreased; and $1,019,500 per year for each microgram per cubic meter the sulfur dioxide level is decreased on the average for each year.

Occidental's request to use a fuel oil with a higher sulfur content is based on the cost differential between 0.8 percent sulfur fuel oil and 1.3 percent sulfur fuel oil and on a potential availability factor. Regarding the cost, Occidental is of the opinion that $1.02 million per year to decrease the sulfur dioxide level one microgram per cubic meter on an annual average is excessive. This is particularly so when one considers the fact that Occidental owns or leases all of the property within several miles of both the Swift Creek and Suwannee River Chemical Complexes. Also, there are no sensitive receptors to sulfur dioxide on either the property controlled by Occidental or adjoining property owned or controlled by others.

Another matter to take into consideration when evaluating the Best Available Control Technology for sulfur dioxide is changes in the prices of fuel oils with various sulfur contents. These price changes are brought on in part by the availability of the various fuels and in part by the demand for the fuels. For example, if the prices quoted by Eastern Seaboard Petroleum Company, Inc. (See Attachment 1) are reviewed one finds that the cost of fuel oil with a 0.8 percent sulfur content increased by $4.17 per barrel (14 percent) between August, 1981 and December, 1981. During the same time period the cost of fuel oil with 1.3 percent sulfur content increased $2.37 per barrel or eight percent.

Translated to the fuel use of Occidental, the increase in cost of fuel oil with 0.8 percent sulfur content over the four month period from August, 1981 through December, 1981 calculates to an annual fuel cost increase of $1,922,782.00 to Occidental. During the same period the cost increase for fuel oil with a 1.3 percent sulfur content calculates to an annual fuel cost increase of $1,012,772.00. Just the differential in cost increases of 0.8 percent sulfur fuel over 1.3 percent sulfur fuel in a four month period translates to a $910,000.00 per year annual cost to Occidental.

The fact that the oil with 0.8 percent sulfur content increased in cost at a much greater rate (6 percent greater) during the period August-December, 1981, is undoubtedly related to the fact that there is a greater demand for the lower sulfur fuel oil. At present there appears to be a supply of the 0.8 percent sulfur content oil that will satisfy the demand of all users. Changes in world political situations; however, greatly influenced the availability of this grade fuel oil, as well as other fuel oils, as experienced a few years ago.

Anticipating possible supply shortages of 0.8 percent sulfur content oil in the future, considering the cost differential between the 0.8 percent sulfur fuel and the 1.3 percent sulfur fuel, and taking into consideration the fact that there are no sensitive sulfur dioxide receptors in the areas where the highest expected sulfur dioxide levels will occur, Occidental suggests that the use of fuel oil with a 1.3 percent sulfur content represents Best Available Control Technology for sulfur dioxide emissions from fuel burning sources at the Swift Creek and Suwannee River Chemical Complexes.

ITEM 3A

The original Occidental Suwannee River Chemical Complex was constructed in 1966. At this time the chemical complex consisted of the "A" and "B" sulfuric acid plants, auxiliary boiler "A", phosphoric acid plant "A" the "X" and "Y" trains (granular products plants), the No. 1 SPA plant and the East and West Suwannee River Mine dryers. In 1970-71 Occidental constructed an animal feed facility referred to as the Pollyphos plant. In 1974 FDER construction permits were obtained for the "B" and "C" phosphoric acid plants, the "C" and "D" sulfuric acid plants, the "Z" train (a DAP plant) and the Swift Creek Mine dryer. None of these sources were subject to PSD.

Following the adoption of Federal PSD Regulations in January, 1975, the "B" auxiliary boiler was permitted and installed (1975). On February 27, 1978 a final PSD approval was granted by EPA for the "C" and "D" boilers at the Suwannee River Chemical Complex, the "E" auxiliary boiler at the Swift Creek Chemical Complex and the "E" and "F" sulfuric acid plants at the Swift Creek Chemical Complex.

In January, 1981, Occidental received final PSD approval from EPA to increase the production capacity of the phosphoric acid and superphosphoric acid facilities at the Suwannee River Chemical Complex and to convert the "X" train to an animal feed production facility. The animal feed produced in the modified "X" train is referred to as Dical.

since the subject PSD application addresses only sulfur dioxide and particulate matter emitting sources, only those sources constructed or modified since January 6, 1975 are classified as PSD increment consuming for the purposes of the subject PSD application. The sources owned and operated by Occidental that are increment consuming are:

Auxiliary Boiler "B" (SRCC)
Auxiliary Boilers "C" & "D" (SRCC)
Auxiliary Boiler "E" (SCCC)
Sulfuric Acid Plants "E" & "F" (SCCC)

In addition to these sources, the sulfur dioxide and particulate matter increases expected, and addressed in the SCCC PSD application (PSD-FL-082) and the SRCC PSD application (PSD-FL-083) will also be increment consuming. In both referenced PSD applications these sources have been classified and treated as an increment consuming source.

ITEM 3B

The sulfur dioxide emission rates for the "A" and "B" pollyphos reactors are listed in Table 5-1 of both PSD applications (PSD-FL-082 and PSD-FL-083) as 13.1 grams per second (104 pounds per hour). This is also the emission rate listed in the current operating permit application for the two reactors.

The stated emission rate was based upon sulfur dioxide emission measurements conducted some time ago on the reactor stacks. Subsequent to that time, and prior to preparation of the PSD applications, SKEC conducted sulfur dioxide emission measurements on the two reactor stacks as described in the attached report (Attachment 3). With both reactors, the sulfur dioxide emission rate was measured to be less than five pounds per hour.

For purposes of the PSD air quality review; however, an emission rate of 0.63 grams per second (5.0 pounds per hour) was used. Occidental will amend the "A" and "B" pollyphos reactor air pollution source operating permit applications on file with FDER in Jacksonville to reflect this reduced emission rate.

ITEM 3C

The sulfur dioxide levels reported for some of the receptors in PSD application PSD-FL-083 were less than the maximum concentrations shown in the computer outputs as a result of oversights. This occurred for the 24-hour sulfur dioxide impact at receptor No. 4 (See Figure 6-2 of subject PSD application) and for the 3-hour sulfur dioxide impacts at Receptors 8 and 9. The corrected maximum impacts are shown on the revised Figure 6-2, appended hereto as Attachment 4.

The changes in the reported maximum sulfur dioxide levels do not change any of the conclusions stated in the original PSD application.

PSD-FL-082

Item A

The analysis of the 24-hour sulfur dioxide impact with meteorology from day 246, 1973 was omitted by oversight. Attached hereto is a revised Figure 6-5 of the subject PSD application (Attachment 5) and the PTMTPW computer print-out of this model run (Attachment 6).

The results of this model run show that the maximum 24-hour sulfur dioxide impact resulting from the meteorology of day 246, 1973 is 45 micrograms per cubic meter. This impact occurrs, as shown in revised

Figure 6-5, at the north edge of the Swift Creek Chemical Complex cooling water pond. This impact is well below the 24-hour sulfur dixoide standard of 260 micrograms per cubic meter and the new source impact of 43 micrograms per cubic meter is well below the 24-hour Class II sulfur dioxide PSD increment of 91 micrograms per cubic meter.

ATTACHMENT 1

FUEL PRICES

EASTERN SEABOARD PETROLEUM COMPANY, INC.
P. O. BOX 3233, STATION F—6531 EVERGREEN AVE.
JACKSONVILLE, FLORIDA 32206

OFFICES
JACKSONVILLE
TAMPA

TELEPHONE 904/358-9678
CABLE ADDRESS
EASTPET

August 20, 1981

Mr. Gilbert McGhin
Occidental Chemical Company
PO Box 300
White Springs, FL 32096

Dear Mr. McGhin:

In response to your request for projections on No. 6 fuel prices, I submit the following:

Grade #6	Current Price per bbl	4th Qtr 81 (DEC)	1st Qtr 82	2nd Qtr 82	3rd Qtr 82	Actual Dec. 1981 Cost(1)
.8%	$29.900	$31.39	$34.53	$34.53	$36.26	34.07/bbl
1%	29.265	30.73	33.80	33.80	35.49	32.77/bbl
1.5%	28.75	30.19	33.21	33.21	34.87	30.38/bbl
2.0%	27.75	29.14	32.05	32.05	33.65	29.38/bbl

Each of the above prices are fob Jacksonville, delivery to White Springs is an additional $1.13 per barrel.

Barring any flare-up in the Middle East, we should see fuel oil prices somewhat more stable than in the last two years. The current meeting in Geneva of the OPEC countries will have a great impact on price and supply. We believe the Saudi's will be successful in stabilizing crude prices from that region of the world.

I hope you will find this information helpful and if I can be of any further assistance, please give me a call.

Very truly yours,

Arnold E. Seaton

Arnold E. Seaton
Assistant Vice President

AES/tab

cc: Craig Taylor

(1) Price quoted by Arnold E. Seaton to J. B. Koogler during telephone conversation of 11/24/81.

Belcher

August 20, 1981

Mr. J. Craig Taylor
Occidental Chemical Company
Florida Operations
P. O. Box 300
White Springs, FL 32096

Dear Mr. Taylor:

The following are prices, effective August 20, 1981, for the products listed below:

		Dec. 1981 Price(1)	
Diesel Fuel/#2	$1.0036 Per Gallon		
#6 Fuel Oil (.8% Sulphur)	.7731 Per Gallon	0.8733 Per Gallon	36.63/bbl
#6 Fuel Oil (1.0% Sulphur)	.7255 Per Gallon	0.7898 Per Gallon	33.17
#6 Fuel Oil (1.5% Sulphur)	.7017 Per Gallon	0.7612 Per Gallon	31.97
#6 Fuel Oil (2.0% Sulphur)	.6779 Per Gallon	0.7269 Per Gallon	30.53
#6 Fuel Oil (2.5% Sulphur)	.6707 Per Gallon		

These prices, exclusive of taxes, are delivered prices to your White Springs, Florida location.

Thank you for your business.

Sincerely,

J R Sauls

BELCHER OIL COMPANY
J. R. Sauls
Manager-Mid-Gulf Area

JRS/ke

cc: Bob Travis

(1) Prices quoted by Mr. Huhn of Belcher to J.B. Koogler during telephone conversation of 11/24/81.

B. & M. Oil Company
P.O. Box 1288—909 S. Ohio Ave.
Live Oak, FL 32060
(904)362-6340
Night-(904)362-1182

August 18, 1981

Occidental Chemical Company
P. O. Box 300
White Springs, FL 32096
Attn: Mr. Gilbert McGinn, Supervisor
Materials Management

Dear Gilbert:

Based upon our phone conversation of August 18, 1981, our current bid price on #6 fuel oil is as follows:

Maximum Sulfer Content of .8%	$.81 gal. 34.02
Maximum Sulfer Content of 1.0%	Not Available
Maximum Sulfer Content of 1.5%	$.78 gal. 32.76
Maximum Sulfer Content of 2.0%	Not Available
Maximum Sulfer Content of 2.5%	$.73 gal. 30.66

Above listed prices include freight to White Springs, Florida.

Prices are not firm, but may fluctuate from time-to-time as the World Oil Market fluctuates.

Based upon my observation of the leading oil price indicators, I believe the projected price for the next several months will remain stable to approximately a 2 to 3% maximum increase in cost.

Therefore, the projected cost of #6 fuel oil for the next 2 to 3 quarters should remain at or not over the below cost:

Maximum Sulfer Content of .8%	$.84 gal.
Maximum Sulfer Content of 1.0%	Not Available
Maximum Sulfer Content of 1.5%	$.81 gal.
Maximum Sulfer Content of 2.0%	Not Available
Maixmum Sulfer Content of 2.5%	$.75 gal.

Thanking you for all your courteousness in this matter and I will be looking forward to hearing from you.

Sincerely,

Don Boyette
President

DB:vbh

Fuel costs not updated in December, 1981 because of unfavorable cost differential between this quotation and quotations from Belcher and Eastern Seaboard.

ATTACHMENT 2

OCCIDENTAL FUEL USES & ANNUAL FUEL COSTS

FUEL USE BY SOURCE

The sources affected by the proposed fuel changes are:

I. PSD-FL-082 (SCCC)

Auxiliary Boiler E - Annual Operating Factor - 97.5%
- Heat Input - 156 x 10^6 Btu/hr

II. PSD-FL-083 (SRCC)

Auxiliary Boiler B - Annual Operating Factor - 25%
- Heat Input - 160 x 10^6 Btu/hr

Boiler C - Annual Operating Factor - 25%
- Heat Input - 120 x 10^6 Btu/hr

Boiler D - Annual Operating Factor - 25%
- Heat Input - 120 x 10^6 Btu/hr

Z Train (DAP No.2) - Annual Operating Factor - 95%
- Heat Input - 30 x 10^6 Btu/hr

DECEMBER, 1981 FUEL COSTS

Eastern Seaboard

Sulfur Content (%)	Heat Content (Btu/gal)	Price per Gallon ($)	Price per 10^6Btu ($)
0.8	144,650	0.8112	5.6080
1.3(1)	148,140	0.7461	5.0364
Belcher			
0.8	144,650	0.8733	6.0373
1.3(1)	148,140	0.7726	5.2153

(1) Price for 1.3% sulfur fuel was obtained by interpolation between prices of 1.0 and 1.5 percent sulfur fuels.

assume 100% oil fuel - gas to limit when available

FUEL COST BY SOURCE

Source	Annual Heat Input (10^{12} Btu/yr)	Fuel Cost ($/year) 0.8% Sulfur	Fuel Cost ($/year) 1.3% Sulfur	Fuel Cost Differential ($/year) 0.8 - 1.3% Sulfur
Eastern Seaboard Prices				
Boiler E	1.332	7,472,077	6,710,479	761,597
Boiler B	0.350	1,965,043	1,764,754	200,289
Boiler C	0.263	1,473,782	1,323,566	150,216
Boiler D	0.263	1,473,782	1,323,566	150,216
Z Train (DNP)	0.250	1,400,093	1,257,388	142,706
Total		13,784,777	12,379,753	1,405,024
Belcher Prices				
Boiler E	1.332	8,044,074	6,948,845	1,095,230
Boiler B	0.350	2,115,470	1,827,441	288,029
Boiler C	0.263	1,586,602	1,370,581	216,022
Boiler D	0.263	1,586,602	1,370,581	216,022
Z Train (DNP)	0.250	1,507,272	1,302,052	205,221
Total		14,840,020	12,819,500	2,020,520

ATTACHMENT 3

POLLYPHOS PLANT SULFUR DIOXIDE EMISSION MEASUREMENTS

SUMMARY OF SULFUR DIOXIDE EMISSION MEASUREMENTS

A & B POLLYPHOS REACTORS

OCCIDENTAL CHEMICAL COMPANY
SUWANNEE RIVER CHEMICAL COMPLEX
WHITE SPRINGS, FLORIDA

MARCH, 1981

SHOLTES & KOOGLER
ENVIRONMENTAL CONSULTANTS
1213 NW 6TH STREET
GAINESVILLE, FLORIDA 32601
(904) 377-5822

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To the best of my knowledge, all applicable field and analytical procedures except as noted in Section 4.0 comply with FDER requirements and all test data and plant operating data are true and correct.

George F. Allen

Signature

Date

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822

SKEC 102-81-08

April 26, 1982

Mr. Clair Fancy
Bureau of Air Quality Management
Department of Environemntal Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

Subject: Occidental Chemical Company
PSD-FL-082, Swift Creek Chemical Complex
PSD-FL-083, Suwannee River Chemical Complex

Dear Mr. Fancy:

In the original PSD applications that the Occidental Chemical Company submitted to FDER for modifying operations at both the Swift Creek and Suwannee River Chemical Complexes, the impact of sulfur dioxide emissions on the Okefonokee Class I PSD area were reviewed. In these reviews, a half-life for sulfur dioxide in the atmosphere of 12 hours was used. This half-life was adopted based on a conversation with Mr. Lou Nagler with EPA Region IV in Atlanta and upon information contained in the document Guideline on Air Quality Models, Proposed Revisions, U.S. Environmental Protection Agency, October 1980.

In your letter of November 24, 1981 to Mr. Wes Atwood of the Occidental Chemical Company, you state that the use of an 8 hour half-life is unacceptable to your agency without documentation of its accuracy. Subsequent conversations with Mr. Lou Nagler indicated that EPA has also changed its position on the use of an 8 hour half-life. Both your November 24th letter and telephone conversations with EPA indicate that a 12 hour half-life for sulfur dioxide will be acceptable without documentation.

At the Swift Creek and Suwannee River Chemical Complexes the Occidental Chemical Company has six sulfur dioxide emitting sources which are classified as "new sources" for purposes of PSD determinations. Three of these sources are at the Swift Creek Chemical Complex (SCCC); the "E" and "F" sulfuric acid plants and the "E Boiler". The remaining three sources are at the Suwannee River Chemical Complex (SRCC); the "B", "C" and "D" auxillary boilers. Also at the SRCC is the No. 2 DAP Plant (Z Train), an existing source, for which a sulfur dioxide emission increase

is requested. All of these sources are also addressed in the two subject PSD applications. In the applications it was proposed to increase the permitted production rate of the "E" and "F" sulfuric acid plants from 2,000 tons of 100 percent sulfuric acid per day to 2500 tons of acid per day for each of the two plants. With the boilers, it was proposed to increased the sulfur content of the fuel oil used for firing the boilers from the presently permitted level of 0.8 percent to 1.3 percent. It was also proposed to increase the sulfur content of fuel oil used in the dryer of the No. 2 DAP Plant from 0.8 percent to 1.3 percent.

As the results of your November 24th letter, Occidental had two basic options. The first option would be to document an 8 hour half-life for sulfur dioxide and maintain the modifications proposed for the seven sources as outlined in the above paragraph. The second option would be to increase the half-life of sulfur dioxide to 12 hours and to decrease the sulfur dioxide emissions from the effected sources to a level which would not result in a significant impact on the Okefenokee National Wildlife Refuge.

In view of recent BACT determinations by your department, as they relate to controlling emissions from fossil fuel fired boilers, it was determined that it would be most expeditious to reduce the requested sulfur content of fuels for the four boilers to 1.0 percent, to maintain the same production rate increases requested for the "E" and "F" sulfuric acid plants and to request a sulfur dioxide emission rate from the No. 2 DAP Plant of 0.41 pounds of sulfur dioxide per ton P_2O_5 input to the plant (the use of 1.5 percent sulfur fuel oil).

These revisions to the modifications requested in the original PSD application will result in a net decrease in sulfur dioxide emissions over the increase requested in the orignial PSD applications of 51.2 pounds per hour (218.8 tons per year) for the Swift Creek Chemical Complex (SCCC) and 435.5 pounds per hour (1907.6 tons per year) for the Suwannee River Chemical Complex (SRCC). Since there is a decrease in the requested incremental increase in sulfur dioxide emissions all of the information contained in the original PSD applications and the supplemental information provided to your office on December 7, 1981 represents conditions much more severe that will actually exist. Because of this the only matter which will be addressed in this document is the impact of sulfur dioxide on the Okefenokee Class I PSD area.

The revised modified emissions from all of the effected sources are presented in Attachment 1. These emissions are based on a sulfur dioxide emission rate from the "E" and "F" sulfuric acid plant of 4.0 pounds of sulfur dioxide per ton of 100 percent acid produced and a 2500 ton per day production rate. The sulfur dioxide emission rates from the four

boilers are based on the use of fuel oil with a 1.0 percent sulfur content and the sulfur dioxide emission rate from the No. 2 DAP Plant is based on the use of fuel oil with 1.5 percent sulfur content and an 80 percent absorption factor.

The emissions from the effected sources were modeled to evaluate the impact on the Okefenokee Class I PSD area using the CRSTER air quality model and the ISC-ST model. The meteorological data input to the CRSTER air quality model represented data from Valdosta, Georgia for the period 1972 through 1976. These data were preprocessed using a program developed by the FDER to eliminate all days except those which contained a vector which would result in the transport of the pollutant from the Occidental Chemical Company to the boundary of the Okefenokee National Wildlife Refuge. The CRSTER model was also modified to review the output tape from that model and exclude non-zero sulfur dioxide concentration contributions to a receptor which resulted from periods with calm winds. This modification is consisted with the EPA recommendation which states:

> "Generally, concentrations calculated for those hours with calm winds (e.g., wind speeds less than 1 mps) should be excluded from averages of 24 hours or less, if a concentration during an hour with calm winds contributes to the average concentration for the period. For example, if six hours in a 24-hour period contain calms, and the source contribution to the 24-hour average is non-zero for each of the six calm hours, the 24-hour average would be the sum of concentrations for the 18 non-calm hours divided by 18; the contribution for the hours with calms should be discarded. However, if only one of the six calm hours contributes a concentration and the other five calm hours have no contribution, the 24-hour concentration would be the sum of concentrations for 23 hours divided by 23; only the calm hour which could make a contribution to the 24-hour average would be discarded" (Guideline on Air Quality Models, Proposed Revisions U.S. Environmental Protection Agency, October, 1980).

The receptors defined by the CRSTER air quality model are defined by a direction and a downwind distance from the source to the receptor. The receptors used for defining the boundary of the Okefenokee National Wildlife Refuge closest to the Occidental Chemical Company are shown in Figure 1. The UTM coordinates of each of these receptors were also calculated for use in the ISC-ST air quality model. The Okefenokee National Wildlife Refuge is at a direction between 30° and 80°, from the north, from Occidental. The nearest boundaries, the west and south boundaries, are at distances ranging from 39.4 to 61.9 kilometers from Occidental.

The results of the air quality modeling designed to evaluate the impact of the effective sources on the Okefenokee National Wildlife Refuge are summarized in Tables 1, 2 and 3. The annual impacts are summarized in Table 1, the 24-hour impacts are summarized in Table 2, and the 3-hour impacts are summarized in Table 3.

The annual sulfur dioxide impacts on the Okefenokee National Wildlife Refuge were calculated with the CRSTER air quality model. As previously stated, the meteorological data input to the CRSTER model were preprocessed with an FDER program so that only days which contained a vector which would allow the pollutants to be transported to the Class I PSD area were included. In 1972 for example, there were 159 such days in the total year of 366 days. To account for the days which contributed no sulfur dioxide to the annual impact on the Class I area, the annual concentrations calculated by the CRSTER air quality model were multiplied by the number of days which contributed a sulfur dioxide impact and divided by the total number of days in the year. For 1972, for example, the maximum annual impact at the Okefenokee boundary was calculated with the CRSTER air quality model, with 159 days of meteorology, to be 1.9 micrograms per cubic meter. To correct this impact to a true annual impact the 1.9 micrograms per cubic meter was multiplied by the factor 159/366. The resulting maximum annual impact for calendar year 1972, using this approach, was determined to be 0.8 micrograms per cubic meter; or an impact less than the significant impact level defined by State and Federal PSD Regulations. The maximum annual impact for each of the five years analyzed are summarized in Table 1.

The 24-hour impacts of sulfur dioxide emissions are summarized in Table 2. In this table two types of impacts are presented. One is the second-high impact occurring for each of the years calculated using all hours in the 24-hour period; both calm and non-calm hours. The second type of impacts are the second-high impacts calculated for each year using only non-calm hours as suggested by EPA.

All of the 24-hour impacts calculated using non-calm hours were less than the associated impacts calculated using all hours. All of the second-high non-calm hour impacts were also greater than 5.0 micrograms per cubic meter; the significant impact level as defined by State and Federal PSD Regulations. Factors contributing to high calculated impacts include the co-location of all sources as required by the CRSTER air quality model and the assumption that sulfur dioxide is an inert non-reactive pollutant. To over come these assumptions which are inherent in the CRSTER air quality model, the ISC-ST model was use to further evaluate the higher impacts.

The ISC-ST model can incorporate a sulfur dioxide half-life (12 hours) and will allow for inputing the actual location of each source. The results of the ISC-ST modeling for selected 24-hour periods are also summarized in Table 2. These results show that all impacts are less than 5.0 micrograms per cubic meter; the significant impact level.

The 3-hour sulfur dioxide impacts are summarized in Table 3. As with the 24-hour impacts, 3-hour impacts were calculated using "all hours" and "non-calm hours". The second-high impacts calculated for the 3-hour period were all in excess of 25 micrograms per cubic meter; the significant impact level for a 3-hour period as defined by State and Federal PSD Regulations. Again, the ISC-ST model was used to further refine the impacts resulting from selected 3-hour meteorological conditions. These results, summarized in Table 3, show that the ISC-ST predicts all 3-hour impacts to be below the 25.0 micrograms significant impact level.

The computer print-outs from which all of the above referenced data were derived are attached hereto as Attachment 2.

Based on the modeling reported herein, it can be concluded that Occidental can increase the permitted production rate of the "E" and "F" sulfuric acid plants to 2500 tons of 100 percent sulfuric acid per day, each plant; that Occidental can increase the sulfur content of fuel oil fired to the "B", "C", "D" and "E" Boilers from 0.8 to 1.0 percent; and that Occidental can increase the sulfur content of fuel oil fired to the No. 2 DAP Plant dryer from 0.8 percent to 1.5 percent without the resulting emissions having a significant impact on the Okefenokee National Wildlife Refuge. Since the emission rates represented by these proposed conditions are less than emission rates of sulfur dioxide requested in the original PSD applications, and since the higher emission rates did not result in violations of air quality standards or PSD increments other than as readdressed herein, it is not necessary to futher modify the PSD applications or supplement information already submitted to your office.

According to our records the submittal of this information should provide your office with all of the information required to complete the federal review of the two subject PSD Applications. The only additional information which we need to submit to your office are the State Air Pollution Source Construction Permit Applications for the effected sources. These are presently being prepared and will be submitted to your office within a week. If there are any questions regarding the information contained herein please feel free to contact me.

Very truly yours,

SHOLTES & KOOGLER
ENVIRONMENTAL CONSULTANTS

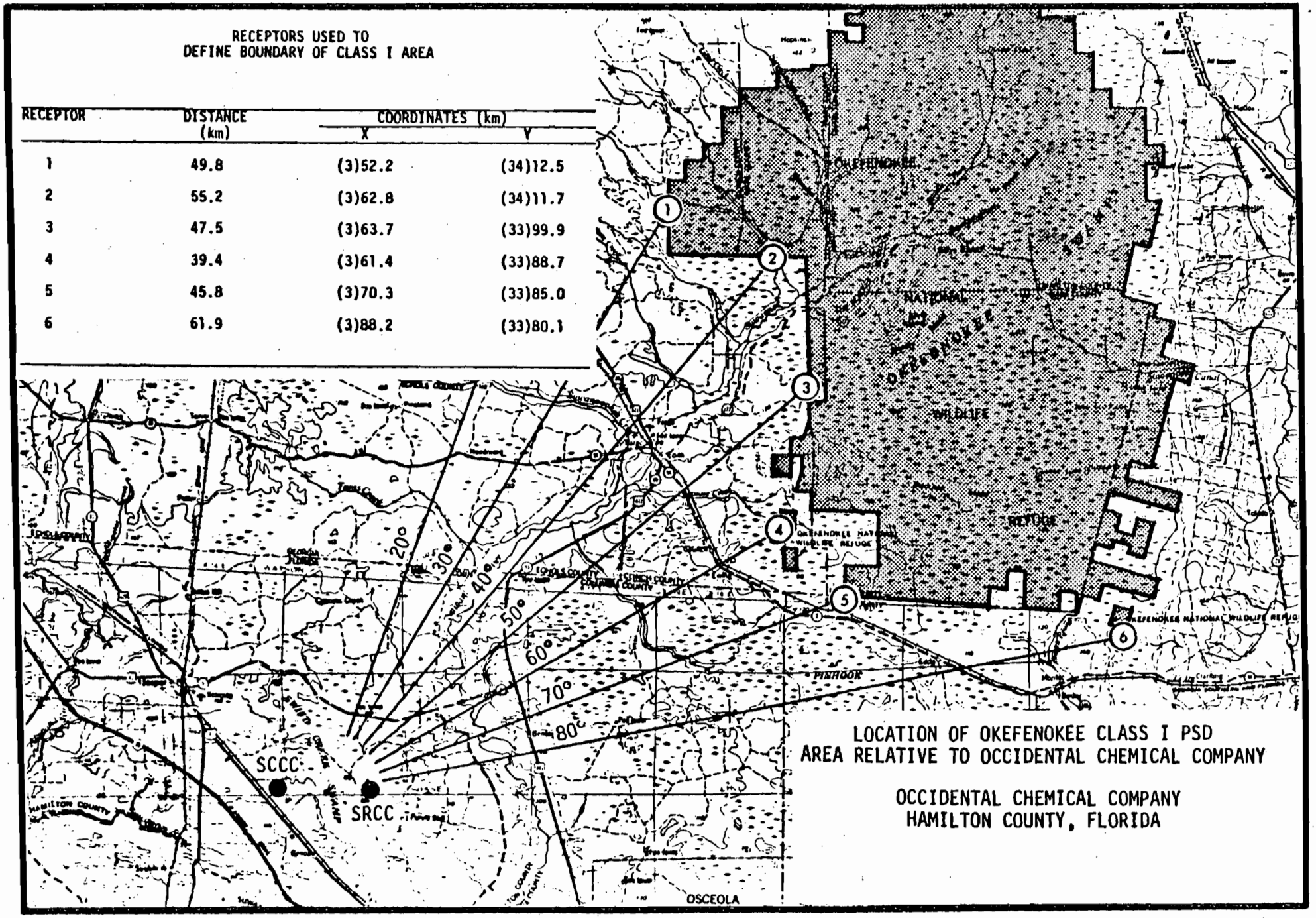
John B. Koogler, Ph.D., P.E.

JBK:ls
Attachments

cc: Mr. W. W. Atwood
Mr. T. Rogers
Mr. W. Hanks

RECEPTORS USED TO
DEFINE BOUNDARY OF CLASS I AREA

RECEPTOR	DISTANCE (km)	COORDINATES (km) X	Y
1	49.8	(3)52.2	(34)12.5
2	55.2	(3)62.8	(34)11.7
3	47.5	(3)63.7	(33)99.9
4	39.4	(3)61.4	(33)88.7
5	45.8	(3)70.3	(33)85.0
6	61.9	(3)88.2	(33)80.1



LOCATION OF OKEFENOKEE CLASS I PSD
AREA RELATIVE TO OCCIDENTAL CHEMICAL COMPANY

OCCIDENTAL CHEMICAL COMPANY
HAMILTON COUNTY, FLORIDA

TABLE I

SUMMARY OF THE ANNUAL IMPACTS OF SULFUR DIOXIDE
EMISSIONS FROM OCCIDENTAL CHEMICAL COMPANY NEW SOURCES
ON OKEFENOKEE CLASS I PSD AREA

OCCIDENTAL CHEMICAL COMPANY
HAMILTON COUNTY, FLORIDA

YEAR	ANNUAL IMPACT (ug/m^3)
1972	0.8
1973	0.7
1974	0.8
1975	0.6
1976	0.7
Significant Impact	1.0

TABLE 2

SUMMARY OF THE 24-HOUR IMPACTS OF SULFUR DIOXIDE EMISSIONS FROM OCCIDENTAL CHEMICAL COMPANY NEW SOURCES ON OKEFENOKEE CLASS I PSD AREA

OCCIDENTAL CHEMICAL COMPANY
HAMILTON COUNTY, FLORIDA

YEAR	24-HOUR SO_2 IMPACT (ug/m^3)		
	CRSTER		ISC-ST
	All Hours	Non-Calm Hours	Non-Calm Hours
1972	14.6/292/30°(1)	9.8/292/30°	4.5/292/30°
1973	12.3/015/60°	8.3/187/60°	--
1974	13.6/209/40°	8.8/070/60°	4.9/070/60°
1975	14.2/160/60°	9.1/070/50°	4.7/070/50°
1976	17.0/329/50°	9.2/265/50°	2.2/265/50°

Significant Impact - 5.0 ug/m^3

(1) aa/bb/cc - aa - impact (ug/m^3)
bb - Julian day
cc - direction at which impact occurs

TABLE 3

SUMMARY OF THE 3-HOUR IMPACTS OF SULFUR DIOXIDE EMISSIONS FROM OCCIDENTAL CHEMICAL COMPANY NEW SOURCES ON OKEFENOKEE CLASS I PSD AREA

OCCIDENTAL CHEMICAL COMPANY
HAMILTON COUNTY, FLORIDA

YEAR	3-HOUR SO_2 IMPACT (ug/m^3)		
	CRSTER		ISC-ST
	ATT Hours	Non-Calm Hours	Non-Calm Hours
1972	80.4/293(1)/60°(1)	47.3/232(7)/60°	--
1973	74.2/306(7)/50°	56.3/343(7)/60°	--
1974	86.9/197(1)/60°	68.2/198(1)/60°	24.9/198(1)/60°
1975	63.5/349(8)/50°	62.2/070(7)/50°	15.0/070(7)/50°
1976	92.4/259(7)/60°	51.7/198(8)/60°	--

Significant Impact - 25.0 ug/m^3

(1) aa/bb(c)/dd - aa - impact (ug/m^3)
bb - Julian day
(c) - three hour period during Julian day
dd - direction at which impact occurs

ATTAHMENT 1

Sulfur Dioxide Emission Rate Calculations

Occidental Chemical Company
Hamilton County, Florida

Swift Creek Chemical Complex

Sulfuric Acid Plant 'E' (New Source)

Present Permitted Rate - 2000 ton/day

Proposed Rate - 2500 ton/day

SO_2 = 2500 ton/day x 1/24 day/hr x 4.0 lb SO_2/ton
= 416.7 lb SO_2/hr
= 52.5 g/sec

Sulfuric Acid Plant 'F' (New Source)

Identical to 'E'

Boiler 'E' (New Source)

Present Permitted Fuel - No. 6 0.1 w/ 0.8% S

Proposed Fuel - No 6 0.1 w/ 1.0% S

SO_2 = 125,000 lb/hr steam x 1000 BTU/lb x 1/0.8 efficiency
x 1/18300 lb oil/BTU x (0.01 x 2) lb SO_2/lb oil
= 170.8 lb SO_2/hr
= 21.5 g/sec

Suwannee River Chemical Complex

Boiler 'B' (New Source)

Present Permitted Fuel - No. 6 0.1 w/ 0.8% S

Proposed Fuel - No 6 0.1 w/ 1.0% S

SO_2 = 160 x 10^6 BTU/hr input x 1/18300 lb oil/BTU x (0.01 x 2) lb SO_2/lb oil
= 174.9 lb SO_2/hr

Boiler 'C' (New Source)[1]

Present Permitted Fuel - No 6 Oil w/ 0.8% S

Proposed Fuel - No 6 Oil w/ 1.0% S

SO_2 = 120 x 10^6 BTU/hr input x 1/18300 lb/BTU x (0.01 x 2)
= 131.1 lb SO_2/hr
= 16.5 g/sec

Boiler 'D' (New Source)[1]

Identical to Boiler "C"

DAP No 2 - 'Z' Train (Existing Source)

Present Permitted SO_2 Emission Rate - 6.3 lb/hr

Present and Proposed P_2O_5 input - 697 tpd ; 29.0 tph

Proposed Fuel - No 6 Oil w/ 1.5% S

SO_2 = 36 x 10^6 BTU/hr x 1/18300 lb/BTU x (0.015 x 2)
x (1 - 0.8) absorption factor
= 11.8 lb/hr (0.41 lb SO_2 / ton P_2O_5 input)

SO_2 increase = 11.8 - 6.3 lb/hr
= 5.5 lb/hr
= 0.69 g/sec

(1) Boilers "C" and "D" are vented thru a common stack

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

June 25, 1982

Mr. W. W. Atwood
Occidental Chemical Company
P.O. Box 300
White Springs, Florida 32096

Dear Mr. Atwood:

Re: Incompleteness Determination of State Air Permit Applications, AC 24-56210 and AC 24-56212, for the Swift Creek and Suwannee River Chemical Complexes.

The Department has received your applications for the State construction/modification air permits for the Swift Creek and Suwannee River Chemical complexes. The Department has determined that the applications are incomplete in regards to the following items.

1. Preconstruction air quality monitoring for SO_2 is needed as per Rule 17-2.500(5)(f), F.A.C. This rule became effective as of November 1, 1981, for all permit applications received after that date. It should be noted that preconstruction monitoring was not required in the federal applications because they were submitted before June 8, 1981, the date on which a similar federal regulation went into effect. The sites of these chemical complexes are considered remote from other SO_2 emitting sources, therefore, the minimum requirement of one continuous monitor operating for four months will be sufficient.

   The State currently has a continuous SO_2 monitor located near the chemical complexes which will be suitable for compliance with the rule. However, this monitor has been operating only since April 1982. Four months of data will not be complete

until the end of July 1982 and will not be available until early August 1982. If you would like to use this four-month data set, it will not be necessary for your company or your consultant to supply it to the Department, as the Department will be able to access it as soon as it becomes available. If your company has access to sufficient, quality-assured data meeting the requirements of the rule, these data may of course be submitted in lieu of the State's data.

Please notify us as to whether or not you would like to use the State's data to satisfy the monitoring requirement. If so, the applications will be considered incomplete until such data becomes available within the Department.

2. PSD regulations are based on changes of actual emissions, if they are in compliance with the regulations, not permitted emissions. The particulate matter emission rate reported to the Department for the No. 2 DAP plant last year was less than 10 pounds per hour. If the proposed particulate matter emissions for the plant after modification (use of higher sulfur fuel) will be greater than the present actual emissions, a BACT recommendation and ambient air impact study that includes the increase in actual emissions from the No. 2 DAP plant is needed. If there is no change in emissions after modification, the No. 2 DAP plant will have to be permitted at actual emissions.

3. A review of the air quality modeling has shown that the locations of the boundaries of the restricted access areas is an important issue in determining impacts to ambient air. Exemption from ambient air is available only for the atmosphere over land owned or controlled by your company and to which public access is precluded by a fence or other physical barriers. A description of these barriers is needed along with a map showing the boundaries of the restricted access areas overlain with UTM grid markings.

In addition to the points of incompleteness noted above, a review of the air quality analysis has shown several

inconsistencies in the emissions data input to the modeling which could affect the approvability of the applications. The pollyphos reactors A and B have permitted emission rates for SO_2 of 13.1 grams per second each. This value is used in much of the modeling. However, a value of 0.63 grams per second each is used in evaluating the critical days having the highest impacts.

Also, various emission rates are used for the DAP plants and the auxiliary boiler B. Lowering the emission limit on the auxiliary boiler B to a 60 percent load factor to prevent an exceedance of the ambient air quality standard will have to be made a permit condition.

The Department has remodeled some of the critical days associated with high ambient concentrations of SO_2 using the correct (to the best of our knowledge) emission rates. This modeling indicates a violation of the 24-hour Florida ambient air quality standard. Upon resolution of the inconsistencies mentioned above, the Department will further remodel selected periods to make its final determination for approval or disapproval of the permit applications.

If you have any questions or comments about the information contained in this letter, or about any issue regarding your permit applications, please call me at (904) 488-1344.

Sincerely,

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

CF:TR:ras

cc: Dr. John Koogler
John Ketteringham
Gregg DeMuth

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822

SKEC 102-81-08

September 15, 1982

Larry

Mr. Clair Fancy
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

DER
SEP 16 1982
BAQM

Subject: Occidental Chemical Company
Hamilton County, Florida
Air Construction Permit Applications
AC24-56210 & AC24-56212

Dear Mr. Fancy:

In response to your letter of June 25, 1982, we are providing the following comments and information to complete the two subject Florida Air Pollution Source Construction Permit Applications. The comments and information follow the same enumeration used in your letter of June 25th.

1. Pre-Construction Air Quality Monitoring:

We have reviewed the sulfur dioxide monitoring data collected by FDER south of the Occidental Chemical Company Suwannee River Chemical Complex during the period April-July, 1982 and have decided to use this four month data set to satisfy the pre-construction air quality monitoring requirements of 17-2.500(5)(f) FAC.

A review of these data (Attachment 1) shows that the four month average sulfur dioxide level at the monitoring site is 3.8 micrograms per cubic meter; the maximum 24-hour sulfur dioxide concentration is 61 micrograms per cubic meter and the maximum 3-hour sulfur dioxide concentration is 286 micrograms per cubic meter. All of these measured concentrations are below ambient air quality standards for comparable time periods.

We also propose to use the ambient monitoring data collected during the four month period by FDER to support the position that the background sulfur dioxide level in the vicinity of the Occidental Chemical Company complexes is zero. A review of the FDER monitoring data, and several years of continuous sulfur dioxide monitoring data collected by Occidental, shows a zero sulfur dioxide concentration unless the wind is blowing directly from one of the Occidental facilities toward the monitoring site.

During the four month period (2469 hours) during which FDER collected sulfur dioxide monitoring data south of the Suwannee River Chemical Complex, a sulfur dioxide concentration of zero was reported 2218 hours or 90 percent of the time. These data, in our opinion, adequately support the position that the background sulfur dioxide level in the vicinity of the Occidental Chemical Company is zero.

2. Particulate Matter Emissions From DAP Plant:

Potential particulate matter emissions from the Occidental Chemical Company No. 2 DAP plant are generated in the rotary dryer which dries the DAP received from the reactor/blunger; from the screens used for sizing the DAP discharge from dryer; from the mills used for crushing the over-sized dryer product and from the elevators and conveyors used for transferring the dryer product to the screens and the mills, for transferring the product-sized material for storage and for transferring the under-sized and crushed over-sized material to recycle. A small amount of particulate matter is also generated as a result of fuel oil combustion in the dryer.

The gas stream discharged from the dryer passes through a venturi scrubber, utilizing weak phosphoric acid (30% P_2O5) as a scrubbing liquor, to reduce the ammonia and particulate matter concentration of the gas stream. The gas streams vented from the screens, mills, elevators and conveyors are combined and pass through a similar venturi scrubber. The gas streams discharged from these two venturi scrubbers, plus a third venturi scrubber used for reducing the ammonia concentration in the gas stream vented from the pre-neutralizer and reactor/blunger, are combined and pass through a packed tail gas scrubber designed to reduce the fluoride concentration in the combined gas stream and to further reduce the ammonia and particulate matter concentration in the gas stream.

In view of the sources of potential particulate matter emissions in the DAP plant and the control systems used for reducing the particulate matter concentrations in the various gas streams in the plant, it is the opinion of Occidental and its consultant that changing the sulfur content of the fuel oil from 0.8 percent to 1.5 percent will have no effect at

all on the particulate matter emissions from the plant. Since particulate matter emissions will not change as a result of the requested fuel modification, Occidental and its consultant are of the opinion that it is not necessary to readdress the particulate matter emission limiting standard for the plant when issuing a permit covering the fuel modification.

3. Restricted Access Areas:

In accordance with FDER and EPA policies, receptors on Occidental Chemical Company property which are within restricted access areas were not addressed in air quality modeling. The attached aerial photograph (Attachment 2) of the Suwannee River Chemical Complex shows the boundaries of the restricted access area used in the air quality modeling. Also shown on the aerial photograph is the nature of the restriction at all locations along the boundary.

When reviewing Attachment 2 it should be recognized that the cooling ponds, gypsum stacks, settling areas, slimes disposal areas and water treatment areas are wetted areas and, by their nature, restrict access.

Because of the magnitude of the sulfur dioxide impacts encountered at the Swift Creek Chemical Complex, a restricted access area was not addressed for this chemical complex.

4. Sulfur Dioxide Emissions From Pollyphos Reactors:

The permitted sulfur dioxide emission rate of 13.1 grams per second from pollyphos reactors A and B were based on early emission measurements from these sources. These early measurements were later found to be in error. Occidental is in the process of requesting modifications in the pollyphos operating permits through the FDER Jacksonville office, to reflect an emission rate of 0.63 grams of sulfur dioxide per second from each of the two pollyphos reactors.

This matter was addressed in detail in our letter to you dated December 7, 1981. Included with this letter was a copy of a sulfur dioxide emission measurement test report for this plant.

5. Sulfur Dioxide Emission Rates:

To eliminate possible discrepancies in the sulfur dioxide emission rates in your files and our files we have attached a summary of the permitted or actual sulfur dioxide emission rates from all Occidental sulfur dioxide emitting sources. These data are included in Table 1.

We have also attached (Attachment 3) the calculations used in arriving at sulfur dioxide emission rates from the Occidental sources addressed in the subject applications; the E and F sulfuric acid plants, the auxiliary boilers and the No. 2 DAP plant. These were also included in our letter to you dated April 26, 1982.

Regarding the sulfur dioxide emission rate from the B auxiliary boiler, the maximum sulfur dioxide emission rate from this source was reduced to prevent an exceedance of a 24-hour ambient air quality standard when both the C and D sulfuric acid plants operate at 100 percent of rated capacity. With these two sulfuric acid plants operating at rated capacity it is doubtful that the B boiler will have to be operated at all, however, to cover unforeseen contingencies, a 60 percent load factor for the B boiler is requested when the C and D sulfuric plants are at 100 percent capacity. When either the C or the D sulfuric acid plants are not operating, the sulfur dioxide emission burden from the Suwannee River Chemical Complex will be reduced to an extent that the B boiler can operate at a 100 percent load factor. This is demonstrated in Attachment 4.

To satisfy the requirements of meeting ambient air quality standards and producing the steam necessary to operate the Suwannee River Chemical Complex, it is suggested that the permit for the B auxiliary boiler be written in such a way that the load factor for the boiler cannot exceed 60 percent with both the C and D sulfuric acid plants operating and in a way that will allow a 100 percent load factor for the boiler when either the C or D sulfur acid plant is shut down.

If the sulfur dioxide emission rates addressed in this paragraph are used for air quality modeling, we feel that the model predicted violations of the 24-hour ambient air standards addressed in the next to the last paragraph of your June 25th letter will be eliminated.

If there are any questions regarding the information contained herein or if additional information is required, please feel free to contact me.

Very truly yours,

SHOLTES & KOOGLER
ENVIRONMENTAL CONSULTANTS, INC.

John B. Koogler, Ph.D., P.E.

JBK:sc
Attachments

cc: Mr. W. W. Atwood

TABLE 1

SUMMARY OF PERMITTED OR ACTUAL
SULFUR DIOXIDE EMISSIONS

OCCIDENTAL CHEMICAL COMPANY
SRCC & SCCC

SOURCE NAME	EMM. RATE LB/HR	EMM. RATE (G/SEC)	STACK HT. (M)	STACK TEMP. (DEG-K)	EXIT VEL. (M/SEC)	STACK DIA. (M)
Sulfuric Acid A	1208.3	152.25 (1)	61.0	350.0	15.50	1.80
Sulfuric Acid B	1208.3	152.25 (1)	61.0	350.0	15.50	1.80
Sulfuric Acid C	300.0	37.80 (2)	45.7	356.0	28.70	1.59
Sulfuric Acid D	300.0	37.80 (2)	45.7	356.0	28.70	1.59
DAP 1	11.1	1.40 (4)	36.6	322.0	12.20	2.13
DAP 2	11.8	1.49 (4)	42.7	325.0	13.10	2.44
GTSP/Dical	11.1	1.40 (10)	32.3	314.0	13.10	2.13
Auxiliary Boiler A	102.4	12.90 (5)	12.2	466.0	12.50	1.13
Pollyphos Feed Prep.	4.9	0.62 (4)	28.7	342.0	14.90	1.07
Pollyphos Reactor A	5.0	0.63 (6)	30.5	322.0	10.10	1.22
Pollyphos Reactor B	5.0	0.63 (6)	30.5	322.0	10.10	1.22
SPA #1	0.8	0.10 (6)	30.5	318.0	17.80	0.43
Rock Dryer #3 (SCCC)	38.1	4.80 (10)	15.2	317.0	17.20	2.16
Rock Dryer East	28.7	3.61 (10)	18.3	343.0	5.70	2.95
Rock Dryer West	28.7	3.61 (10)	18.3	343.0	5.70	2.95
Auxiliary Boiler B	174.9	22.00 (7)	10.7	468.0	9.50	1.46
Auxiliary Boilers C & D	262.2	33.00 (8)	31.7	468.0	15.20	1.98
Sulfuric Acid E	416.7	52.50 (3)	61.0	356.0	9.30	2.90
Sulfuric Acid F	416.7	52.50 (3)	61.0	356.0	9.30	2.90
Auxiliary Boiler E	170.8	21.50 (4)	15.3	428.0	15.90	1.60

(1) At 1000 tpd 100% H_2SO_4 and 29 lb SO_2/ton of acid
(2) At 1800 tpd 100% H_2SO_4 and 4 lb SO_2/ton of acid
(3) At 2500 tpd 100% H_2SO_4 and 4 lb/SO_2/ton of acid
(4) At 1.5% sulfur fuel and 80% SO_2 sorption
(5) At 62.5 x 10^6 BTU/hr and 1.5% of sulfur fuel. A 25% operating factor is imposed when Sulfuric Acid Plants A and B are operating at rated capacity
(6) Based on emission measurements
(7) At 160 x 10^6 BTU/hr and 1.0% sulfur fuel
(8) Two boilers at 120 x 10^6 BTU/hr each and 1.0% sulfur fuel
(9) At 156 x 10^6 BTU/hr and 1.0% sulfur fuel
(10) Actual emissions with 1.5% sulfur fuel

Attachment 3

Derivation of SO_2 Emission Rates for Selected Sources

Occidental Chemical Company
Hamilton County, Florida

ATTACHMENT 3

Sulfur Dioxide Emission Rate Calculations

Occidental Chemical Company
Hamilton County, Florida

Swift Creek Chemical Complex

Sulfuric Acid Plant 'E' (New Source)

Present Permitted Rate - 2000 ton/day

Proposed Rate - 2500 ton/day

SO_2 = 2500 ton/day x 1/24 day/hr x 4.0 lb SO_2/ton
= 416.7 lb SO_2/hr
= 52.5 g/sec

Sulfuric Acid Plant 'F' (New Source)

Identical to 'E'

Boiler 'E' (New Source)

Present Permitted Fuel - No. 6 0.1 w/ 0.8% S

Proposed Fuel - No 6 0.1 w/ 1.0% S

SO_2 = 125,000 lb/hr steam x 1000 BTU/lb x 1/0.8 efficiency
x 1/18300 lb oil/BTU x (0.01 x 2) lb SO_2/lb oil
= 170.8 lb SO_2/hr
= 21.5 g/sec

Suwannee River Chemical Complex

Boiler 'B' (New Source)

Present Permitted Fuel - No. 6 0.1 w/ 0.8% S

Proposed Fuel - No 6 0.1 w/ 1.0% S

SO_2 = 160×10^6 BTU/hr input x 1/18300 lb oil/BTU x (0.01 x 2) lb SO_2/lb
= 174.9 lb SO_2/hr

Boiler "C" (New Source)[1]

Present Permitted Fuel - No 6 Oil w/ 0.8% S

Proposed Fuel - No 6 Oil w/ 1.0% S

SO_2 = 120 x 10^6 BTU/hr input x 1/18300 lb/BTU x (0.01 x 2)
= 131.1 lb SO_2/hr
= 16.5 g/sec

Boiler "D" (New Source)[1]

Identical to Boiler "C"

DAP No 2 - "Z" Train (Existing Source)

Present Permitted SO_2 Emission Rate - 6.3 lb/hr

Present and Proposed P_2O_5 input - 697 tpd ; 29.0 tph

Proposed Fuel - No 6 Oil w/ 1.5% S

SO_2 = 36 x 10^6 BTU/hr x 1/18300 lb/BTU x (0.015 x 2)
x (1 - 0.8) absorption factor
= 11.8 lb/hr (0.41 lb SO_2 / ton P_2O_5 input)

SO_2 increase = 11.8 - 6.3 lb/hr
= 5.5 lb/hr
= 0.69 g/sec

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(1) Boilers "C" and "D" are vented thru a common stack