

DER

MAY 27 1982

OCCIDENTAL CHEMICAL COMPANY, FLORIDA OPERATIONS, Post Office Box 300, White Springs, FI

May 21, 1982

Mr. Steve Smallwood Florida Department of Environmental Regulation Northwest District Branch Office TwinTower Office Building 2600 Blair Stone Road Tallahassee, FL 32301

Subject:

Air Construction Permit Applications -

Sulfuric Acid Plants and Auxiliary Boiler

Reference: PSD-F1-082

Dear Mr. Smallwood:

Attached are four (4) copies each of construction permit applications for both existing NSPS Sulfuric Acid plants at Occidental's White Springs, Florida, Swift Creek Chemical Complex. Also included are four copies of an application for an auxiliary boiler.

The intent of the applications is to increase the production rate of the two Sulfuric Acid plants ("E" & "F") from 2000 to 2500 STPD of 100 percent sulfuric acid. The application for the auxiliary boiler requests an increase in fuel oil sulfur from 0.8% to 1.0%. The applications are submitted in conjunction with a request for PSD approval (PSD-FL-082) which is under review by your staff.

Should you have any questions, please contact me at (904) 397-8269 or Dr. J. Koogler at (904) 377-5822.

Sincerely,

OCCIDENTAL CHEMICAL COMPANY

Mr. J. Cole, Jacksonville FDER (w/enc.)

Mr. M. P. McArthur, Occidental Chemical Company, General Manager

Dr. J. Koogler, Sholtes & Koogler Environmental Consultants



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

May 21, 1982

Mr. Steve Smallwood
Florida Department of
Environmental Regulation
Northwest District Branch Office
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

DER

MAY 27 1982

BAQM

Subject: Air Construction Permit Applications -

Auxiliary Boilers and No. 2 DAP Plant

Reference: PSD-FL-083

Dear Mr. Smallwood:

Attached are four (4) copies each of construction permit applications for the existing DAP Plant No. 2 and three (3) auxiliary boilers ("B", "C" & "D") at Occidental's White Springs, Florida, Suwannee River Chemical Complex.

The applications request an increase in fuel oil sulfur from 0.8% to 1.0% for the boilers and from 0.8% to 1.5% for the DAP plant. The applications are submitted in conjunction with a request for PSD Approval (PSD-FL-083) which is under review by your staff.

Should you have any questions, please contact me at (904) 397-8269 or Dr. John Koogler at (904) 377-5822.

Sincerely,

OCCIDENTAL CHEMICAL COMPANY

W. W. Atwood

WWA:sc

cc: Mr. J. Cole, Jacksonville FDER, (w/enc.)

Mr. M. P. McArthur, Occidental Chemical Company, General Manager

Dr. J. Koogler, Sholtes & Koogler, Environmental Consultants

May 7, 1982



STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

DER

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

MAY 27 1982

	AIR PULL	UTION SOURCES	1 1302
SOURCE TYPE: Sulfuric			BAOM
APPLICATION TYPE: [] Con	struction [] Operation	(X) Modification	
COMPANY NAME:Occiden	<u>tal Chemical Compar</u>	ny	COUNTY: Hamilton
Identify the specific emission poi No. 2, Gas Fired)Sulfu	int source(s) addressed in this	application (i.e. Lime Kiln No.	4 with Venturi Scrubber; Peeking Unit
SOURCE LOCATION: Street .	<u>U.S. 41</u>		City White Springs
UTM:	East 320.860 km	North	3,369.750 km
	le o ,		
APPLICANT NAME AND TITLE:	Occidental Che	emical Company	
APPLICANT ADDRESS:	Post Office 300, Wh	nite Springs, FL 320	096
A. APPLICANT	SECTION I: STATEMENTS	BY APPLICANT AND ENGIN	EER
I am the undersigned owner o	or authorized representative*	ofOccidental Che	emical Company
I certify that the statements i	made in this application for a	construction	
Florida Statutes, and all the	rules and regulations of the	department and revisions there will promptly notify the depart	r, I agree to maintain and operate the ly with the provision of Chapter 403, of. I also understand that a permit, if the the upon sale or legal transfer of the
Attach letter of authorization		Signed: Miles	2 = Chiller
		M.P. McArthur, V.F	P. & General Manager
		Name and	1 Title (Please Type)
			Telephone No. (904) 397-8101
. PROFESSIONAL ENGINEER	REGISTERED IN FLORID	A (where required by Chapter 4	71, F.S.)
permit application. There is re- erly maintained and operated, rules and regulations of the di	n engineering principles appli easonable assurance, in my p , will discharge an effluent tha epartment. It is also agreed th	icable to the treatment and disp rofessional judgment, that the p at complies with all applicable st at the undersigned will furnish, peration of the pollution control	period (examined by me and found to osal of pollutants characterized in the sollution control facilities, when proptatutes of the State of Florida and the if authorized by the owner, the applifacilities and if applicable, pollution
		Signed:	cett
		John B. Koøgler, P	
(Affix Seal)			(Please Type)
11			ENVIRONMENTAL CONSULTANTS
		1213 NW 6th Street	Name (Please Type) Gaines ville, FL 32601
			dress (Please Type)
Florida Registration No	12925	- /////a-	(904) 377-5822

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

SECTION II: GENERAL PROJECT INFORMATION

A.	Describe the nature and extent of the project. Refer to pollution control equipment, and expecte formance as a result of installation. State whether the project will result in full compliance. Attach Sulfur burning sulfuric acid plant is vented through an SO2	additional sheet if necessary.
	double absorption tower and demister for product recovery an	
	sulfuric acid mist emission control. Plant is currently per	mitted to produce
	2000 TPD of 100 percent H2SO4; proposed production rate is 2	500 TPD. (CONTINUED
В.	Schedule of project covered in this application (Construction Permit Application Only)	ON PAGE 2a
		July 1987
C.	Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for indiv- project serving pollution control purposes. Information on actual costs shall be furnished with permit.)	idual components/units of the the application for operation
	There will be no physical modification to the existing absor	ption tower or mist
	eliminators.	
D.	Indicate any previous DER permits, orders and notices associated with the emission point, including tion dates.	ng permit issuance and expira-
	Unit was previously permitted under AC-24-2715 issued 2/28/7	8 and expiring
	12/31/80; and A0-24-34847 issued 5/28/81 and expiring 12/30/	85.
₹.	Normal equipment operating time: hrs/day 24; days/wk 7; wks/yr 52; if p if seasonal, describe: permitted for 8760 hours/year operation	ower plant, hrs/yr;
		
i.	If this is a new source or major modification, answer the following questions. (Yes or No)	Al -
	Is this source in a non-attainment area for a particular pollutant?	No 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.	
	Does best available control technology (BACT) apply to this source? If yes, see Section VI	Yes
	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 arconsidered questionable.	nswer of "No" that might be

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:

Danaistias	Co	ntaminants	Utilization	0.1
Description	Туре	% Wt	Rate - lbs/hr	Relate to Flow Diagram
Sulfur	Ash	App. 0.005%	68,232	A (Attachment 3)
	<u> </u>			
	-	!		

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 Maximum Actual Ibs/hr T/yr Allowed Emission ² Rate per Ch. 17-2, F.A.C.		Allowed Emission ²	Allowable ³	Potential	Emission ⁴	Relate
		Emission lbs/hr	lbs/hr	T/yr	to Flow Diagram	
416.7	1825	NSPS	416.7	416.7	1825	В
15.6	68.3	NSPS	15.6	15.6	683	<u>B</u>
14.8	64.8	BACT	14.8	14.8	64.8	В
0.1	0.5	BACT	0.1	0.1	0.5	В
	Maximum lbs/hr 416.7 15.6 14.8	Maximum Actual T/yr 416.7 1825 15.6 68.3 14.8 64.8	Maximum lbs/hr Actual T/yr Rate per Ch. 17-2, F.A.C. 416.7 1825 NSPS 15.6 68.3 NSPS 14.8 64.8 BACT	Maximum lbs/hr Actual T/yr Rate per Ch. 17-2, F.A.C. Allowed Emission Emission lbs/hr 416.7 1825 NSPS 416.7 15.6 68.3 NSPS 15.6 14.8 64.8 BACT 14.8	Maximum lbs/hr Actual T/yr Rate per Ch. 17-2, F.A.C. Emission lbs/hr lbs/hr 416.7 1825 NSPS 416.7 416.7 15.6 68.3 NSPS 15.6 15.6 14.8 64.8 BACT 14.8 14.8	Maximum lbs/hr Actual T/yr Rate per Ch. 17-2, F.A.C. Emission lbs/hr Ibs/hr T/yr 416.7 1825 NSPS 416.7 416.7 1825 15.6 68.3 NSPS 15.6 15.6 683 14.8 64.8 BACT 14.8 14.8 64.8

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	S0 ₂	99.7%		Design & Tes
Contact H2SO4Monsanto				
Plant		_		
Brink Demister in	H2S04	90 + %		Vendor
exist of absorber				Guarantee
·				

¹See Section V, Item 2.

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

³Calculated from operating rate and applicable standard

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

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

E.	Fuels	NOT	APPL	ICABLE
----	-------	-----	------	--------

Consu	Maximum Heat Inquis	
avg/hr	max./hr	Maximum Heat Input (MMBTU/hr)
		Consumption® avg/hr max./hr

							
•0	nits Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, II	bs/hr					
Fu	el Analysis:						
Per	cent Sulfur:	_	Percent Ash:				
	nsity:						
Hea	at Capacity:	- ITU/Ib					BTU/nal
	er Fuel Contaminants (which may cause air pollution): _						
F. G.	If applicable, indicate the percent of fuel used for space and indicate liquid or solid wastes generated and method control in the space and indicate liquid or solid wastes generated and method control in the space and indicate liquid in the space and indicate liquid in the space and indicate the percent of fuel used for space and indicate the percent of fuel used for space and indicate the percent of fuel used for space and indicate liquid indicate the percent of fuel used for space and indicate liquid indicate the percent of fuel used for space and indicate liquid indicate the percent of fuel used for space and indicate liquid i	of dispo	osal.			·	
н.	Emission Stack Geometry and Flow Characteristics (Pr	rovide	data for each stack):	9.5	· · · · · · · · · · · · · · · · · · ·		 .
	Gas Flow Rate: 129,700 A						
	Water Vapor Content:0						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 otal Weight Inciner	ated (lbs/hr)		··· <u>·</u>	Design Capacity	(lbs/hr)		
pproximate Numbi anufacturer						eek	
Date Constructed							

	Volume	Heat Release	F	uel	Temperature
	(ft) ³	(BTU/hr)	Туре	BTU/hr	(oF)
Primary Chamber					
Secondary Chamber					 .
Stack Height:	1	t. Stack Diameter		Stack Tem	p
					FPS
					dry gas corrected to 50% ex
Type of pollution control	device: [] Cy	clone [] Wet Scrub	ber [] Afterbur	ner [] Other (spec	ify)
			_		
	 				
				-	
					
Iltimate disposal of any e	iffluent other than	s that amitted from the			<u> </u>
ortimate disposer or any e	nnoent Other than	i that emitted from th	e stack (scrubber w.	ater, ash, etc.):	
					· -

•					
	ÇE	CTION V: SUPPLEM	ENTAL DECLUBE	MENTE	
	JŁ	CITON V. SUPPLEM	ENIAL REGUIRE	IMEN 12	
ease provide the following	g supplements wh	nero required for this a	pplication.		
i. I otal process input r	ate and product w	veight — show derivati	on. ATTACHMI	ENT 1	
applicable standards.	and attach pro. To an operation	posed methods (e.g., application, attach te:	FR Part 60 Method st results or method	ds 1, 2, 3, 4, 5) to sho Is used to show proof	rawings, pertinent manufac- w proof of compliance with of compliance. Information to time at which the test was
ATT	ACHMENT 2				_
 Attach basis of poten 	itial discharge (e.g	., emission factor, tha	t is, AP42 test).	ATTACHMENT	2
l. With construction pe to air ratio; for scrub	rmit application, ber include cross-s	include design details section sketch, etc.).		control systems (e.g.	, for baghouse include cloth
. With construction pe and 5 should be cons	rmit application, istent: actual emi	attach derivation of c ssions = potential (1-e	44:-:	ficiency, Include test	or design data. Items 2, 3,
. An 8½" x 11" flow o	liagram which will	l without revealing tra			tions and/or processes. Indi-
cate where raw mate and where finished pr	rials enter, where	solid and liquid wast	e exit, where gaseou	us emissions and/or ai	rborne particles are evolved
An 8%" x 11" plot ping area, residences a map).	lan showing the lo ind other perman	cation of the establish	nment, and points o adways (Example:	f airborne emissions, Copy of relevant po	in relation to the surround- rtion of USGS topographic
An 8%" x 11" plot p	lan of facility sho	owing the location of	manufacturing pro	cesses and outlets fo	r airborne emissions. Relate

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

Contaminant S02	Rate or Concentration 4.0 1b S02/ton 100% acid
H ₂ SO ₄ Mist	0.15 lb mist/ton 100% acid
Has EPA declared the best available control ted	chnology for this class of sources (If yes, attach copy) [] Yes No
Vhat emission levels do you propose as best ava	silable control technology?
Contaminant	Rate or Concentration
H ₂ SO ₄ Mist	0.15 1b mist/ton 100% acid
escribe the existing control and treatment tech	nnology (if any) Double absorption towers for SO2 absorption and Brinks HV mist eliminator
1. Control Device/System: 2. Operating Principles:	for acid mist control
1. Control Device/System:	for acid mist control 4. Capital Costs:
 Control Device/System: Operating Principles: Efficiency: * 	for acid mist control
 Control Device/System: Operating Principles: Efficiency: * Useful Life: 	for acid mist control 4. Capital Costs: 6. Operating Costs:
1. Control Device/System: 2. Operating Principles: 3. Efficiency: * 5. Useful Life: 7. Energy:	for acid mist control 4. Capital Costs: 6. Operating Costs:
1. Control Device/System: 2. Operating Principles: 3. Efficiency: * 5. Useful Life: 7. Energy: 9. Emissions:	for acid mist control 4. Capital Costs: 6. Operating Costs: 8. Maintenance Cost:

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

	10. 3	itack farallieters			
	a	. Height:	ft.	b.	Diameter:
	С	. Flow Rate:	ACFM	d.	Temperature:
	e.	. Velocity:	FPS		
E.	Descri	ibe the control and treatment	t technology available (As r	nany	y types as applicable, use additional pages if necessary).
	1.				
	a.	. Control Device:			
	Ь.	. Operating Principles:			
	C.	Efficiency*:		d.·	Capital Cost:
	ė.	Useful Life:		f.	Operating Cost:
	g.	Energy*:		h.	Maintenance Cost:
	i.	Availability of construction	n materials and process cho	emic	als:
	j.	Applicability to manufact	uring processes:		
	k.	Ability to construct with o	control device, install in ava	ailab	le 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	n materials and process che	mic	als:
	j.	Applicability to manufactu	iring processes:		
	k.	Ability to construct with c	ontrol device, install in ava	ilab	e space, and operate within proposed levels:
•Exp	lain me	ethod of determining efficien	ncy.		
*Ene	rgy to I	be reported in units of electr	ical power – KWH design r	rate.	
	3.		•		
	a.	Control Device:			•
	b.	Operating Principles:			
	C.	Efficiency*:		d.	Capital Cost:
	e.	Life:		f,	Operating Cost:
	g.	Energy:		h.	Maintenance Cost:

ft. OF

^{*}Explain method of determining efficiency above.

	i,	Av	ailability of construction materials and proce	ss chemi	cals:
	j.	Αp	plicability to manufacturing processes:		
	k.	Ab	ility to construct with control device, install	in availal	ple space and operate within proposed levels:
	4.		•		
	a.	Cor	ntrol Device		
	b.	Ope	erating Principles:		
	c.	Eff	iciency*:	ď.	Capital Cost:
	e.	Life	e:	f.	Operating Cost:
	g.	Ene	ergy:	h.	Maintenance Cost:
	i.	Ava	illability of construction materials and proces	ss chemic	eals:
	j.	App	plicability to manufacturing processes:		
,	k.	Abi	lity to construct with control device, install i	n availat	ole space, and operate within proposed levels:
F.	Describe	the	control technology selected:		
	1. Cor	ntrol	Device:		
	2. Eff	icien	cy*:	3.	Capital Cost:
	4. Life	: :		5 .	Operating Cost:
	6. Ene	rgy:		7.	Maintenance Cost:
	8. Mar	nufac	cturer:		
	9. Oth	er lo	cations where employed on similar processes	:	
	а.				
		(1)	Company:		·
		(2)	Mailing Address: .		
		(3)	City:	(4)	State:
		(5)	Environmental Manager:		
		(6)	Telephone No.:	•	
*Exp	lain met	hod -	of determining efficiency above.		
		(7)	Emissions*:		
			Contaminant :		Rate or Concentration
-				 —	
-					
-		(8)	Process Rate*:		
	b.				
		(1)	Company:		
		(2)	Mailing Address:		·
		(3)	City:	(4)	State:

(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 m	/ / onth day year	to / / / / / month day	year	
	Other data recorded				
	Attach all data or statistical summ	naries to this applicat	ion.		
	2. Instrumentation, Field and Labor	atory		•	
	a) Was instrumentation EPA re	eferenced or its equiv	alent? Yes _	No	
	b) Was instrumentation calibra	ted in accordance wi	th Department proced	ures? Yes No	Unknown
B.	Meteorological Data Used for Air Qu	ality Modeling			
	1 Year(s) of data from	/ / onth day year	to / / /	year	
	2. Surface data obtained from (locat	ion)			
	3. Upper air (mixing height) data ob	tained from (location	s)		
	4. Stability wind rose (STAR) data of	btained from (location	on)		
C.	Computer Models Used				
	1			Modified? If yes, attach de	scription.
	2.			Modified? If yes, attach de	scription.
				Modified? If yes, attach de	
	4	· · · · · · · · · · · · · · · · · · ·		Modified? If yes, attach de	scription.
	Attach copies of all final model runs	showing input data, r	eceptor locations, and	principle output tables.	
D.	Applicants Maximum Allowable Emis	sion Data			
	Pollutant		Emi	ission Rate	
	TSP			grams/sec	
	so ²			grams/sec	
Ε.	Emission Data Used in Modeling				
	Attach list of emission sources. Emis UTM coordinates, stack data, allowab			tion on point source (on NEDS point	number),
F.	Attach all other information supporti	ve to the PSD review.			
Spe	ecify bubbler (B) or continuous (C).				
3.	Discuss the social and economic impoduction, taxes, energy, etc.). Include a	act of the selected to issessment of the env	echnology versus other ironmental impact of t	r applicable technologies (i.e., jobs, pay the sources.	roll, pro-

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.

PRODUCTION RATE CALCULATION

PRODUCT:

Sulfuric Acid as 98% H₂SO₄

PRODUCT RATE:

2500 Short tons per day (STPD) of 100% H₂SO₄

as 98% H₂S04

-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# SO2 per ton of 100% H2SO4 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 1b/hour

Stack - 416.7 1b/hrof SO2 or 208.4 1b/hr or S

Efficiency = $(68,232 - 208.4)/68,232 \times 100$

= 99.7%

POLLUTANT EMISSION RATE CALCULATIONS

OPERATING FACTOR = 8,760 hrs/yr

PRODUCTION RATE = 2,500 TPD 100% H₂SO₄

SULFUR DIOXIDE @ 4.0 lb/ton acid

Hourly $4.0 \times 2,500/24$

416.7 1b/hr

Annua 1 416.7 x 8,760/2000

1,825 TPY

MIST @ 0.15 lb/ton acid

Hourly. $0.15 \times 2,500/24$

15.6 1b/hr

15.6 x 8,760/2000 Annua 1

68.3 TPY

 NO_X @ 2.1 x 10^{-6} 1b/SCF (test results on an existing sulfuric acid plant)

Typical Stack Gas Characteristics

SO₂ - 230 ppm O₂ - 7%

GAS FLOW RATE

11,800/[0.263 - 0.0126(02%)]

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 1b/hr

14.8 x 8,760/2000 Annua 1

64.8 TPY

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 1b CO/1000 gal

Hourly = $21.8/1000 \times 5$

 $= 0.11 \, lb/hr$

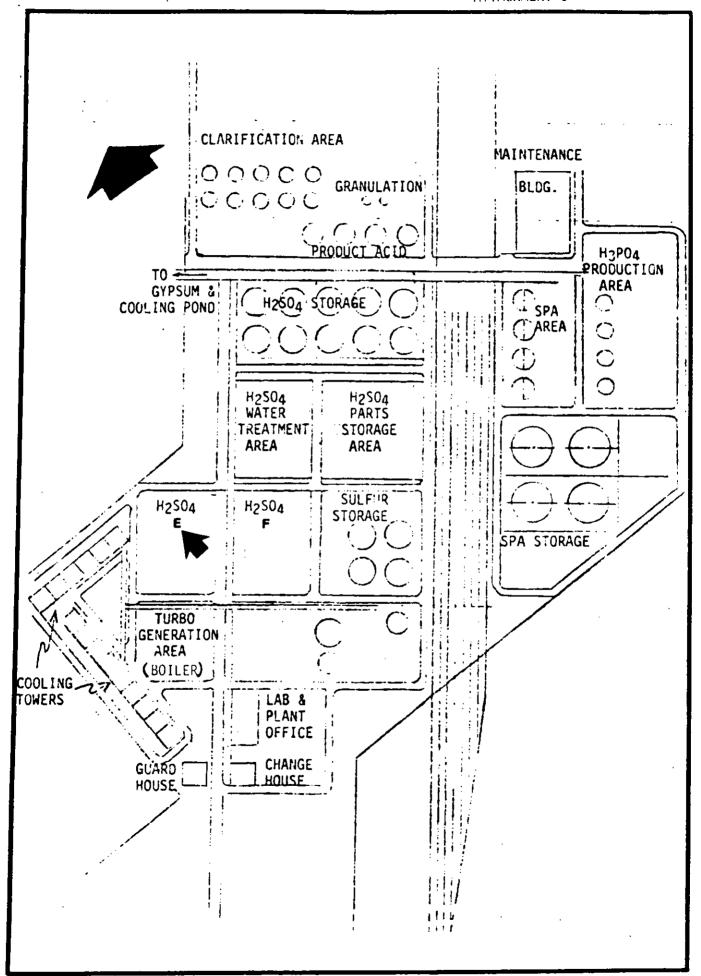
Annual = 0.11 8,760/2000

= 0.5 TPY

ATTACHMENT 3

DOUBLE CONTACT/DOUBLE ABSORPTION - SULFURIC ACID MANUFACTURE

ATTACHMENT 4



an rede so



May 6, 1982

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION APPLICATION TO 数数数数 CONSTRUCT AIR POLLUTION SOURCES

DER

***************************************	MAN AT
SOURCE TYPE: Auxiliary Boiler	MAY 27 1982
APPLICATION TYPE: [] Construction [] Operation [X]	Modification RAONA
COMPANY NAME: Occidental Chemical Company	COUNTY: Hamilton
Identify the specific emission point source(s) addressed in this a No. 2. Gas Fired) Auxiliary_Boiler "E"	application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit
	City White Springs
UTM Fact 321.300 km	North 3,369.830 km
	N Longitude o ' ''W
APPLICANT NAME AND TITLE: Occidental Chem	rical Company
	White Springs, Florida 32096
SECTION I: STATEMENTS B	BY APPLICANT AND ENGINEER
A. APPLICANT	
I am the undersigned owner or authorized representative* o	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 pollution control source and pollution control facilities in Florida Statutes, and all the rules and regulations of the d	knowledge and belief. Further, I agree to maintain and operate the n such a manner as to comply with the provision of Chapter 403, lepartment and revisions thereof. I also understand that a permit, if will promptly notify the department upon sale or legal transfer of the
*Attach letter of authorization	Signed: My Signed:
	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.)
be in conformity with modern engineering principles applic permit application. There is reasonable assurance, in my prerly maintained and operated, will discharge an effluent that rules and regulations of the department. It is also agreed that cant a set of instructions for the proper maintenance and operated	on control project have been deligible /examined by me and found to cable to the treatment and disposal of pollutants characterized in the ofessional judgment, that the pollution control facilities, when propt complies with all applicable statutes of the State of Florida and the at the undersigned will furnish, if authorized by the owner, the applieration of the pollution control facilities and, if applicable, pollution
sources.	Signed:
	John B. Koogler, P.E.
(Affix Seal)	Name (Pléase/Type) SHOLTES & KOOGLER ENVIRONMENTAL CONSULTANTS
	Company Name (Please Type)
	1213 NW 6th Street, Gainesville, FL 32601
Elevide Berinardia Na 12925	Mailing Address (Please Type) Party: 5/14/87 Tatanham No. (904) 377-5822
Florida Registration No	Date: 5/19/87 Telephone No. (904) 3/7-5822

SECTION II: GENERAL PROJECT INFORMATION

, A .	Describe the nature and extent of the project. Refer to pollution control equipment, and formance as a result of installation. State whether the project will result in full compliance Oil fired auxiliary steam boiler will be used to augment s	expected improvements in source per Attach additional sheet if necessary.
	sulfuric acid plants to provide operating flexibility in t	
	and evaporation process. It is proposed to increase the su	
	to the boiler from 0.8% to 1.0%.	· · · · · · · · · · · · · · · · · · ·
В.	Schedule of project covered in this application (Construction Permit Application Only) Start of Construction July; 1982 Completion of Construction	
C.	Costs of pollution control system(s): (Note: Show breakdown of estimated costs only in project serving pollution control purposes. Information on actual costs shall be furnish permit.) NOT APPLICABLE - No add on pollution control equipmen	or individual components/units of the ed with the application for operation
		· · · · · · · · · · · · · · · · · · ·
D.	Indicate any previous DER permits, orders and notices associated with the emission point tion dates.	-
	Unit was previously permitted under FDER No. AC-24-2717 is	sued 2/28/78 and expiring on
	12/31/80 and A0-24-34846 issued 5/7/81 and expiring 9/30/8	5.
F.	and Chapter 22F-2, Florida Administrative Code? YesX No Normal equipment operating time: hrs/day24; days/wk7; wks/yr5 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.	,
	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 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 f	or 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

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

3.	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:

	Emission 1 Maximum Actual lbs/hr T/yr		Allowed Emission ²	Allowable ³	Potential Emission ⁴		Relate
Name of Contaminant			Rate per Ch. 17-2, F.A.C.	Emission lbs/hr	lbs/hr	T/yr	to Flow Diagram
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	
NOX	64.0	273	BACT	64.0	64.0	273	
CO	5.3	23	BACT	5.3	5.3	23	
НС	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
				
- 				

¹See Section V, Item 2.

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

³Calculated from operating rate and applicable standard

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

⁵If Applicable

٤. Fuels

Time (De Considia)	Consu	mption*	Maximum Heat Input	
Type (Be Specific)	avg/hr	max./hr	(MMBTU/hr)	
0il	6.0	25	156	

			0.0		"	100	
			-				
		-					
				<u> </u>			
Units Natural Gas,	, MMCF/hr; Fue	Oils, barrels/hr;	Coal, lbs/hr				
uet Analysis: (1	Oil)	_					
ercent Sulfur:		1.0		Percent Ash: _	0.0		
ensity:		8	lbs/gal	Typical Percent	t Nitrogen: Nil	<u> </u>	
·					146,400		BTII/a
ther Fuel Contaminants (which may cause air poll							
ther Fuel Contam	inants (which m	iay cause air pollu	ition):	ione		 	
Stack Height: Gas Flow Ra	50 te: 67,00	d Flow Character	istics (Provide da	ata for each stac Stack Diameter Gas Exit Tempo	5.2	25	o
water vapor v		٠	IV: INCINER				
			NOT APPL	ICABLE			
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.)
_bs/hr ncinerated							
escription of Waste	e						
otal Weight Incine	rated (lbs/br)			Design Capacity	/ (lbs/hr)		

_____ days/week _____ Approximate Number of Hours of Operation per day Manufacturer _____ Date Constructed Model No.

	Volume	Heat Release	· F	uel	Temperature
	(ft)3	(BTU/hr)	Туре	BTU/hr	(OF)
Primary Chamber					
Secondary Chamber					·
Stack Height:	1	ft. Stack Diameter _		Stack Temp	o,
Gas Flow Rate:		ACFM		DSCFM* Velocity_	FP:
*If 50 or more tons per cess air.	day design capac	ity, submit the emissio	ins rate in grains pe	er standard cubic foot	dry gas corrected to 50% ex
Type of pollution control	device: [] Cy	clone [] Wet Scrub	ber [] Afterbur	ner [] Other (spec	ify)
Ultimate disposal of any e		n that emitted from the			
					,
		ECTION V: SUPPLEM		EMENTS	
Please provide the followi				EMENTS	

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

 ATTACHMENT 4
- 8. An 8%" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

 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) 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 Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [] Yes XX No B. Rate or Concentration Contaminant C. What emission levels do you propose as best available control technology? Contaminant Rate or Concentration 1.1 lb/10⁶BTU input; use of 1.0% sulfur Sulfur Dioxide fuel oil. Presently No. 6 fuel oil with an 0.8% sulfur Describe the existing control and treatment technology (if any). D. content is used to control sulfur dioxide 1. Control Device/System: emissions. 2. Operating Principles: 3. Efficiency: * 4. Capital Costs: 5. Useful Life: 6. Operating Costs: 8. Maintenance Cost: 7. Energy: 9. Emissions: Contaminant Rate or Concentration 0.9 lb/106BTU input; 0.8% sulfur fuel oil Sulfur Dioxide

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

	10. S	tack Parameters			
	a.	Height:	ft.	b.	Diameter:
	C.	Flow Rate:	ACFM	ď.	Temperature:
	€.	Velocity:	FPS		
Describe the control and treatment technology available (As many types as applicable,				y types as applicable, use additional pages if necessary).	
	1.				
	8.	Control Device:			
	b.	Operating Principles:			
	Ç.	Efficiency*:		d.	Capital Cost:
	€.	Useful Life:		f.	Operating Cost:
	g.	Energy*:		h.	Maintenance Cost:
	i,	Availability of construc	ction materials and process che	emiç	als:
		A			
	j.	Applicability to manufa			
	k.	Ability to construct wit	th control device, install in ava	ilab	le space, and operate within proposed levels:
	2.				
	 a.	Control Device:			
	ъ.	Operating Principles:			
	-				
	C.	Efficiency*: .		d.	Capital Cost:
	€.	Useful Life:		f.	Operating Cost:
	9.	Energy **:		h.	Maintenance Costs:
i. Availability of construction materials and process chemicals:				als:	
	j.	Applicability to manufa	cturing processes:		
		k. Ability to construct with control device, install in available space, and operate within proposed levels:			
		•			
Ex	plain me	thod of determining effic	iency.		
En	ergy to l	be reported in units of elec	ctrical power – KWH design r	ate.	
	3.	•			
	a.	Control Device:			
	b.	Operating Principles:			
	C.	Efficiency*:	1	ď.	Capital Cost:
	€.	Life:		f,	Operating Cost:
	g.	Energy:	1	h.	Maintenance Cost:

ft. OF

^{*}Explain method of determining efficiency above.

	1. Additionally of control and process of an incess.						
	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:			
	€.	Life:	f,	Operating Cost:			
	9.	Energy:	h.	Maintenance Cost:			
	i.	Availability of construction material	s and process chemic	als:			
	j.	Applicability to manufacturing proc	esses:				
	k.	Ability to construct with control de-	vice, install in availab	le space, and operate within proposed levels:			
F. De	scribe	the control technology selected:					
1.	. Con	trol Device:					
2.	. Effi	ciency*:	3.	Capital Cost:			
4,	Life	:	5.	Operating Cost:			
6.	. Ene	rgy:	7.	Maintenance Cost:			
8.	Man	ufacturer:					
9.	Oth	ar locations where employed on simil	ar processes:				
	a.						
		(1) Company:					
		(2) Mailing Address:					
		(3) City:	(4)	State:			
		(5) Environmental Manager:					
		(6) Telephone No.:					
*Explain	n meti	hod of determining efficiency above.					
		(7) Emissions*:					
		Contaminant		Rate or Concentration			
		· · · · · · · · · · · · · · · · · · ·					
		(8) Process Rate*:					
	b.						
	((1) Company:					
	((2) Mailing Address:					
	((3) City:	(4)	State:			
*Applican	it mu	st provide this information when ava	nilable. Should this in	nformation not be available, applicant must state the reason(s)			

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(5)	Environmental Manager:	
(6)	Telephone No.:	
(7)	Emissions*:	
	Contaminant	Rate or Concentration
(8)	Process Rate*:	
10. Reason f	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	<u>()</u> so ² *	Wind spd/dir	
	Period of monitoring / month	day year	to / month day		
	Other data recorded				
	Attach all data or statistical summaries t	o this application	n.		
	2. Instrumentation, Field and Laboratory				•
	a) Was instrumentation EPA reference	ed or its equival	ent? Yes	No	
	b) Was instrumentation calibrated in	accordance with	Department prod	ædures? Yes	No Unknown
₿.	Meteorological Data Used for Air Quality N	lodeling			
	1 Year(s) of data from/		to/		
	2. Surface data obtained from (location) _				
	3. Upper air (mixing height) data obtained				
	4. Stability wind rose (STAR) data obtaine	d 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	ng input data, red	ceptor locations, a	and principle output table	9\$.
D.	Applicants Maximum Allowable Emission D	ata			
	Pollutant		+	Emission Rate	
	TSP	_		gra	ams/sec
	so ²	_		gra	ams/sec
E.	Emission Data Used in Modeling				
	Attach list of emission sources. Emission of UTM coordinates, stack data, allowable emissions.	lata required is s ssions, and norm	ource name, desc nai operating time	cription on point source	(on NEDS point number),
F.	Attach all other information supportive to	the PSD review.	•		
*Spe	cify bubbler (B) or continuous (C).				
G.	Discuss the social and economic impact of duction, taxes, energy, etc.). Include assessr	the selected tec nent of the envir	chnology versus o conmental impact	ther applicable technolog of the sources.	gies (i.e., jobs, payroll, pro-

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:

0il at 0.8% Sulfur

PRODUCT:

125,000 lbs/hr steam @ 1,000 BTU/lb.

EFFICIENCY:

80%

HEAT INPUT

156 MM BTU/hr.

 $(125,000 \div 0.8 \times 1000)$

FUEL INPUT:

0il:

8538 1bs/hr (156 MM \div 18,300) or 25 BBLS/hr (156 MM \div 146,000 \div 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/1b 0.1 x (0.01 x 2) 1bs S02/1b oil

= 170.7 lbs/hr.

Annual: = $170.7 \times 8,760/2000 \times 0.975$

= 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: = $13.9 \text{ lbs/hr} \times 8,760/2000 \times 0.975$

= 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: = $64.0 \times 8,760/2,000 \times 0.975$

= 273 TPY.

CO:

Hourly = $8,538 \times 1/8 \times 1/1000 \times 5$ lbs CO/1000 gal.

= 5.3 lbs/hr.

Annual: = $5.3 \times 8,760/2000 \times 0.975$

= 23 TPY.

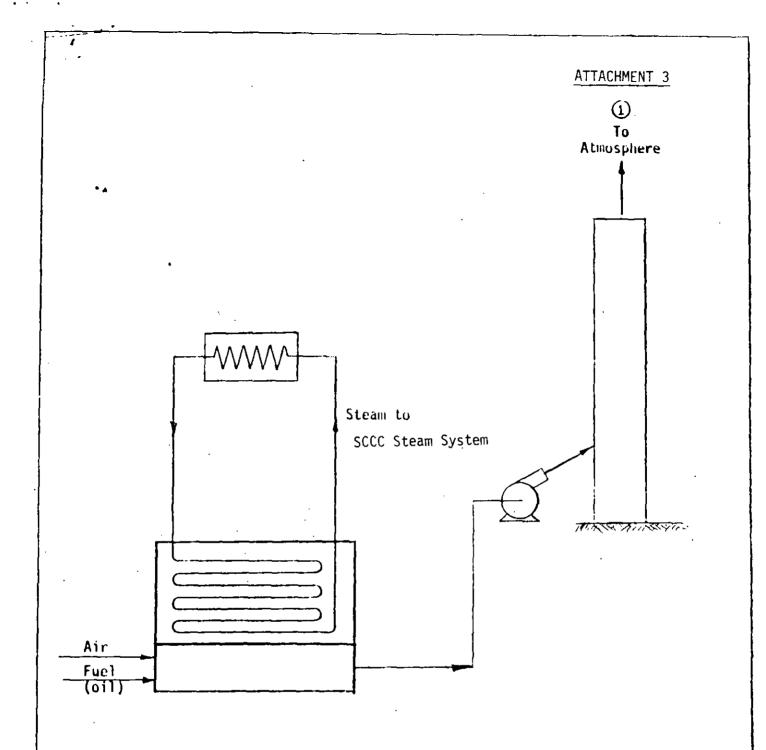
HYDROCARBONS:

Hourly: $= 8,538 \times 1/8 \times 1/1000 \times 1 \text{ lb/1000 gal.}$

= 1.1 lbs/hr.

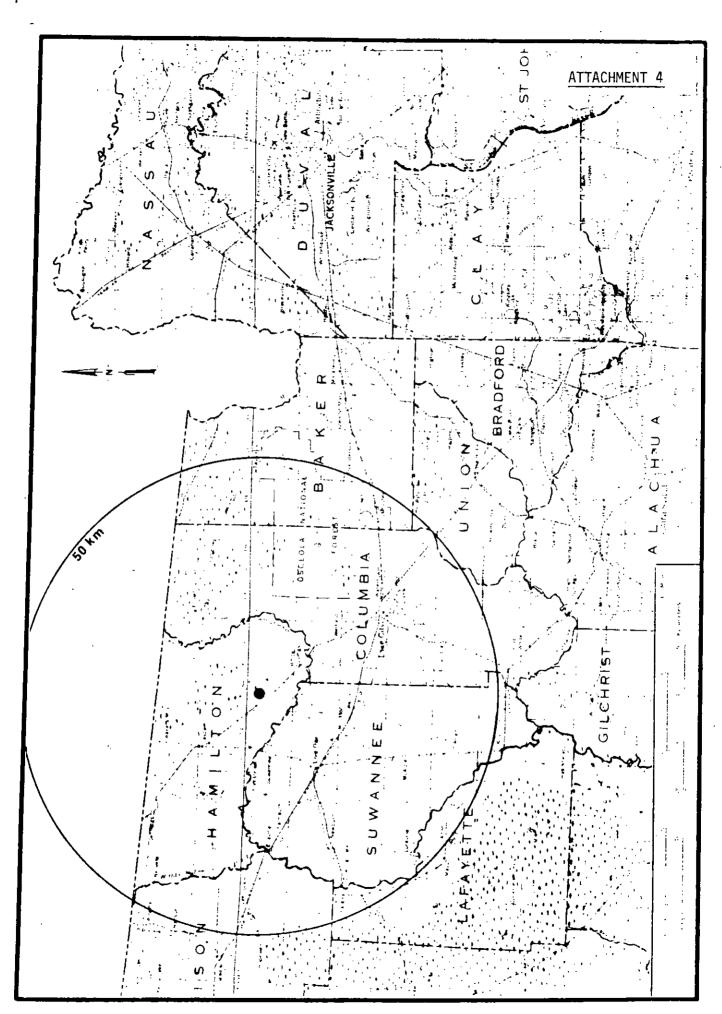
Annual: = $1.1 \times 8,760/2000 \times 0.975$

= 5 TPY.



PROCESS FLOW DIAGRAM

SULFURIC ACID PLANT AUXILIARY BOILER OXY/SPA CHEMICAL COMPLEX



ATTACHMENT 5 CLARIFICATION AREA MAINTENANCE OOOCO GRANULATION BLDG. 00000 PRODUCT ACID H₃PO₄ PRODUCTION TO 🟯 AREA GYPSUM & SPA H2504 STORAGE COULING POND: AREA H2SO4 WATER H2SO4 PARTS STORAGE TREATMENT **AREA AREA** SULFUR H₂S0₄ H₂SO₄ STORAGE SPA STORAGE **TURBO GENERATION** AREA (BOILER) COOLING TOWERS LAB & PLANT OFFICE CHANGE GUARD HOUSE

SUCH TES 4 VOCA

May 7, 1982



STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

DER

MAY 27 1982

AIR POL	LLUTION SOURCES \ BAOM
SOURCE TYPE: Sulfuric Acid Production	[] New[X[X] Existing1]
APPLICATION TYPE: [] Construction [] Operation	[X] Modification
COMPANY NAME: Occidental Chemical Con	mpany COUNTY: Hamilton
Identify the specific emission point source(s) addressed in t No. 2, Gas Fired) Sulfuric Acid Plant "F"	this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit
SOURCE LOCATION: Street U.S. 41	City White Springs
	North 3,369.800 km
Latitude o /	"N Longitude o ' 'W
APPLICANT NAME AND TITLE: Occidental C	hemical Company
APPLICANT ADDRESS: Post Office Box 300, 1	White Springs, FL 32096
	TS BY APPLICANT AND ENGINEER
A. APPLICANT	Ossidental Chemical Company
I am the undersigned owner or authorized representative	
pollution control source and pollution control facility Florida Statutes, and all the rules and regulations of t	my knowledge and belief. Further, I agree to maintain and operate the ies in such a manner as to comply with the provision of Chapter 403, the department and revisions thereof. I also understand that a permit, if id I will promptly notify the department upon sale or legal transfer of the
*Attach letter of authorization	Signed: MSM Squelking
	M.P. McArthur, V.P. & General Manager
•	Name and Title (Please Type)
	Date: 5/24/72 Telephone No. (904) 397-8101
B. PROFESSIONAL ENGINEER REGISTERED IN FLOR	
be in conformity with modern engineering principles at permit application. There is reasonable assurance, in merly maintained and operated, will discharge an effluent rules and regulations of the department. It is also agreed	Ilution control project have been Masqued/examined by me and found to pplicable to the treatment and disposal of pollutants characterized in the y professional judgment, that the pollution control facilities, when propert that complies with all applicable statutes of the State of Florida and the distance that the undersigned will furnish, if authorized by the owner, the applicable operation of the pollution control facilities and, if applicable, pollution
	Signed:
	John B. Koogler, Ph.D., P.E.
(Affix Seal)	Name (Please Type)
Activity departs	SHOLTES & KOOGLER ENVIRONMENTAL CONSULTANT
A 1818	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

SECTION II: GENERAL PROJECT INFORMATION

A	A. Describe the nature and extent of the project. Refer to pollution conformance as a result of installation. State whether the project will result Sulfur burning sulfuric acid plant is vent	t in full compliance. Attach additional sheet if necessary.							
	double absorption tower and demister for p	roduct recovery and sulfur dioxide and							
	sulfuric acid mist emission control. Plan	t is currently permitted to produce							
	2000 TPD of 100 percent H2SO4; proposed pr								
₿.	B Schedule of project covered in this application (Construction Permit Ap	ON PAGE 2a							
	Start of Construction July 1982 Complet	ion of Construction July 1987							
· C.	C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual componen project serving pollution control purposes. Information on actual costs shall be furnished with the application permit.)								
	There will be no physical modification to the existing absorption tower o								
	eliminators.								
		=							
D.	Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and et tion dates.								
	Unit was previously permitted under AC-24-2								
	12/31/80; and A0-24-34847 issued 5/28/81 a	nd expiring 12/30/85.							
F .	and Chapter 22F-2, Florida Administrative Code? Yes _X No Normal equipment operating time: hrs/day24; days/wk _7; wks/yr52; 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 quest	ons. (Yes or No)							
	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.								
	Does best available control technology (BACT) apply to this source? Section VI.	If yes, see Yes							
	Does the State "Prevention of Significant Deterioriation" (PSD) reapply to this source? If yes, see Sections VI and VII.	quirements Yes							
	4. Do "Standards of Performance for New Stationary Sources" (NSPS this source?) apply to Yes							
	5. Do "National Emission Standards for Hazardous Air Pollutants" (apply to this source?	NESHAP) No							

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

SECTION 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:

	Co	ntaminants	Utilization	Relate to Flow Diagram	
Description	Түре	% Wt	Rate - Ibs/hr		
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:

	Emission ¹		Allowed Emission ²	Allowable ³	Potential Emission ⁴		Relate
Name of . Contaminant	Maximum Ibs/hr	Actual T/yr	Rate per Ch. 17-2, F.A.C:	Emission lbs/hr	lbs/hr	T/yr	to Flow Diagram
Sulfur Dioxide	416.7	1825	NSPS	416.7	416.7	1825	В
H ₂ SO ₄ Mist	15.6	68.3	NSPS	15.6	15.6	683	В
NO _X	14.8	64.8	BACT	14.8	14.8	64.8	В
CO	0.1	0.5	BACT	0.1	0.1_	0.5	В
	<u> </u>			: 	<u> </u>		

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	S0 ₂	99.7%		Design & Tes
Contact H2SO4Monsanto				:
Plant				
Brink Demister in	H2S04	. 90 + %		Vendor
exist of absorber				Guarantee

¹See Section V, Item 2.

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

³Calculated from operating rate and applicable standard

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

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

Æ.	Fuels	NOT	APPI	ICABL	F
		111// 1	71 L	IUNUL	_

Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, Ibs/hr Fuel Analysis: Percent Sulfur: Density: Ibs/gal Typical Percent Nitrogen: BTU/Ib Cher Fuel Contaminants (which may cause air pollution): F. If applicable, indicate the percent of fuel used for space heating. Annual Average Maximum Indicate liquid or solid wastes generated and method of disposal. None Stack Height: 200 ft. Stack Diameter: Stack Height: 200 ACFM Gas Exit Temperature: 181 Water Vapor Content: Water Vapor Content: Type of Waste Type O Type III Type IV Type V Type V Type VI Type O Type VI Type V Type VI Type V Type VI Type O Type VI Type V Type VI Type O Type VI Type V Type VI Type O Type VI Type VI Type V Type VI Type O Type VI Type VI Type V Type VI Type O Type VI Type VI Type V Type VI T	4	ype (Be Specific	e) L		Consumption		Maximum F	leat Input
Fuel Analysis: Percent Sulfur:		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	<i>"</i>	avg/hr	m	ax./hr		
Fuel Analysis: Percent Sulfur:								
Fuel Analysis: Percent Sulfur:								
Fuel Analysis: Percent Sulfur:					 			
Fuel Analysis: Percent Sulfur:	 						 _	
Fuel Analysis: Percent Sulfur:	<u> </u>							
Percent Sulfur:	*Units Natural G	as, MMCF/hr; F	uel Oils, barrels/h	nr; Coal, Ibs/hr			•	
Density:	Fuel Analysis:							
Density:	Percent Sulfur: _	<u> </u>			Percent Ash			
Heat Capacity: BTU/lb								
Other Fuel Contaminants (which may cause air pollution): F. If applicable, indicate the percent of fuel used for space heating. Annual Average	Heat Canadian			10s/gai	i ypicai Perce	nt Nitrogen:		
F. If applicable, indicate the percent of fuel used for space heating. Annual Average								
F. If applicable, indicate the percent of fuel used for space heating. Annual Average	Other Fuel Conta	minants (which	may cause air pol	llution):		-		· .
Indicate liquid or solid wastes generated and method of disposal. None Indicate liquid or solid wastes generated and method of disposal. None								
Indicate liquid or solid wastes generated and method of disposal. None None	F. If applicable	e, indicate the pe	ercent of fuel use	d for space heat	ing. Annual A	verage	Maximum	
None None None Emission Stack Geometry and Flow Characteristics (Provide data for each stack): Stack Height: 200							.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Emission Stack Geometry and Flow Characteristics (Provide data for each stack): Stack Height: 200						•		
Emission Stack Geometry and Flow Characteristics (Provide data for each stack): Stack Height: 200		M/UE						
Emission Stack Geometry and Flow Characteristics (Provide data for each stack): Stack Height: 200	·					· 		
Emission Stack Geometry and Flow Characteristics (Provide data for each stack): Stack Height: 200	·			··	<u> </u>			<u> </u>
Stack Height:	. Emission Sta	ick Geometry an	d Elaw Charan					
Gas Flow Rate: 129,700			io riow Characte	ristics (Provide c	lata for each sta-	CK I:		
SECTION IV: INCINERATOR INFORMATION NOT APPLICABLE Type of Waste Type O (Plastics) (Rubbish) (Refuse) (Garbage) (Pathological) (Solid By-prod.) bs/hr incinerated (lbs/hr) Design Capacity (lbs/hr) days/week								
SECTION IV: INCINERATOR INFORMATION NOT APPLICABLE Type of Waste Type O (Plastics) Type I (Rubbish) Type II (Refuse) Type III (Garbage) Type IV (Liq & Gas By-prod.) Type VI (Liq & Gas By-p	Stack Height	200		ft.	Stack Diamete	r:9.5		
Type of Waste Type O (Plastics) Type II (Rubbish) Type III (Refuse) (Garbage) Type IV (Liq & Gas (Solid By-prod.)) bs/hr cinerated Coription of Waste	Stack Height Gas Flow R	200 ate: 129,	700	ft.	Stack Diamete	r:18 erature:18	31	
Type of Waste Type O (Plastics) Type II (Rubbish) Type III (Refuse) (Garbage) (Pathological) (Liq & Gas By-prod.) bs/hr ncinerated Scription of Waste	Stack Height Gas Flow Ri	200 ate: 129,	700	ft.	Stack Diamete	r:18 erature:18	31	
Type of Waste Type O (Plastics) Type II (Rubbish) Type III (Refuse) (Garbage) (Pathological) (Liq & Gas By-prod.) bs/hr ncinerated Scription of Waste	Stack Height Gas Flow Ri	200 ate: 129,	700	ft.	Stack Diamete	r:18 erature:18	31	
Type of Waste Type O (Plastics) Type II (Rubbish) Type III (Refuse) (Garbage) Type IV (Liq & Gas By-prod.) bs/hr principle of Waste	Stack Height Gas Flow Ri	200 ate: 129,	700	ft.	Stack Diamete	r:18 erature:18	31	
Type of Waste Type O (Plastics) Type II (Refuse) Type III (Refuse) Type III (Solid (Solid By-prod.)) bs/hr recinerated Plastic Plasti	Stack Height Gas Flow Ri	200 ate: 129,	700	ft. ACFM %	Stack Diamete Gas Exit Temp Velocity:	r:	31	
tal Weight Incinerated (Ibs/hr) Design Capacity (Ibs/hr) days/week	Stack Height Gas Flow Ri	200 ate: 129,	700	ftft%	Stack Diamete Gas Exit Temp Velocity:	r:	31	
bs/hr scinerated By-prod.)	Stack Height Gas Flow Ri	200 ate: 129, Content: 0	700 SECTION	ft% IV: INCINER	Stack Diamete Gas Exit Temp Velocity: ATOR INFORM ABLE	9.5 erature:18 30.5	31	
cription of Waste	Stack Height Gas Flow R Water Vapor	200 ate: 129, Content: 0	700 SECTION	ACFM ACFM % IV: INCINER NOT APPLIC	Stack Diamete Gas Exit Temp Velocity: ATOR INFORM ABLE Type III	9.5 erature: 18 30.5	Type V (Liq & Gas	Type VI (Solid
proximate Number of Hours of Operation per day	Stack Height Gas Flow R Water Vapor	200 ate: 129, Content: 0	700 SECTION	ACFM ACFM % IV: INCINER NOT APPLIC	Stack Diamete Gas Exit Temp Velocity: ATOR INFORM ABLE Type III	9.5 erature: 18 30.5	Type V (Liq & Gas	Type VI
Design Capacity (lbs/hr) Design Capacity (lbs/hr) days/week	Stack Height Gas Flow R: Water Vapor Type of Waste	200 ate: 129, Content: 0	700 SECTION	ACFM ACFM % IV: INCINER NOT APPLIC	Stack Diamete Gas Exit Temp Velocity: ATOR INFORM ABLE Type III	9.5 erature: 18 30.5	Type V (Liq & Gas	Type VI (Solid
Design Capacity (lbs/hr) Design Capacity (lbs/hr) days/week	Stack Height Gas Flow R: Water Vapor Type of Waste	200 ate: 129, Content: 0	700 SECTION	ACFM ACFM % IV: INCINER NOT APPLIC	Stack Diamete Gas Exit Temp Velocity: ATOR INFORM ABLE Type III	9.5 erature: 18 30.5	Type V (Liq & Gas	Type VI (Solid
Design Capacity (lbs/hr) Design Capacity (lbs/hr) days/week	Stack Height Gas Flow R: Water Vapor Type of Waste	200 ate: 129, Content: 0	700 SECTION	ACFM ACFM % IV: INCINER NOT APPLIC	Stack Diamete Gas Exit Temp Velocity: ATOR INFORM ABLE Type III	9.5 erature: 18 30.5	Type V (Liq & Gas	Type VI (Solid
Proximate Number of Hours of Operation per day days/week	Stack Height Gas Flow R Water Vapor Type of Waste bs/hr cinerated	Type O (Plastics)	SECTION Type I (Rubbish)	Type II (Refuse)	Stack Diamete Gas Exit Temp Velocity: ATOR INFORM ABLE Type III (Garbage)	9.5 erature: 18 30.5	Type V (Liq & Gas	Type VI (Solid
	Stack Height Gas Flow Ri Water Vapor Type of Waste bs/hr icinerated	200 ate: 129, Content: 0 Type 0 (Plastics)	SECTION Type I (Rubbish)	Type II (Refuse)	Stack Diamete Gas Exit Temp Velocity: ATOR INFORM ABLE Type III (Garbage)	r:9.5 rerature:18 30.5 MATION Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
•	Stack Height Gas Flow R. Water Vapor Type of Waste bs/hr icinerated scription of Waste	Type O (Plastics)	SECTION Type I (Rubbish)	ACFM ACFM % IV: INCINER NOT APPLIC Type II (Refuse)	Stack Diamete Gas Exit Temp Velocity: ATOR INFORM ABLE Type III (Garbage) Design Capacity	r:	Type V (Liq & Gas By-prod.)	Type VI (Solid By prod.)

	Volume (ft)3	- 2		uel	Temperature
	(11)~	(BTU/hr)	Туре	BTU/hr	(oF)
Primary Chamber					
Secondary Chamber	<u> </u>				
tack Height:		ft. Stack Diameter		Stack Tem)
					FI
					dry gas corrected to 50% e
ype of pollution control	device: [] Cy	rclone [] Wet Scrub	ber [] Afterbur	rner [] Other (spec	ify)
res description of operat	my cheracteristi	es or courtor devices: _			
					
· · · · · · · · · · · · · · · · · · ·			_ 	 .	
				·	·
			_		
ه و دریاداش ممداها					··-
Itimate disposal of any ef	fluent other tha	n that emitted from the	stack (scrubber w	rater, ash, etc.):	
		<u></u>			
					
					· · · · · · · · · · · · · · · · · · ·
					
		•			-

	\$E	CTION V: SUPPLEM	ENTAL REQUIRE	MENTS	
ase provide the following	eunniamente wi	naru samuianal face (t.)			
			•		•
Total process input rai	te and product v	veight — show derivatio	n ATTACHM	ENT 1	
applicable standards. To provided when applying	and attach pro To an operation	posed methods (e.g., F application, attach test	R Part 60 Method	ds 1, 2, 3, 4, 5) to show	wings, pertinent manufact w proof of compliance with of compliance. Information of time at which the test wa
mace.	CHMENT 2				
Attach basis of potenti		., emission factor, that	is. AP42 test).	ATTACHMENT	2
With construction per	nit application,	include design details f			for baghouse include clot
to air ratio; for scrubbe	er include cross-s	section sketch, etc.).	N/A		
With construction perm and 5 should be consist	nit application, ent: actual emi	attach derivation of cossions = potential (1-ef	ontrol device(s) ef	ficiency. Include test	or design data. Items 2, 3
An 8½" x 11" flow dia cate where raw materia and where finished proc	ils enter, where	solid and liquid waste	de secrets, identify exit, where gaseou	the individual operat	ions and/or processes. Ind borne particles are evolve
An 8½" x 11" plot plar ing area, residences and map).	n showing the lo d other perman	cation of the establishr	nent, and points o ways (Example:	f airborne emissions, i Copy of relevant por	n relation to the surround tion of USGS topographi

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

Contaminant \$0 ₂	Rate or Concentration 4.0 1b S02/ton 100% acid
H ₂ SO ₄ Mist	0.15 1b mist/ton 100% acid
Has EPA declared the best available control ted	hnology for this class of sources (If yes, attach copy) [] Yes No Rate or Concentration
What emission levels do you propose as best ava Contaminant SO2	Rate or Concentration
H ₂ SO ₄ Mist	0.15 lb_mist/ton 100% acid
Describe the existing control and treatment tech 1. Control Device/System: 2. Operating Principles:	anology (if any) Double absorption towers for SO2 absorption and Brinks HV mist elimina for acid mist control
1. Control Device/System:	absorption and Brinks HV mist elimina
1. Control Device/System: 2. Operating Principles:	absorption and Brinks HV mist eliminator for acid mist control 4. Capital Costs: 6. Operating Costs:
 Control Device/System: Operating Principles: Efficiency: * 	absorption and Brinks HV mist eliminator for acid mist control 4. Capital Costs:
 Control Device/System: Operating Principles: Efficiency: * Useful Life: 	absorption and Brinks HV mist eliminator for acid mist control 4. Capital Costs: 6. Operating Costs:
 Control Device/System: Operating Principles: Efficiency: * Useful Life: Energy: 	absorption and Brinks HV mist eliminator for acid mist control 4. Capital Costs: 6. Operating Costs:

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

	10. 5	Stack Parameters				
	a	a. Height:	ft.	b.	Diameter:	ft.
	c	:. Flow Rate:	ACFM	đ.	Temperature:	٥٤
	e	e. Velocity:	FPS		•	
E.	Descr	ribe the control and treatment tecl	hnology available (As r	יחגודי	y 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 ma	aterials and process ch	emic	als:	
	j.	Applicability to manufacturing	processes:			
	k.	Ability to construct with contr	rol device, install in avi	ailab	le space, and operate within proposed levels:	
	2.					
	à.	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 ma	terials and process che	mic	als:	
	j.	Applicability to manufacturing	processes:			
	k.	Ability to construct with control	ol device, install in ava	ilabl	e space, and operate within proposed levels:	
Exp	lain me	ethod of determining efficiency.			•	
Ene	rgy to t	be reported in units of electrical p	ower – KWH design r	ate.		
	3.		•			
	a.	Control Device:			-	
	b.	Operating Principles:				
	C.	Efficiency*:		d.	Capital Cost:	
	e.	Life:		f,	Operating Cost:	
	g.	Energy:	1	h.	Maintenance Cost:	

ft.

^{*}Explain method of determining efficiency above.

	١.	Availability of construction materials and	process chemi	cals:
	j.	Applicability to manufacturing processes:		
	k.	Ability to construct with control device, in	nstall in availat	ple 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 p	process chemic	als:
	j.	Applicability to manufacturing processes:		•
	k	Ability to construct with control device, in	stall in availab	le space, and operate within proposed levels:
F. De	escribe	the control technology selected:		•
1	l. Cont	rol Device:		
2	. Effic	iency*:	3.	Capital Cost:
4	. Life:		5.	Operating Cost:
. 6	. Energ	gy:	7.	Maintenance Cost:
8.	. Manu	facturer:		
9.	. Other	r locations where employed on similar proc	esses:	•
	a.		•	
	(1) Company:		
	(C	2) Mailing Address:		
	(:	3) City:	(4)	State:
	(5	5) Environmental Manager:		•
	(6	Telephone No.:		
*Explain	n metho	od of determining efficiency above.		
	(7	') Emissions*:		
		Contaminant		Rate or Concentration
				
•	(8	Process Rate*:		
	b. {1]	Company:		
	(2)	•		
	(3)		/A) 5	*****
	13/	wity.	(4) 5	ILGIC.

(5)	Environmental Manager:	
(6)	Telephone No.:	
(7)	Emissions*:	
	Contaminant	Rate or Concentration
 (8)	Process Rate*:	
10)		

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

A.	See PSD-FL-082
7.	Company Monitored Data 1
	·
	Period of monitoring / / to / / 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
₿.	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)
	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.
Ð.	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.

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.

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

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.

PRODUCTION RATE CALCULATION

PRODUCT:

Sulfuric Acid as 98% H₂SO₄

PRODUCT RATE:

2500 Short tons per day (STPD) of 100% H₂SO₄

as 98% H₂S04

-or-

212,585 lbs/hr $(2500 \div 0.98 \times 2,000 \div 24)$ 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# SO2 per ton of 100% H2SO4 produced.

PROCESS INPUT:

SULFUR:

2500 STPD of 100% H2SO4 equivalent to 816 STPD of Sulfur (2000 x 32/98) which at an efficiency of 99.7% requires 819 STPD of Sulfur (816 \pm 0.997).

-or-

68,232 lbs/hr (819 x 2,000 ÷ 24)

SULFUR RECOVERY EFFICIENCY:

Input - 68,232 1b/hour

Stack - 416.7 1b/hr of S02 or 208.4 1b/hr or S

Efficiency = $(68,232 - 208.4)/68,232 \times 100$

= 99.7%

POLLUTANT EMISSION RATE CALCULATIONS

OPERATING FACTOR = 8,760 hrs/yr

PRODUCTION RATE = 2,500 TPD 100% H2SO4

SULFUR DIOXIDE @ 4.0 lb/ton acid

Hourly = $4.0 \times 2,500/24$

= 416.7 lb/hr

Annual = $416.7 \times 8,760/2000$

= 1,825 TPY

MIST @ 0.15 lb/ton acid

Hourly = $0.15 \times 2,500/24$

15.6 lb/hr

Annual = $15.6 \times 8,760/2000$

= 68.3 TPY

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

Typical Stack Gas Characteristics

SO₂ - 230 ppm O₂ - 7%

GAS FLOW RATE

= 11,800/[0.263 - 0.0126(02%)]

= 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 1b/hr

Annual = $14.8 \times 8,760/2000$

= 64.8 TPY

Sulfur consumption = 0.335 tons/ton Acid including losses.

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

"Petroleum" content of Sulfur

- $2,500/4 \times 0.335 \times 0.0025$ x 2000 1b/ton
- 174.5 1b/hr x 1/8 1b/ga1
- 21.8 equivalent gal/hr

EMISSION RATE @ 5 1b CO/1000 gal

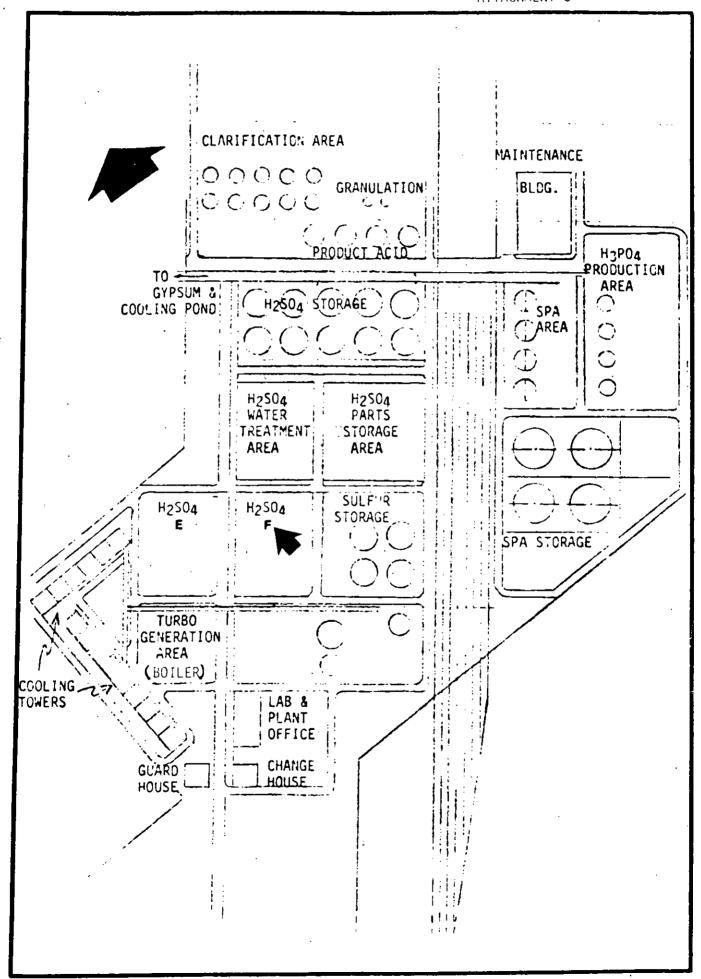
Hourly 21.8/1000 x 5

0.11 1b/hr

0.11 8,760/2000 0.5 TPY Annua₁

DOUBLE CONTACT/DOUBLE ABSORPTION - SULFURIC ACID MANUFACTURE

ATTACHMENT 4



SHOUTE SERVICE



May 10, 1982

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

DER

APPLICATION TO CONSTRUCT AIR POLLUTION SOURCES

MAY 27 1982

Annotes	1 1302
SOURCE TYPE: Auxiliary Boiler	_ [] New ¹ XX Existing ¹ RAOM
APPLICATION TYPE: [] Construction [] Operation (K)	Modification STATE
COMPANY NAME: Occidental Chemical Company	COUNTY: Hamilton
Identify the specific emission point source(s) addressed in this and the second in this and the second in this are second in the second in this are second in the second in this are second in the second in this are second in the s	application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit
CD 107	City White Springs
UTM: East 328.320 km	North 3,368.810 km
Latitude o , ,	"N Longitude o ' 'W
APPLICANT NAME AND TITLE: <u>Occidental Chemica</u> APPLICANT ADDRESS: <u>Post Office Box 300, Wi</u>	al Company hite Springs, FL 32096
SECTION I: STATEMENTS I	BY APPLICANT AND ENGINEER
A. APPLICANT	
I am the undersigned owner or authorized representative* o	of Occidental Chemical Company
I certify that the statements made in this application for a .	Construction
pollution control source and pollution control facilities in Florida Statutes, and all the rules and regulations of the control facilities.	knowledge and belief. Further, I agree to maintain and operate the in such a manner as to comply with the provision of Chapter 403, department and revisions thereof. I also understand that a permit, if will promptly notify the department upon sale or legal transfer of the
Attach letter of authorization	Signed: MMM = Conthin
•	M. P. McArthur, V.P. & General Manager
	Name and Title (Please Type) Date: 5/24/82 Telephone No. (904) 397-8101
	Date: 3/ &7/8 Telephone No. 13047 337 3101
PROFESSIONAL ENGINEER REGISTERED IN FLORIDA	A (where required by Chapter 471, F.S.)
be in conformity with modern engineering principles appli permit application. There is reasonable assurance, in my pi erly maintained and operated, will discharge an effluent that rules and regulations of the department. It is also agreed the	ion control project have been \(\frac{\text{Mex}}{\text{Mex}}\) examined by me and found to icable to the treatment and disposal of pollutants characterized in the rofessional judgment, that the pollution control facilities, when proportional complies with all applicable statutes of the State of Florida and the lat the undersigned will furnish, if authorized by the owner, the application of the pollution control facilities and, if applicable, pollution
	Signed:
	John B. Koogler, P.E. Name (Please Type)
(Affix Seal)	SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANT
1	Company Name (Please Type)
	1213 NW 6th Street, Gainesville, FL 32601
Florida Registration No	Mailing Address (Please Type) Date: 5/14/82 Telephone No. (904) 377-5822

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

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, an formance as a result of installation. State whether the project will result in full compliant Gas fired auxiliary steam boiler with stand-by oil firing	Ce. Allach additional sheet it necessary
augment steam produced from the sulfuric acid plants to p	provide operating flexibility
in the phosphoric acid production and evaporation process	
sulfur content of the stand-by fuel 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	· · · · · · · · · · · · · · · · · · ·
 Costs of pollution control system(s): (Note: Show breakdown of estimated costs only project serving pollution control purposes. Information on actual costs shall be furnis permit.) 	for individual components/units of the hed with the application for operation
No pollution control equipment	
	-
Indicate any previous DER permits, orders and notices associated with the emission point tion dates. Unit was previously permitted under FDER A0-24-2500 issue	t, including permit issuance and expira-
	
9/30/80 and A0-24-34186 issued 10/10/80 and expiring 9/30	/85
Normal equipment operating time: hrs/day <u>24</u> ; days/wk <u>7</u> ; wks/yr <u>5</u> ; if seasonal, describe: <u>8.760 hours per year</u>	
If this is a new source or major modification, answer the following questions. (Yes or No)	
Is this source in a non-attainment area for a particular pollutant?	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.	
Does best available control technology (BACT) apply to this source? If yes, see	
Section VI.	YES
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 f considered questionable.	or any answer of "No" that might be

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

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

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

B	Contaminants		Utilization	Relate to Flow Diagram
Description ————	Туре	% Wt	Rate - Ibs/hr	The state of the s
NOT APPLICABL	E			
		1	 	

В.	Process Rate, if applicable: (See Section V, Ital	n 1)
	1. Total Process Input Rate (lbs/hr):	NOT APPLICABLE
	2 Product Weight (lhs/hr)	

C. Airborne Contaminants Emitted:

	Emission ¹		Emission ¹		Allowed Emission ²	Allowable ³	Potential (Emission ⁴	Relate
Name of Contaminant	Maximum lbs/hr	Actual T/yr	Rate per Ch. 17-2, F.A.C.	Emission lbs/hr	lbs/hr	T/yr	to Flow Diagram		
Sulfur Dioxide	174.8	765.8	BACT	174.8	174.8	765.8	1		
Part. Matter	14.2	62.3	N/A	14.2	14.2	62.3	11		
NO _X	65.6	287.2	N/A	65.6	65.6	287.2			
CO	5.5	23.9	N/A	5.5	5.5	23.9	1		
Hydrocarbons	1.1	4.8	N/A	1.1	1.1	4.8	1		

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
NOT APPLICABLE				
· · · · · · · · · · · · · · · · · · ·	-			

¹See Section V, Item 2.

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

³Calculated from operating rate and applicable standard

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

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

E. Fuels

DER FORM 17-1-122(16) Page 4 of 10

Type (Be Specific)	Consum	ption*	Maximum Heat Inout
Type (be opening)	avg/hr	max./hr	Maximum Heat Input (MMBTU/hr)
0i1	6.5	26.0	160
Gas	0.04	0.160	160

		_	uel Oils, barrels/h	r; Coal, Ibs/hr					
	nalysis: Sulfur:	1.0			Percent Ash:	0.09			
Density	:	8		lbs/gal	Typical Percer	nt Nitrogen:	(† 1		
Heat Ca	pacity:	18,300		BTU/Ib		146,40	00	BTU/gal	
Other F	uel Contar		may cause air pol	,		-	<u> </u>		
F. If	applicable		ercent of fuel uses			verage N/A	Maximum	 	
G. Indicate liquid or solid wastes generated and method of disp				method of dispo	sal.				
. –		·							
			d Flow Character				.8	ft.	
Gas Flow Rate:		ite:	34,000	ACFM	Gas Exit Temp	erature:	aure: 380		
Wa	iter Vapor	Content:	9	%	Velocity:		FPS		
			SECTION	IV: INCINER		MATION			
Туре о	of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type V1 (Solid By-prod.)	
Lbs/hr Incinera	ted								
)escriptio	on of Waste	•							
otal Wei	ght Incine								
pproxim	ate Numb	er of Hours of (Operation per day			days/	week		
ate Cons	tructed _				Model No	·			

	Volume	Heat Release		Fuel	Temperature
	(ft)3	(BTU/hr)	Туре	BTU/hr	(OF)
Primary Chamber					
Secondary Chamber					
Stack Height:		ft. Stack Diameter		Stack Tem	ıp
					FP:
					t dry gas corrected to 50% ex
Type of pollution control	device: [] Cy	clone [] Wet Scrut	ober [] Afterbu	rner { } Other (spec	cify)
Brief description of operat					
•					_
-				<u> </u>	·
					
					
·					
Iltimate disposal of any of	idlia. ashar shar				-
Iltimate disposal of any ef	muent other than	that emitted from th	ie stack (scrubber v	vater, ash, etc.):	
		 _	· <u> </u>		
	<u>.</u>				
·					
					
	•	•			
	ŞE.	CTION V: SUPPLEM	MENTAL REQUIR	EMENTS	
ann marida shu fallawia					
ease provide the following	g supplements wi	here required for this a	opplication.		
 Total process input ra 	ite and product v	veight — show derivati	ion. ATTACHM	ENT 1.	,
applicable standards.	.) and attach pro To an operation	posed methods (e.g., application, attach te tion permit from a cor	FR Part 60 Metho st results or metho	eds 1, 2, 3, 4, 5) to she ds used to show proof	lrawings, pertinent manufac- ow proof of compliance with f of compliance. Information he time at which the test was
B. Attach basis of potent	tial discharge (e.g	,, emission factor, tha	it is, AP42 test).	ATTACHMENT	1
. With construction per to air ratio; for scrubb	rmit application, ser include cross-	include design details section sketch, etc.).	for all air pollution NOT APPL	n control systems (e.g _ICABLE	., for baghouse include cloth
. With construction per and 5 should be consis	mit application, stent: actual emi	attach derivation of (issions = potential (1-e	control device(s) e efficiency). NOT	fficiency, Include tes FAPPLICABLE	t or design data. Items 2, 3,
. An 8½" x 11" flow di cate where raw materi and where finished pro	ials enter, where	solid and liquid wast	te exit, where gased	y the individual opera ous emissions and/or a	itions and/or processes. Indi irborne particles are evolved

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 4

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).

- 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-083)

Contaminant	Rate or Concentration
Has EPA declared the best available control te	chnology for this class of sources (If yes, attach copy) [] Yes [X] No
Contaminant	Rate or Concentration
What emission levels do you propose as best av	
Contaminant S02	Rate or Concentration 1.1 1b/10 ⁶ Btu input (1% Sulfur Oil)
escribe the existing control and treatment tec	hnology (if any). Presently No. 6 fuel oil with 0.8%
1. Control Device/System:	sulfur is used to control sulfur diox emissions.
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 0.9 1b/10 ⁶ Btu (0.8% Sulfur 0il)

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

	10. S	tack Parameters			,				
	a	. Height:	ft.	b.	Diameter:				
	C.	. Flow Rate:	ACFM	d.	Temperature:				
	e.	. Velocity:	FPS						
E.	Descri	ibe the control and treatment	technology available (As m	any	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,	i. Availability of construction materials and process chemicals:							
	j.	Applicability to manufactu	ring processes:						
	k.	Ability to construct with co	ontrol device, install in avai	lab	le 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 chen	nica	ils:				
	j.	Applicability to manufactur	ring processes:						
	k.	Ability to construct with co	ontrol device, install in avail	labl	e space, and operate within proposed levels:				
*Ex	plain me	ethod of determining efficienc	ey.						
*En	ergy to t	be reported in units of electric	cal power – KWH design ra	ite,					
	3.								
	a.	Control Device:			•				
	b.	Operating Principles:							
	c.	Efficiency*:	. d	I.	Capital Cost:				
•	e.	Life:	f		Operating Cost:				
	g.	Energy:	h	۱.	Maintenance Cost:				

ft. OF

 $^{^{}ullet}$ Explain method of determining efficiency above.

	i.	i. Availability of construction materials and process chemicals:									
	j.	Ар	plicability to manufacturing proces	ses:							
	k	, Ab	ility to construct with control device	ce, install in availat	ole space and operate within proposed levels:						
	4.										
	a.	. Co	ntrol Device								
	b	. Ор	erating Principles:		· .						
	C.	. Eff	iciency*:	d.	Capital Cost:						
	e.	Life	e :	f.	Operating Cost:						
	g.	End	ergy:	h.	Maintenance Cost:						
	i.	Ava	ailability of construction materials	and process chemic	als:						
	j.	Apı	plicability to manufacturing proces	ses:							
	k.	. Abi	ility to construct with control device	e, install in availab	le space, and operate within proposed levels:						
F.	Descri	be the	control technology selected:								
	1. C	ontrol	Device:								
	2. E1	fficien	cy*:	3.	Capital Cost:						
	4. Li	ife:		5.	Operating Cost:						
	6. Er	nergy:		7.	Maintenance Cost:						
	8. M	anufac	cturer:								
	9. O	ther lo	cations where employed on similar	processes:							
	a.										
		(1)	Company:								
		(2)	Mailing Address:								
		(3)	City:	(4)	State:						
		(5)	Environmental Manager:								
		(6)	Telephone No.:								
*Ex	cplain m	ethoa	of determining efficiency above.								
		(7)	Emissions*:								
			Contaminant		Rate or Concentration						
											
											
		(8)	Process Rate*:	-							
	b.										
		(1)	Company:								
		(2)	Mailing Address:								
		(3)	City:	(4)	State:						

(5)	Environmental Manager:	
(6)	Telephone No.:	
(7)	Emissions*:	
	Contaminant	Rate or Concentration
		the state of the s
(8)	Process Rate*:	
10. Reason f	for selection and description of systems:	

See PSD-FL-083

^{*}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-083)

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	rtment procedures? Yes No	Unknown
В.	Meteorological Data Used for Air Quality Modeling		
	1 Year(s) of data from/ to to	/ / nonth 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		
	3	Modified? If yes,	attach description.
	4		
	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 UTM coordinates, stack data, allowable emissions, and normal ope		DS point number),
F.	Attach all other information supportive to the PSD review.		
*Spe	ecify bubbler (8) or continuous (C).		
G.	Discuss the social and economic impact of the selected technolo duction, taxes, energy, etc.). Include assessment of the environme	gy versus other applicable technologies (i.e.	, jobs, payroll, pro-

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.

FUEL: Gas or oil at 1.0% S

HEAT INPUT: 160.0 MM BTU/hr

FUEL INPUT:

0il: 8743 lbs/hr (160MM ÷ 18,300) or 26.0 BBLS/hr

 $(160 \text{ MM} \div 146,000 \mp 42) \text{ or } 1093 \text{ gal/hr}$

Gas: 0.160 MM CF/hr (160 ÷ 1000) (NOTE: "Average" usage

@ 25% of maximum)

OPERATING

FACTOR: 8760 hours/year

EMISSIONS:

 $\underline{S0_2}$ = (8743 lb/hr) x (0.01 x 2 lb S0₂/lb fuel)

= 174.8 lb/hr = 765.8 ton/yr

Part. Matter = $(1093 \text{ gal/hr}) \times ((10 \times 1.0) + 3)/1000 \text{ lb PM/gal}$

= 14.2 lb/hr = 62.3 ton/yr

 NO_X = (1093 gal/hr) x (60/1000 lb NO_X /gal)

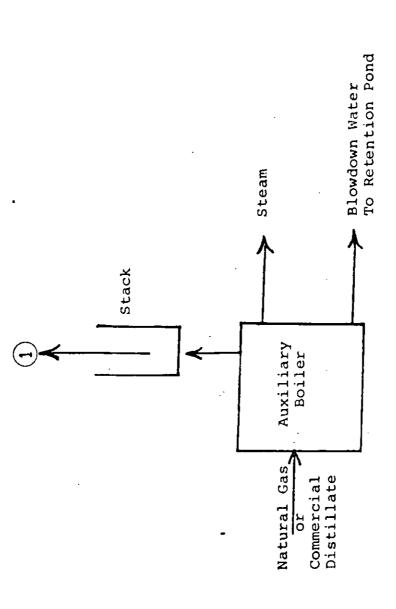
= 65.6 lb/hr = 287.2 ton/yr

co = (1093 gal/hr) x (5/1000 lb co/gal)

= 5.5 lb/hr = 23.9 ton/yr

Hydrocarbons = $(1093 \text{ gal/hr}) \times (1/1000 \text{ lb HC/gal})$

= 1.1 lb/hr = 4.8 ton/yr



AUXILIARY BOILER

ATTACHMENT 4



May 14, 1982

DER

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION APPLICATION TO SOME NOT CONSTRUCT

MAY 27 1982

APPLICATION TO/OFER/ATME/CONSTRUCT AIR POLLUTION SOURCES

BAQM

SOURCE TYPE:	Auxiliary Boiler	[] New ¹ [X] Existing ¹	
APPLICATION TYPE:	[] Construction [] Operation [XX	Modification	
COMPANY NAME:	Occidental Chemical Compan	y cou	NTY: Hamilton
Identify the specific emi	ssion point source(s) addressed in this a Auxillary Boiler "D"	plication (i.e. Lime Kiln No. 4 wit	h Venturi Scrubber; Peeking Unit
SOURCE LOCATION:	Street	City .	White Springs
	UTM: East 328.320 km		
	Latitude 0 ' "		
APPLICANT NAME AND	TITLE: Occidental Chemi		
-	Post Office Box 300,	•	32096
•	SECTION I: STATEMENTS B	APPLICANT AND ENGINEER	
A. APPLICANT .		·	
I am the undersigne	d owner or authorized representative® of	Occidental Chemica	1 Company
I certify that the sta	tements made in this application for a	construction	·
permit are true, co pollution control so Florida Statutes, ar	rrect and complete to the best of my liberice and pollution control facilities in and all the rules and regulations of the department, will be non-transferable and I w	nowledge and belief. Further, 1 ac such a manner as to comply wit partment and revisions thereof.	th the provision of Chapter 403,
Attach letter of authoriza	ation	Signed: MM :C	Ulha
	•		<u>. & General Manager</u>
	•	i	(Please Type)
,		Date: <u>5/24/82</u> Teleph	· · · · · · · · · · · · · · · · · · ·
PROFESSIONAL EI	NGINEER REGISTERED IN FLORIDA	where required by Chapter 471, F	.S.)
permit application. erly maintained and rules and regulations	t the engineering features of this pollution the modern engineering principles applica There is reasonable assurance, in my properated, will discharge an effluent that is of the department. It is also agreed that ions for the proper maintenance and open	ble to the treatment and disposal of fessional judgment, that the pollut complies with all applicable statute the undersigned will furnish, if au ation of the pollution control facil	of pollutants characterized in the ion control facilities, when properties of the State of Florida and the thorized his the owner, the appli-
		I R Vocal on Dh D	, P.E.
	•	J.B. Koogler, Ph.D. Name (Pie	· . · · · · · · · · · · · · · · · · · ·
(Affix Seal)	•		ENVIRONMENTAL CONSULTANT
Ch. 2177		Company Name	(Please Type)
187322 31		1213 NW 6th Street	
Florida Registration I	No. 12925	Mailing Address Date: 5/4/87 Teleph	(Please Type) one No. (904) 377-5822

SECTION II: GENERAL PROJECT INFORMATION

A	Describe the nature and extent of the project. Refer to pollution control equipment, and e formance as a result of installation. State whether the project will result in full compliance. Gas fired auxiliary steam boiler with stand-by oil firi	Attach additional sheet if necessary.
	to augment steam produced from the sulfuric acid plants	
	flexibility in the phosphoric acid production and evapo	
	content of oil will be increased from 0.8% to 1.0%.	
В.		
	Start of Construction July 1982 Completion of Construction	July 1982
C.		r individual companents/units of the
	No pollution control equipment.	
D.	Indicate any previous DER permits, orders and notices associated with the emission point, it tion dates.	ncluding permit issuance and expira-
	FDER Construction Permit No. Ac-24-2700 and 2701 issued	7/6/77 and expiring
	12/31/79; A0-24-21059 issued 3/6/80 for boilers C and D	and expiring 1/31/85.
F.	Normal equipment operating time: hrs/day <u>24</u> ; days/wk <u>7</u> ; wks/yr <u>52</u> if seasonal, describe: <u>8760 hours per year</u>	
G.	If this is a new source or major modification, answer the following questions. (Yes or No)	
•	Is this source in a non-attainment area for a particular pollutant?	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.	
	Does best available control technology (BACT) apply to this source? If yes, see Section VI.	Yes
	Does the State "Prevention of Significant Deterioriation" (PSD) requirements apply to this source? If yes, see Sections VI and VII.	Yes
	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)

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

6	Contaminants		Utilization	Relate to Flow Diagram	
Description	Туре	% Wt	Rate - lbs/hr	Trongro to 7 to 10 Jugito	
		NOT APPLICA	BLE		
	1				

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

1. Total Process Input Rate (lbs/hr): Not Applicable 2. Product Weight (lbs/hr): __

C. Airborne Contaminants Emitted: Gas/011

······································	Emission ¹		Allowed Emission ²	Allowable ³	Potential Emission ⁴		Relate
Name of Contaminant	Maximum Ibs/hr	Actual T/yr	Rate per Ch. 17-2, F.A.C.	Emission lbs/hr	lbs/hr	T/yr	to Flow Diagram
Sulfur Dioxide	0.1/128.7	7 0.3/56	4 BACT	0.1/128.7	0.1/128.7	0.3/56	4 1
	1.2/10.7		BACT	1.2/10.7	1.2/10.7	5.3/47	1
NO _x	21.0/49.2	2 92/215	NA	21.0/49.2	21.0/49.2	92/215	11
CO	2.0/4.1	9/18	NA	2.0/4.1	2.0/4.1	9/18	1
HC	0.4/0.8	2/4	NA	0.4/0.8	0.4/0.8	2/4	1

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
	NOT APPLICA	BLE		
· · · · · · · · · · · · · · · · · · ·				
		·		<u> </u>
	 			<u> </u>

¹See Section V, Item 2.

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

³Calculated from operating rate and applicable standard

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

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

E. Fuels

Type (Be Specific)	Consu	Maximum Heat Input		
	avg/hr	max./hr	Maximum Heat Input (MMBTU/hr)	
0il	5	19.5	120	
Gas	0.03	0.12	120	
		3,,,2		

Density: <u>-/8</u>			lbs/gal	Typical Percen	t Nitrogen:	'Ni l	
		300 may cause air poll	ution):	None			BTU/yel
Indicate liqu	id or solid wast	ercent of fuel used es generated and m Now-down to	for space heati	ng. Arinual Av sal.	•		
Stack Height		104	ft.	Stack Diameter	6.5		"C" and "D"
C C	te: <u>100,000</u>	(50,000 ea. boiler)	ACFM	Gas Exit Tempe	rature: <u>380</u> 50		0;
Water Vapor *BTU/ft ³			%	Velocity:			FPS
				ATOR INFORM			F#S

Type of Waste	Type O (Plastics)	Type ((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 Inciner	ated (lbs/hr)			Design Capacity	(lbs/hr)		
Approximate Number	er of Hours of O	peration per day					
Manufacturer					····		
Date Constructed		·		Model No			

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	Volume	Heat Release	F	uel	Temporatura
	(ft)3	(BTU/hr)	Туре	BTU/hr	Temperature (OF)
Primary Chamber					
Secondary Chamber					
Stack Height:	_	ft. Stack Diameter		Stack Tom	р
Gas Flow Rate:		ACFM		DSCEM* Velocity	P FPS
					t dry gas corrected to 50% ex-
Type of pollution control	device: [] Cy	rclone [] Wet Scrub	ber [] Afterbui	rner [] Other (spec	sify)
	-				
					
	 -				
		•			
Ultimate disposal of any ef	fluent other tha	n that emitted from the	stack (scrubber w	vater, ash, etc.):	
					<u> </u>
					7
			· · · · ·		
		· · · · · · · · · · · · · · · · · · ·			
	SE	CTION V: SUPPLEM	ENTAL REQUIRE	EMENTS	
ease provide the following) supplements w	here required for this a	oplication.		
1. Total process input ra	ite and product v	weight — show derivation	on. ATTACHMI	FNT 1	
2. To a construction an	plication attach	basis of emission estimate			rewings, pertinent manufac-
turer's test clata, etc.,	.} and attach pro	poosed methods (e.a. I	-R Part 60 Metho	de 1 2 3 4 5) to sho	w proof of compliance with
applicable standards.	To an operation	application, attach tes	t results or method	ds used to show proof	of compliance Information
made.			struction permit sh	nall be indicative of th	e time at which the test was
Amark basis of a sac-	ATTACH			6 77 8 ALIEATER	•
Attach basis of potent	tial discharge (e.	g., emission factor, that	is, AP42 test).	ATTACHMENT	1
With construction per	mit application,	include design details (or all air pollution	n control systems (e.g.	, for baghouse include cloth
to air ratio; for scrubb	er include cross-	section sketch, etc.).	N/A		
 With construction per and 5 should be consis 	mit application, stent: actual em	attach derivation of cissions = potential (1-ef	ontrol device(s) el		or design data. Items 2, 3,
. An 8½" x 11" flow di	agram which wil	II without revealing tra	•		tions and/or processes. Indi-
cate where raw materi and where finished pro	ials enter, where	solid and liquid waste	exit, where gaseo	us emissions and/or a	irborne particles are evolved
A = 01/11		ATTACH	MENT 2		
An 8½" x 11" plot pla ing area, residences ar	an showing the R nd other permar	ocation of the establish nent structures and roa	ment, and points o dways (Example)	of airborne emissions, Conv. of relevant no	in relation to the surround- rtion of USGS topographic
map).	 	ATTACH		oopy or releasely bo	rtion or osos topographic
An 8%" x 11" plot pl	an of facility sh			angrees and avaluated	r airborne emissions, Relate
all flows to the flow di	agram.	ATTACH	MENT 4	Acoses and outlets 10	r airborne emissions, Relate

- 9. An application fee of \$20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.
- 10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

Contaminant		Rate or Concentration
Has EPA declared the best available control te	chnology for th	is class of sources (If yes, attach copy) [] Yes [X] No
Contaminant	_	Rate or Concentration
·		
Vhat emission levels do you propose as best av	ailable control	technology?
Contaminant		Rate or Concentration 1.1 1b/106 BTU; use of oil with
		1.0% Sulfur Content.
escribe the existing control and treatment tec 1. Control Device/System: 2. Operating Principles:	hnology (if any	Presently No. 6 fuel oil with 0.8% sulfuing is used to control sulfur dioxide emissi
3. Efficiency: *	4.	Capital Costs:
5. Useful Life:	6.	Operating Costs:
7. Energy:	8.	Maintenance Cost:
9. Emissions:		
		Rate or Concentration
Contaminant S02		0.9 1b/10 ⁶ BTU; use of oil

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

	10. 5	tack rarameters			
	. а.	. Height:	ft.	b.	Diameter:
	c.	. Flow Rate:	ACFM	d.	Temperature:
	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*:		đ.	Capital Cost:
	e.	Useful Life:		f.	Operating Cost:
	g.	Energy*:		h.	Maintenance Cost:
	i.	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				e space, and operate within proposed levels:	
•Ext	olain me	ethod of determining efficienc	:y .		
*Ene	rgy to t	be reported in units of electric	cal power – KWH design i	rate.	
	3.				
	a.	Control Device:			· · · · · ·
	Ь.	Operating Principles:			
	c.	Efficiency*:		d.	Capital Cost:
	e.	Life:		f.	Operating Cost:
	g.	Energy:		h.	Maintenance Cost:

ft. OF

^{*}Explain method of determining efficiency above.

j. k. 4. a. b. c. e. g. i.	Applicability to manufacturing processes: Ability to construct with control device, install Control Device Operating Principles: Efficiency*: Life:	in available space and operate within proposed levels: d. Capital Cost:
4. a. b. c. e.	Control Device Operating Principles: Efficiency*:	
a. b. c. e. g.	Operating Principles: Efficiency *:	d. Capital Cost:
b. c. e. g.	Operating Principles: Efficiency *:	d. Capital Cost:
c. e. g.	Efficiency*:	d. Capital Cost:
e. g.		d. Capital Cost:
g.	Life:	
		f. Operating Cost:
i.	Energy:	h. Maintenance Cost:
	Availability of construction materials and proce	ess chemicals:
j.	Applicability to manufacturing processes:	
k.	Ability to construct with control device, install	in available space, and operate within proposed levels:
F. Describe	e the control technology selected:	
1. Cor	ntrol Device:	
2. Eff	iciency*:	3. Capital Cost:
4. Life	e:	5. Operating Cost:
6. Ene	ergy:	7. Maintenance Cost:
8. Mar	nufacturer:	•
9. Oth	er locations where employed on similar processes	s:
a.		
	(1) Company:	
	(2) Mailing Address:	
	(3) City:	(4) State:
	(5) Environmental Manager:	
	(6) Telephone No.:	
*Explain met	thod of determining efficiency above.	
	(7) Emissions*:	
	Contaminant	Rate or Concentration
		
		
	(8) Process Rate*:	
b.	•	
	(1) Company:	
•	(2) Mailing Address:	
	(3) City:	(4) State:
b.	(2) Mailing Address: (3) City: (5) Environmental Manager: (6) Telephone No.: thod of determining efficiency above. (7) Emissions*:	Rate or Concentration

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(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-083

^{*}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-083

A.	Company Monitored Data	
	1 no sites TSP	() SO ² * Wind spd/dir
	Period of monitoring / / month day ye	ar to / / month day year
	Other data recorded	
	Attach all data or statistical summaries to this appli	cation.
	2. Instrumentation, Field and Laboratory	
	a) Was instrumentation EPA referenced or its ed	uivalent? Yes No
	b) Was instrumentation calibrated in accordance	with Department procedures? Yes No Unknown
В.	Meteorological Data Used for Air Quality Modeling	
	1 Year(s) of data from/ / month day ye	ar month day year
	2. Surface data obtained from (location)	· · · · · · · · · · · · · · · · · · ·
	3. Upper air (mixing height) data obtained from (local	ion)
	4. Stability wind rose (STAR) data obtained from (loc	ation)
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 dat	a, receptor locations, and principle output tables.
D.	Applicants Maximum Allowable Emission Data	
	Pollutant	Emission Rate
	TSP	grams/sec
	so ²	grams/sec
Ε.	Emission Data Used in Modeling	
	Attach list of emission sources. Emission data require UTM coordinates, stack data, allowable emissions, and	d is source name, description on point source (on NEDS point number), normal operating time.
F.	Attach all other information supportive to the PSD revi	ew.
'Spe	ecify bubbler (B) or continuous (C).	
3.	Discuss the social and economic impact of the selenteduction, taxes, energy, etc.). Include assessment of the	d technology versus other applicable technologies (i.e., jobs, payroll, pro- 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.

FUEL:

Gas

Oil at 1.0% Sulfur

HEAT INPUT:

120 x 10⁶ BTU/hr

EUEL INPUT:

Gas = $120 \times 10^6 \text{ BTU/hr} \times 1/1000 \text{ ft}^3/\text{BTU}$ = $0.12 \times 10^6 \text{ ft}^3/\text{hr}$

 $0i1 = 120 \times 10^6 BTU/hr \times 1/146,400 qa1/BTU$

= 820 gal/hr

OPERATING

FACTOR:

8760 hour/year

EMISSIONS:

Sulfur Dioxide (Potential and Actual)

Gas: $S02 = 0.6 \times 10^{-6} \text{ lb/ft}^3 \times 0.12 \times 10^6 \text{ ft}^3/\text{hr}$

= 0.1 lb/hr= 0.3 TPY

Oil: $SO_2 = (0.157 \times 1.0) \text{ lb/qal } \times 820 \text{ gal/hr}$

= 128.7 lb/hr= 564 TPY

Particulate Matter (Potential and Actual)

 $PM = 10 \times 10^{-6} \text{ lb/ft}^3 \times 0.12 \times 10^6 \text{ ft}^3/\text{hr}$

= 1.2 lb/hr= 5.3 TPY

0il: PM = [10(1.0) + 3]/1000 lb/qal x 820 gal/hr

= 10.7 lb/hr= 46.7 TPY

Nitrogen Oxides (Potential and Actual)

 $NO_X = 175 \times 10^{-6} \text{ lb/ft}^3 \times 0.12 \times 10^6 \text{ ft}^3/\text{hr}$

= 21.0 lb/hr= 92.0 TPY

0il: $NO_x = 0.060 \text{ lb/gal } \times 820 \text{ gal/hr}$

 $= 49.2 \, lb/hr$ = 215.5 TPY

Carbon Monoxide (Potential and Actual)

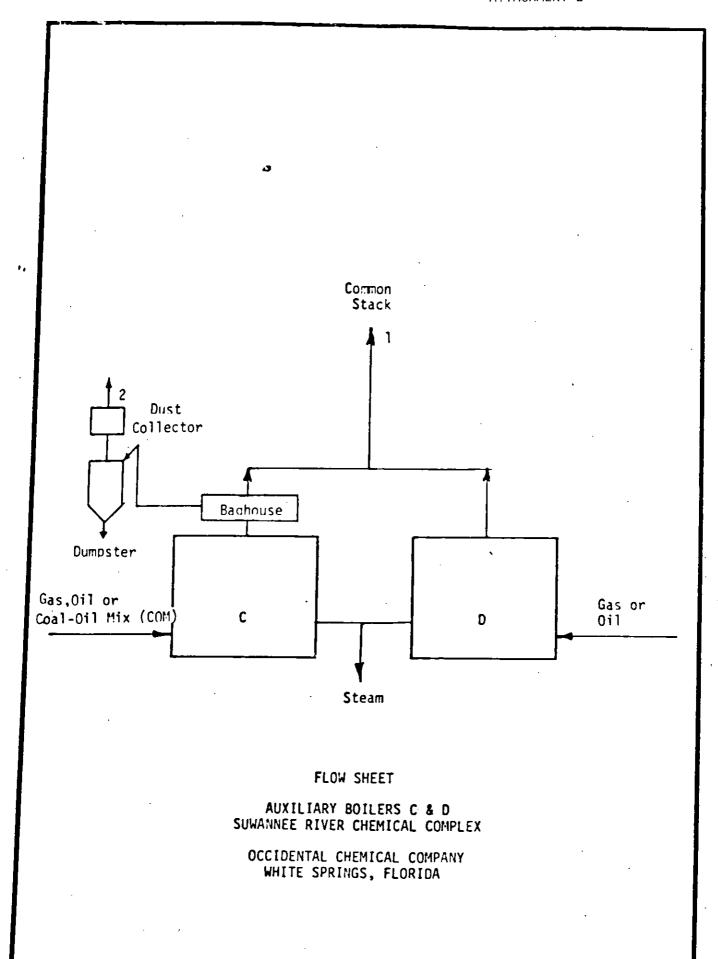
Gas: $CO = 17 \times 10^{-6} \text{ lb/rt}^3 \times 0.12 \times 10^6 \text{ ft}^3/\text{hr}$ = 2.0 lb/hr = 8.9 TPY

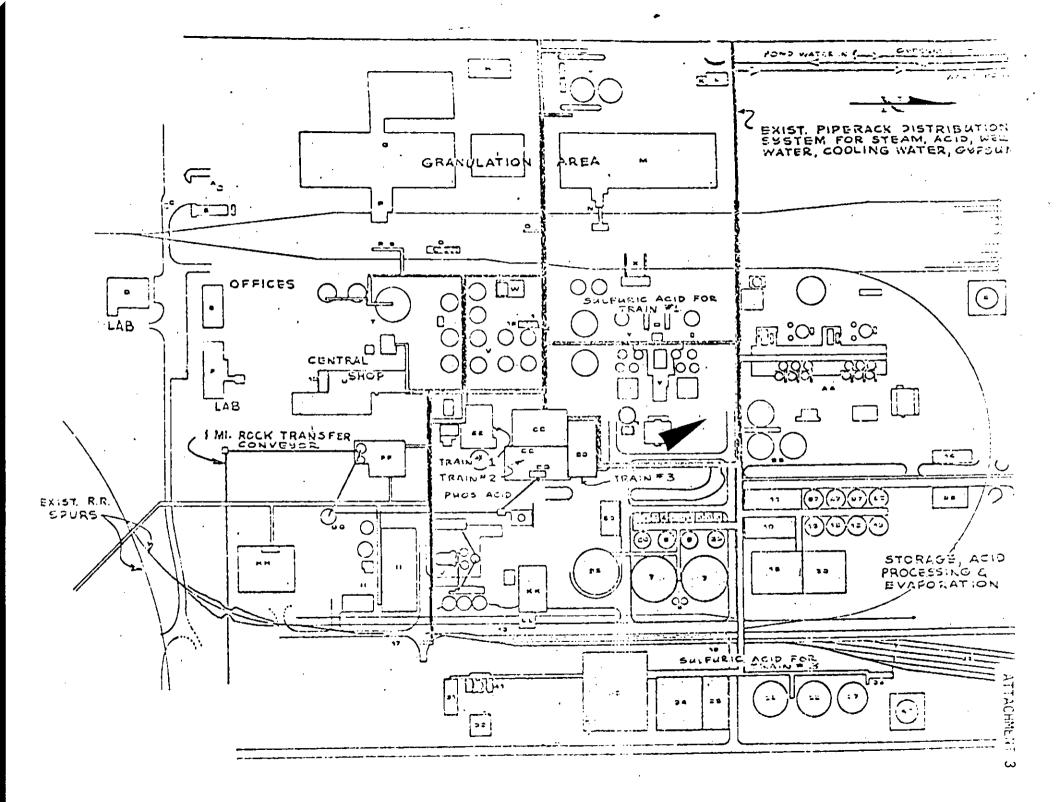
Oil: CO = 0.005 lb/gal x 820 gal/hr = 4.1 lb/hr = 18.0 TPY

Hydrocarbons (Potential and Actual)

Gas: HC = $3 \times 10^{-6} \text{ lb/ft}^3 \times 0.12 \times 10^6 \text{ ft}^3/\text{hr}$ = 0.4 lb/hr = 1.6 TPY

Oil: HC = 0.001 lb/gal x 820 gal/hr = 0.8 lb/hr = 3.6 TPY





ATTACHMENT 4

May 14, 1982



STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

DER

APPLICATION TO OFFERWATE/CONSTRUCT AIR POLLUTION SOURCES

MAY 27 1982

AIR POLL	LUTION SOURCES
SOURCE TYPE: Auxiliary Boiler	[] New ¹ XX Existing 1 BAOM
APPLICATION TYPE: [] Construction [] Operation	•
COMPANY NAME: Occidental Chemical Con	npany COUNTY: Hamilton
Identify the specific emission point source(s) addressed in the No. 2, Gas Fired) Auxillary Boiler "C"	is application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit
SOURCE LOCATION: Street S.R. 137	City White Springs
	North 3,368,810 km
Latitude o ,	
APPLICANT ADDRESS: Post Office Box 300, Wh	
SECTION I: STATEMENT	S BY APPLICANT AND ENGINEER
A. APPLICANT	
I am the undersigned owner or authorized representative	of Occidental Chemical Company
Florida Statutes, and all the rules and regulations of the granted by the department, will be non-transferable and permitted establishment.	ny knowledge and belief. Further, I agree to maintain and operate the in such a manner as to comply with the provision of Chapter 403, a department and revisions thereof. I also understand that a permit, if I will promptly notify the department upon sale or legal transfer of the
*Attach letter of authorization	Signed: 1378117 -Cf. The
	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 FLORID	• •
permit application. There is reasonable assurance, in erly maintained and operated, will discharge an effluent the rules and regulations of the department. It is also agreed to	Ition control project have been New Waller amined by me and found to blicable to the treatment and disposal of pollutants characterized in the professional judgment, that the pollution control facilities, when prophat complies with all applicable statutes of the State of Florida and the that the undersigned will furnish, if authorized by the owner, the applicaperation of the pollution control facilities and, if applicable, pollution
	Signed:
	J.B. Koogler, Ph.D. P.E. Name (Please Type)
(Affix Seal)	SHOLTES & KOOGLER ENVIRONMENTAL CONSULTANTS
$s_{\infty}(I)$	Company Name (Please Type) 1213 NW 6th Street, Gainesville, FL 32601
· 1111	Mailing Address (Please Type)
Florida Registration No. 12925	

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

SECTION II: GENERAL PROJECT INFORMATION

A.	Describe the nature and extent of the project. Refer to pollution control equipment, and extended formance as a result of installation. State whether the project will result in full compliance. A	spected improvements in source per-
	Existing gas fired auxiliary steam boiler with stand-by of	firing capability is used
	to augment steam produced from the sulfuric acid plants to	
	in the phosphoric acid production and evaporation process.	
В.	accept a mix of ground coal and oil (COM) with same sulfur dust collector has been installed to reduce particulate mat Schedule of project covered in this application (Construction Permit Application Only) posed to increase the sulfur content of the oil from 0.8% to start of Construction	tter emissions. It is now pro-
C.	Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for project serving pollution control purposes. Information on actual costs shall be furnished permit.)	individual components (see a fig.
	\$1,200,000 Baghouse	
	340,000 Enclosed Ash Removal System	
D.	Indicate any previous DER permits, orders and notices associated with the emission point, in tion dates.	icluding permit issuance and expira-
	Construction Permit No. AC-24-2700 and 2701 issued 7/6/7	7 and expiring 12/31/79;
	Operating Permit No. A0-24-21059 issued 3/6/80 and expiring	
	and "D"; AC-24-40968 issued 6/30/81 to cover COM modificatio	n and expiring 7/31/82.
E.	Is this application associated with or part of a Development of Regional Impact (DRI) pursuan and Chapter 22F-2, Florida Administrative Code?Yes X No	nt to Chapter 380, Florida Statutes,
F.	Normal equipment operating time: hrs/day 24; days/wk 7; wks/yr 52	; if power plant, hrs/vr :
	if seasonal, describe: 8760 hr/year	
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 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	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
A	attach all supportive information related to any answer of "Yes". Attach any justification for a posidered questionable.	any answer of "No" that might be

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

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

Davadasiaa	Contaminants		Utilization	51
Description .	Туре	% Wt	Rate · lbs/hr	Relate to Flow Diagram
		NOT APPLICABL	E	
· · · · · · · · · · · · · · · · · · ·		-		
·	+	<u> </u>		
····-		· · · · · · · · · · · · · · · · · · ·	 	

D.	Process hate, it applicable. (See Section	n v, item ij		
	1. Total Process Input Rate (ibs/hr): _	Not Applicable	· .	 <u></u>

2 Product Weight (lhe/hr):	

C. Airborne Contaminants Emitted:

No.	Emission ¹	Allowed Emission ²	Allowable ³	Potential Emission ⁴	Relate
Name of Contaminant	Maximum Actual lbs/hr T/yr	Rate per Ch. 17-2, F.A.C.	Emission lbs/hr	lbs/hr T/yr	to Flow Diagram
	See Page	3A			
					· · ·
				<u> </u>	

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, It5
Baghouse (4 modules)	Part.	. 90+%	10% < 20 u	Design
			90% > 20 u	
			50% > 30 u	
Bin Vent Dust Collector	(6)	90+%		Design

¹See Section V, Item 2.

6Bin Vent Dust Collector will emit approx. 10% Baghouse Emissions. When burning gas and oil the baghouse will not be used.

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

³Calculated from operating rate and applicable standard

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

⁵If Applicable

Page 3A

Sect. III, C Airborne Contaminants Emitted

GAS/OIL/COM

	<u>Emissions</u>			Allowable Emissions	Potential Emission	
	(1b/hr)	(TPY)	Standard	(1b/hr)	(lb/hr)	(TPY)
S0 ₂	0.1/128.7/130.6	0.3/563.9/572.1	BACT	0.1/128.7/130.6	0.1/128.7/130.6	0.3/563.9/572.1
PM	1.2/10.7/3.8	5.3/46.7/16.6	BACT	1.2/10.7/3.8	1.2/10.7/37.9	5.3/46.7/165.9
NO _X	21.0/49.2/54.6	92.0/215.5/239.2	NA	21.0/49.2/54.6	21.0/49.2/54.6	92.0/215.5/239.2
CO	2.0/4.1/4.2	8.9/18.0/18.4	NA	2.0/4.1/4.2	2.0/4.1/4.2	8.9/18.0/18.4
НС	0.4/0.8/1.0	1.6/3.6/4.5	NA	0.4/0.8/1.0	0.4/0.8/1.0	1.6/3.6/4.5

E. Fuels

Type (Be Specific)	Consu	Maximum Heat Input	
	avg/hr	max./hr	(MMBTU/hr)
0i1	5	19.5	120
Gas	0.03	0.12	120
Coal-Oil Mix (COM)	5.1	19.1	120

Percent Sulfur: Density:	-/1.0/0.9 -/8/9.3				-/0.09/4	19127 10	737
Heat Capacity:		00/16,040	ВТU/ІЬ	-/146,4	100/149,172		BTU/g
i. Indicate liqu Fly as	id or solid wast	es generated and i	method of dispos	sal.) to landf	rerage N/A		olow-down t
Stack Height: Gas Flow Ra	ck Geometry and 104 te: 100,000	d Flow Character (50,000 ea.	ristics (Provide d ft. _boiler)	ata for each stac Stack Diameter Gas Exit Temp	erature:380		C and D boi
*BTU/ft ³			IV: INCINERA				
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.)
bs/hr cinerated							
							
al Weight Inciner Proximate Numbe	ated (lbs/hr) er of Hours of C	peration per day	·	Design Capacity	(lbs/hr)days/w	eek	
nufacturer							

		Volume	Heat Release	F	uel	Temperature
L		(ft) ³	(BTU/hr)	Туре	BTU/hr	(°F)
Р	rimary Chamber					
s	econdary Chamber					
Sta	ack Height:	f	t. Stack Diameter		Stack Te	mp
						/ FPS
•If						ot dry gas corrected to 50% ex-
Ty	pe of pollution control	device: [] Cyc	cione [] Wet Scrut	ober [] Afterbu	rner [] Other (so	ecify)
			_			
_						·
						_
_		·				
Ult	imate disposal of any ef	fluent other than	that emitted from th	e stack (scrubber w	vater, ash, etc.):	
_		·				
	· · · · · · · · · · · · · · · · · · ·	·				
						
		·				
	•					
	•	\$E	CTION V: SUPPLEM	IENTAL REQUIRI	EMENTS	
lea:	se provide the following	ş supplements wh	nere required for this a	pplication.		
t.	Total process input ra	ite and product w	veight — show derivati	on. ATTACHM	ENT 1	
2.	applicable standards. provided when applyi) and attach pro To an operation	posed methods (e.g., application, attach te	FR Part 60 Metho st results or method	ds 1, 2, 3, 4, 5) to sl ds used to show prod	drawings, pertinent manufac- now proof of compliance with of of compliance. Information the time at which the test was
	made.	A ⁻	TTACHMENT 1			
3.	Attach basis of potent	tial discharge (e.g	., emission factor, tha	t is, AP42 test).	ATTACHMENT	1
4.	With construction per to air ratio; for scrubb	mit application, er include cross-s	include design details ection sketch, etc.).	for all air pollution Submitted wi	n control systems (e. th Applicatio	g., for baghouse include cloth n for Ac-24-40968
5.	With construction per and 5 should be consist	mit application, stent: actual emi	attach derivation of ossions = potential (1-e	fficiency)	fficiency. Include te TACHMENT 1	st or design data. Items 2, 3,
3.	An 8½" x 11" flow di cate where raw materi and where finished pro	ials enter, where	solid and liquid wast	ade secrets, identif	v the individual oper	rations and/or processes. Indi- airborne particles are evolved
' .	An 8%" x 11" plot plaing area, residences armap).	an showing the lo nd other perman	ecation of the establishment structures and ro	nment, and points	of airborne emission Copy of relevant p	s, in relation to the surround- ortion of USGS topographic

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 4

- 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-083)

Contaminant	Rate or Concentration
Has EPA declared the best available control tec Contaminant	hnology for this class of sources (If yes, attach copy) [] Yes [X] No Rate or Concentration
What emission levels do you propose as best ava Contaminant S02	Rate or Concentration 1.1 1b/10 ⁶ BTU; use of oil with
	1.0% Sulfur or COM with 0.9% Sulfur
Describe the existing control and treatment tech 1. Control Device/System: 2. Operating Principles:	or COM with 0.7% sulfur is used to con sulfur dioxide emissions.
3. Efficiency: *	4. Capital Costs:
5. Useful Life:	6. Operating Costs:
7. Energy:	8. Maintenance Cost:
7. Chergy.	
9. Emissions:	
•	Rate or Concentration 0.9 1b/10 ⁶ BTU; use of oil with

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

	10.	Stack Parameters				
		a. Height:	ft.	þ.	Diameter:	ft.
		c. Flow Rate:	ACFM	d.	Temperature:	٥Ę
	ı	e. Velocity:	FPS			
E.	Desc	ribe the control and treatment te	chnology available (As r	יתגתי	y types as applicable, use additional pages if necessary).	
	1.				•	
	á	a. Control Device:				
	t	b. Operating Principles:				
	c	c. Efficiency*:		d.	Capital Cost:	
	e	. Useful Life:		f.	Operating Cost:	
	9	j. Energy*:		h.	Maintenance Cost:	
	i.	. Availability of construction m	naterials and process cho	emic	als:	
-	j.	Applicability to manufacturing	g processes:			
	k	. Ability to construct with cont	trol device, install in ava	ailab	le 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 ma	aterials and process che	mica	als:	
	j.	Applicability to manufacturing	processes:			
	k.	Ability to construct with contr	ol device, install in ava	ilabl	e space, and operate within proposed level:	
*Exp	olain m	ethod of determining efficiency.			•	
*Ene	rgy to	be reported in units of electrical	power – KWH design r	ate.		
	3.				•	
	a.	Control Device:			•	
	b.	Operating Principles:				
	c.	Efficiency*:		d.	Capital Cost:	
	e.	Life:	•	f.	Operating Cost:	
	g.	Energy:	,	٦.	Maintenance Cost:	

^{*}Explain method of determining efficiency above.

	i. Availability of construct	ion materiais and process chemicais.
	j. Applicability to manufac	turing 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	on materials and process chemicals:
	j. Applicability to manufac	turing processes:
	k. Ability to construct with	control device, install in available space, and operate within proposed levels:
	Describe the control technology se	elected:
	1. Control Device:	
	2. Efficiency*:	3. Capital Cost:
	4. Life:	5. Operating Cost:
	6. Energy:	7. Maintenance Cost:
	8. Manufacturer:	
	9. Other locations where employ	ed on similar processes:
	a .	
	(1) Company:	
	(2) Mailing Address:	
	(3) City:	(4) State:
	(5) Environmental Mana	ager:
	(6) Telephone No.:	
Ex	plain method of determining efficie	ncy above.
	(7) Emissions*:	
	Contaminar	Rate or Concentration
	· · · · · · · · · · · · · · · · · · ·	
	(8) Process Rate*:	
	b.	
	(1) Company:	
	(2) Mailing Address:	
	(3) City:	(4) State:

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(5)	Environmental Manager:	
(6)	Telephone No.:	,
(7)	Emissions*:	
	Contaminant	Rate or Concentration
 		_ <u></u>
		
(8)	Process Rate*:	

10. Reason for selection and description of systems:

See PSD-FL-083

^{*}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-083)

Α.	С	Company Monitored Data						
	1	no sites	TSP	(_} so²•		Wind spd/dir	
		Period of monitoring / month	day ye	to	month day	/ year	-	
		Other data recorded	 _					·
		Attach all data or statistical summaries t	to this appli	ication.				
	2.	Instrumentation, Field and Laboratory						
		a) Was instrumentation EPA reference	ced or its eq	juivalent?	Yes	No)	
		b) Was instrumentation calibrated in	accordance	with De	partment proc	edures? _	Yes	No Unknown
B.	М	eteorological Data Used for Air Quality N	Modeling		•			
	1,	Year(s) of data from/ month	day yea	to . ar	/ month day	/ year		
	2.	Surface data obtained from (location)						
	3.	Upper air (mixing height) data obtained	from (locat	tion)	_			
	4.	Stability wind rose (STAR) data obtaine	d from (loc	ation) _				
C.		omputer Models Used						
	1.		•				_ Modified?	If yes, attach description.
	2.					<u> </u>	_ Modified?	If yes, attach description.
	3.						_ Modified?	If yes, attach description.
	4.	 					_ Modified?	If yes, attach description.
	Αt	tach copies of all final model runs showin	ng input dat	a, recepto	or locations, a	nd principle	output table	· !\$.
D.	Αp	plicants Maximum Allowable Emission D)ata					
		Pollutant			E	mission Ra	te	•
		TSP					gra	ms/sec
		so ²					gra	ms/sec
Ξ,	Em	ission Data Used in Modeling						
	Att UT	ach list of emission sources. Emission da M coordinates, stack data, allowable emis	ata required ssions, and i	d is source normal of	e name, descr perating time.	ription on p	point source ((on NEDS point number),
: .	Att	ach all other information supportive to the	he PSD revi	ew.				
Spe	cify	bubbler (B) or continuous (C).						
) .	Dis duc	cuss the social and economic impact of tion, taxes, energy, etc.). Include assessm	the selected tent of the o	d technol environm	ogy versus oth ental impact o	her applical of the sourc	ble technologi es.	ies (i.e., jobs, payroll, pro-

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.

```
FUEL:
```

Gas

Oil at 1.0% sulfur

Coal-Oil Mix at 0.9% sulfur

HEAT INPUT:

120 x 10⁶ BTU/hr

FUEL INPUT:

Gas = 120×10^6 BTU/hr x 1/1000 ft³/BTU = 0.12×10^6 ft³/hr

....

 $0i1 = 120 \times 10^6 BTU/hr \times 1/146,400 gal/BTU$ = 820 gal/hr

Coal-0il = 120×10^6 BTU/hr x 1/149,172 gal/BTU

= 804 gal/hr x 9.3 lbs/gal

= 7481 lbs/hr @ 50% oil and 50% coal

x 0.5 = 3741 lbs/hr coal = 3741 lbs/hr oil x 1/8 = 467 gal/hr oil

OPERATING

FACTOR:

8760 hours/year

EMISSIONS:

Sulfur Dioxide (Potential and Actual)

0il: $SO_2 = (0.157 \times 1.0)$ lb $SO_2/gal \times 820$ ga/hr = 128.7 lbs/hr

x 8760/2000 = 563.9 TPY

Coal-Oil: $SO_2 = 7481 \text{ lb/hr} \times 0.009 \text{ lbs/lb} \times 2 \text{ lb} SO_2/ls S \times 0.97$

= 130.6 lbs/hr x 8760/2000 = 572.1 TPY

Gas: $SO_2 = 0.6 \times 10^6 \text{ lb/ft}^3 \times 0.12 \times 10^6 \text{ ft}^3/\text{hr}$ = 0.1 lb/hr

= 0.1 1b/hr= 0.3 TPY

Nitrogen Oxides (Potential and Actual

0il: $NO_X = 0.060$ lb $NO_X/gal \times 820$ gal/hr

= 49.2 lbs/hr x 8760/2000 x 1.0 = 215.5 TPY

Coal-Oil: NO_X @ 0.4552 lb NO_X (as NO_2)/106BTU from test data provided by KVB

 $NO_{X} = 0.4552 \text{ lb/lo}^{6} \text{ BTU x (120 x 106) BTU/hr}$

= 54.6 lbs/hr x 8760/2000 = 239.2 TPY

```
Gas: NO_X = 175 \times 10^{-6} \text{ lb/ft}^3 \times 0.12 \times 10^6 \text{ ft}^3/\text{hr}
                   = 21.0 \text{ lb/hr}
                   = 92.0 \text{ TPY}
Particulate Matter (Potential)
      Oil: PM = [10(1.0) + 3]/1000 lb/gal x 820 gal/hr
                   = 10.7 \text{ lbs/hr}
                   = 8760/2000
                   = 46.6 \text{ TPY}
Coal-Oil: PM = 17 lb/ton coal x 3741/2000 tons.hr + [10(1.0) + 3]/1000 lb/gal
                   x 467 gal/hr
                   = 31.8 + 6.1
                   = 37.9 lbs/hr
                   x 8760/2000
                   = 165.9 TPY
      Gas: PM = 10 \times 10^{-6} lb/ft<sup>3</sup> x 0.12 x 10^{6} ft<sup>3</sup>/hr
                   = 1.2 1b/hr
                   = 5.3 \text{ TPY}
Particulate Matter (Actual)
                   = 10.7 lbs/hr/
      0il:
              PM
                                            baghouse will be by-passed when fuel oil
                   = 46.7 \text{ TPy}
                                                     and gas are used.
Coal-Oil: PM = 37.9 \text{ lb/hr} \times (1-0.9)
                 . = 3.8 \text{ lb/hr}
                   x 8760/2000
                   = 16.6 \text{ TPY}
      Gas: PM = 1.2 \, 1b/hr
                   = 5.3 TPY
Carbon Monoxide (Potential and Actual)
      0il: CO = 820 \text{ gal/hr} \times 5/1000 \text{ lb } CO/\text{gal}
                   = 4.1 \, 1b/hr
                 x 8760/2000
                   = 18.0 \text{ TPY}
Coal-Oil: CO = (467 \text{ gal/hr} \times 5/1000 \text{ lb} CO/\text{gal}) + (3741/2000 \text{ ton/hr} \times 1 \text{ lb/ton})
                   = 2.3 + 1.9
                   = 4.2 \text{ 1b/hr}
```

x 8760/2000 = 18.4 TPY

= 2.0 lb/hr = 8.9 TPY

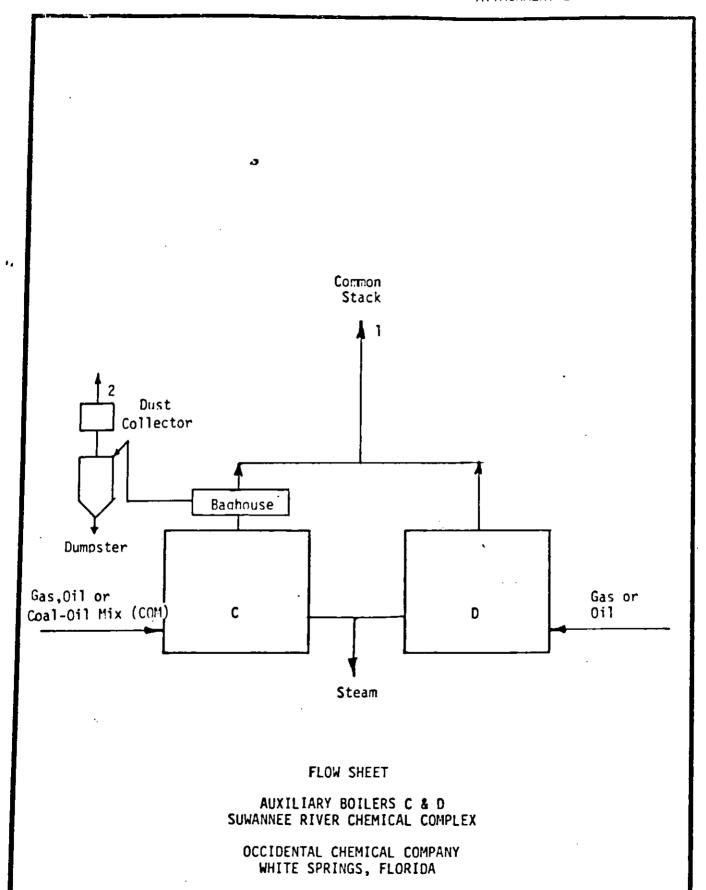
Gas: $CO = 17 \times 10^{-6} \text{ lb/ft}^3 \times 0.12 \times 10^6 \text{ ft}^3/\text{hr}$

Hydrocarbons (Potential and Actual)

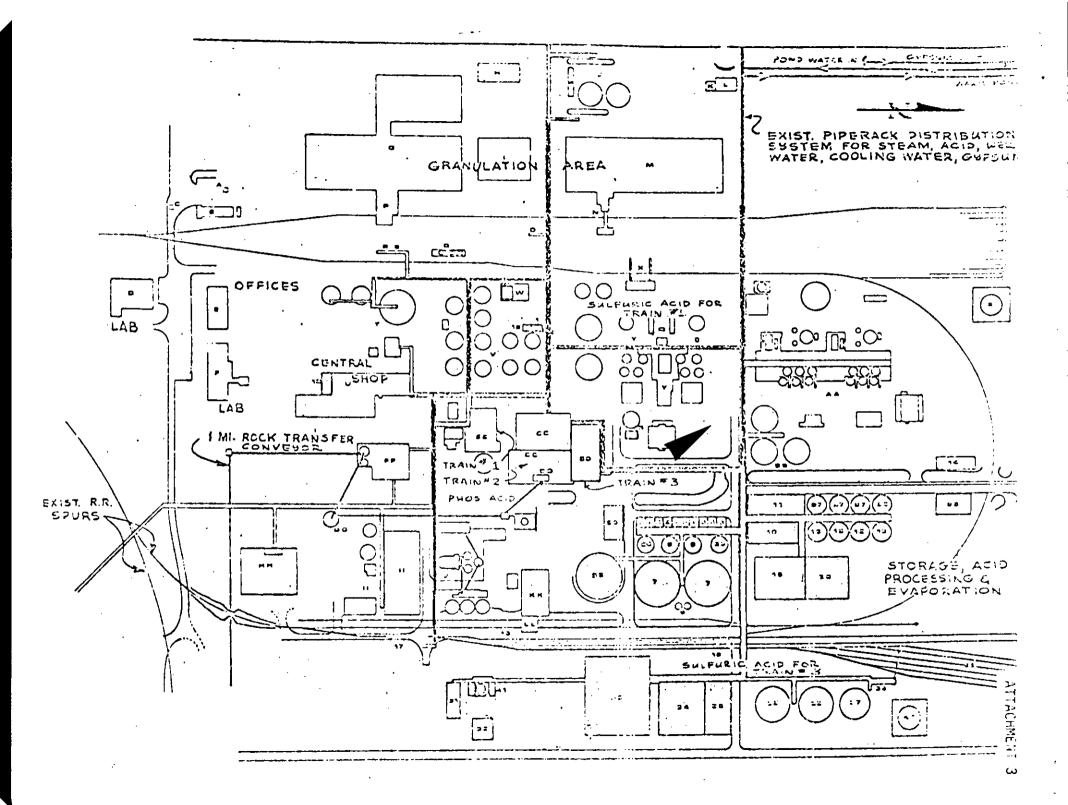
Oil: HC = 820 gal/hr x 1/1000 lb HC/gal = 0.8 ib/hr x 8760/2000 = 3.6 TPY

Coal-Oil: HC = (467 gal/hr x 1/1000 lb HC/gal) + 3741/2000 ton/hr x 0.3 lb/ton) = 1.0 lb/hr x 8760/2000 = 4.5 TPY

Gas: HC = $3 \times 10^{-6} \text{ lb/ft}^3 \times 0.12 \times 10^6 \text{ ft}^3/\text{hr}$ = 0.4 lb/hr= 1.6 TPY



*NOTE - Baghouse is by-passed when Gas and Oil are used as fuels.



ATTACHMENT 4



May 14, 1982

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

DER

APPLICATION TOXOGRANME/CONSTRUCT

MAY 27 1982

AIR POLLU	JTION SOURCES
SOURCE TYPE: Granular Fertilizer Plant	_ [] New ¹ [X]X Existing ¹ BAQM
APPLICATION TYPE: [] Construction [] Operation [)	(K Modification
COMPANY NAME: Occidental Chemical Compa	any county: Hamilton .
	application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit
SOURCE LOCATION: Street S.R. 137	City White Springs
	North 3368.82 km N
	"N Longitude ° ' ''W
APPLICANT ADDRESS: Post Office Box 300, W	
APPEICANT ADDRESS: FOST OTTICE DOX 300, WI	irte Springs, it S2030
SECTION I: STATEMENTS	BY APPLICANT AND ENGINEER
A. APPLICANT	•
am the undersigned owner or authorized representative *	of Occidental Chemical Company
I certify that the statements made in this application for a	construction
pollution control source and pollution control facilities Florida Statutes, and all the rules and regulations of the	knowledge and belief. Further, I agree to maintain and operate the in such a manner as to comply with the provision of Chapter 403, department and revisions thereof. I also understand that a permit, if will promptly notify the department upon sale or legal transfer of the Signed:
Action recter of authorization	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	
be in conformity with modern engineering principles appli permit application. There is reasonable assurance, in my pi erly maintained and operated, will discharge an effluent that rules and regulations of the department. It is also agreed the cant a set of instructions for the proper maintenance and open	ion control project have been deligibles/examined by me and found to icable to the treatment and disposal of pollutants characterized in the rofessional judgment, that the pollution control facilities, when propat complies with all applicable statutes of the State of Florida and the lat the undersigned will furnish, if authorized by the owner, the appliparation of the pollution control facilities and, it applicable, pollution
sources.	Signed:
	J.B. Koogler, Ph.D., P.E./ Name (Please Type)
(Affix Seal)	SHOLTES & KOOGLER ENVIRONMENTAL CONSULTANTS
.1.	Company Name (Please Type) 1213 NW 6TH Street, Gainesville, FL 32601
``;.	Mailing Address (Please Type)
Florida Registration No. 12925	Date: 5/14/87 Telephone No. (904) 377-5822

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

SECTION II: GENERAL PROJECT INFORMATION

It is

۸	Describe the nature and extent of the project. Refer to pollution control equipment, and formance as a result of installation. State whether the project will result in full compliance. Granular fertilizer plant reacting ammonia with phosphore.	expected improvements in source per- Attach additional sheet if necessary, icacid is vented to wet
	venturi-cyclonic scrubbers and entrainment separator. D	ry product screening and
	crushing facilities are vented to dry cyclones for produc	ct recovery in series with
θ,	Schedule of project covered in this application (Construction Permit Application Only)	from 0.8% to 1.5%.
	Start of Construction July 1982 Completion of Construction	
C,	Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for project serving pollution control purposes. Information on actual costs shall be furnished permit.) Not applicable - no air pollution control equipment is used to be a policious or actual costs.	d with the application for operation
	SO ₂ emissions.	
		•
Ð	Indicate any previous DER permits, orders and notices associated with the emission point, tion dates.	including permit issuance and expira-
	FDER No. A0-24-10781 issued 7/7/78 and expiring 8/31/80;	AU-24-33051 TSSUEd
	9/16/80 and expiring 9/16/85.	
į.	Is this application associated with or part of a Development of Regional Impact (DRI) pursu and Chapter 22F-2, Florida Administrative Code?YesXXNo Normal equipment operating time: hrs/day24; days/wk7; wks/yr5 if seasonal, describe:8760_hours/year	2 ; if power plant, hrs/yr;
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.	
	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.

*Not for sulfur dioxide

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators) (See Attachment 1)

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

D	Contaminants		Utilization	D. I. a	
Description	Туре	% Wt	Rate - Ibs/hr	Relate to Flow Diagra	
Phosphoric Acid	F	1-3	145,263	1	
Anhydrous Ammonia	None		28,165	. 2	
Sulfuric Acid	None		2,400 (max)	8	

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

175,828 1. Total Process Input Rate (lbs/hr): ___

120,000 2. Product Weight (lbs/hr): _

Airborne Contaminants Emitted:

Name of Contaminant	Emission ¹		Allowed Emission ²	Allowable ³	Potential Emission ⁴		Relate
	Maximum lbs/hr	Actual T/yr	Rate per Ch. 17-2, F.A.C.	Emission lbs/hr	lbs/hr	T/yr	to Flow Diagram
Fluoride (as F	1.74	6.1	17-2.600(3)	1.74	NOT APPL	ICABLE	7
DAP Dust(6)	46	193	17-2.610(<u>1</u>)	46	NOT APPL	ICABLE	7
Sulfur Dioxide	(7) 11.8	51.5	BACT	11.8	59.0	258	7
			- · · · · · · · · · · · · · · · · · · ·	ļ			

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
Venturi, Cyclone and	F	96.0%		Design and
Entrainment Separator				Test Data
Badger/Polycon				
	Dust	95.5%		
				·

¹See 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

³Calculated from operating rate and applicable standard

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

⁵If Applicable

⁽⁶⁾Dry process weight is 466 TPH (E= 17.3 p U.16 where P=466). Weight is design recycle product ration of 9.3:1 on average design rate of 50 TPH.

⁽⁷⁾Assuming stand-by oil used 100% of time with 80% removal of S02 in scrubbers.

E. Fuels

Type (Be Specific)	Consu	Consumption*		
	avg/hr	max./hr	Maximum Heat Input (MMBTU/hr)	
Gas	4.9	5.9	36 (30 Avg.)	
Oil Stand-By	0.030	0.036	36 (30 Avg.)	

*Units Natural G	as, MMCF/hr; Fi	uel Oils, barrels/h	r; Coal, lbs/hr				
Fuel Analysis:	Gas/Oil				/0.00		
Percent Sulfur:				Percent Ash:	-/0.09	_ _	
Density:			lbs/gal	Typical Percer	nt Nitrogen: <u>-/N</u>	il	
Heat Capacity: 10	000 BTU/ft	/18300	BTU/Ib		400		BTU/ga
Other Fuel Contai	minants (which	may cause air pol	lution):	None		 	
				ng. Annual A	verage <u>N/A</u>	Maximum	·
Scrub	<u>ber efflue</u>	nt is pumpe	d to the co	ooling pond	d with recir	culated wa	ter. Dust
		eturned to	D1400000			<u> </u>	
					_		·
Stack Height Gas Flow Ra	140 nte: 130,0	d Flow Character	ft.	Stack Diamete	r: <u>8</u> erature: 125	,	ft. of. FPS
		SECTION	IV: INCINER	ATOR INFORM	ATION .		
··			OT APPLICAE				
Type of Waste	Type O (Plastics)	Type ((Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type V1 (Solid By-prod.)
Lbs/hr Incinerated							
escription of Wast	•						L
otal Weight Inciner	rated (lbs/hr)	<u> </u>	I	Design Capacity	(lbs/hr)	eek	

_____ Model No. _

Date Constructed ___

	Volume (ft)3	Heat Release		Fuel	Temperature
	(11)	(BTU/hr)	Туре	BTU/hr	(OF)
Primary Chamber					
Secondary Chamber					
tack Height:		ft Stack Diameter		Paral 7	ρ
					ρ F
Cess air.	iay vesigii capac	ity, submit the emissio	ns rate in grains p	er standard cubic foot	dry gas corrected to 50%
ype of pollution control	device: [] Cy	clone [] Wet-Scrubl	ber [] Afterbu	rner [] Other (spec	ify)
rief description of operat					
•		_			
					
<u> </u>				<u> </u>	 -
		···			
		·			
Itimate disposal of any ef	fluent other that	that emitted from the	stack (sombhar v	water ach atali	
			. Stack (SCIUDORFY	vater, ash, etc.):	
		-			
					-
			- 		
					
	\$E	CTION V: SUPPLEM	ENTAL REQUIR	EMENTS	
ease provide the following	supplements wi	nero required for this ap	oplication.		
. Total process input ra	te and product v	veight — show derivatio	n. ATTACHM	ENT 1	
. To a construction app	olication, attach	basis of emission estin			rawings, pertinent manufac
turer's test data, etc.,)) and attach pro	posed methods (e.g., F	R Part 60 Metho	ids 1, 2, 3, 4, 5) to sho	w proof of compliance wit
applicable standards.	to an operation	application, attach test	t results or metho	ds used to show proof	of compliance. Information time at which the test wa
made.			muchon pennit \$	nan be indicative of th	e time at which the test wa
Attach basis of potent	ATTACHN ial discharge (e.g		ic APA2 test)		
				ATTACHMENT '	1
 With construction per to air ratio; for scrubbe 	mit application,	include design details f	or all air pollutio	n control systems (e.g.	, for baghouse include clot
	El HICIOGE CIOSS:	section sketch, etc.).	N/A for	\$02	
With construction per	mit application,	attach derivation of co	ontrol device(s) e	fficiency. Include test	or design data. Items 2, 3
and 5 should be consist	tent: actual emi	ssions = potential (1-ef		TACHMENT 1	
An 8%" x 11" flow dia	agram which wil	l, without revealing tra	de secrets, identif	v the individual operat	tions and/or processes. Ind
cate where raw materia	als enter, where	solid and liquid waste	exit, where gased	ous emissions and/or ai	rborne particles are evolve
and where finished pro	uucis are obtain	ed. ATTACHMENT	2		
An 8½" x 11" plot pla	n showing the lo	cation of the establish	ment, and points	of airborne emissions,	in relation to the surround
ing area, residences an	d other perman	ent structures and roa	dways (Example:	Copy of relevant por	rtion of USGS topographi
map).		ATTACHMENT			
An 8½" x 11" plot pla	en of facility sho	owing the location of a	manufacturing pr	ocesses and outlets for	r airborne emissions. Relat

ATTACHMENT 4

DER FORM 17-1.122(16) Page 5 of 10

- 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

Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [] Yes [X] No Contaminant Rate or Concentration What emission levels do you propose as best available control technology? Contaminant Rate or Concentration S02 0.41 lb/ton P205 input (fuel with 1.5% sulfur)	Contaminant Fluoride - Fluoride emissions are r	ot effected by this fuel modification.
Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [] Yes [X] No Contaminant Rate or Concentration What emission levels do you propose as best available control technology? Contaminant S02		
Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [] Yes (X) No Contaminant Rate or Concentration What emission levels do you propose as best available control technology? Contaminant S02 0.41 lb/ton P205 input (fuel with 1.5% sulfur) Describe the existing control and treatment technology (if any). 1. Control Device/System: is used in the DAP dryer. This result: the emission rate shown below. 2. Operating Principles: the emission rate shown below. 3. Efficiency: 4. Capital Costs: 6. Operating Costs: 7. Energy: 8. Maintenance Cost: 9. Emissions: Contaminant Rate or Concentration 0.22 lb/ton P205 input		
Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [] Yes [X] No Contaminant Rate or Concentration What emission levels do you propose as best available control technology? Contaminant S02	110	
Contaminant What emission levels do you propose as best available control technology? Contaminant S02 Contaminant Contaminant Describe the existing control and treatment technology (if any). Control Device/System: Control Device/System: Control Device/System: Control Control Device/System: Suged in the DAP dryer. This result: the emission rate shown below. Coperating Principles: Contaminant Contaminant Rate or Concentration O, 22 1b/ton P205 input		
What emission levels do you propose as best available control technology? Contaminant S02 Contaminant O.41 lb/ton P205 input (fuel with 1.5% sulfur) Describe the existing control and treatment technology (if any). Control Device/System: Operating Principles: Sused in the DAP dryer. This result: the emission rate shown below. Efficiency: Coperating Principles: Sused in the DAP dryer. This result: the emission rate shown below. Capital Costs: Coperating Costs: Energy: Sused in the DAP dryer. Sused		r this class of sources (If yes, attach copy) [] Yes [X] No
Contaminant S02 Contaminant S02 O.41 lb/ton P205 input (fuel with 1.5% sulfur) Describe the existing control and treatment technology (if any). Control Device/System: Coperating Principles: Sefficiency: Coperating Principles: Coperating Principles: Coperating Costs: Energy: Maintenance Cost: Rate or Concentration O.41 lb/ton P205 input Rate or Concentration O.41 lb/ton P205 input	Contaminant	Rate or Concentration
Contaminant S02 O.41 lb/ton P205 input (fuel with 1.5% sulfur) 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: Contaminant Contaminant Rate or Concentration 0.41 lb/ton P205 input Rate or Concentration 0.42 lb/ton P205 input		
Contaminant S02 Contaminant S02 O.41 lb/ton P205 input (fuel with 1.5% sulfur) Describe the existing control and treatment technology (if any). Control Device/System: Coperating Principles: Sefficiency: Coperating Principles: Coperating Principles: Coperating Costs: Energy: Maintenance Cost: Rate or Concentration O.41 lb/ton P205 input Rate or Concentration O.41 lb/ton P205 input		
Contaminant S02 O.41 lb/ton P205 input (fuel with 1.5% sulfur) 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: Contaminant Contaminant Rate or Concentration 0.41 lb/ton P205 input Rate or Concentration 0.42 lb/ton P205 input	What emission levels do you propose as hest available cont	rol technology?
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: Contaminant S02 O.41 lb/ton P205 input (fuel with 1.5% sulfur) Presently fuel oil with 0.8% sulfur oi is used in the DAP dryer. This result: the emission rate shown below. Capital Costs: 6. Operating Costs: 7. Energy: 8. Maintenance Cost: 9. Emissions: Contaminant Rate or Concentration 0.22 lb/ton P205 input		•
Describe the existing control and treatment technology (if any). Presently fuel oil with 0.8% sulfur oi is used in the DAP dryer. This result: the emission rate shown below. 3. Efficiency: 4. Capital Costs: 5. Useful Life: 6. Operating Costs: 7. Energy: 8. Maintenance Cost: 9. Emissions: Contaminant Rate or Concentration 0.22 lb/ton P205 input	<u> </u>	0.41 lb/ton P205 input
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 Contaminant		(fuel with 1.5% sulfur)
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 S02 1. Sused in the DAP dryer. This result: the emission rate shown below. 8. Maintenance Costs: Rate or Concentration 0.22 1b/ton P205 input		
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 S02 1. Sused in the DAP dryer. This result: the emission rate shown below. 4. Capital Costs: 6. Operating Costs: 8. Maintenance Cost: 9. Energy: 9. Contaminant 1. Rate or Concentration 1. 22 1b/ton P205 input	Describe the existing control and treatment technology life	2011 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1
2. Operating Principles: 3. Efficiency: 4. Capital Costs: 5. Useful Life: 6. Operating Costs: 7. Energy: 8. Maintenance Cost: 9. Emissions: Contaminant S02 Contaminant Rate or Concentration 0.22 1b/ton P205 input		ricaciony ruch orr mion oron survey or
3. Efficiency: 4. Capital Costs: 5. Useful Life: 6. Operating Costs: 7. Energy: 8. Maintenance Cost: 9. Emissions: Contaminant S02 0.22 1b/ton P205 input		
5. Useful Life: 6. Operating Costs: 7. Energy: 8. Maintenance Cost: 9. Emissions: Contaminant Rate or Concentration 0.22 1b/ton P205 input		A. Canital Costs
7. Energy: 9. Emissions: Contaminant S02 0.22 1b/ton P205 input	·	
9. Emissions: Contaminant Rate or Concentration S02 0.22 1b/ton P205 input		
Contaminant Rate or Concentration S02 0.22 1b/ton P205 input		o. Maintenance Cost.
S02 0.22 1b/ton P205 input		
(Tuer Williams)	Su2	
		(Tues With Oton Surial)

	10. 3	Stack Parameters				
	a	ı. Height:	ft,	b.	Diameter:	ft.
	c	. Flow Rate:	ACFM	d.	Temperature:	οŁ
	e	. Velocity:	FPS		•	
€.	Descr	ibe the control and treatment technology	available (As i	many	types as applicable, use additional pages if neces	sary).
	1.	•				
	а	Control Device:			• ,	
	b	. Operating Principles:				
	c.	Efficiency*:		d.	Capital Cost:	
	e.	Useful Life:		f.	Operating Cost:	
	9.	Energy*:		h.	Maintenance Cost:	
	i.	Availability of construction materials	and process ch	emic	als:	
	j.	Applicability to manufacturing proces	· ses:			
	k.			ailab	e 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 a	ind process che	mica	ls:	
	j.	Applicability to manufacturing process	es:			
	k.	Ability to construct with control device	e, install in ava	ilabl	e space, and operate within proposed levels:	
*Exo	lain me	ethod of determining efficiency.				
		be reported in units of electrical power –	- KWH design r	ate.		
	3.		·			
	a.	Control Device:			•	
	b.	Operating Principles:				
	c.	Efficiency*:		d.	Capital Cost:	
	e.	Life:		f.	Operating Cost:	
	g.	Energy:		h.	Maintenance Cost:	

ft.

^{*}Explain method of determining efficiency above.

	ř	. A\	valiability of construction materials an	a process chemi	cars.
	j.	. A ŗ	oplicability to manufacturing processe	s :	
	k	. At	pility to construct with control device	install in availat	ple space and operate within proposed levels:
	4.				
	â	. Co	introl Device		
	b	. Ор	erating Principles:		
	c	. Eff	ficiency*:	d.	Capital Cost:
	e.	. Lif	e:	f,	Operating Cost:
	g.	. En	ergy:	h.	Maintenance Cost:
	i.	Av	ailability of construction materials an	d process chemic	als:
	j.	Ар	plicability to manufacturing processes	::	
	k.	. Ab	ility to construct with control device,	install in availab	le space, and operate within proposed levels:
F.	Descri	be the	control technology selected:	,	
	1. C	ontrol	Device:		
	2. E	fficien	cy*: .	3.	Capital Cost:
	4. Li	ife:		5 .	Operating Cost:
	6. E	nergy:		7.	Maintenance Cost:
	8. M	anufad	cturer:		
	9. O	ther lo	cations where employed on similar p	ocesses:	•
	a.				
		(1)	Company:		
		(2)	Mailing Address:		•
		(3)	City:	(4)	State:
		(5)	Environmental Manager:		•
		(6)	Telephone No.:		
*E:	kplain m	ethod	of determining efficiency above.		
		(7)	Emissions*:		•
			Contaminant		Rate or Concentration
					·
		(8)	Process Rate*:		
	b.		•		
		(1)	Company:		
		(2)	Mailing Address:		
		(3)	City:	(4)	State:
*App		iust pr	ovide this information when availab	e. Should this in	oformation not be available, applicant must state the reason(s

1 DER FORM 17-1.122(16) Page 8 of 10 ...

(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-083

^{*}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-083

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
₿.	Meteorological Data Used for Air Quality Modeling
	1 Year(s) of data from / / to / / month day year
	ϵ
	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.
۴.	Attach all other information supportive to the PSD review.
S p	ecify bubbler (B) or continuous (C).
3.	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.

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.

CALCULATION FOR SECTION III, A, B & C

PRODUCT:

Diammonium Phosphate as 46% P₂0₅, 18% N granules

PRODUCT RATE:

1,440 Short tons per day (STPD)

-or-

120,000 pounds per hour $(1,440 \times 2,000 \div 24)$

PROCESS LOSSES:

-5% of P_2O_5 in phosphoric acid input or 95% recovery

-6.5% of ammonia input or 93.5% recovery

PROCESS INPUT:

Phosphoric Acid:

697 STPD of 100% P₂0₅ from both 30 & 50% P₂0₅ acid(1)

 $(1,440 \times 0.46 \div 0.95)$

-or-

1,743 STPD of 40% P₂0₅ acid from 30 & 50% mixed "half & half" (697 ± 0.40)

-or-

145,263 lbs/hr 40% P₂05 acid

-or-

72,632 lbs/hr of 30% P₂0₅ acid and 72,632 lbs/hr of 50% P205 acid

- Ammonia: 277 STPD of 100% nitrogen (1,440 x 0.18 ± 0.935)

-or-

338 STPD of NH₃ $(277 \times 17 \div 14 \div 0.996)^{(2)}$

-or-

28,165 lbs/hr.

Sulfuric Acid:

Used for "grade control" may average about 2,400 lbs/hr

of 93% acid.

Total Process Input Rate: 175,828 lbs/hr (145,263 + 28,165 + 2,400)

ALLOWABLE EMISSIONS:

Based on rule at 0.06#F per ton P₂0₅ input it is 1.74#/hr (.06 x 697 ± 24). Based on previous average permitted rate it is 1.45#/hr (50 TPH + 60 TPH x 697 TPD x .06 + 24). Annual emission of 6.1 tons Per Year is based on 1.45#/hr and does not change $(1.45 \times 24 \times 7 \times 50 \div 2,000)$.

NOTE:

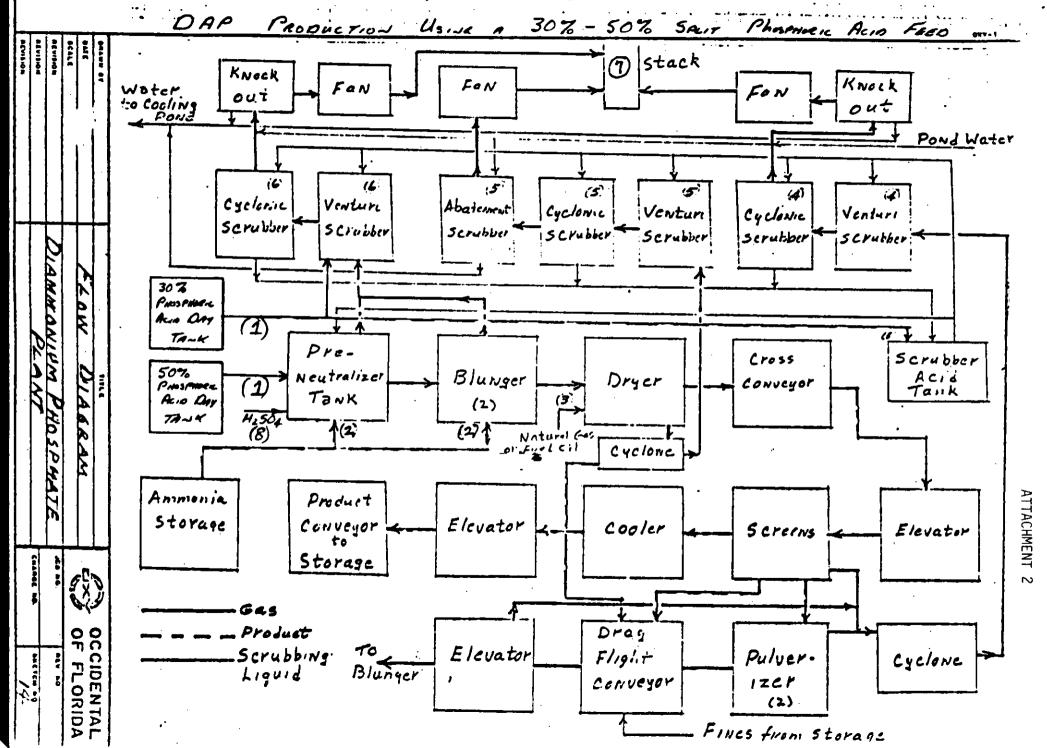
(1) Water-Heat balance in slurry process requires an average 40% P20s strength feed acid at previous, average permitted rate.

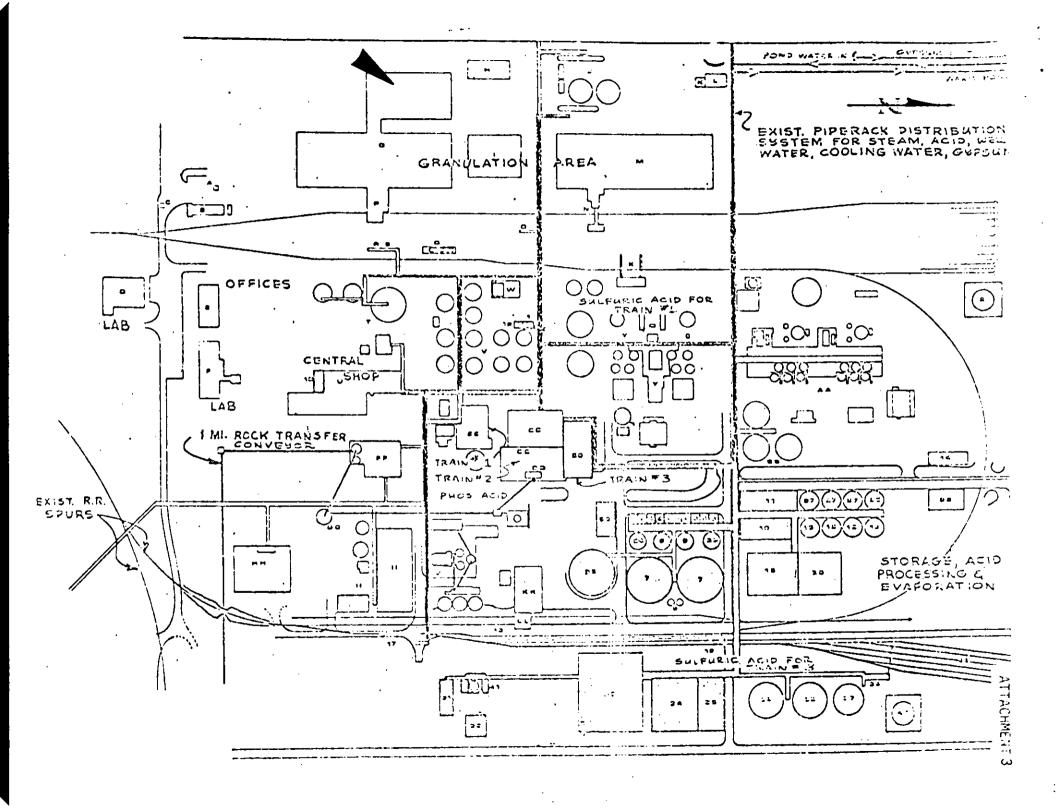
Purity of anhydrous ammonia is 99.6% NH₃.

Sulfur Dioxide:

 36×10^6 BTU/hr x 1/18,300 1b/BTU x (0.015 x 2) 1b S02/1b x (1-0.8) eff. = 11.8 1b/hr

x 1/29.04 hr/ton P205 = 0.41 lb S02/ton P205 11.8 x 8760/2000 = 51.7 TPY





ATTACHMENT 4

ATTACHMENT 1
FUEL PRICES

EASTERN SEABOARD PETROLEUM COMPANY, INC.

P. O. BOX 3232, STATION F-6531 EVERGREEN AVE.

JACKSONVILLE, FLORIDA 32206

OFFICES

JACKSONVILLE
TAMPA

August 20, 1981

TELEPHONE 904/358-9678

CABLE ADDRESS

RECEIVED

AUG 21 1981

PURCHASING

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	1st Qtr <u>82</u>	2nd Qtr <u>82</u>	3rd Qtr <u>82</u>	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/bb1
1.5%	28.75	30.19	33.21	33.21	34.87	30.38/bb1
2.0%	27.75	29.14	32.05	32.05	33.65	29.38/ЬЬ1

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
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.



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:

```
Diesel Fuel/#2 ----- $1.0036 Per Gallon
#6 Fuel 0il (.8% Sulphur) --- .7731 Per Gallon -- 0.8733 Per Gallon
#6 Fuel 0il (1.0% Sulphur) --- .7255 Per Gallon -- 0.7898 Per Gallon 30.43
#6 Fuel 0il (1.5% Sulphur) --- .7017 Per Gallon -- 0.7612 Per Gallon 30.43
#6 Fuel 0il (2.0% Sulphur) --- .6779 Per Gallon -- 0.7269 Per Gallon 30.43
#6 Fuel 0il (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

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 Suffer Content of .8%	\$.81 gal. 34,00
Maximum Suffer Content of 1.0%	Not Available 26
Maximum Suffer Content of 1.5%	\$.78 gal. 50.
Maximum Suffer Content of 2.0%	Not Available
Maximum Suffer Content of 2.5%	Not Available 30.46

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 Suffer Content of .8%	\$.84 gal.
Maximum Suffer Content of 1.0%	Not Available
Maximum Suffer Content of 1.5%	\$.81 gal.
Maximum Suffer Content of 2.0%	Not Available
Maixmum Suffer 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.

Don Boyette President

DB: ubh

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

ATTAHMENT 1

KANGENGAN PERMANAN PENDANGAN PENDANG

SULFUR DIOXIDE EMISSION RATE CALCULATIONS

OCCIDENTAL CHEMICAL COMPANY HAMILTON COUNTY, FLORIDA

SWIPT CREEK CHEMICAL CONPLEX

SULPURIC A CIO PLANT 'E' (NEW SOURCE)

Present Parmitted Rate - 2000 toyday

Proposed Rate - 2500 ton/day

SOz = 2500 to/day = 1/24 day/hr x 40 1650/ ton

= 416.7 lb Soz/hr

= 52.5 g/sec

SULPURIC ACID PLANT 'F' (NEW SOURCE)

Identical to "E"

BOILER 'E' (NEW SOURCE)

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

Proposed Fuel - No GOIL What I O'S Supering the Manual of the Supering the

502 = 125,000 lb/hr storm x 1000 BTU/lb x 1/08 efficiency

= 170.8 lb soz/hr

= 21.5 3/sec

SUWANNEE RIVER CHEMICAL COMPLEX

BOILER 'B' (NEW Source)

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

Proposed Fuel - No 6 Oil w/ 1.0% 3

502 = 160×106 BTU/ha input x 1/18300 1601/BTU x (0.01 x2)1650/60

= 174.9 16 Sou/hr

BoiLER C' (NEW Source)

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

Proposed Fuel - NOGOII w/ 10% S

SOz = 120×10° BTU/hr mput x 1/18300 16/BTU x (0.01×2) = 131.1 16 502/hr = 16.5 g/sec

Boiler D' (NEW Source)

Identical to Boiler "C"

DAP No 2 - Z'TRAIN (EXISTING SOURCE)

Present Permitted 50 = Emission Rate - 6.3 lb/hr

Present and Proposed P205 input - 697+pd; 290+ph

Proposed Fuel - No 6 OII w/ 1.5% S

SO2 = 36 x 10 ° BTu/hr x 1/18300 13/BTu x (0.015 x2)

x (1-0.8) absorption fector

= 11.8 15/hr (041 16502/fon PzOs imput

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

() BOILERS "C" AND "D" ARE VENTED THRU A COMMON STACK

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 10⁶ Btu/hr

PSD-FL-083 (SRCC) II.

Auxiliary Boiler B - Annual Operating Factor - 25%

- Heat Input - 160 x 106 Btu/hr

Boiler C - Annual Operating Factor - 25% - Heat Input - 120 x 106 Btu/hr

- Annual Operating Factor - 25% - Heat Input - 120 x 106 Btu/hr Boiler D

Z Train (DAP No.2) - Annual Operating Factor - 95%

- Heat Input - 30 x 106 Btu/hr

DECEMBER, 1981 FUEL COSTS

Eastern Seaboard	
Sulfur Content	Heat Content

Sulfur Content (%)	Heat Content (Btu/gal)	Price per Gallon (\$)	Price per 10 ⁶ Btu (\$)
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.

FUEL COST BY SOURCE

Source	Annual Heat Input (10 ¹² Btu/yr)	Fuel Cos 0.8% Sulfur	st (\$/year) 1.3% Sulfur	Fuel Cost Differential (\$/year) 0.8 - 1.3% Sulfur
Eastern Seaboard Prices		O.ON Julyar	1.Ja Sullur	0.0 - 1.38 SUTTUP
Boiler E Boiler B Boiler C Boiler D Z Train (DAF)	1.332 0.350 0.263 0.263 0.250	7,472,077 1,965,043 1,473,782 1,473,782 1,400,093	6,710,479 1,764,754 1,323,566 1,323,566 1,257,388	761,597 200,289 150,216 150,216 142,706
Total		13,784,777	12,379,753	1,405,024
Belcher Prices			·	
Boiler E Boiler B Boiler C Boiler D Z Train(DAP)	1.332 0.350 0.263 0.263 0.250	8,044,074 2,115,470 1,586,602 1,586,602 1,507,272	6,948,845 1,827,441 1,370,581 1,370,581 1,302,052	1,095,230 288,029 216,022 216,022 205,221
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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1.0	INTRODUCTION	1
2.0	PROCESS DESCRIPTION	2
3.0	SAMPLING PORT LOCATION	3
4.0	SAMPLING AND ANALYTICAL PROCEDURES	5
5.0	SUMMARY OF RESULTS	6
APPENNTY		

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.

Heavy F. all

Date

Attachment 3

Derivation of SO₂
Emission Rates for Selected Sources

Occidental Chemical Company Hamilton County, Florida

4

SULFUR DIOXIDE EMISSION RATE CALCULATIONS

OCCIDENTAL CHEMICAL COMPANY HAHILTON COUNTY, FLORIDA

SWIPT CREEK CHEMICAL CONPLEX

SULPURIC A CIO PLANT 'E' (NEW SOURCE)

Present Parmitted Rate - 2000 toylday

Proposed Rate - 2500 ton/day

SOz = 2500 tm/dry x 1/24 dry/hr x 40 1650/ ton = 416.7 16 50z/hr

= 52.5 g/sec

SULFURIC ACID PLANT 'F' (NEW SOURCE)

Identical to "E"

BOILER E' (NEW SOURCE)

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

Proposed Fuel - No G Oil w/ 1.0% S

502 = 125,000 lb/hr steam x 1000 BTU/lb x 1/0.8 efficiency x 1/18300 lb oil/BTU x (001x2) lb 501/lb oil

= 170.8 lb so,/hr

= 21.59/sec

SUWANNEE RIVER CHEMICAL COMPLEX

BOILER 'B' (NEW Source)

Present Permitted Finel - No. 6 Oil w/ 0.8%S

Proposed Fuel - No 6 Oil w/ 1.0% 3

502 = 160×106 BTU/h- input x 1/18300 160/BTU x (001 x2)1530/

= 174.9 16 SOL/hr

BOILER C' (NEW SOURCE)

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

Proposed Fuel - NOGOII W/ 10% S

SOz = 120x10° BTU/hr mput x 1/18300 11/BTU x (0.01x2) = 131.1 16 502/hr = 16.5 g/sec

Boiler D" (New Source)

Identical to Boiler "C"

DAP No 2 - Z'TRAIN (EXISTING SOURCE)

Present Permitted 50 = Emission Rate - 6.3 lb/hn

Present and Proposed P205 input - 697+pd; 29.0 +ph

Proposed Fuel - No 6 OII w/ 15% S

SO2 = 36 x 10 ° BTU/hr x 1/18300 13/8TU x (0.015 x2) x (1-0.8) absorption fector = 11.8 15/hr (0.41 16 502/fon P205 imput)

502 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

TABLE 1

SUMMARY OF PERMITTED OR ACTUAL SULFUR DIOXIDE EMISSIONS

OCCIDENTAL CHEMICAL COMPANY SRCC & SCCC

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

⁽¹⁾ At 1000 tpd 100% H₂SO₄ and 29 1b SO₂/ton of acid
(2) At 1800 tpd 100% H₂SO₄ and 4 1b SO₂/ton of acid
(3) At 2500 tpd 100% H₂SO₄ and 4 1b/SO₂/ton of acid
(4) At 1.5% sulfur fuel and 80% SO₂ sorption
(5) At 62.5 x 10⁵ 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 10⁶ BTU/hr and 1.0% sulfur fuel
(8) Two boilers at 120 x 10⁶ BTU/hr each and 1.0% sulfur fuel
(9) At 156 x 10⁶ BTU/hr and 1.0% sulfur fuel
(10) Actual emissions with 1.5% sulfur fuel