

September 8, 1980

William A. Thomas
Bureau of Air Quality Management
Florida Department of Environmental Regulation
2600 Blair Stone Road
Twin Towers Office Building
Tallahassee, Florida 32301

Dear Mr. Thomas:

Enclosed are four (4) copies of a permit application package for a D.A.P. Plant, Sulfuric Acid Plant, Phosphoric Acid Plant Expansion and D.A.P. Storage and Shipping Facility. Also enclosed is a copy of the computer print-outs supporting the Air Quality Review document and a report describing the existing Ambient Sulfur Dioxide monitoring data available for Polk County.

There will be an additional permit application for a small (10 TPH) Purified MAP-DAP Plant forwarded to your office shortly. In the meantime, if you have any questions, please contact either myself at 813-428-1423 or Dr. John Koogler at 918-588-3492.

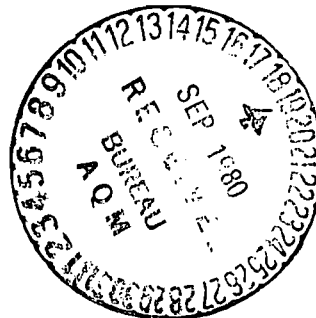
Sincerely,

Edward E. Mayer

Edward E. Mayer,
Environmental Engineer

cc: Bob Garrett, D.E.R. - Tampa

Enclosures
EEM/lgm



STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

Nº 33550

RECEIPT FOR APPLICATION FEES AND MISCELLANEOUS REVENUE

Received from AGRICOL CHEMICAL CO. (ALY AFFID #3 24861) Date 19 SEPTEMBER 1981
(34861, 34862, & 34871)Address ONE S/ILLIAM CENTER, TULSA, OKLAHOMA Dollars \$ 200Applicant Name & Address L C LAMMAN, FOUNDRY, S. TIERCE CHEM WORKS / BENTON
MFR.

Source of Revenue _____

Revenue Code 2001 Application Number 34861 34862 34862 C 1 71

BY _____

DER PERMIT APPLICATION TRACKING SYSTEM MASTER RECORD

FILE#0000000034861 COE# DER PROCESSOR:HANKS DER OFFICE:TLH
 FILE NAME:AGRICO CHEMICAL COMPANY DATE FIRST REC: 09/19/80 APPLICATION TYPE:AC
 APPL NAME:LAHMAN, L.H. APPL PHONE:(813)428-1423 PROJECT COUNTY:53
 ADDR:P.O. BOX 1969, S. PIERCE CHEM. WORKS CITY:BARTOW ST:FLZIP:33830
 AGNT NAME:KOOGLER, J.B. AGNT PHONE:(904)377-5822
 ADDR:1213 NW 6TH ST CITY:GAINESVILLE ST:FLZIP:32601

ADDITIONAL INFO REQ: / / / / / / REC: / / / / / /
 APPL COMPLETE DATE: / / COMMENTS NEC:Y DATE REQ: / / DATE REC: / /
 LETTER OF INTENT NEC:Y DATE WHEN INTENT ISSUED: / / WAIVER DATE: / /

HEARING REQUEST DATES: / / / / / /
 HEARING WITHDRAWN/DENIED/ORDER -- DATES: / / / / / /
 HEARING ORDER OR FINAL ACTION DUE DATE: / / MANUAL TRACKING DESIRED:N

THIS RECORD HAS BEEN SUCESSFULLY ADDED 09/22/80 09:50:42
 FEE PD DATE#1:09/19/80 \$0020 RECEIPT#000033550 REFUND DATE: / / REFUND \$
 FEE PD DATE#2: / / \$ RECEIPT# REFUND DATE: / / REFUND \$
 APPL:ACTIVE/INACTIVE/DENIED/WITHDRAWN/TRANSFERRED/EXEMPT/ISSUED:AC DATE:09/19/80
 REMARKS:PACKED TAIL-GAS SCRUBBER ON DAP PLANT, S. PIERCE CHEM. WORKS. LAT. / LO
 = 27DEG 45MIN 45SEC N./ 81DEG 56MIN 28SEC W. UTM = 407.4E. / 3071.7N.

October 24, 2005EVERETT HADLEY3399 ATWELL AVETHE VILLAGES, FL32162

RECEIVED

OCT 26 2005

BUREAU OF AIR REGULATION

Florida Department of Environmental Protection
Air Construction Permits
2600 Blair Stone Road MS 5500
Tallahassee, FL 32399-2400

Attn: Al Linero (850) 921-9523

Re: Request for Notice of Agency Action

Dear Mr. Linero,

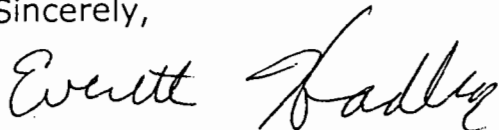
Please regard this letter as a Formal Request for Notice of any preliminary, draft or final decision of your agency with regard to the following Permit Applications before you.

- 1 **American Cement Company** (Natural Resources/ Dixie)-
Application to construct a new cement plant in Sumter County.
- 2 **Sumter Cement Company** (Anderson- Center Hill)- Application
to construct a new cement plant in Sumter County.
- 3 **Florida Mining Corporation** (Mazak Mine- Mabel)- Application to
construct a new cement plant in Sumter County.

I wish to express my concern regarding the Mercury Emissions from these facilities. I request that a Prototype Continuous Emission Monitoring Package for Mercury Emissions be required in each of these plants as a condition of these permits.

I wish to request that as a condition of these permits and prior to start up of ANY of these facilities that the applicants be required to conduct a formal Countywide Mercury Background Study; and that as a condition of their DEP permit(s), that every 3 years of operation this study is to be repeated and results promptly made public.

Sincerely,



BEST AVAILABLE COPY

DER PERMIT APPLICATION TRACKING SYSTEM MASTER RECORD

FILE#000000034865 COEN DER PROCESSOR:HANKS DER OFFICE:7
 FILE NAME:AGRICO CHEM. COMPANY DATE FIRST REC: 09/19/80 APPLICATION TYPE:
 APPL NAME:LAHMAN, L.H. APPL PHONE:(813)428-1423 PROJECT COUNTY:
 ADDR:P.O. BOX 1969, S. PIERCE CHEM. WORKS CITY:BARTOW ST:FLZIP:338
 AGNT NAME:KOOGLER, J.B. AGNT PHONE:(904)377-5822
 ADDR:1213 NW 6TH ST CITY:GAINESVILLE ST:FLZIP:326

ADDITIONAL INFO REQ: / / / / / / REC: / / / / / /
 APPL COMPLETE DATE: / / COMMENTS NEC:Y DATE REQ: / / DATE REC: / /
 LETTER OF INTENT NEC:Y DATE WHEN INTENT ISSUED: / / WAIVER DATE: / /

HEARING REQUEST DATES: / / / / / /
 HEARING WITHDRAWN/DENIED/ORDER -- DATES: / / / / / /
 HEARING ORDER OR FINAL ACTION DUE DATE: / / MANUAL TRACKING DESIRED

THIS RECORD HAS BEEN SUCCESSFULLY ADDED 09/22/80 09:56:08
 FEE PD DATE#1:09/19/80 \$0020 RECEIPT#00033550 REFUND DATE: / / REFUND \$
 FEE PD DATE#2: / / \$ RECEIPT# REFUND DATE: / / REFUND \$
 APPL:ACTIVE/INACTIVE/DENIED/WITHDRAWN/TRANSFERRED/EXEMPT/ISSUED:AC DATE:09/19/
 REMARKS:SCRUBBER ON DAP STORAGE AND SHIPPING FACILITY.
 LAT./LON. = 27DEG 45MIN 45SEC N. / 81DEG 56MIN 28SEC W. UTM= 407.4E./3071.5N.

DER PERMIT APPLICATION TRACKING SYSTEM MASTER RECORD

FILE#000000034868 COE# DER PROCESSOR:HANKS DER OFFICE:TLH
 FILE NAME:AGRICO CHEMICAL COMPANY DATE FIRST REC: 09/19/80 APPLICATION TYPE:AC
 APPL NAME:LAHMAN, L.H. APPL PHONE:(813)428-1423 PROJECT COUNTY:53
 ADDR:P.O. BOX 1969, S. PIERCE CHEM. WORKS CITY:BARTOW ST:FLZIP:33830
 AGNT NAME:KOOGLER, J.B. AGNT PHONE:(904)377-5822
 ADDR:1213 NW 6TH ST. CITY:GAINESVILLE ST:FLZIP:32601

ADDITIONAL INFO REQ: / / / / / / REC: / / / / / /
 APPL COMPLETE DATE: / / COMMENTS NEC:Y DATE REQ: / / DATE REC: / /
 LETTER OF INTENT NEC:Y DATE WHEN INTENT ISSUED: / / WAIVER DATE: / /

HEARING REQUEST DATES: / / / / / /
 HEARING WITHDRAWN/DENIED/ORDER -- DATES: / / / / / /
 HEARING ORDER OR FINAL ACTION DUE DATE: / / MANUAL TRACKING DESIRED:N

*** RECORD HAS BEEN SUCCESSFULLY UPDATED *** 09/22/80 10:06:05

FEE PD DATE#1:09/19/80 \$0020 RECEIPT#00033550 REFUND DATE: / / REFUND \$
 FEE PD DATE#2: / / \$ RECEIPT# REFUND DATE: / / REFUND \$
 APPL:ACTIVE/INACTIVE/DENIED/WITHDRAWN/TRANSFERRED/EXEMPT/ISSUED:AC DATE:09/19/80
 REMARKS:"A" AND "B" PHOSPHORIC ACID TRAINS. S. PIERCE CHEMICAL WORKS. LAT./
 LON. = 27DEG 45MIN 45SEC E. / 81DEG 56MIN 28SEC N. UTM = 407.5E. / 3071.4N.

DER PERMIT APPLICATION TRACKING SYSTEM MASTER RECORD

FILE#000000034874 COE# DER PROCESSOR:HANKS DER OFFICE:TLH
 FILE NAME:AGRICOL CHEMICAL COMPANY DATE FIRST REC: 09/19/80 APPLICATION TYPE:AC
 APPL NAME:LAHMAN, L.H. APPL PHONE:(813)428-1423 PROJECT COUNTY:53
 ADDR:P.O. BOX 1969, S. PIERCE CHEM. WORKS CITY:BARTOW ST:FLZIP:33830
 AGNT NAME:KOOGLER, J.B. AGNT PHONE:(904)377-5822
 ADDR:1213 NW 6TH ST. CITY:GAINESVILLE ST:FLZIP:32601

ADDITIONAL INFO REQ: / / / / / / REC: / / / / / /
 APPL COMPLETE DATE: / / COMMENTS NEC:Y DATE REQ: / / DATE REC: / /
 LETTER OF INTENT NEC:Y DATE WHEN INTENT ISSUED: / / WAIVER DATE: / /

HEARING REQUEST DATES: / / / / / /
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 HEARING ORDER OR FINAL ACTION DUE DATE: / / MANUAL TRACKING DESIRED:N

THIS RECORD HAS BEEN SUCCESSFULLY ADDED 09/22/80 10:04:42
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 FEE PD DATE#2: / / \$ RECEIPT# REFUND DATE: / / REFUND \$
 APPL:ACTIVE/INACTIVE/DENIED/WITHDRAWN/TRANSFERRED/EXEMPT/ISSUED:AC DATE:09/19/80
 REMARKS:DOUBLE ABSORPTION CONTACT, PHOSPHORIC ACID PLANT. S. PIERCE CHEM. WORKS
 LAT./LON. = 27DEG 45MIN 45SEC N. / 81DEG 56MIN 28SEC W. UTM = 407.6E./ 3071.3N.



AC 53 - 34861

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
APPLICATION TO ~~OPERATE~~/CONSTRUCT
AIR POLLUTION SOURCES

SOURCE TYPE: DAP Plant ☒ New¹ ☐ Existing¹
APPLICATION TYPE: ☒ Construction ☐ Operation ☐ Modification
COMPANY NAME: Agrico Chemical Company COUNTY: Polk
Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Packed tail gas scrubber on DAP plant
SOURCE LOCATION: Street SR 630 City Polk County
UTM: East 407.4 km E North 3071.7 km N
Latitude 27 ° 45 ' 45 " N Longitude 81 ° 56 ' 28 " W
APPLICANT NAME AND TITLE: Agrico Chemical Company
APPLICANT ADDRESS: P. O. Box 1969, South Pierce Chemical Works, Bartow, FL 33830

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

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

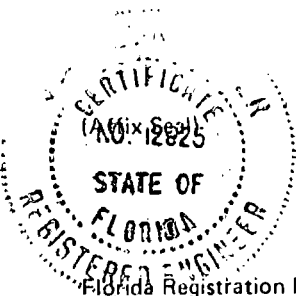
*Attach letter of authorization

Signed: L. C. Lahman
L. C. Lahman, Plant Manager
Name and Title (Please Type)
Date: 9/3/80 Telephone No. (813)428-1423

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

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed: John B. Koogler
John B. Koogler, P.E.
Name (Please Type)
SHOLTES & KOOGLER ENVIRONMENTAL CONSULTANTS
Company Name (Please Type)
1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)
Date: 9/2/80 Telephone No. (904) 377-5822



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

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

A new plant will be constructed to produce 600,000 TPY of diammonium phosphate (DAP). The plant will meet Federal NSPS for fluoride emissions & BACT for particulate matter, NO_x and SO_2 emissions. Scrubber water will recirculate through a new retention pond which will not require discharge except during periods of excessive rainfall.

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

Start of Construction September 1980 Completion of Construction July 1982

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

Scrubber & stack	\$1,557,000	
Fans, motors, pumps	645,200	
Duct work & piping	834,000	
Site preparation, concrete, structural	446,000	
Indirect & engineering	2,064,500	TOTAL \$5,566,700

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

None

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

F. Normal equipment operating time: hrs/day 22 ; days/wk 7 ; wks/yr 46.4 ; if power plant, hrs/yr _____ ; if seasonal, describe: 7,143 hours per 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

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

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

c. If yes, list non-attainment pollutants.

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

YES

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

YES

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

YES

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source?

NO

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

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

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

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Phos. Acid(52%P ₂ O ₅)	F	1.50	154,806	1, 2, 3
Ammonia	None		30,856	4, 5, 6
H ₂ SO ₄ (93%)	None		0-3,360	8

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

- Total Process Input Rate (lbs/hr): 675,092 TPY = 189,022 lb/hr (225,675 max. hourly rate)
- Product Weight (lbs/hr): 600,000 TPY = 167,997 lb/hr (200,000 max. hourly rate)

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission ¹		Allowed Emission ² Rate per Ch. 17-2, F.A.C.	Allowable ³ Emission lbs/hr	Potential Emission ⁴		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Part. Matter	24.0	71.9	BACT	24.0	758	2707	30
Fluoride	2.9	8.6	NSPS	2.9	2764	8293	30
SO ₂	33.5	100.6	BACT	33.5	146	352	30
NO _x	8.1	19.4	BACT	8.1	8	19	30
CO	2.0	4.8	BACT	2.0	2.0	4.8	30

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)
Scrubber (1)	Part	96.8%		(See V,
	Fluoride	99.9%		4)
	SO ₂	77.0% (2)		
	NO _x & CO	0		
(1) Includes coaxial venturi scrubbers and tail gas scrubber in series.				
(2) Efficiency includes sorption in dryer.				

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)

⁵If Applicable

E. Fuels

Type (Be Specific)	Consumption* (lb/hr)		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
No. 6 oil	2188	3240	60.42

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

Fuel Analysis:

Percent Sulfur: 2.25 Percent Ash: 0.07
 Density: 8.044 lbs/gal Typical Percent Nitrogen: _____
 Heat Capacity: 18,647 BTU/lb 150,000 BTU/gal
 Other Fuel Contaminants (which may cause air pollution): Not Applicable

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

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

No solid waste. Liquid wastes recirculated through a retention pond.
Negative water balance results in no discharge from pond except possibly
during periods of excessive rainfall.

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

Stack Height: 125 ft. Stack Diameter: 10 ft.
 Gas Flow Rate: 225,000* ACFM Gas Exit Temperature: 130 °F.
 Water Vapor Content: 12 % Velocity: 47.8 FPS
 * 176,872 scfm, dry

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

- Total process input rate and product weight — show derivation.
- 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.
- Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
- 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.).
- With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3, and 5 should be consistent: actual emissions = potential (1-efficiency).
- An 8½" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained. (ATTACHMENT 1)
- An 8½" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map). (ATTACHMENT 2)
- 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 3)

V, 1 Process Input and Product Weight

Phosphoric acid with a 52% P₂O₅ content is reacted with anhydrous ammonia.

Sulfuric acid is used for pH adjustment to obtain optimum ammonia absorption and for adjusting product analysis.

Input (Average)*

Phosphoric Acid	154,806 lb/hr
(P ₂ O ₅)	(80,499)
Anhydrous ammonia	30,856
Sulfuric Acid	<u>3,360 (max)</u>
TOTAL	189,022

$$189,022 \text{ lb/hr} \times \frac{7143 \text{ hr/yr}}{2000 \text{ lb/ton}} = 675,092 \text{ TPY}$$

Product (Average)*

$$\begin{aligned} \text{Input less moisture and losses (11.1\%)} &= 600,000 \text{ TPY} \\ &= 167,997 \text{ lb/hr} \\ &= 84 \text{ TPH*} \end{aligned}$$

*Maximum production rate will be 100 TPH; input and product weight rates will increase proportionately.

Average P₂O₅ input = 40.25 tons per hour

$$\begin{aligned} \text{Maximum P}_{2}\text{O}_{5} \text{ input} &= 100/84 \times 40.25 \\ &= 47.92 \text{ tons per hour.} \end{aligned}$$

V, 2 and 3 Emission Estimates and Potential Emissions

Particulate Matter (Maximum & Average Rate)

Actual Emissions (@ 0.5 lb/ton P₂O₅ input)

$$\begin{aligned} &= 0.5 \times 47.92 \text{ (max. P}_{2}\text{O}_{5} \text{ input rate)} \\ &= 24.0 \text{ lb/hour (hourly maximum)} \\ &= 0.5 \times 40.25 \text{ (avg. P}_{2}\text{O}_{5} \text{ input)} \times 7143 \text{ hr/yr} \times 1/2000 \\ &= 71.9 \text{ tons/year (annual average)} \end{aligned}$$

Potential Emissions

$$\begin{aligned} &= 0.5 \text{ grains/SCF, dry}^{(1)} \times 176,872 \times 60 \times 1/7000 \\ &= 758.0 \text{ lb/hour} \times 7143 \times 1/2000 \\ &= 2707 \text{ tons/year} \end{aligned}$$

Sulfur Dioxide

Potential Emissions - Fuel consumption (max.) is 3240 lb/hr @ 2.25% sulfur

$$\begin{aligned} \text{Max. hourly} &= 3240 \times 0.0225 \times 2 \text{ lb SO}_2/\text{lb S} \\ &= 145.8 \text{ lb/hr} \end{aligned}$$

$$\begin{aligned} \text{Annual avg.} &= 2188 \text{ lb/hr (avg)} \times 0.0225 \times 2 \times 7143 \times 1/2000 \\ &= 351.6 \text{ tons/yr.} \end{aligned}$$

Actual Emissions (@ 0.7 lb/ton P₂O₅ input)

$$\begin{aligned} &= 0.7 \times 47.92 \\ &= 33.5 \text{ lb/hr (hrly. max.)} \\ &= 0.7 \times 40.25 \times 7143 \times 1/2000 \\ &= 100.6 \text{ tons/year (annual average)} \end{aligned}$$

Nitrogen Oxides

Potential and Actual Emissions (AP-42)

Assume 20 lb NO_x/1000 gal fuel as emission factor.

$$\begin{aligned} \text{Max. hourly} &= 3240 \text{ lb fuel/hr} \times 1/8.044 \text{ gal/lb} \times 1/1000 \times 20 \\ &= 8.1 \text{ lb NO}_x/\text{hr} \end{aligned}$$

$$\begin{aligned} \text{Annual avg.} &= 2188 \text{ lb/hr (avg)} \times 1/8.044 \times 1/1000 \times 20 \times 7143/2000 \\ &= 19.4 \text{ tons/year} \end{aligned}$$

(1) Evaluation of Control Technology for the Phosphate Fertilizer Industry, EPA 600/2-79-169, August, 1979.

V, 2 and 3 Emission Estimates and Potential Emissions (continued)

Fluorides

Potential Emissions

$$\begin{aligned} & 154,806 \times 100/84 \text{ lb/hr } 52\% \text{ P}_{205} \text{ phos. acid w/1.5\% fluoride} \\ & = 154,806 \times 0.015 \times 100/84 \\ & = 2764 \text{ lb/hr max.} \\ & 154,806 \times 0.015 \times 7143 \times 1/2000 \\ & = 8293 \text{ tons/year. Avg.} \end{aligned}$$

Actual Emissions (@ 0.06 lb F/ton P₂₀₅ Input)

$$\begin{aligned} & = 0.06 \times 47.92 \\ & = 2.9 \text{ lb/hr (hourly max.)} \\ & = 0.06 \times 40.25 \times 7143 \times 1/2000 \\ & = 8.6 \text{ tons/year (annual average)} \end{aligned}$$

Carbon Monoxide

Potential and Actual Emissions

Assume an emission factor of 5 lb CO/1000 gal of fuel burned (AP-42)

$$\begin{aligned} \text{Max. hourly} & = 3240 \text{ lb fuel/hr} \times 1/8.044 \text{ gal/lb} \times 1/1000 \times 5 \\ & = 2.0 \text{ lb CO/hr.} \end{aligned}$$

$$\begin{aligned} \text{Annual avg.} & = 2188 \text{ lb fuel/hr} \times 1/8.044 \times 1/1000 \times 5 \times 7143 \text{ hr/yr} \\ & \quad \times 1/2000 \\ & = 4.8 \text{ tons/year} \end{aligned}$$

V, 4 Control Efficiency Estimates (Reference Emission Estimates in previous Section)

Particulate Matter

$$E_p = (758.0 - 24.0)/758.0 = 96.8\%$$

Sulfur Dioxide

$$E_s = (146 - 33.5)/146 = 77.0\%$$

Nitrogen Oxides

$$E_n - \text{Assumed to be 0}$$

Fluoride

$$E_f = (2239 - 2.9)/2239 = 99.9\%$$

Carbon Monoxide

$$E_c - \text{Assumed to be 0}$$

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

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

☒ Yes ☐ No

Contaminant	Rate or Concentration
Fluorides	0.06 lb/ton P ₂ O ₅ input

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

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Fluorides	0.06 lb/ton P ₂ O ₅ input
Particulate Matter	0.5 lb/ton P ₂ O ₅ input
Sulfur Dioxide	0.7 lb/ton P ₂ O ₅ input

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

Proposed plant, no control presently exists at Agrico.

1. Control Device/System:

2. Operating Principles:

3. Efficiency: *

4. Capital Costs:

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

10. Stack Parameters

a. Height: ft. b. Diameter: ft.
 c. Flow Rate: ACFM d. Temperature: °F
 e. Velocity: FPS

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

1.

- a. Control Device: Venturi scrubber/separators on reactor-granulator, dryer and cooler system followed by common cross-flow packed scrubber.
 b. Operating Principles: Condensation, absorption, impaction
 c. Efficiency*: 99.9%F, 96% P.M., 70% SO₂ d. Capital Cost: \$5.5 x 10⁶
 e. Useful Life: 10 years f. Operating Cost: } 10-15% of raw
 g. Energy*: ~ 8 x 10⁶ KWH/yr. h. Maintenance Cost: } material cost
 i. Availability of construction materials and process chemicals:
 Good
 j. Applicability to manufacturing processes: Proven within the industry
 k. Ability to construct with control device, install in available space, and operate within proposed levels:
 Can be designed into proposed plant; performance proven in the industry.

2.

- a. Control Device: Same as E1 except with counter-current (vertical) packed tail gas scrubber.
 b. Operating Principles: Condensation, absorption, impaction
 c. Efficiency*: 99.9% F, 96% PM, 70% SO₂ d. Capital Cost: \$5.5 x 10⁶
 e. Useful Life: 10 years f. Operating Cost: } 10-15% of raw
 g. Energy**: ~ 8 x 10⁶ KWH/year h. Maintenance Costs: } material cost
 i. Availability of construction materials and process chemicals: Good
 j. Applicability to manufacturing processes: Proven within the industry
 k. Ability to construct with control device, install in available space, and operate within proposed levels:
 Can be designed into proposed plant; performance proven within the industry.

*Explain method of determining efficiency.

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

3.

- a. Control Device:
 b. Operating Principles:
 c. Efficiency*:
 d. Capital Cost:
 e. Life:
 f. Operating Cost:
 g. Energy:
 h. Maintenance Cost:

*Explain method of determining efficiency above.

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

4.

a. Control Device

b. Operating Principles:

c. Efficiency*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

F. Describe the control technology selected: Coaxial venturi scrubber/separators on the reactor-granulator, dryer and cooler systems followed by either a vertical counter-current flow or a

1. Control Device: horizontal cross-flow packed tail gas scrubber

2. Efficiency*: 99.9% F, 96.8% PM, 77% SO₂ 3. Capital Cost: \$5,000,000

4. Life: 10 years 5. Operating Cost: \$175,000/year

6. Energy: 8 x 10⁶ KWH/year 7. Maintenance Cost: Unknown

8. Manufacturer: Undetermined

9. Other locations where employed on similar processes:

a. Similar to scrubbing system designed by D.M. Weatherly

(1) Company: USS Agri-Chemicals

(2) Mailing Address: Highway 60

(3) City: Bartow

(4) State: Florida

(5) Environmental Manager: Jim Carroll

(6) Telephone No.: 813/533-0471

*Explain method of determining efficiency above. (See Section V, 4)

(7) Emissions*:

Contaminant	Rate or Concentration
Fluorides	0.06 lb/ton P ₂ O ₅
Particulate Matter	0.07 lb/ton P ₂ O ₅
Sulfur Dioxide	Not tested

(8) Process Rate*: 60 - 90 TPH

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

*Applicant must provide this information when available. Should this information not be available, applicant must state the reasons, why.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems:

The system proposed by Agrico will satisfy NSPS for fluoride and the recently determined FDER BACT limits for particulate matter and sulfur dioxide. Final design of the plant and scrubber system has not been completed and because of this Agrico has not firmly decided on a cross-flow or a counter-current flow packed tail gas scrubber. Either will provide control efficiencies necessary to meet BACT and NSPS.

Agrico has had considerable experience with cross-flow packed scrubbers at the South Pierce Chemical Works and is quite satisfied with operating and performance characteristics. The alternative of the vertical counter-current flow packed tail gas scrubber has recently been demonstrated at the USS Agri-Chemicals, Bartow plant.

*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 ATTACHED AIR QUALITY REVIEW REPORT

A. Company Monitored Data

1. _____ no sites _____ TSP _____ () SO²* _____ Wind spd/dir

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

Other data recorded _____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

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

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

B. Meteorological Data Used for Air Quality Modeling

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

2. Surface data obtained from (location) _____

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

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

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

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

D. Applicants Maximum Allowable Emission Data

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

E. Emission Data Used in Modeling

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

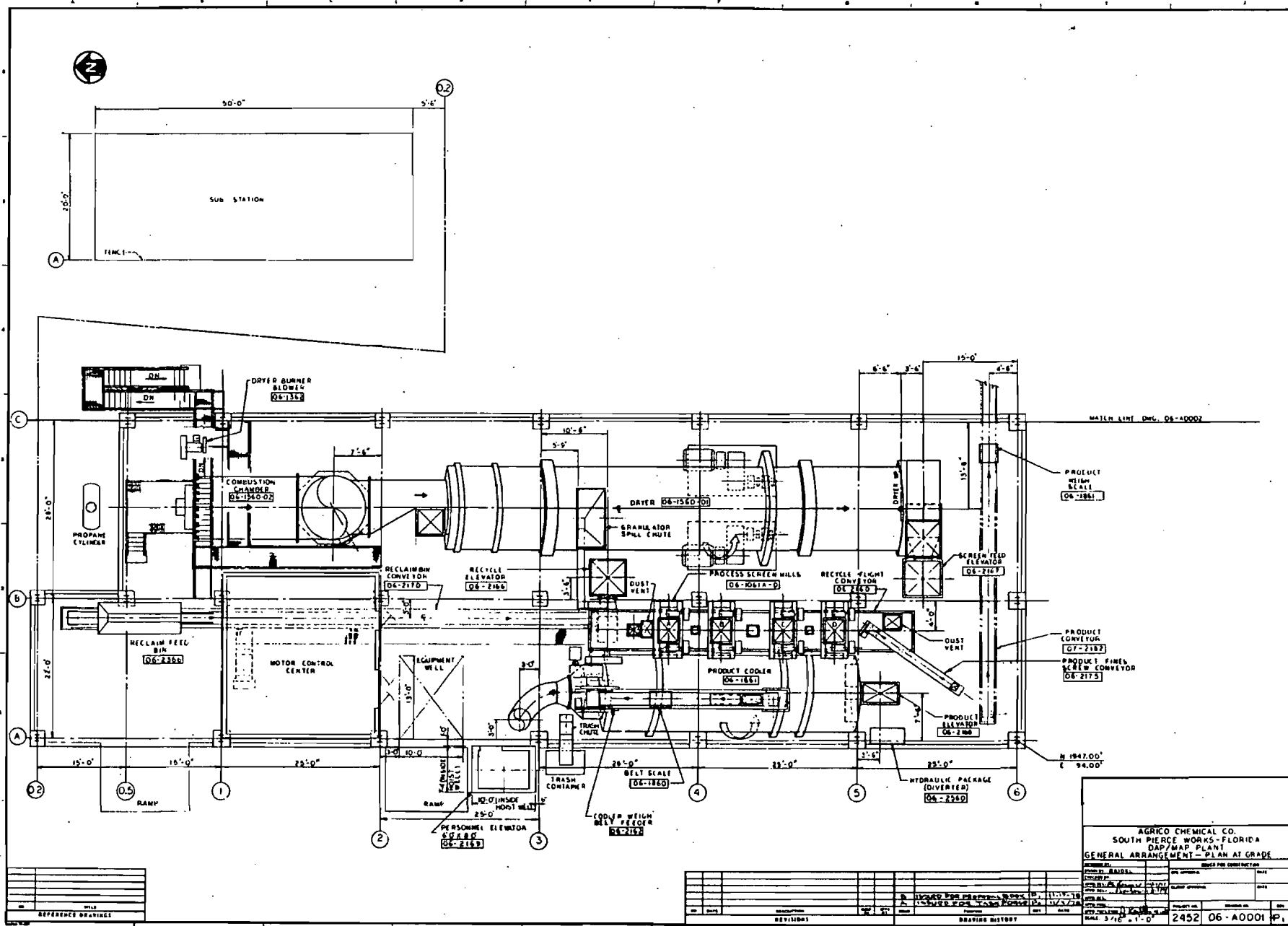
F. Attach all other information supportive to the PSD review.

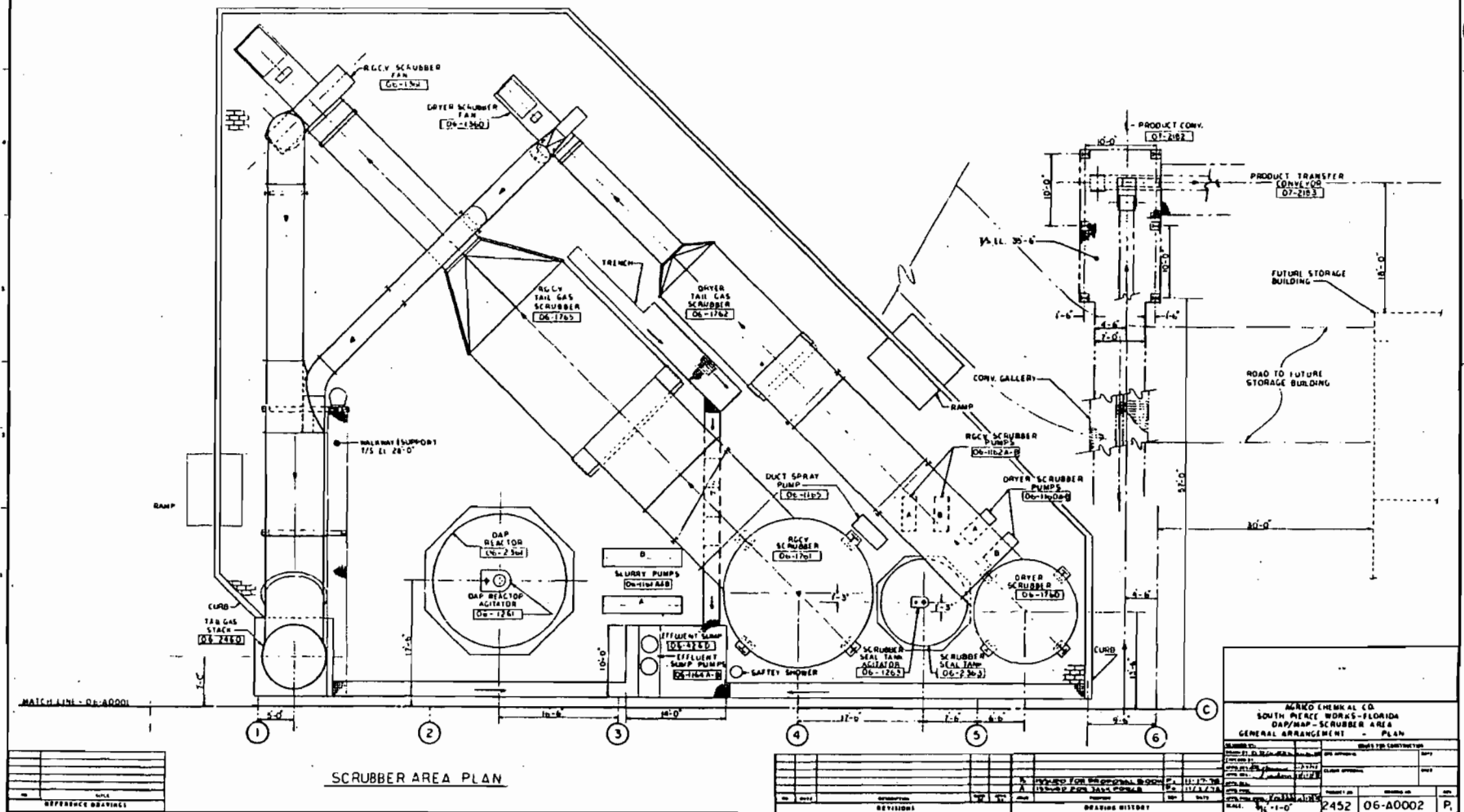
*Specify bubbler (B) or continuous (C).

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

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





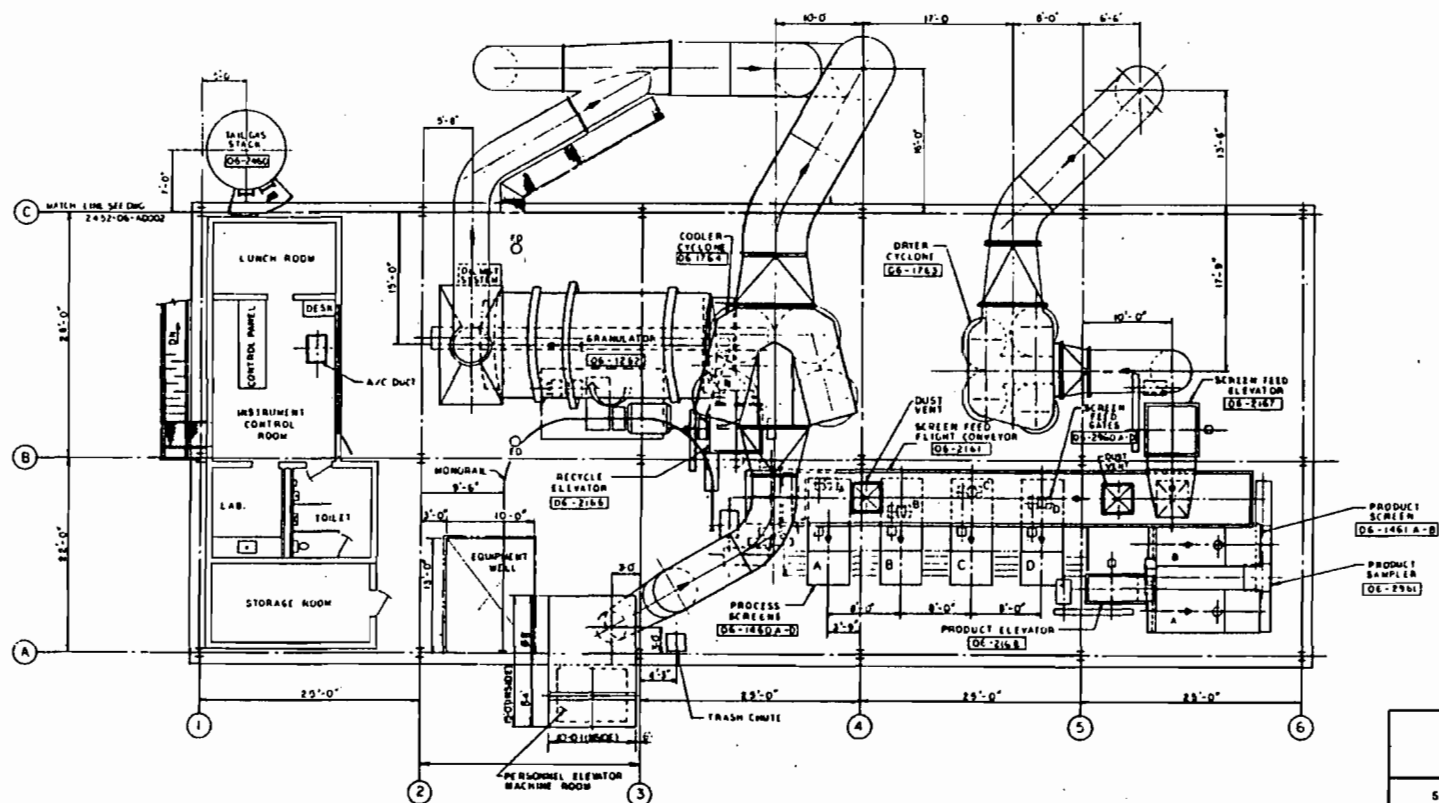


SCRUBBER AREA PLAN

SCRAMBLED CO.	
SOUTH FLORIDA WORKS - FLORIDA	
DAP/REACTOR - SCRUBBER AREA	
GENERAL ARRANGEMENT - PLAN	
DESIGNED BY	06-0001
CHECKED BY	06-0002
DATE	11-17-58
SCALE	1/4" = 1'-0"
PROJECT NO.	2452
DRAWING NO.	06-A0002
SHEET NO.	P

NO.	REVISIONS	DATE
1	FOR INFORMATION	11-17-58
2	FOR INFORMATION	11-17-58

NO.	REFERENCE DRAWING
1	06-0001
2	06-0002

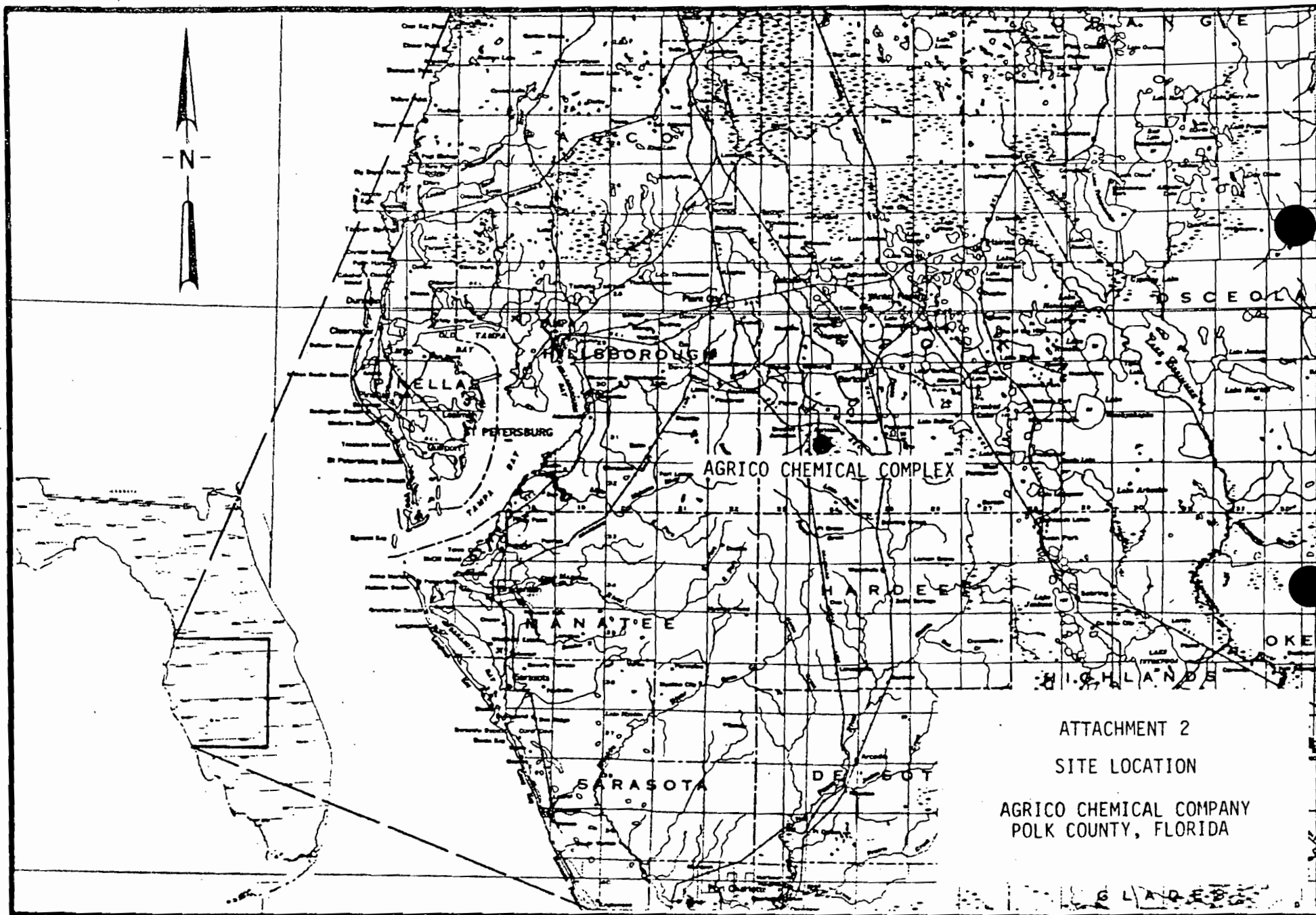


NO.	DATE	REVISIONS

NO.	DATE	REVISIONS	BY	CHKD.	APP'D.	DATE

PROJECT NO.	2452-06-A0003
PROJECT NAME	AGRICOL CHEMICAL CO. SOUTH PIERCE WORKS-FLORIDA DAP/Map PLANT GENERAL ARRANGEMENT - PLAN
DESIGNED BY	
DRAWN BY	
CHECKED BY	
DATE	

2452-06-A0003 P.1

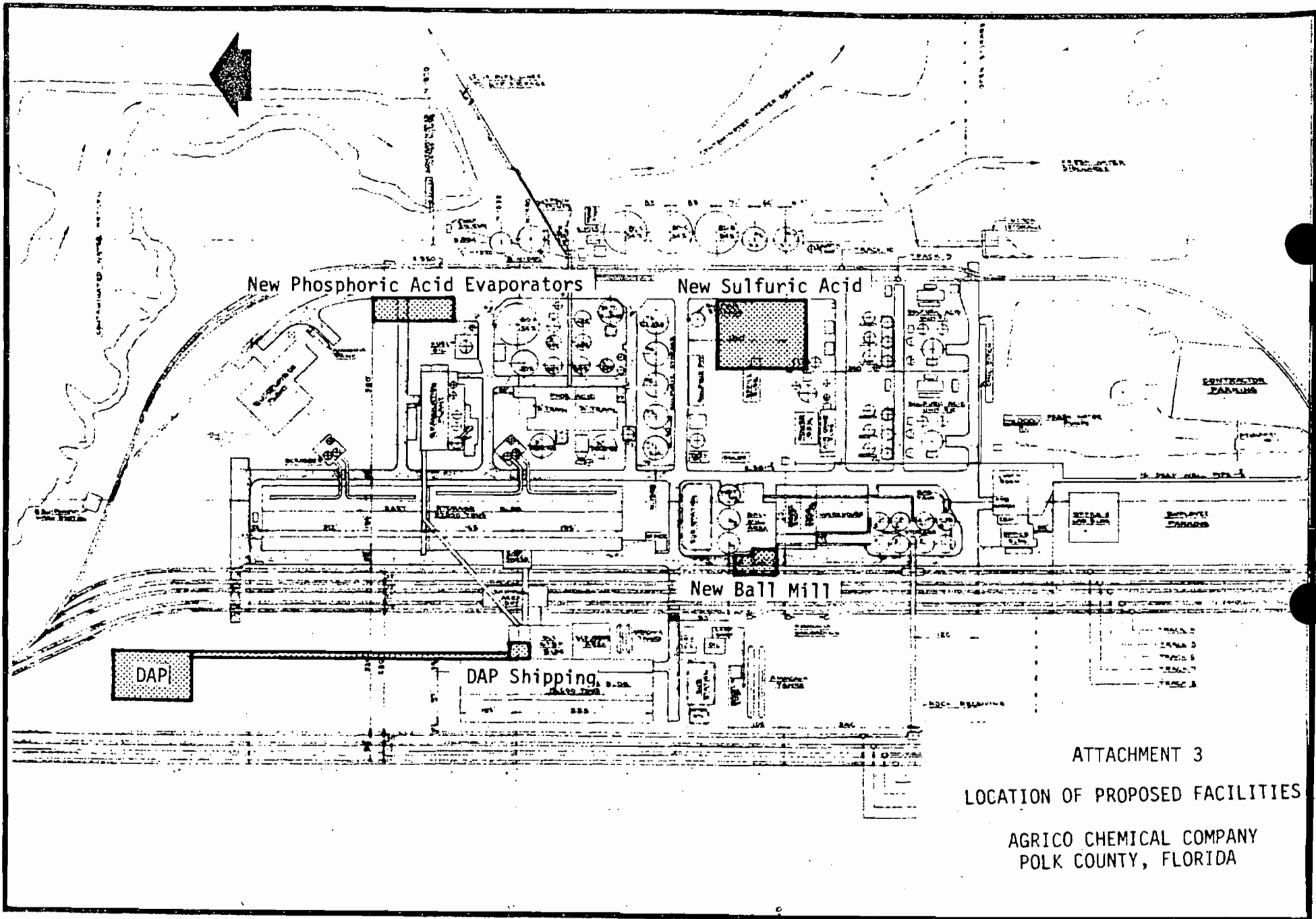


ATTACHMENT 2

SITE LOCATION

AGRICO CHEMICAL COMPANY
POLK COUNTY, FLORIDA

BEST AVAILABLE COPY





AC 53 -34865

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

SOURCE TYPE: DAP Storage and Shipping ☒ New¹ ☐ Existing¹
APPLICATION TYPE: ☒ Construction ☐ Operation ☐ Modification
COMPANY NAME: Agrico Chemical Company COUNTY: Polk
Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Scrubber on DAP Storage and Shipping Facility
SOURCE LOCATION: Street SR 630 City Polk County
UTM: East 407.4 km E North 3071.5 km N
Latitude 27 ° 45 ' 45 "N Longitude 81 ° 56 ' 28 "W
APPLICANT NAME AND TITLE: Agrico Chemical Company
APPLICANT ADDRESS: P.O. Box 1969 SPCW Bartow, FL 33830

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

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

*Attach letter of authorization

Signed: L. C. Lahman
L. C. Lahman, Plant Manager
Name and Title (Please Type)
Date: 9/3/80 Telephone No. (813) 428-1423

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

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed: John B. Koogler
John B. Koogler, P.E.
Name (Please Type)
SHOLTES & KOOGLER ENVIRONMENTAL CONSULTANTS
Company Name (Please Type)
1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)
Date: 9/2/80 Telephone No. (904) 377-5822



Florida Registration No. 12925

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

SECTION II: GENERAL PROJECT INFORMATION

- A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.
A DAP storage and shipping facility with a capacity of 600,000 TPY DAP will be constructed. Capability for shipping by rail and truck will be provided. All transfer points will be vented and ducted to a common scrubber for particulate matter control. (con't)
- B. Schedule of project covered in this application (Construction Permit Application Only)
 Start of Construction September, 1980 Completion of Construction July, 1982
- C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)
Venturi or other wet scrubber at a cost of approximately \$125,000.
- D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.
None
- E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? Yes ☒ No
- F. Normal equipment operating time: hrs/day 7 ; days/wk 24 ; wks/yr 50 ; if power plant, hrs/yr _____ ; if seasonal, describe: (8400 hours/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? | <u>No</u> |
| a. If yes, has "offset" been applied? | _____ |
| b. If yes, has "Lowest Achievable Emission Rate" been applied? | _____ |
| c. If yes, list non-attainment pollutants. | _____ |
| | |
| 2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. | <u>Yes</u> |
| 3. Does the State "Prevention of Significant Deterioration" (PSD) requirements apply to this source? If yes, see Sections VI and VII. | <u>Yes</u> |
| 4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? | <u>No</u> |
| 5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? | <u>No</u> |

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

II, A (con't)

A bulk storage building will be constructed for the storage of ammonium phosphate product. Product will be received from the new granulation plant at a design rate of 100 TPH by the product conveyor and product transfer conveyor. Material is transferred to the shuttle feed conveyor which feeds the product shuttle conveyor which in turn distributes the granulated product throughout the storage building.

Product is retrieved from the bulk storage facility by a front end loader which transports it to the shipping elevator through the receiving hopper. The product discharges from the elevator through a splitter/diverter to two shipping screens. Oversize material flows to the cage mill where it is crushed and returned to the receiving hopper by gravity. Undersize from the shipping screens flows by gravity to the fines storage bin. The fines are returned to the granulation plant by front end loader. The on-size product discharges from the screens onto the shipping transfer conveyor which transfers the product to the loadout surge bin.

The loadout surge bin is equipped with loads cells which signal a weight indicator. A high weight alarm informs the operator that the system cannot accept additional product. A low weight alarm signals the operator that the system can again receive product from the front end loader. An overflow chute also provides positive indication that the bin is full and overflowing material is flows by gravity to the front of the fines storage bin.

Two loadout spouts are provided for discharge of product at 200 TPH to either rail or truck loading.

The air vented from the process is treated first, in cyclone dust collectors. Secondly, a wet venturi scrubber is used to remove the remaining dust particles. The dust removed by the cyclones flows by gravity to the fines storage bin.

The gases entering the venturi scrubber are sprayed with pond water. The gases and liquid leaving the venturi passes vertically downward through a central pipe, the gas is separated near the bottom with the gas going upward and the liquid downward. As the gases flow upward the cyclonic action disengages the entrainment from the gas stream as the gases spirals upwards to the exit nozzle near the top of the vessel. The gases then pass through a mist eliminator before entering the fan. The liquid from the scrubber flows to the scrubber seal tank from which it is pumped to the DAP effluent sump.

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

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

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
DAP	Dust	-	400,000(max.)	1

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

1. Total Process Input Rate (lbs/hr): 400,000 lb/hr (max.)

2. Product Weight (lbs/hr): 400,000 lb/hr (max.)

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission ¹		Allowed Emission ² Rate per Ch. 17-2, F.A.C.	Allowable ³ Emission lbs/hr	Potential Emission ⁴		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Part. Matter	3.4	14.1	BACT	3.4	34.0	141	16

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)
Scrubber	Dust	90%	> 2.0 micron	See V, 5
(Final design not complete)				

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)

⁵If Applicable

E: Fuels

N/A

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

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

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

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

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

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

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

Stack Height: _____ 125 _____ ft. Stack Diameter: _____ 3.5 _____ ft.

Gas Flow Rate: _____ 30,000 _____ ACFM Gas Exit Temperature: _____ 115 _____ °F.

Water Vapor Content: _____ 5 _____ % Velocity: _____ 52.0 _____ FPS

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight – show derivation.
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, etc.).
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3, and 5 should be consistent: actual emissions = potential (1-efficiency).
6. An 8½" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

ATTACHMENT 1

7. An 8½" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).

ATTACHMENT 2

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 3

V, 1 Through-Put Weight Rate

The storage and shipping facility will be designed to store and ship the product from the proposed DAP plant; 600,000 TPY.

The maximum load-out rate will be 200 TPH

The maximum rate at which DAP will be transferred into storage is 100 TPH.

V, 2 and 3 Emission Estimates and Potential Emissions

Particulate matter will be the only pollutant emitted from this facility. The pH of DAP is approximately seven. This eliminates the possibility of fluoride emissions.

Particulate Matter

Actual emissions - A concentration in the exhaust gas stream of 0.015 grains/scf, dry was assumed.

$$\begin{aligned}\text{Hourly Max.} &= 30,000 \text{ Acfm} \times (1-0.05) \times 293/319 \times 0.015 \times \\ &\quad 60 \text{ min/hr} \times 1/7000 \\ &= 3.4 \text{ lb/hr}\end{aligned}$$

$$\begin{aligned}\text{Annual Avg.} &= 3.4 \times 8400 \times 1/2000 \\ &= 14.1 \text{ tons/year}\end{aligned}$$

Potential emissions - Assume a scrubber efficiency of 90%.

$$\begin{aligned}\text{Hourly Max.} &= 3.4/(1-0.9) \\ &= 34 \text{ lbs/hr}\end{aligned}$$

$$\begin{aligned}\text{Annual Avg.} &= 14.1/(1-0.9) \\ &= 141.0 \text{ tons/year}\end{aligned}$$

V, 4 Control Efficiency Estimates

Particulate Matter

E_p - Assumed to be 90%.

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

- A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
☐ Yes ☒ No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Particulate Matter	0.015 grains/SCF, dry

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

Proposed System

1. Control Device/System:

2. Operating Principles:

3. Efficiency: *

5. Useful Life:

7. Energy:

9. Emissions:

4. Capital Costs:

6. Operating Costs:

8. Maintenance Cost:

Contaminant	Rate or Concentration

* Explain method of determining D 3 above.

10. Stack Parameters

- | | | | |
|---------------|------|-----------------|-----|
| a. Height: | ft. | b. Diameter: | ft. |
| c. Flow Rate: | ACFM | d. Temperature: | °F |
| e. Velocity: | FPS | | |

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

1.

- a. Control Device: Venturi or Impingement scrubber
- b. Operating Principles: Impingement
- c. Efficiency*: 90-95% (estimate)
- d. Capital Cost: \$125,000.00
- e. Useful Life: 10 years
- f. Operating Cost: Undetermined
- g. Energy*: Undetermined
- h. Maintenance Cost: \$10,000/year
- i. Availability of construction materials and process chemicals: Good
- j. Applicability to manufacturing processes: Proven within the industry
- k. Ability to construct with control device, install in available space, and operate within proposed levels:
Can be designed into proposed facility.

2.

- a. Control Device:
- b. Operating Principles:
- c. Efficiency*:
- d. Capital Cost:
- e. Useful Life:
- f. Operating Cost:
- g. Energy**:
- h. Maintenance Costs:
- i. Availability of construction materials and process chemicals:
- j. Applicability to manufacturing processes:
- k. Ability to construct with control device, install in available space, and operate within proposed levels:

*Explain method of determining efficiency.

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

3.

- a. Control Device:
- b. Operating Principles:
- c. Efficiency*:
- d. Capital Cost:
- e. Life:
- f. Operating Cost:
- g. Energy:
- h. Maintenance Cost:

*Explain method of determining efficiency above.

- i. Availability of construction materials and process chemicals:
- j. Applicability to manufacturing processes:
- k. Ability to construct with control device, install in available space and operate within proposed levels:

4.

a. Control Device

b. Operating Principles:

c. Efficiency*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

-F. Describe the control technology selected: See VI-E

1. Control Device:

2. Efficiency*:

3. Capital Cost:

4. Life:

5. Operating Cost:

6. Energy:

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above.

(7) Emissions*:

Contaminant

Rate or Concentration

(8) Process Rate*:

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

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

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems:

Similar systems have been proven effective within the industry and particulate matter emissions can be controlled to an acceptable level.

*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 ATTACHED AIR QUALITY REVIEW REPORT

A. Company Monitored Data

1. _____ no sites _____ TSP _____ () SO₂* _____ Wind spd/dir
Period of monitoring _____ / _____ / _____ to _____ / _____ / _____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

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

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

B. Meteorological Data Used for Air Quality Modeling

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

2. Surface data obtained from (location) _____

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

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

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

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

D. Applicants Maximum Allowable Emission Data

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

E. Emission Data Used in Modeling

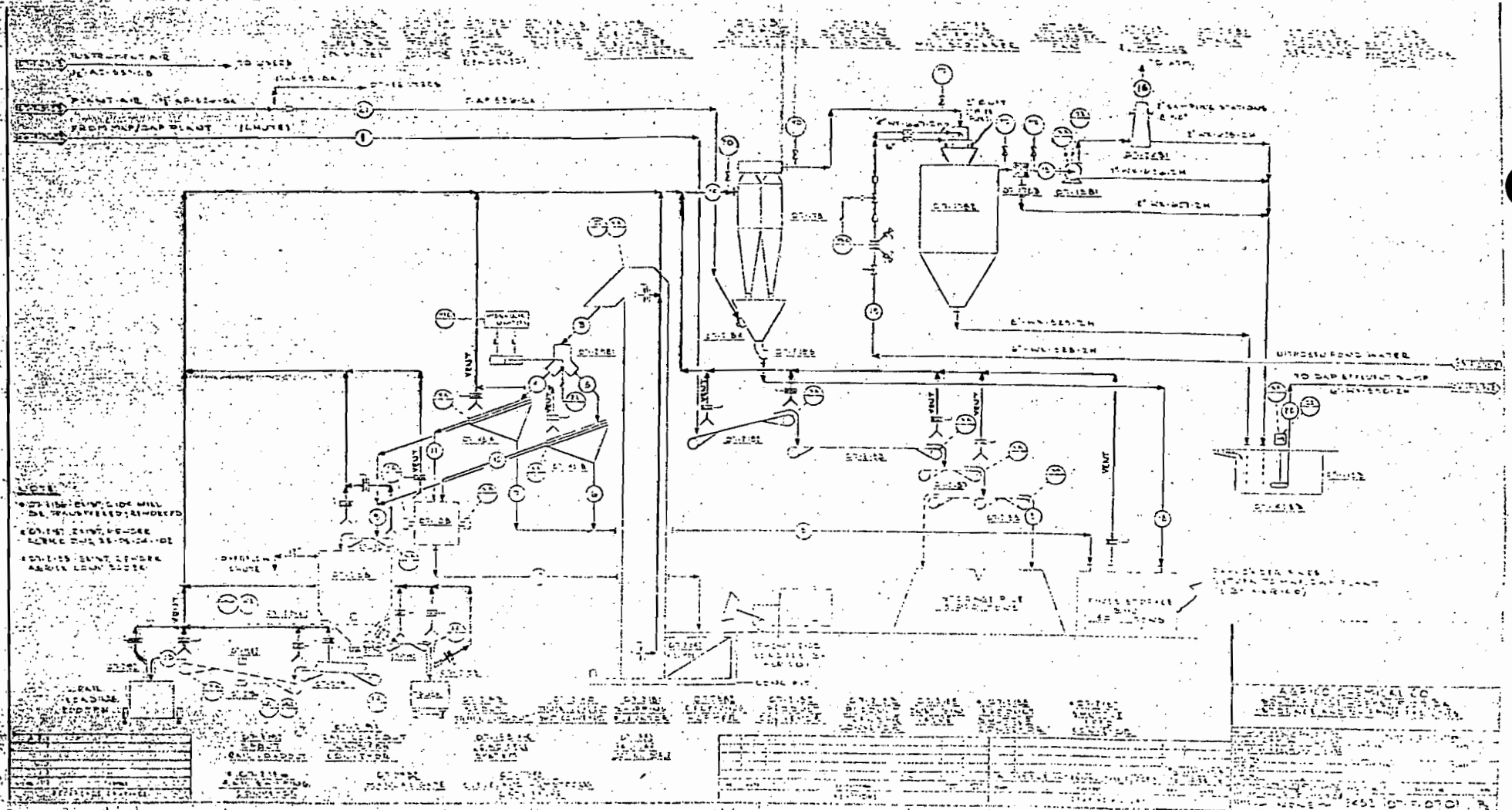
Attach list of emission sources. Emission data required is source name, description on point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

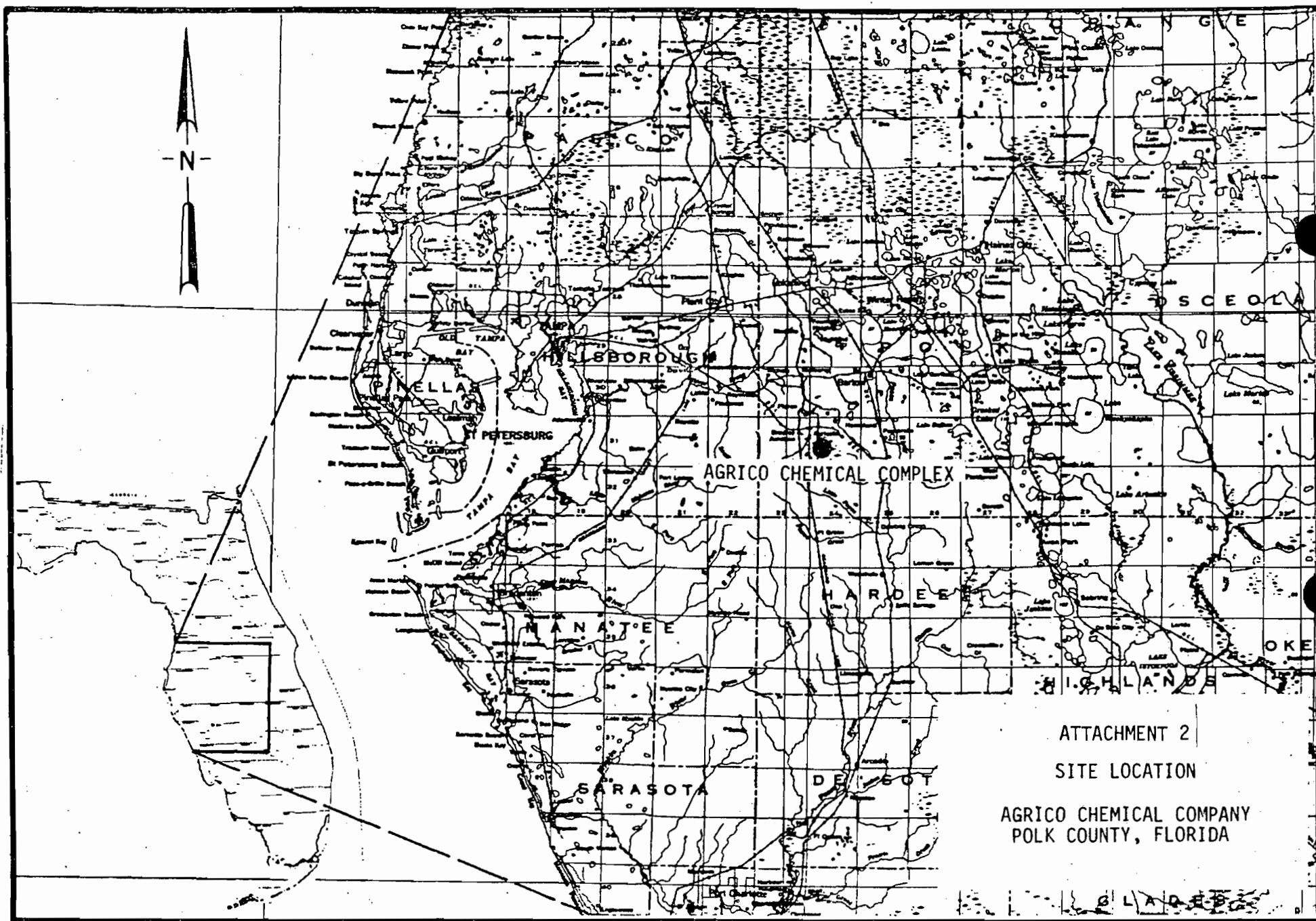
F. Attach all other information supportive to the PSD review.

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

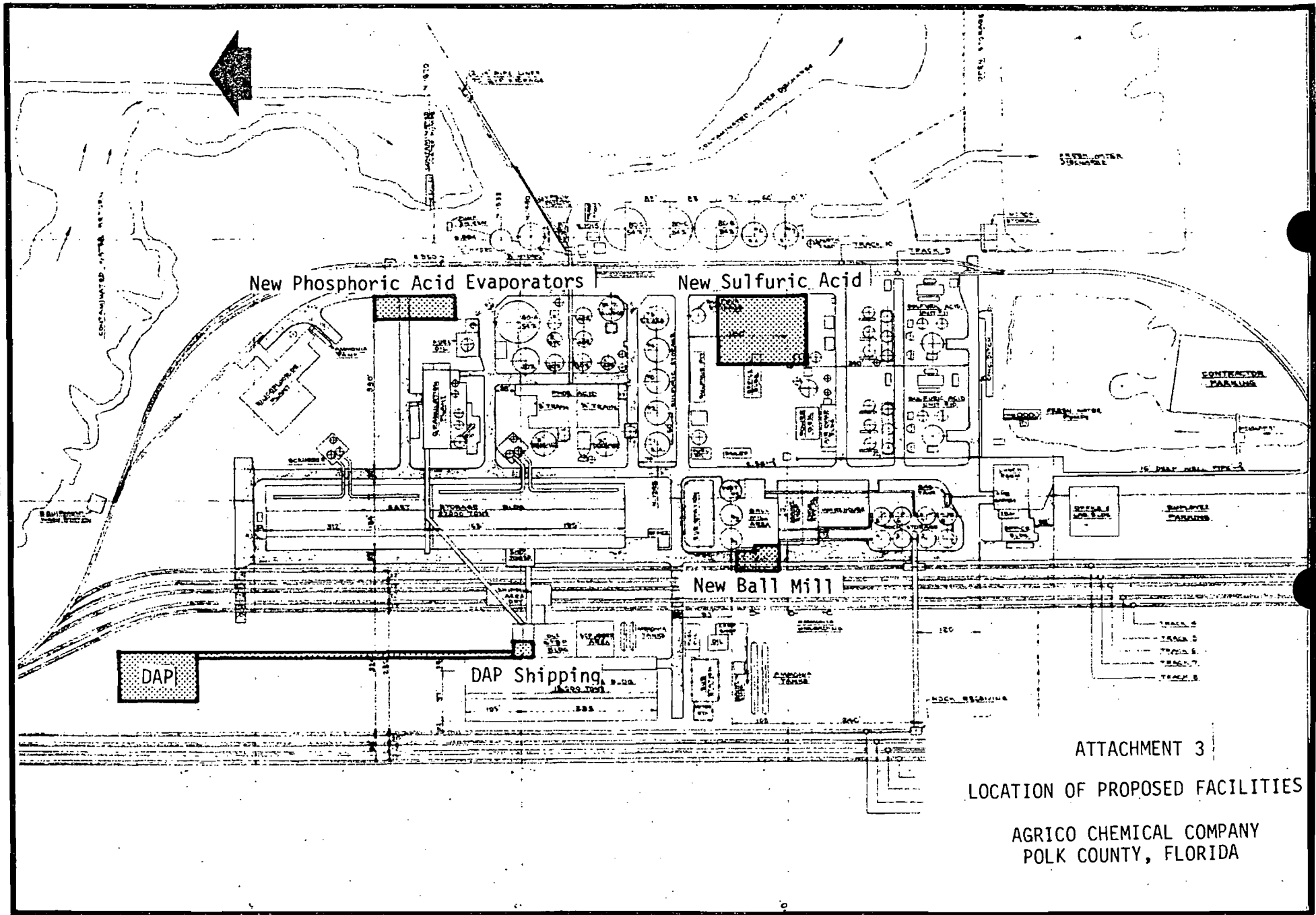
G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

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





BEST AVAILABLE COPY





AC 53-34868

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

SOURCE TYPE: Phosphoric Acid Plant ☐ New¹ ☒ Existing¹
APPLICATION TYPE: ☐ Construction ☐ Operation ☒ Modification
COMPANY NAME: Agrico Chemical Company COUNTY: Polk
Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) "A" and "B" Phosphoric Acid Trains
SOURCE LOCATION: Street SR 630 City Polk County
UTM: East 407.5 km E North 3071.4 km N
Latitude 27 ° 45 ' 45 "N Longitude 81 ° 56 ' 28 "W
APPLICANT NAME AND TITLE: Agrico Chemical Company
APPLICANT ADDRESS: P.O. Box 1969 SPCW Bartow, Florida 33830

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

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

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

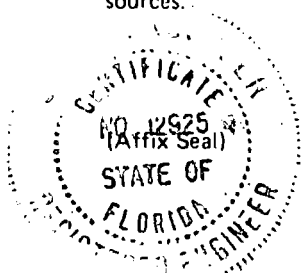
*Attach letter of authorization

Signed: L. C. Lahman
L. C. Lahman, Plant Manager
Name and Title (Please Type)
Date: 9/3/80 Telephone No. (813) 428-1423

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

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed: John B. Koogler
John B. Koogler, P.E.
Name (Please Type)
SHOLTES & KOOGLER ENVIRONMENTAL CONSULTANTS
Company Name (Please Type)
1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)
Date: 9/2/80 Telephone No. (904) 377-5822



Florida Registration No. 12925

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

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.
Existing phosphoric acid trains will be modified by adding additional evaporation capacity to increase production from 430,000 TPY to 625,000 TPY. Fluoride emissions from both "A" and "B" trains will meet NSPS.

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

Start of Construction September, 1980

Completion of Construction December, 1981

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

Existing control systems; cost not applicable

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

"A" Train Permit A053-4531 Issued 10/5/77, Expires 9/30/82

"B" Train Permit A053-4525 Issued 10/5/77, Expires 9/30/82.

EPA PSD Review for Phase I Expansion: Approved 3/1980.

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

F. Normal equipment operating time: hrs/day 21.3; days/wk 7; wks/yr 50; if power plant, hrs/yr _____; if seasonal, describe: 7455 hours per 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

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

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

c. If yes, list non-attainment pollutants.

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

Yes

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

Yes

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

Yes

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source?

No

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

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

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

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Phos. Rock	F	3.4	653,612 (Avg.)	(1)
Sulfuric Acid	-	-	536,828 (Avg.)	(2)
Pond Water	-	-	513,935 (Avg.)	(3)

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

1. Total Process Input Rate (lbs/hr): 1,704,375 lb/hr = 852 TPH (Avg.) or 1015 TPH (Max.)

2. Product Weight (lbs/hr): 322,800 lb/hr = 161 TPH (Avg.) at 52% P₂O₅
= 84 TPH (Avg.) at 100% P₂O₅ or 100 TPH (Max.)

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission ¹		Allowed Emission ² Rate per Ch. 17-2, F.A.C.	Allowable ³ Emission lbs/hr	Potential Emission ⁴		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Fluoride							
Total	2.22	6.93	NSPS	2.22	502	1573	(4)
Increase over Exist.	0.69	2.16	NSPS	0.69	157	491	(4)

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)
Existing "A" & "B" Scrubbers-cross-flow packed scrubbers	Fluoride	99.6	N/A	(See V.4)

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)

⁵If Applicable

E. Fuels N/A

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

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

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____
Density: _____ lbs/gal Typical Percent Nitrogen: _____
Heat Capacity: _____ BTU/lb _____ BTU/gal
Other Fuel Contaminants (which may cause air pollution): _____

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

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

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

	"A" Train	"B" Train		"A" Train	"B" Train	
Stack Height:	120'	100'	ft.	Stack Diameter:	6.33	5.0 ft.
Gas Flow Rate:	67,000	70,000	ACFM	Gas Exit Temperature:	115	115 °F.
Water Vapor Content:	8	8	%	Velocity:	35.5	59.4 FPS

SECTION IV: INCINERATOR INFORMATION

NOT APPLICABLE

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

Description of Waste _____

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

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

Manufacturer _____

Date Constructed _____ Model No. _____

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

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

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

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

Type of pollution control device: ☐ Cyclone ☐ Wet Scrubber ☐ Afterburner ☐ Other (specify) _____

Brief description of operating characteristics of control devices: _____

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation.
 2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.
 3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
 4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, etc.).
 5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3, and 5 should be consistent: actual emissions = potential (1-efficiency).
 6. An 8½" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
- ATTACHMENT 1
7. An 8½" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
- ATTACHMENT 2
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 3

V, 1 Process Input and Product Weight Rates

Input (Average)*

Wet ground phosphate rock	-	653,612 lb/hr w/28.5% P ₂ O ₅
Sulfuric Acid	-	536,828
Pond Water	-	513,935
TOTAL		<u>1,704,375 lbs/hr</u>

Total P₂O₅ input = 653,612 x 0.285
= 186,279 lb/hr

Output (Average)*

P₂O₅ Recovery = 90.12%

Output = 186,279 lb P₂O₅/hr x 0.9012
= 167,875 lb P₂O₅/hr
= 84 tons/hr P₂O₅
= 161.4 tons/hr 52% P₂O₅ acid.

* Average production rate is 84 tons/hr P₂O₅; Max. hourly production rate will be 100 tons/hr. P₂O₅ input rate at max production will be:

186,279 x 100/84 = 221,760 lb/hr
= 110.9 tons/hr P₂O₅

V, 2 and 3 Emission Estimates and Potential Emissions

Since wet rock will be used for phosphoric acid production there will be no particulate matter emissions.

Fluorides

Potential Emissions - Based upon existing plant operating data Agrico has determined that 1.8986% of the fluoride input to the "A" and "B" phosphoric acid trains enters the tail gas scrubbers.

Proposed

Rock input = 653,612 lb/hr w/3.4% F
F⁻ input = 22,223 lb/hr
F⁻ to scrubber = 22,223 x 0.018986
= 421.9 lb/hr (avg.) x 100/84
= 502.3 lb/hr (max.)
Annual Average = 421.9 x 7455 x 1/2000
= 1572.6 tons/year.

Existing

= Proposed emission rate x $\frac{\text{Existing Production Rate}}{\text{Proposed Production Rate}}$

= Proposed emission rate x $\frac{430,000 \text{ TPY}}{625,000 \text{ TPY}}$

$$\text{Hourly Rate} = 421.9 \times \frac{430,000}{625,000} = 290.3 \text{ lb/hr (avg.)}$$

$$= 502.3 \times \frac{430,000}{625,000} = 345.6 \text{ lb/hr (max.)}$$

$$\text{Annual Avg. Rate} = 1572.6 \times \frac{430,000}{625,000} = 1081.9 \text{ tons/year (avg.)}$$

Increase in Potential Emissions

$$\begin{aligned} \text{Hourly max.} &= 502.3 - 345.6 \\ &= 156.7 \text{ lbs/hr F (max.)} \end{aligned}$$

$$\begin{aligned} \text{Annual avg.} &= 1572.6 - 1081.9 \\ &= 490.7 \text{ tons/year (avg.)} \end{aligned}$$

Actual Emissions - Based on NSPS of 0.02 lb F/ton P_2O_5 input to plant.

Proposed

$$\begin{aligned} \text{Hourly Avg.} &= 186,279 \text{ lb } P_2O_5/\text{hr} \times 0.02 \times 1/2000 \\ &= 1.86 \text{ lb F/hr.} \end{aligned}$$

$$\begin{aligned} \text{Hourly Max.} &= 1.86 \times 100/84 \\ &= 2.22 \text{ lb F/hour} \end{aligned}$$

$$\begin{aligned} \text{Annual Avg.} &= 1.86 \times 7455 \text{ hr/yr} \times 1/2000 \\ &= 6.93 \text{ tons F/year} \end{aligned}$$

Existing

$$\begin{aligned} \text{Hourly Avg.} &= 1.86 \times 430,000/625,000 \\ &= 1.28 \text{ lb/hr} \end{aligned}$$

$$\begin{aligned} \text{Hourly Max.} &= 2.22 \times 430,000/625,000 \\ &= 1.53 \text{ lb/hr} \end{aligned}$$

$$\begin{aligned} \text{Annual Avg.} &= 6.93 \times 430,000/625,000 \\ &= 4.77 \text{ tons/year} \end{aligned}$$

Increase in Actual Emissions

$$\begin{aligned} \text{Hourly Max.} &= 2.22 - 1.53 \\ &= 0.69 \text{ lb/hr (max)} \end{aligned}$$

$$\begin{aligned} \text{Annual Avg.} &= 6.93 - 4.77 \\ &= 2.16 \text{ tons/year} \end{aligned}$$

V, 4 Control Efficiency Estimates (Reference Emission Estimates in Previous Section)

Fluoride

$$E_f = (502.3 - 2.22)/502.3 = 99.6\%.$$

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

- A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
☒ Yes ☐ No

Contaminant	Rate or Concentration
Fluorides	0.02 lb/ton P ₂ O ₅ input

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

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Fluorides	0.02 lb/ton P ₂ O ₅ input

- D. Describe the existing control and treatment technology (if any). The "A" and "B" trains are both currently equipped with cross-flow packed scrubbers which have demonstrated compliance with NSPS.

1. Control Device/System:

2. Operating Principles: Absorption, condensation

3. Efficiency: 99.6% (See V, 4)

4. Capital Costs: \$300,000

5. Useful Life: 10 years

6. Operating Costs: Unknown

7. Energy: Unknown-Several

8. Maintenance Cost: \$20,000/year

9. Emissions: interconnected systems

Contaminant	Rate or Concentration
Fluorides	≤ 0.02 lb/ton P ₂ O ₅ input

* Explain method of determining D 3 above.

10. Stack Parameters

- | | | | |
|---------------|------|-----------------|-----|
| a. Height: | ft. | b. Diameter: | ft. |
| c. Flow Rate: | ACFM | d. Temperature: | °F |
| e. Velocity: | FPS | | |

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

The "A" and "B" trains are presently equipped with cross-flow packed scrubbers which have proved compliance with NSPS and which are of sufficient size to accomodate the

- a. Control Device: proposed modification without alteration. Since these scrubbers are existing, no other control systems were evaluated.
- b. Operating Principles:

- | | |
|--|----------------------|
| c. Efficiency*: | d. Capital Cost: |
| e. Useful Life: | f. Operating Cost: |
| g. Energy*: | h. Maintenance Cost: |
| i. Availability of construction materials and process chemicals: | |

j. Applicability to manufacturing processes:

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

2.

a. Control Device:

b. Operating Principles:

- | | |
|--|-----------------------|
| c. Efficiency*: | d. Capital Cost: |
| e. Useful Life: | f. Operating Cost: |
| g. Energy**: | h. Maintenance Costs: |
| i. Availability of construction materials and process chemicals: | |

j. Applicability to manufacturing processes:

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

*Explain method of determining efficiency.

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

3.

a. Control Device:

b. Operating Principles:

- | | |
|-----------------|----------------------|
| c. Efficiency*: | d. Capital Cost: |
| e. Life: | f. Operating Cost: |
| g. Energy: | h. Maintenance Cost: |

*Explain method of determining efficiency above.

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

4.

a. Control Device

b. Operating Principles:

c. Efficiency*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

F. Describe the control technology selected: (See Section VI, D)

1. Control Device:

2. Efficiency*:

3. Capital Cost:

4. Life:

5. Operating Cost:

6. Energy:

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. The system described is an existing system at

(1) Company: Agrico Chemical Company

(2) Mailing Address: P. O. Box 1969, Bartow, FL 33830

(3) City: South Pierce

(4) State: Florida

(5) Environmental Manager: Ed Mayer

(6) Telephone No.: (813) 428-1423

*Explain method of determining efficiency above.

(7) Emissions*:

Contaminant
Fluorides

Rate or Concentration
≤ 0.02 lb/ton P₂O₅

(8) Process Rate*: 430,000 TPY

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

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

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems:

Scrubber system is an existing system

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

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION
NOT APPLICABLE FOR FLUORIDES

A. Company Monitored Data

1. _____ no sites _____ TSP _____ () SO₂• _____ Wind spd/dir

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

Other data recorded _____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

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

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

B. Meteorological Data Used for Air Quality Modeling

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

2. Surface data obtained from (location) _____

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

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

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

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

D. Applicants Maximum Allowable Emission Data

Pollutant

Emission Rate

TSP

_____ grams/sec

SO₂

_____ grams/sec

E. Emission Data Used in Modeling

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

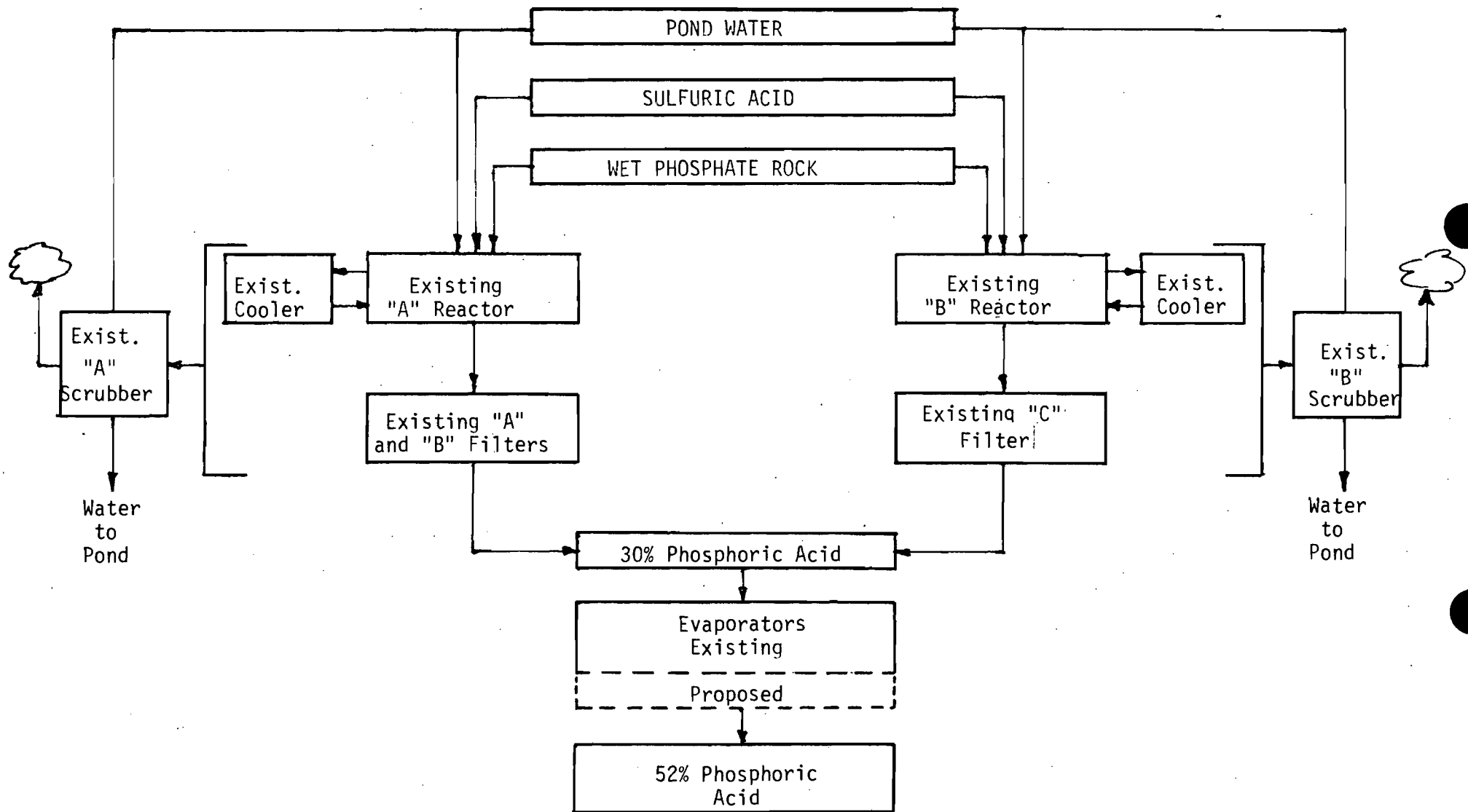
F. Attach all other information supportive to the PSD review.

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

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

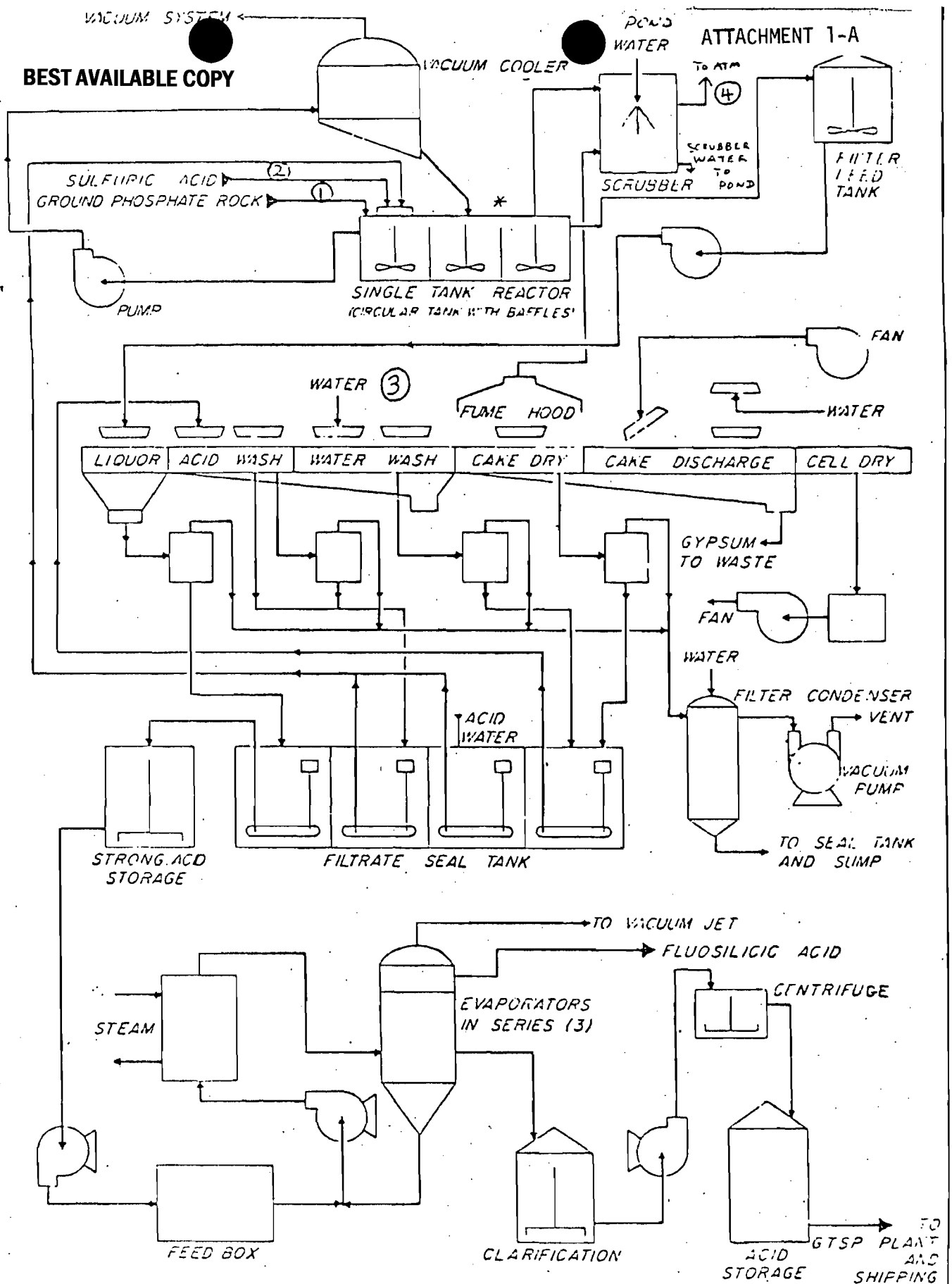
SEE ATTACHMENT 4

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.



Flow Diagram of "A" and "B" Phosphoric Acid Trains Showing Proposed Evaporator Expansion

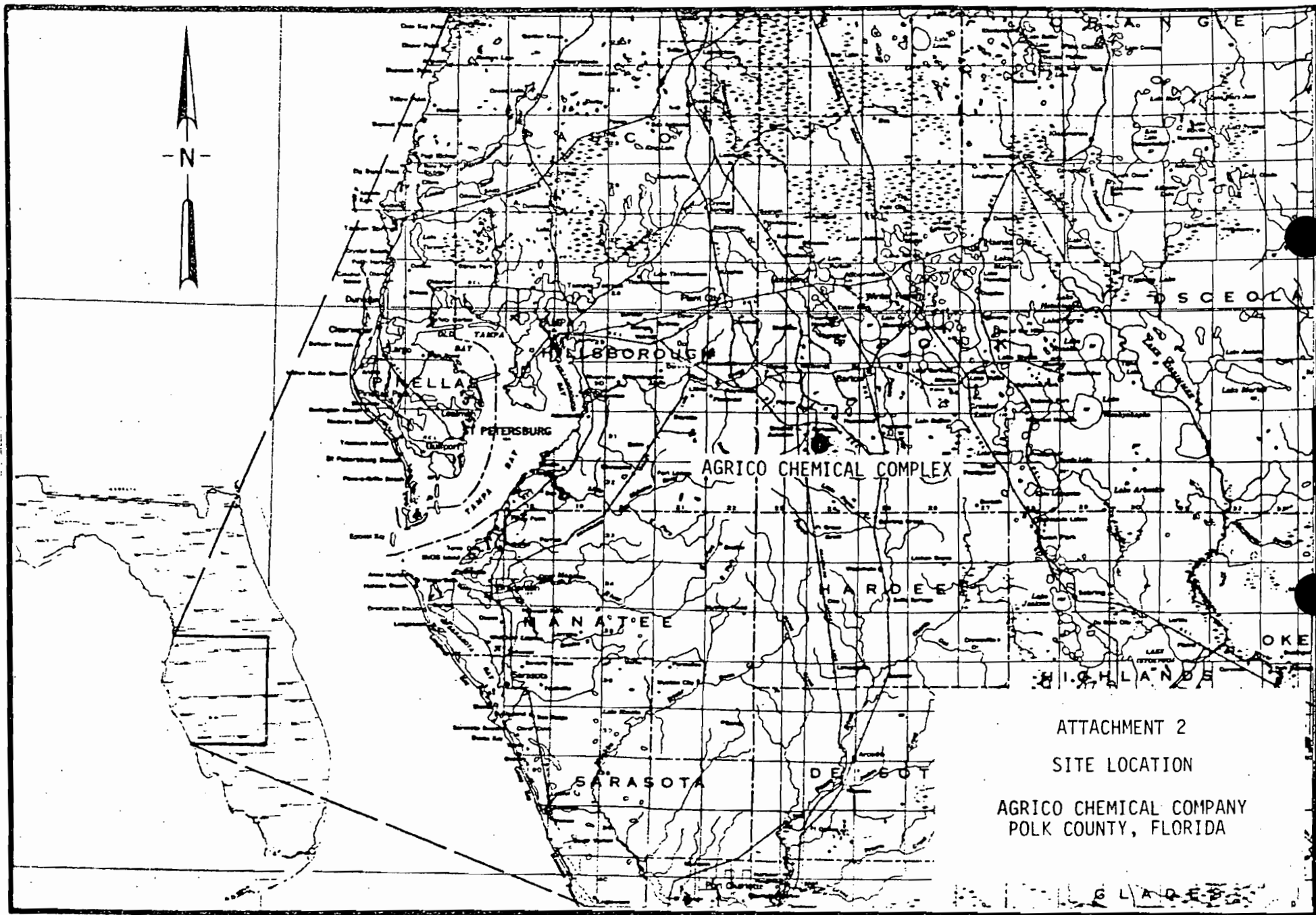
BEST AVAILABLE COPY



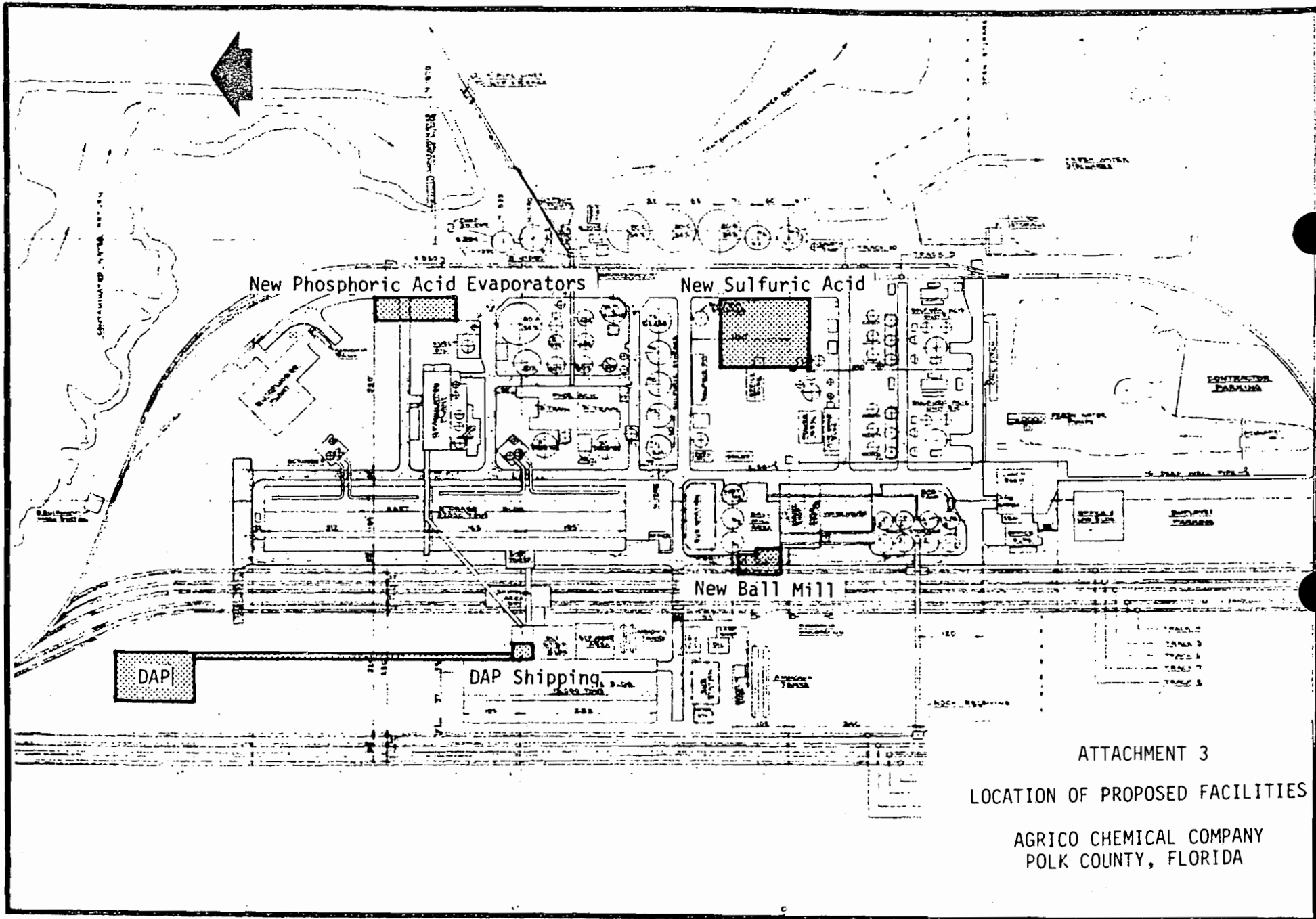
*EXISTING

PROPOSED

WET PROCESS PHOSPHORIC ACID FLOW SHEET



BEST AVAILABLE COPY



ATTACHMENT 3

LOCATION OF PROPOSED FACILITIES

AGRICO CHEMICAL COMPANY
POLK COUNTY, FLORIDA

6.0 SECONDARY IMPACTS

6.1 Introduction

A qualitative evaluation of the proposed expansion on soils, vegetation, visibility and commercial growth in the area has been prepared.

6.2 Fluorides

The fluoride emissions from the proposed modification are not expected to create any adverse secondary impacts. An Environmental Impact Statement recently submitted for a phosphate fertilizer complex in north Florida (Environmental Impact Statement, Occidental Chemical Company Swift Creek Chemical Complex, Hamilton County, Florida, US EPA, Region IV, Atlanta, Georgia, July 1978) includes a section on the environmental impact of fluoride emissions. In this document it states that no significant impact to cattle, agricultural crops or timber was established (See Appendix 3A-2).

Property for several miles in all directions from Agrico is owned by phosphate interests. The closest non-phosphate company owned property on which there is a fluoride sensitive receptor; citrus, is located four kilometers southeast of Agrico. Agrico has not received any complaints from the grove owner related to emissions from the chemical complex or cooling ponds. This is significant since the point source fluoride emissions rate from the entire chemical complex prior to the program of replacing older plants with latest technology (mid-1977) was about 60 tons per year.

Under the conditions of the proposed expansion the fluoride emission rate from all point sources in the SPCW will decrease to approximately 40 tons per year. Since there will be an overall reduction in fluoride emissions from point sources and since the emissions from the ponds will increase only slightly (approximately five tons per year) it is doubtful that any fluoride related impacts will be observed in the future.



ΔC 53-34871

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

SOURCE TYPE: Sulfuric Acid Plant ☒ New¹ ☐ Existing¹
APPLICATION TYPE: ☒ Construction ☐ Operation ☐ Modification
COMPANY NAME: Agrico Chemical Company COUNTY: Polk
Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Double Absorption Contact Sulfuric Acid Plant
SOURCE LOCATION: Street SR 630 City Polk County
UTM: East 407.6 km E North 3071.3 km N
Latitude 27 ° 45 ' 45 " N Longitude 81 ° 56 ' 28 " W
APPLICANT NAME AND TITLE: Agrico Chemical Company
APPLICANT ADDRESS: P.O. Box 1969 SPCW Bartow, Florida 33830

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

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

*Attach letter of authorization

Signed: L. C. Lahman
L. C. Lahman, Plant Manager
Name and Title (Please Type)
Date: 9/3/80 Telephone No. (813)428-1423

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

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed: John B. Koogler
John B. Koogler, P.E.
Name (Please Type)
SHOLTES & KOOGLER ENVIRONMENTAL CONSULTANTS
Company Name (Please Type)
1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)
Date: 9/2/80 Telephone No. (904) 377-5822



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

SECTION II: GENERAL PROJECT INFORMATION

- A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.
New double absorption contact sulfuric acid plant with a capacity of 2,000
tons per day of 100% sulfuric acid will be constructed. The plant will meet
NSPS for SO₂ and acid mist and BACT for NO_x and CO.
- B. Schedule of project covered in this application (Construction Permit Application Only)
 Start of Construction September, 1980 Completion of Construction September, 1982
- C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)
Estimated cost of installation of high efficiency mist eliminators, water recirculating
facilities and required monitors is \$3,300,000.
- D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.
None
- E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? Yes ☒ No
- F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 50 ; if power plant, hrs/yr _____ ;
 if seasonal, describe: (8400 hours per 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
 - a. If yes, has "offset" been applied? _____
 - b. If yes, has "Lowest Achievable Emission Rate" been applied? _____
 - c. If yes, list non-attainment pollutants. _____
 2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. Yes
 3. Does the State "Prevention of Significant Deterioration" (PSD) requirements apply to this source? If yes, see Sections VI and VII. Yes
 4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? Yes
 5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? No

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

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

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

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Sulfur	Carbon	0.25	55,000	1

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

1. Total Process Input Rate (lbs/hr): 55,000 lb/hr sulfur

2. Product Weight (lbs/hr): 166,667 lb/hr 100% H₂SO₄

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission ¹		Allowed Emission ² Rate per Ch. 17-2, F.A.C.	Allowable ³ Emission lbs/hr	Potential Emission ⁴		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
SO ₂	333.3	1400	NSPS	333.3	333.3	1400	2
H ₂ SO ₄ Mist	12.5	52	NSPS	12.5	463.0	1944	2
NO _x	14.0	59	N/A	14.0	14.0	59	2
CO	0.1	0.4	N/A	0.1	0.1	0.4	2

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)
High Efficiency Mist Eliminators	Mist	97.3%		Estimate
Double Absorption	SO ₂	99.7%		Design Criteria

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)

⁵If Applicable

E. Fuels N/A

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

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

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

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

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

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

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

Stack Height: _____ 150 _____ ft. Stack Diameter: _____ 9.5 _____ ft.

Gas Flow Rate: _____ 133,000* _____ ACFM Gas Exit Temperature: _____ 170 _____ °F.

Water Vapor Content: _____ 0 _____ % Velocity: _____ 31.3 _____ FPS

* 111,466 scfm, dry

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight – show derivation.
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings; pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, etc.).
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3, and 5 should be consistent: actual emissions = potential (1-efficiency).
6. An 8½" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
ATTACHMENT 1
7. An 8½" x 11" plot plan showing the location of the establishment; and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
ATTACHMENT 2
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 3

V,1 Process Input and Product Weight Rates

Input

Molten sulfur = 55,000 lbs/hr

Output

Sulfuric Acid - Assume 1.05% sulfur loss

$$\begin{aligned} &= 55,000 \times 98/32 \times (1 - 0.0105) \\ &= 166,667 \text{ lb/hr} \\ &= 83.33 \text{ tons/hr} \\ &= 2000 \text{ tons/day } 100\% \text{ H}_2\text{SO}_4 \end{aligned}$$

V, 2 and 3 Emission Estimates and Potential Emissions

Sulfur Dioxide

Potential and actual emissions - based on an emission rate of 4.0 lb SO₂ per ton of 100% acid produced.

$$\begin{aligned} \text{Hourly max.} &= 2000 \text{ TPD} \times 1/24 \times 4.0 \\ &= 333.3 \text{ lb SO}_2/\text{hr} \end{aligned}$$

$$\begin{aligned} \text{Annual avg.} &= 333.3 \times 8400 \text{ hr/yr} \times 1/2000 \\ &= 1400 \text{ tons SO}_2/\text{year.} \end{aligned}$$

Acid Mist

Actual Emissions - Based on an emission rate of 0.15 lb mist per ton of 100% acid produced.

$$\begin{aligned} \text{Hourly Max.} &= 2000 \text{ TPD} \times 1/24 \times 0.15 \\ &= 12.5 \text{ lb/hr} \end{aligned}$$

$$\begin{aligned} \text{Annual Avg.} &= 12.5 \times 8400 \times 1/2000 \\ &= 52.5 \text{ tons/year} \end{aligned}$$

Potential Emissions - Assume an efficiency of 97.3%.

$$\begin{aligned} \text{Hourly Max.} &= 12.5 / (1 - 0.973) \\ &= 463.0 \text{ lbs/hr.} \end{aligned}$$

$$\begin{aligned} \text{Annual Avg.} &= 52.5 / (1 - 0.973) \\ &= 1944 \text{ TPY} \end{aligned}$$

Nitrogen Oxides

Potential and actual emissions - NO_x concentration in sulfuric acid plant tail gas stream is approximately 2.1×10^{-6} lb/scf.

V, 2 and 3 (continued)

$$\begin{aligned} &= 133,000 \text{ Acfm } (528/630) \times 2.1 \times 10^{-6} \times 60 \text{ min/hr} \\ &= 14.0 \text{ lbs/hr NO}_x \times 8400 \times 1/2000 \\ &= 58.8 \text{ tons/year} \end{aligned}$$

Carbon Monoxide

Potential and Actual emissions - The carbon content of "dark" sulfur is approximately 0.25%. Assuming a carbon content of fuel oil of 85% this carbon content is equivalent to a "petroleum content" of 0.29%. A carbon monoxide emission factor of 5 lb CO/1000 gal oil (AP-42) was assumed for the combustion of this material.

$$\begin{aligned} \text{Hourly Max.} &= 55,000 \text{ lb S/hr} \times 0.0029 \text{ lb "oil"/lb S} \times \\ &\quad 1/8 \text{ gal/lb} \times 1/1000 \times 5 \text{ lbs CO/1000 gal} \\ &= 0.1 \text{ lb/hr CO} \end{aligned}$$

$$\begin{aligned} \text{Annual Avg.} &= 0.1 \times 8400 \times 1/2000 \\ &= 0.4 \text{ tons/year} \end{aligned}$$

V, 4 Control Efficiency Estimates

Sulfur Dioxide

Sulfur in Acid

$$2000 \text{ lb acid} \times 32 \text{ lbs/98 lbs acid} = 653.1 \text{ lb S/ton of acid.}$$

Sulfur Losses in Stack

$$4 \text{ lb SO}_2/\text{ton acid} \quad 2 \text{ lb S/ton acid.}$$

Absorption Efficiency

$$E_s = \frac{653.1 - 2.0}{653.1} \times 100 = 99.7\%$$

Mist

Estimated inlet concentration = 30 mg/acf

Tail gas concentration (@ 0.15 lb/ton acid) = 0.8 mg/acf

$$E_m = \frac{30 - 0.8}{30} \times 100 = 97.3\%$$

Nitrogen Oxides - E_n - Assumed to be 0

Carbon Monoxide - E_c - Assumed to be 0

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

- A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
☒ Yes ☐ No

Contaminant	Rate or Concentration
Sulfur dioxide	4.0 lb/ton 100% acid produced
Acid Mist	0.15 lb/ton

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

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
Sulfur dioxide	4.0 lb/ton 100% acid
Acid Mist	0.15 lb/ton 100% acid

- D. Describe the existing control and treatment technology (if any). NOT APPLICABLE - PLANT IS PROPOSED

1. Control Device/System:

2. Operating Principles:

3. Efficiency: *

4. Capital Costs:

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

* Explain method of determining D 3 above.

10. Stack Parameters

- | | | | |
|---------------|------|-----------------|-----|
| a. Height: | ft. | b. Diameter: | ft. |
| c. Flow Rate: | ACFM | d. Temperature: | °F |
| e. Velocity: | FPS | | |

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

1.

- a. Control Device: Acid Mist - High efficiency mist eliminators
- b. Operating Principles: Impaction
- c. Efficiency*: 96-98% (See V,4) d. Capital Cost: \$1,500,000
- e. Useful Life: 8 years f. Operating Cost:
- g. Energy*: h. Maintenance Cost: \$300,000/year
- i. Availability of construction materials and process chemicals: Good
- j. Applicability to manufacturing processes: Proven within the industry
- k. Ability to construct with control device, install in available space, and operate within proposed levels:
Can be designed into the proposed plant

2.

- a. Control Device:
- b. Operating Principles:
- c. Efficiency*: d. Capital Cost:
- e. Useful Life: f. Operating Cost:
- g. Energy*: h. Maintenance Costs:
- i. Availability of construction materials and process chemicals:
- j. Applicability to manufacturing processes:
- k. Ability to construct with control device, install in available space, and operate within proposed levels:

*Explain method of determining efficiency.

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

3.

- a. Control Device:
- b. Operating Principles:
- c. Efficiency*: d. Capital Cost:
- e. Life: f. Operating Cost:
- g. Energy: h. Maintenance Cost:

*Explain method of determining efficiency above.

- i. Availability of construction materials and process chemicals:
- j. Applicability to manufacturing processes:
- k. Ability to construct with control device, install in available space and operate within proposed levels:

4.

- a. Control Device
- b. Operating Principles:
- c. Efficiency*:
- d. Capital Cost:
- e. Life:
- f. Operating Cost:
- g. Energy:
- h. Maintenance Cost:
- i. Availability of construction materials and process chemicals:
- j. Applicability to manufacturing processes:
- k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

Acid Mist - High efficiency mist eliminators

- 1. Control Device:
- 2. Efficiency*: 97.3% Mist
- 3. Capital Cost: \$1,500,000
- 4. Life: 8 years
- 5. Operating Cost:
- 6. Energy:
- 7. Maintenance Cost: \$300,000/year
- 8. Manufacturer: Monsanto Envirochem or equal
- 9. Other locations where employed on similar processes:

a.

- (1) Company: Agrico Chemical Company
- (2) Mailing Address: P. O. Box 1969, Bartow, FL 33830
- (3) City: South Pierce
- (4) State: Florida
- (5) Environmental Manager: Ed Mayer
- (6) Telephone No.: (813) 428-1423

*Explain method of determining efficiency above. (See Section V,4)

(7) Emissions*:

Contaminant	Rate or Concentration:
Sulfur dioxide	≤ 4.0 lb/ton 100% acid
Acid Mist	≤ 0.15 lb/ton 100% acid

- (8) Process Rate*: 1800 TPD

b.

- (1) Company:
- (2) Mailing Address:
- (3) City:
- (4) State:

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

- (5) Environmental Manager:
(6) Telephone No.:
(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems:

Double absorption for the control of sulfur dioxide and high efficiency mist eliminators for the control of acid mist is the accepted NSPS and BACT for the control of these pollutants. EPA has recently reviewed NSPS for sulfuric acid plants and concluded that no better technology exists for sulfur dioxide and acid mist control.*

Agrico Chemical Company is currently operating two 1800 TPD sulfuric acid plants at the South Pierce Chemical Works with similar control equipment and operators are all well acquainted with the operation of this type plant.

* A Review of Standards of Performance for New Stationary Sources - Sulfuric Acid Plants, US EPA EPA-450/3-79-003, January 1979.

*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 ATTACHED AIR QUALITY REVIEW REPORT

A. Company Monitored Data

1. _____ no sites _____ TSP _____ () SO²* _____ Wind spd/dir
Period of monitoring _____ / _____ / _____ to _____ / _____ / _____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

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

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

B. Meteorological Data Used for Air Quality Modeling

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

2. Surface data obtained from (location) _____

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

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

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

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

D. Applicants Maximum Allowable Emission Data

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

E. Emission Data Used in Modeling

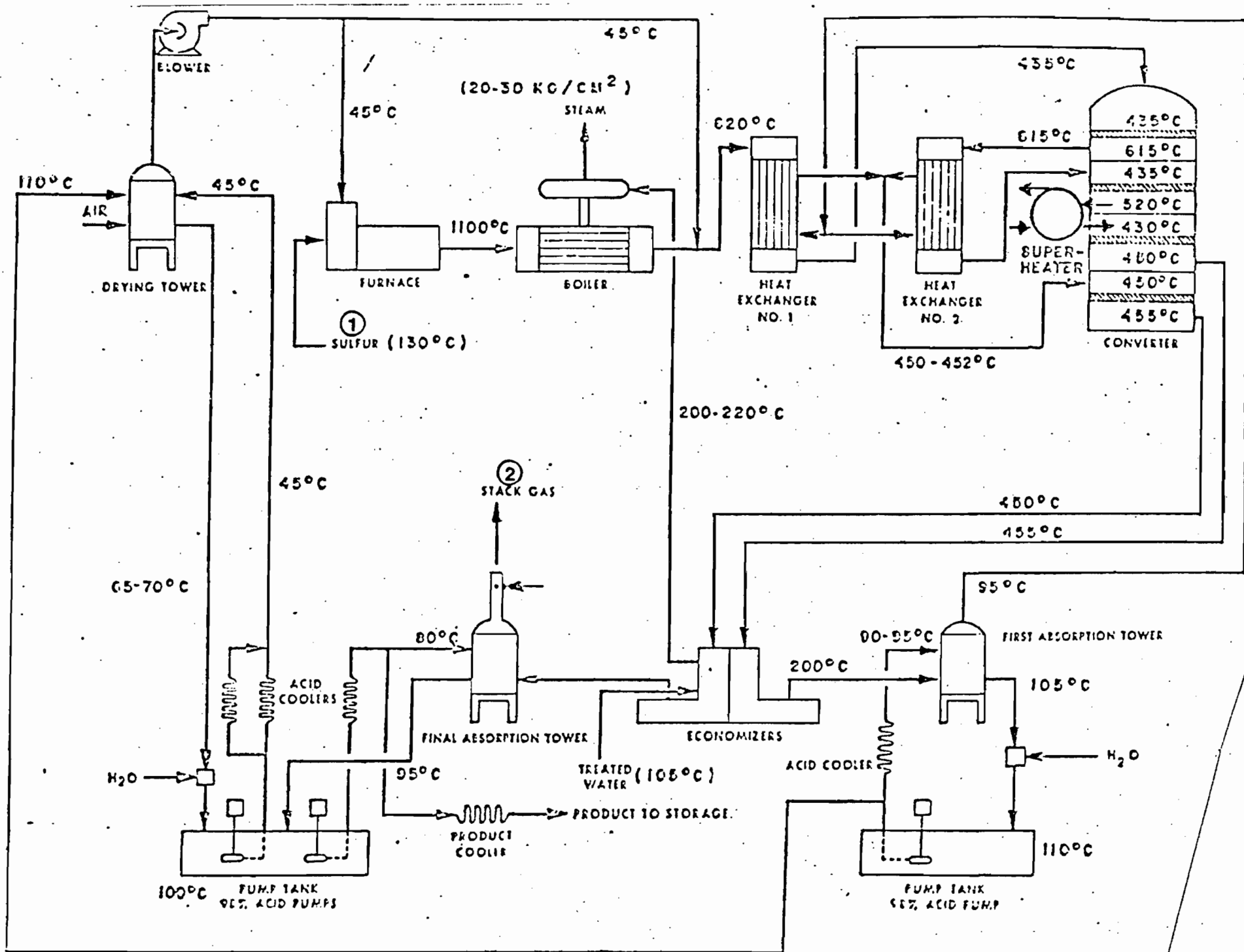
Attach list of emission sources. Emission data required is source name, description on point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

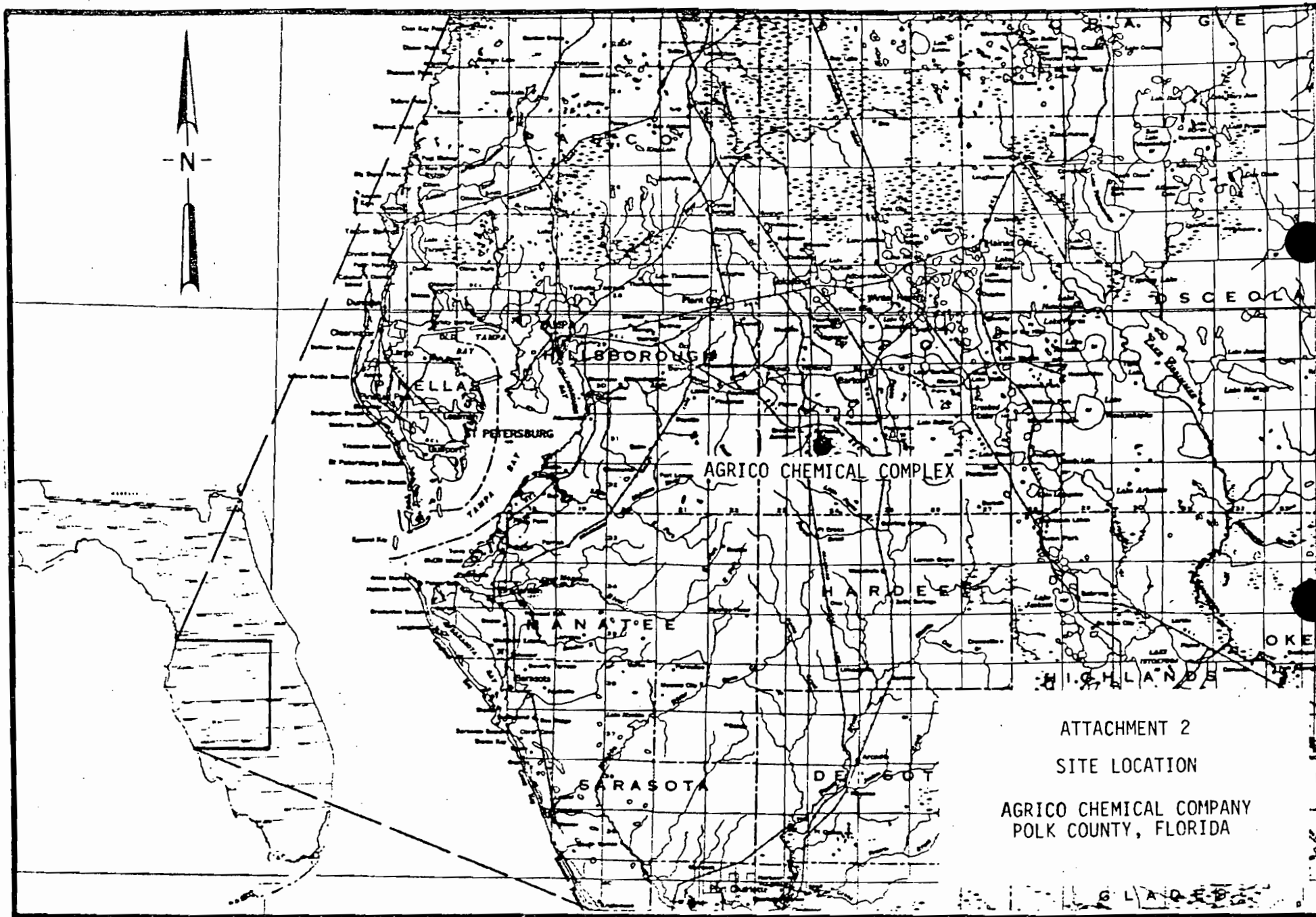
F. Attach all other information supportive to the PSD review.

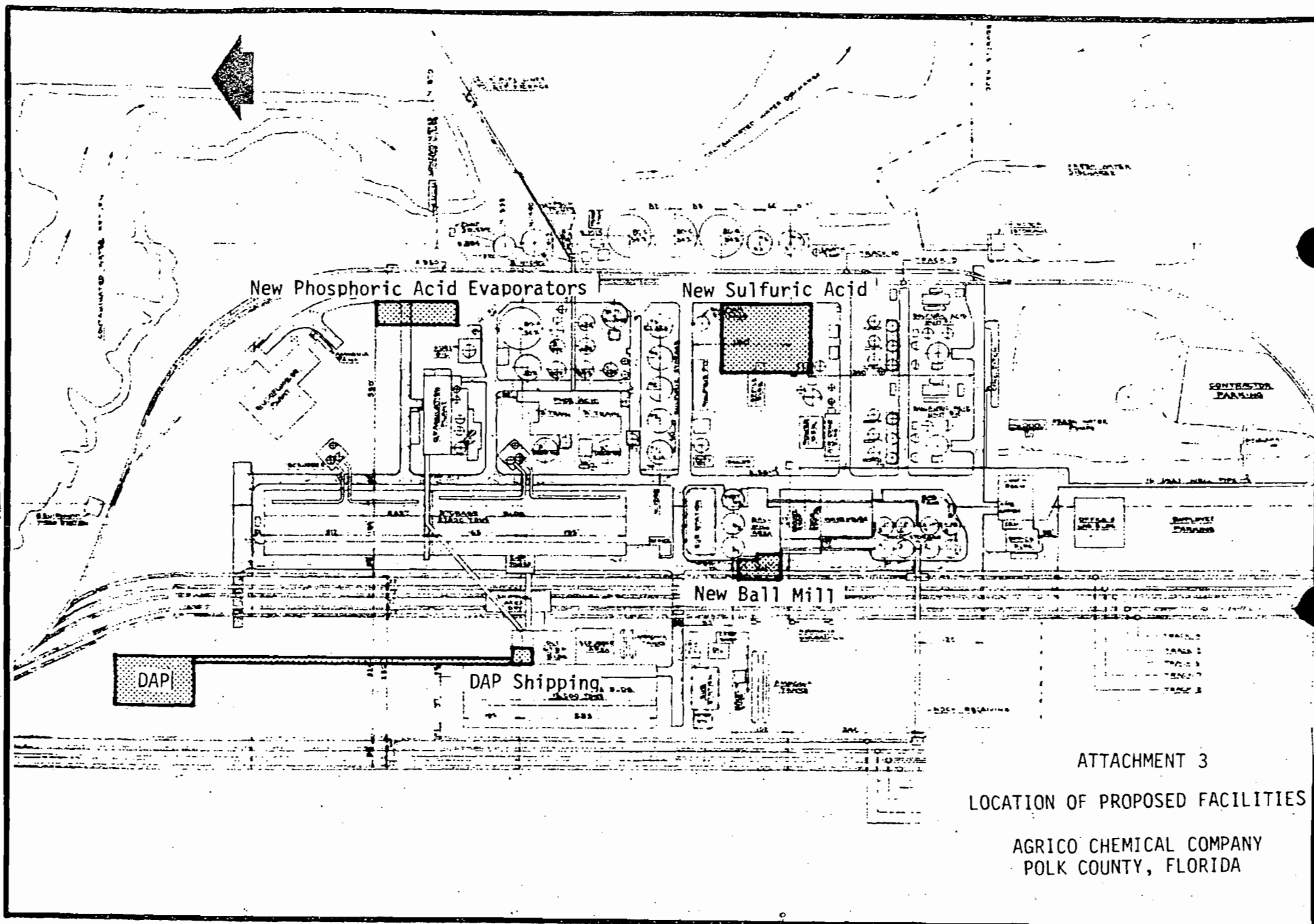
*Specify bubbler (B) or continuous (C).

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

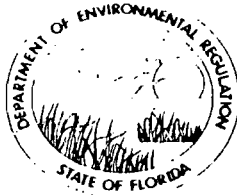
H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.







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



BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

January 7, 1980

Mr. Edward Mayer, Environmental
Engineer
Agrico Chemical Company
P. O. Box 1969
Bartow, FL 33830

Dear Mr. Mayer:

I understand that Agrico Chemical Company will be submitting applications for permits to construct facilities at the South Pierce Chemical Works this spring. The Department is presently reviewing several applications for permits to construct DAP plants. We have had to request the following additional information from the companies' engineers to complete their applications.

1. Process description of the plant that includes information on air pollutant controls on each major piece of equipment and other points of emissions.
2. Information on the quantities of products/process material in units of the standards - i.e., tons P_2O_5 , 100% H_2SO_4 , TPH, etc.
3. Sulfur dioxide from burning fuel oil is a potential pollutant and needs to be included in the application.
4. Process drawings showing material balances on raw materials, products, and air pollutants (particulate, acid mist, sulfur dioxide, fluorides, ammonia, nitric oxides, etc.). Major production equipment and the pollution control equipment serving these units should be shown on the drawings.
5. Plot plan showing other manufacturing facilities, location of proposed facilities, company lines, public access areas, points of discharge (show UTM Coordinates of stacks), etc.

Mr. Edward Mayer
January 7, 1980
Page two

6. Plot plan and elevation drawings showing major equipment in the proposed plants.
7. Description of pollution abatement equipment. Include efficiencies, flow characteristics, manufacturer's guarantees or Agrico's performance specifications to the manufacturer.
8. Fugitive particulate controls during construction and operation (routine cleanup and transfer of products).
9. Recommend BACT (or LAER, if applicable) for particulate, ammonia, fluoride, sulfur dioxide, and acid mist.
10. PSD information on particulate and sulfur dioxide from the sources that will give the Department adequate assurance that allowable emissions, as defined by BACT or LAER, will not cause or contribute to ground level concentrations in excess of any ambient air quality standard or PSD increment and not result in a significant impact on any nonattainment area.

In preparing your applications for the source, please include the information referred to in the above list. They will help accelerate our review of your application. It will take a close review of the application package on our part before it can be officially declared complete. Should you have any questions on this matter, please contact this office.

Sincerely,

Willard Hanks

Willard Hanks
Bureau of Air Quality Management

WH/ht

cc: DER, Tampa

MEETING: Preapplication Conference with Agrico Chemical Co.
Regarding new DAP, SAP and PAP facilities at the South
Pierce Chemical Works

LOCATION: BAQM, Tallahassee

DATE: November 29, 1979

ATTENDEES:

<u>NAME</u>	<u>ORGANIZATION</u>
Bill Thomas	FDER, Tallahassee
Willard Hanks	FDER, Tallahassee
M. G. Hodges	FDER, Tallahassee
Robert Rhodes	Holland & Knight
John Koogler	Soltes & Koogler
Ed Mayer	Agrico
Curt Ingebretson	Agrico

PROCEEDINGS:

This was a preapplication meeting to determine probable monitoring, modeling and compliance requirements for the construction of a DAP/MAP and 4_3PO_4 facility as well as the modification to an H_2SO_4 plant.

NSPS will be met on all proposed construction.

The settling pond is approximately 200 acres and will readily accomodate the estimated 70 TPY of fluorides.

Emissions from the existing facility would be increased by approximately 3-4%. Emissions within 50 km. of the plant will be used in the modeling. No significant increase in TSP or SO_2 is projected.

Monitor data and modeling will be requested and/or coordinated through Larry George.

Agrico intends to apply individually for each source to avoid BACT. Agrico will deal directly with BAQM.

Additional information is attached.

29 NOV 79

PRELIMINARY COMPUTATIONS & MODELING (DR. J. KOGLER)
 POTENTIAL AND ACTUAL AIR POLLUTANT EMISSION RATE
 FROM PROPOSED NEW SOURCES

(S. PIERCE
 CHEM. WORKS)

AGRICO CHEMICAL COMPANY
 POLK COUNTY, FLORIDA

NOVEMBER 1979

J.K. — WILL ADDRESS
 F. EMIS. FROM POND.

- 1 - Sulfuric Acid Plant @ 2,000 TPD
- 1 - DAP Plant @ 600,000 TPY (product)
- 1 - Phosphoric Acid Plant @ 200,000 TPY (P_2O_5)

② 2½% S F.O. → AIR POLLUTANT EMISSION RATE (TPY)

Source	SO ₂		Acid Mist		Particulate Matter		Fluoride		NO _x	
	Pot.	Act.	Pot.	Act.	Pot.	Act.	Pot.	Act.	Pot.	Act.
Sulfuric Acid	1387	1387	520	52	0	0	0	0	52	52
DAP MAP	235	235	0	0	>100	<50	224	9	12	12
Phosphoric Acid	0	0	0	0	0	0	50	2	0	0
Total	1622	1622	520	52	>100	<50	274	11	64	64

MEASUREMENTS
 AP 42
 (MINIMAL CO EMISSIONS)

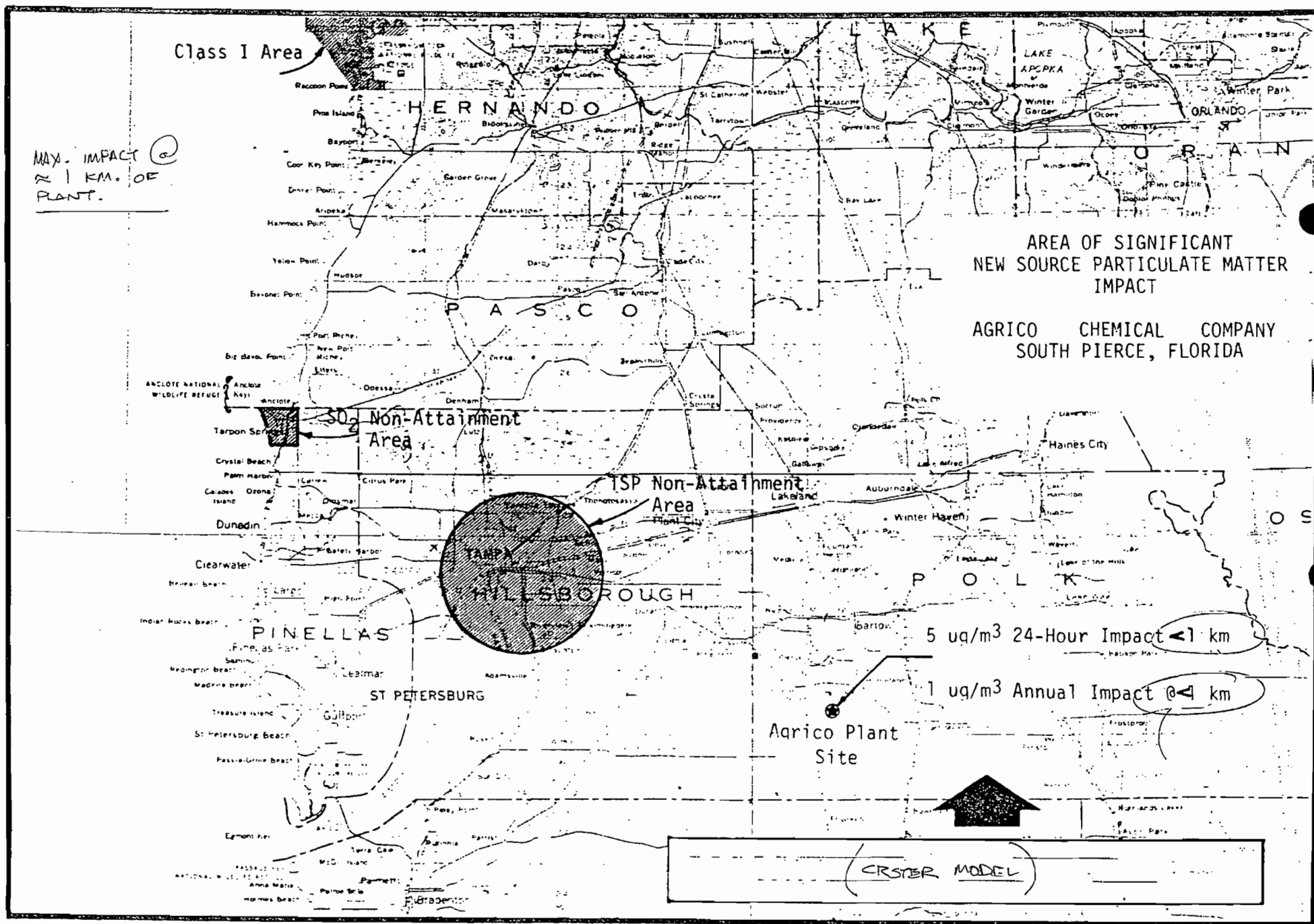
BASED UPON
 ~ 50% REMOVAL
 X, OF SO₂ BY
 FREE NH₃

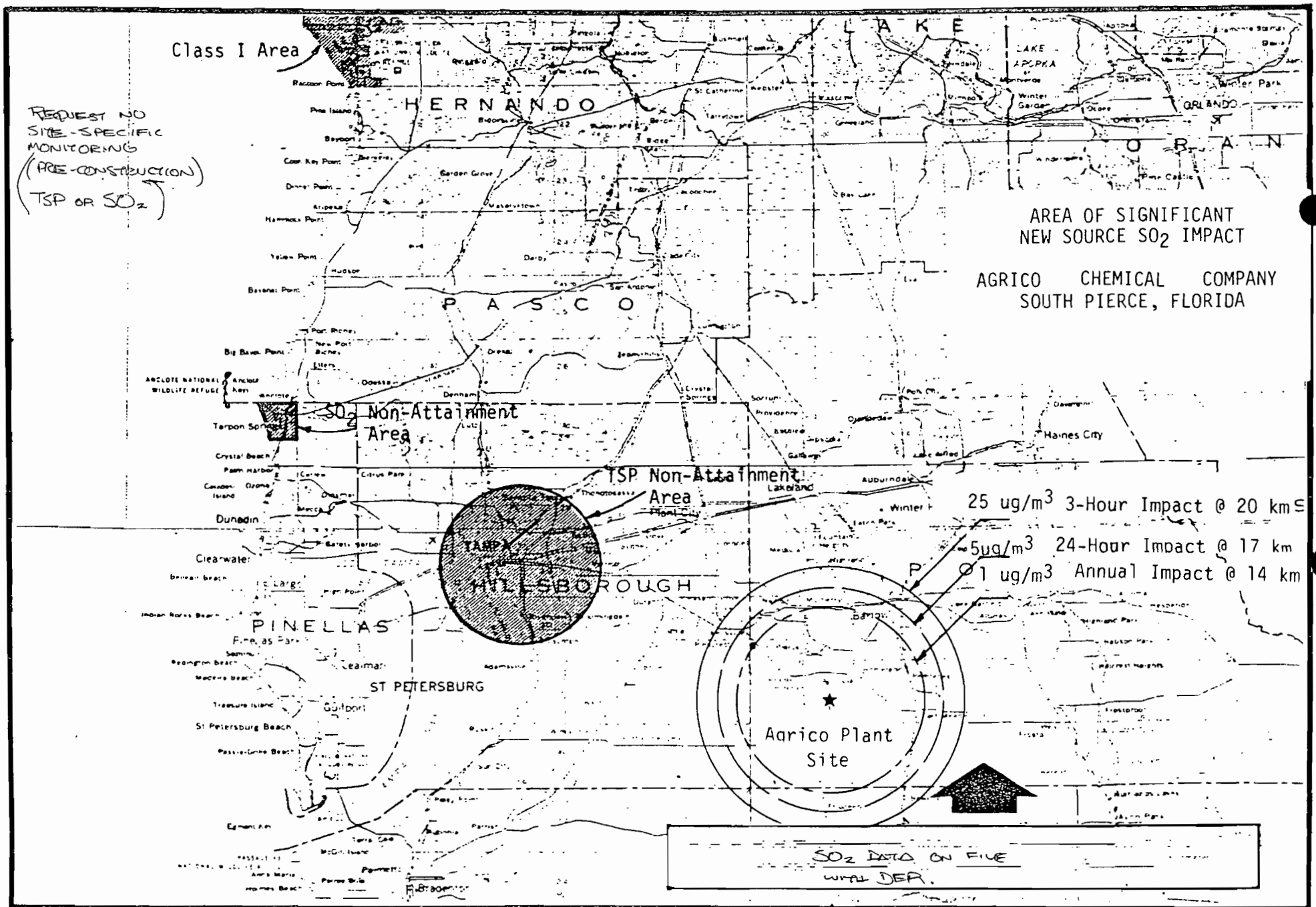
POND WILL NOT INCREASE.
 ΔH WILL INCREASE, THEREBY,
 > IN FLUORIDE EMISSIONS,
 > IN VAPOR PRESSURE.
 ACTUAL INCREASE ~ 3-4%.

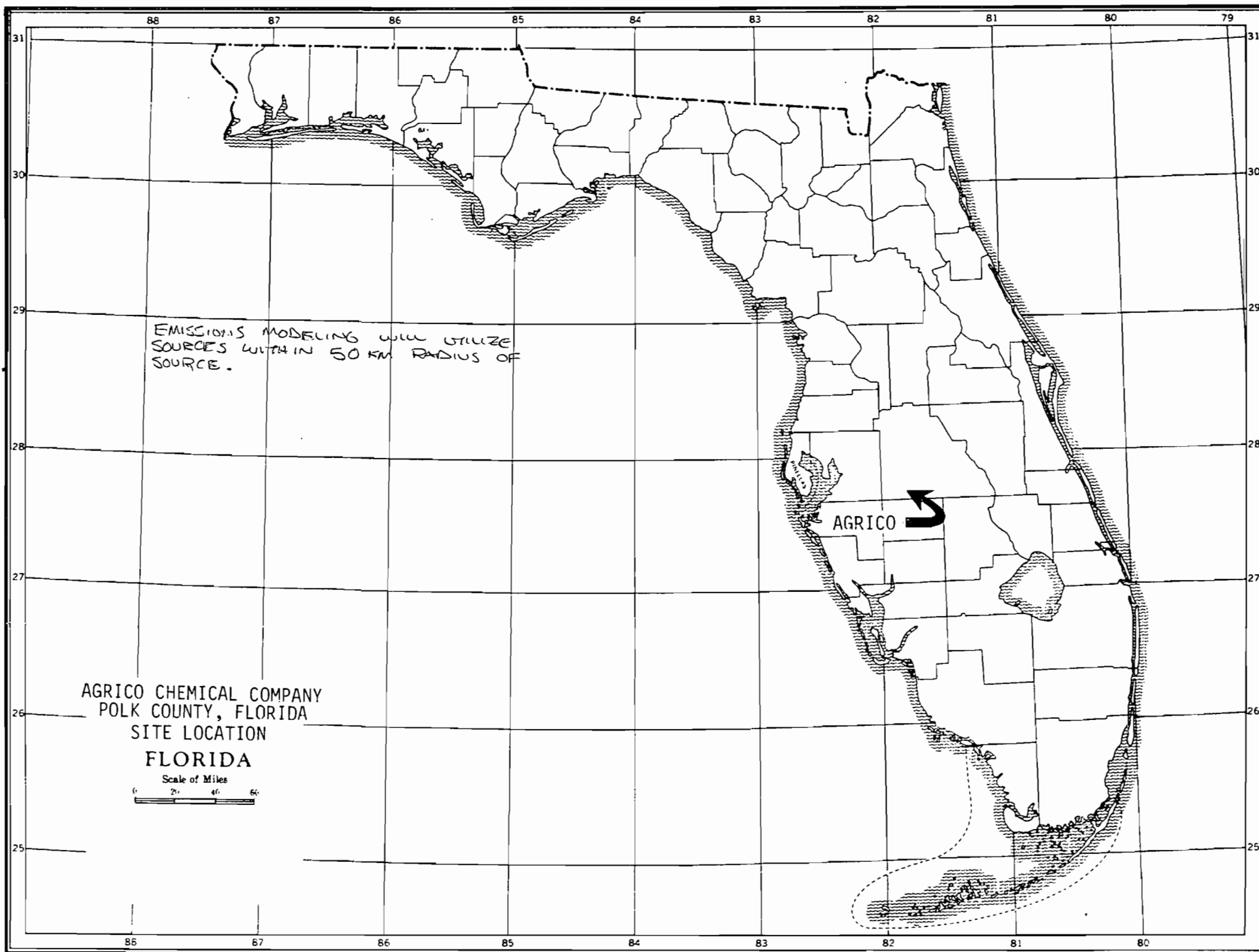
TOTAL (BASED
 ON NSPS)

ALSO WILL MFG. MAP,
 WHICH WILL REQUIRE
 NO F.O. FOR DRYING,
 (EXOTHERMIC R_x).

M. G. HOGGES
 11/29/79 PM







7601 HIGHWAY 301 NORTH
TAMPA, FLORIDA 33610



BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

WILLIAM K. HENNESSEY
DISTRICT MANAGER

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHWEST DISTRICT

September 24, 1980

William A. Thomas
Bureau of A.Q.M., FDER
2600 Blair Stone Road
Twin Towers Office Bldg.
Tallahassee, Fla. 32301



RE: Agrico Expansion

Dear Mr. Thomas:

With reference to Mr. Edward E. Mayer's letter to you dated September 8, 1980, concerning Agrico, SPCW, applications for a DAP plant, sulfuric acid plant, phosphoric acid plant, and a storage and shipping facility expansion, would you send us the fourth copy of these for our files.

Also, we need a copy of the purified MAP/DAP plant construction application when you receive them.

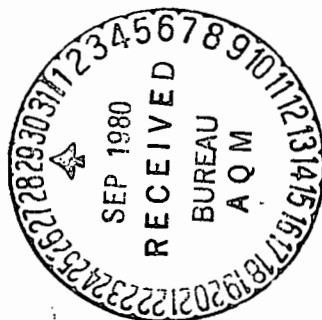
Since we will be involved in the BACT determination, we will need this information to start our activities.

Sincerely,

Robert R. Garrett
Robert R. Garrett, P.E.
Air Engineer

RRG/rkt

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
SOUTHWEST DISTRICT
7601 HIGHWAY 301, NORTH
TAMPA, FLORIDA 33610



William A. Thomas
Bureau of A.Q. M., FDER
2600 Blair Stone Road
Twin Towers Office Bldg.
Tallahassee, Fla. 32301