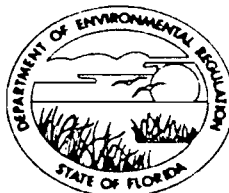


AC 53-081664

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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



DER

MAY 6 1985

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

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

BAQM

SOURCE TYPE: Sulfuric Acid Plant New¹ Existing¹
APPLICATION TYPE: Construction Operation Modification
COMPANY NAME: USS Agri-Chemicals COUNTY: Polk

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

SOURCE LOCATION: Street SR 630; 3.5 mi west of Ft. Meade City Ft. Meade
UTM: East 416.12 North 3068.67
Latitude 27 ° 44 ' 29 "N Longitude 81 ° 51 ' 4 "W

APPLICANT NAME AND TITLE: J.C. Daniel, Manager, Environmental & Special Projects
APPLICANT ADDRESS: Post Office Box 867, Ft. Meade, Florida 33841

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of USS Agri-Chemicals

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

*Attach letter of authorization

Signed: J. Daniel
J.C. Daniel, Manager, Environmental & Special
Name and Title (Please Type) Projects

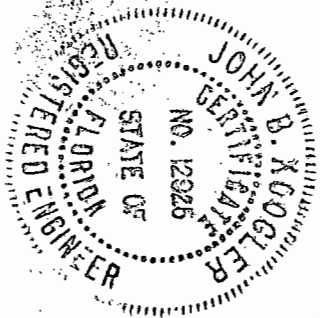
Date: _____ Telephone No. (813) 533-8184

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

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

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

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, Ph.D., P.E.
Name (Please Type)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
Company Name (Please Type)
1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 4/22/85 Telephone No. (904) 377-5822

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 construction permit application to increase the permitted production rate of a new double absorption contact sulfuric acid plant from 2,200 tpd of 100% sulfuric acid to 3,000 tpd of 100% sulfuric acid. The plant will operate in full compliance with applicable regulations. See project PSD package for more detailed project description.

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

Start of Construction October 1986 Completion of Construction November 1986

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.)

The cost of the additional catalyst necessary to maintain the sulfur dioxide recovery efficiency is \$150,000.00. The existing mist eliminators are adequate to control acid mist emissions at the higher production rate.

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

PSD FL-064 Approval, April 1981; AC53-33819 issued 12/24/80 and expired 9/30/83;
AO 53-69838 issued 9/27/83 and expiring 8/15/88

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ;
if power plant, hrs/yr _____ ; if seasonal, describe: Annual operating time will
not exceed 7,967 hours per year.

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

1. Is this source in a non-attainment area for a particular pollutant? NO
a. If yes, has "offset" been applied? --
b. If yes, has "Lowest Achievable Emission Rate" been applied? --
c. If yes, list non-attainment pollutants. --

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

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

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

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

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

a. If yes, for what pollutants? _____

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

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

See project PSD Application package.

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

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

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Sulfur	Ash	0.5%	81,878	A (Attachment 1)

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

1. Total Process Input Rate (lbs/hr): 81,878 (sulfur)

2. Product Weight (lbs/hr): 255,102 (98% acid)

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

Name of Contaminant	Emission ¹		Allowed Emission Rate per Rule 17-2	Allowable ³ Emission lbs/hr	Potential ⁴ Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
Sulfur Dioxide	500	1992	4 lb/ton	500	500	1992	B (Attach1)
Acid Mist	18.8	74.7	0.15 lb/ton	18.8	213	846	"

¹See Section V, Item 2.

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

³Calculated from operating rate and applicable standard.

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

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
Double absorber	Sulfur dioxide	99.7	NA	AP-42, Supp12
Demister	Acid Mist	91.2	> 0.5 um	" "

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

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

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

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

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

Annual Average NA Maximum _____

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

Cooling tower blowdown, boiler blowdown and feedwater treatment unit blowdown are non-process effluents and will be discharged to the plant outfall.

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

Stack Height: 175 ft. Stack Diameter: 8.5 ft.
 Gas Flow Rate: 150,800 ACFM 124,400 DSCFM Gas Exit Temperature: 180 °F.
 Water Vapor Content: 0 % Velocity: 52.2 FPS

SECTION IV: INCINERATOR INFORMATION
 NOT APPLICABLE

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

Description of Waste _____
 Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____
 Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____
 Manufacturer _____
 Date Constructed _____ Model No. _____

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

Stack Height: _____ ft. Stack 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: _____

See project PSD Application package for description of control systems. _____

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

See Section III, G _____

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

SEE PAGES 7a and 7b

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).
6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

SECTION V - SUPPLEMENTAL REQUIREMENTS

1. Production and Material Input Rates

Product

$$\begin{aligned} & 3,000 \text{ STPD of } 100\% \text{ sulfuric acid as } 98\% \text{ acid} \\ & = 3,000 \text{ STPD } (2000 \text{ lb/ton}) / (0.98)(24 \text{ hr/day}) \\ & = 255,102 \text{ lb/hr of } 98\% \text{ acid.} \end{aligned}$$

Process Losses

Sulfur dioxide emission rate of 4 lbs sulfur dioxide per ton of 100% acid is equivalent to a 99.7% sulfur recovery.

Material Input

$$\begin{aligned} & = 3,000 \text{ STPD } (32/98 \text{ ton S/ton acid}) / (0.997) \\ & = 983 \text{ STPD} \\ & \quad \times 2,000/24 \\ & = 81,878 \text{ lb/hr of sulfur.} \end{aligned}$$

2&3. Controlled and Uncontrolled Emissions

Sulfur Dioxide

$$\begin{aligned} & \text{Controlled and uncontrolled @ } 4 \text{ lb/ton of acid} \\ & = 4 \text{ lb/ton } (3,000) / 24 \\ & = 500 \text{ lb/hr} \\ & \quad \times 7,967 / 2000 \\ & = 1,992 \text{ tpy} \end{aligned}$$

Acid Mist

$$\begin{aligned} & \text{Uncontrolled @ } 1.7 \text{ lb/ton of acid (AP-42, Supp. 12)} \\ & = 1.7 \text{ lb/ton } (3,000) / 24 \\ & = 213 \text{ lb/hr} \\ & \quad \times 7,967 / 2000 \\ & = 846 \text{ tpy} \end{aligned}$$

$$\begin{aligned} & \text{Controlled @ } 0.15 \text{ lb/ton of acid} \\ & = 0.15 \text{ lb/ton } (3,000) / 24 \\ & = 18.8 \text{ lb/hr} \\ & \quad \times 7,967 / 2000 \\ & = 74.7 \text{ tpy} \end{aligned}$$

4. See PSD package for description of control technology.

5. Control Efficiency

Sulfur dioxide emission rate of 4.0 lb sulfur dioxide per ton of 100% acid is equivalent to a sulfur recovery efficiency of 99.7% (AP-42, Supplement 12).

Acid Mist

$$\begin{aligned} E & = (213 - 18.8)(100) / 213 \\ & = 91.2\% \end{aligned}$$

6. Flow Diagram - Attachment 1.
7. Location Map - Attachment 2.
8. Site Map - Attachment 3.

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.
10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY
SEE PROJECT PSD PACKAGE FOR BACT ANALYSIS

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

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration

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

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

*Explain method of determining

- 5. Useful Life:
- 7. Energy:
- 9. Emissions:

- 6. Operating Costs:
- 8. Maintenance Cost:

Contaminant	Rate or Concentration

10. Stack Parameters

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

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

1.

- a. Control Device: b. Operating Principles:
- c. Efficiency:¹ d. Capital Cost:
- e. Useful Life: f. Operating Cost:
- g. Energy:² h. Maintenance Cost:
- i. Availability of construction materials and process chemicals:
- j. Applicability to manufacturing processes:
- k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

- a. Control Device: b. Operating Principles:
- c. Efficiency:¹ d. Capital Cost:
- e. Useful Life: f. Operating Cost:
- g. Energy:² h. Maintenance Cost:
- i. Availability of construction materials and process chemicals:

¹Explain method of determining efficiency.

²Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

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

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:¹

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:²

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:¹

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:²

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

F. Describe the control technology selected:

1. Control Device:

2. Efficiency:¹

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:²

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

¹Explain method of determining efficiency.

²Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:¹

Contaminant	Rate or Concentration

(8) Process Rate:¹

b. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:¹

Contaminant	Rate or Concentration

(8) Process Rate:¹

10. Reason for selection and description of systems:

¹Applicant 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 PROJECT PSD PACKAGE FOR AIR QUALITY REVIEW

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.

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

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

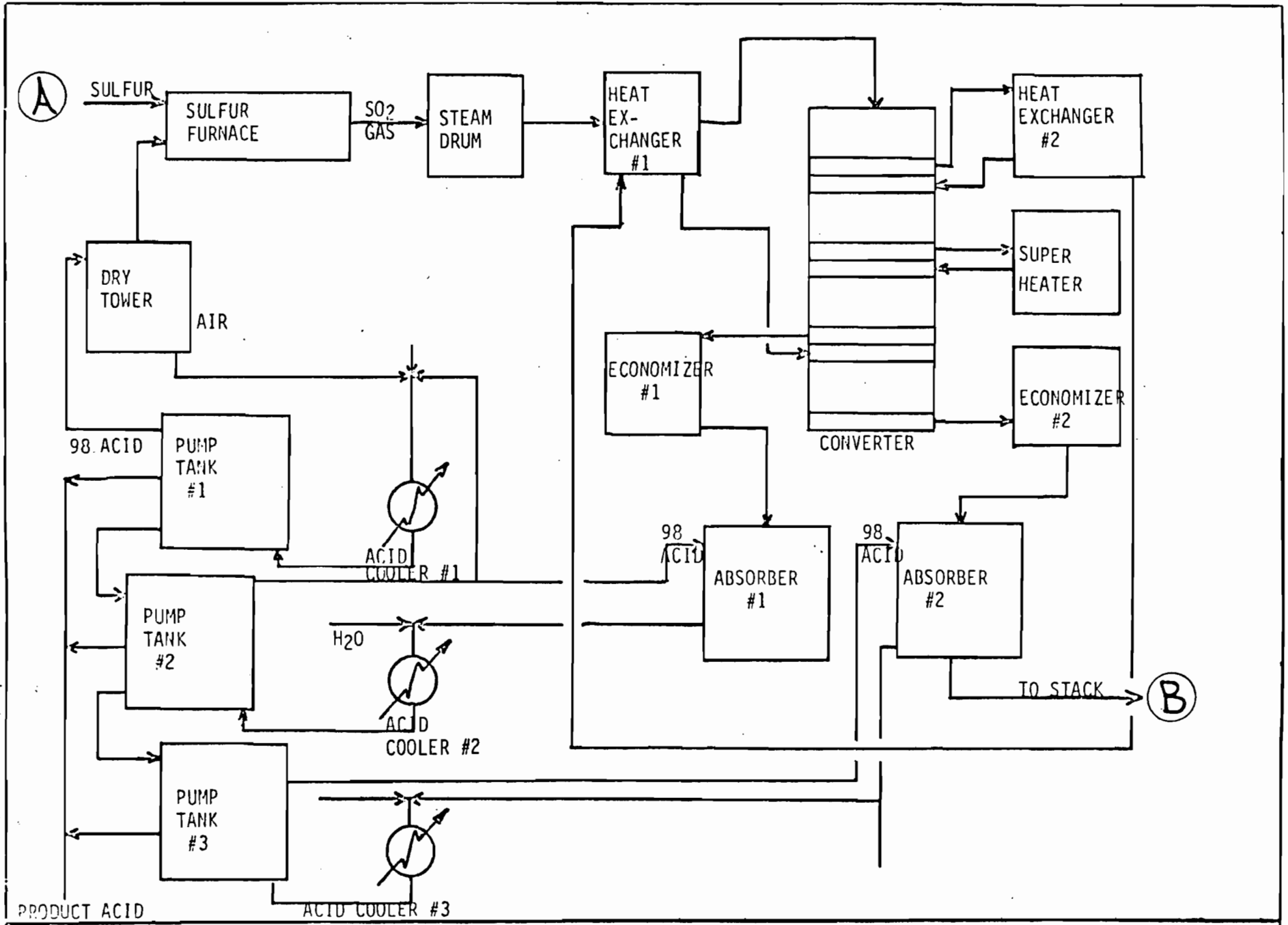
E. Emission Data Used in Modeling

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

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

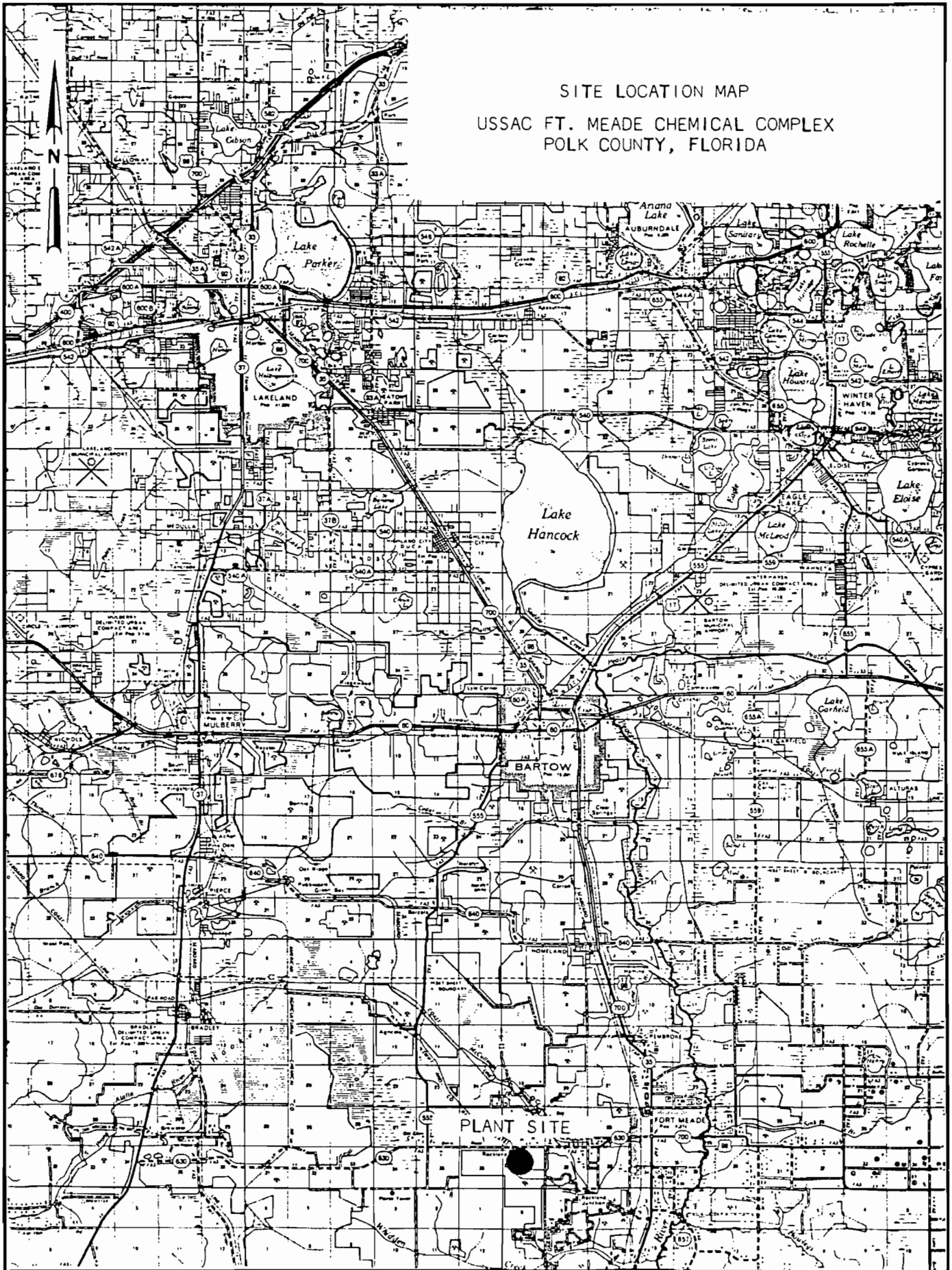
G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

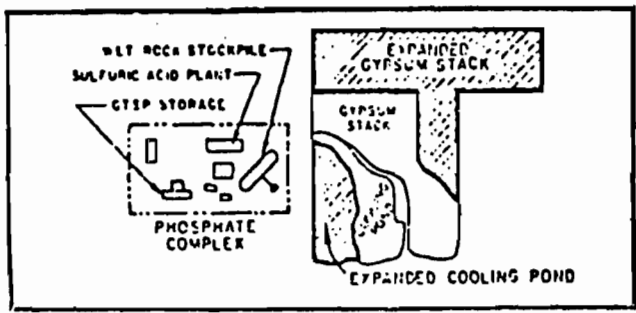
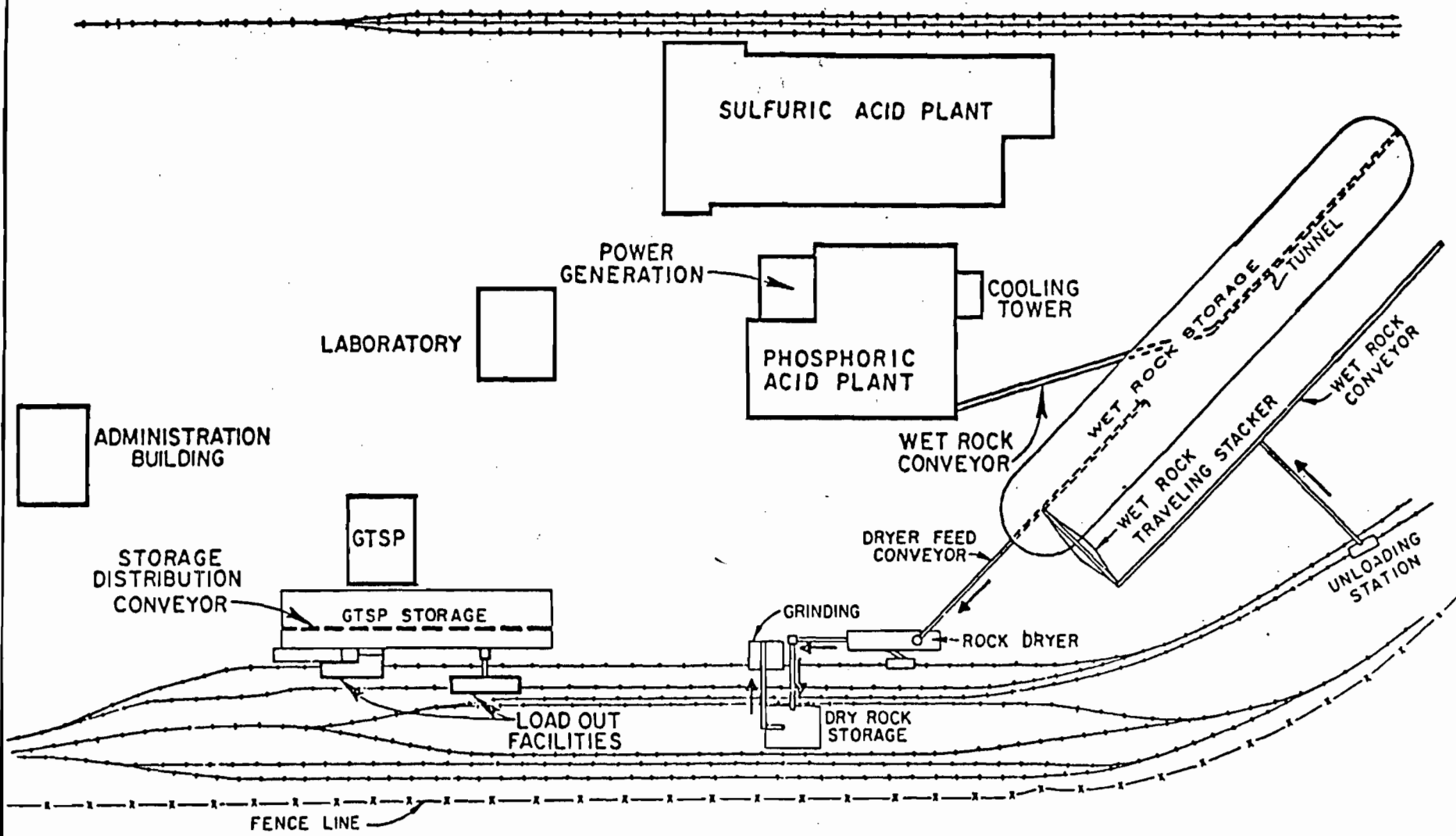
H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.



DOUBLE CONTACT/DOUBLE ABSORPTION - SULFURIC ACID MANUFACTURE

SITE LOCATION MAP
USSAC FT. MEADE CHEMICAL COMPLEX
POLK COUNTY, FLORIDA





FT. MEADE PHOSPHATE COMPLEX

U.S. STEEL AGRI-CHEMICALS
FT. MEADE, FLORIDA

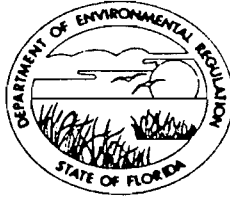
GRAPHIC SERVICES - ENGINEERING - PITTSBURGH
UNITED STATES STEEL CORPORATION

7925/7926	ALTIERI	FRICHARD	5-12-60	PD 103
DF 3705-2		STORY		

MAY 6 1985

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

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



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

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

SOURCE TYPE: Phosphoric Acid Plant [] New¹ [] Existing¹
APPLICATION TYPE: [] Construction [] Operation [] Modification
COMPANY NAME: USS Agri-Chemicals COUNTY: Polk

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) Phosphoric Acid Plant A and acid storage

SOURCE LOCATION: Street SR630; 3.5 mi west of Ft. Meade City Ft. Meade
UTM: East 416.07 North 3068.78
Latitude 27 ° 44 ' 32 "N Longitude 81 ° 51 ' 6 "W

APPLICANT NAME AND TITLE: J.C. Daniel, Manager, Environmental & Special Projects
APPLICANT ADDRESS: Post Office Box 867, Ft. Meade, Florida 33841

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

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

*Attach letter of authorization

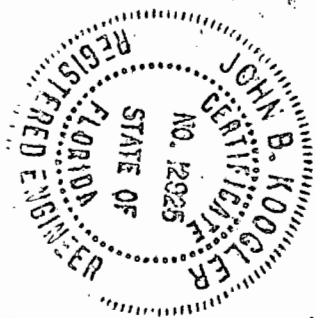
Signed: J.C. Daniel
J.C. Daniel, Manager, Environmental & Special Projects
Name and Title (Please Type) Projects
Date: _____ Telephone No. (813) 533-8184

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

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

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

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



Signed *[Signature]*

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

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
(Company Name (Please Type))

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

Florida Registration No. 12925 Date: 4/22/85 Telephone No. (904) 377-5822

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.

See Attached Page 2a

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

Start of Construction November 1986 Completion of Construction December 1986

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

There will be no cost associated with upgrading the existing air pollution control systems as a result of the production rate increase. The existing control systems are adequate to control emissions at the increased production rate.

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

PSD-FL-064 approved April 1981; AC53-33821 issued 12/24/80 and expired 9/30/83;
AO 53-69840 issued 9/27/83 and expiring 8/15/88

A. A construction permit application to increase the production rate of an existing new phosphoric acid plant from 800 tpd (P_2O_5) to 1000 tpd (P_2O_5) as 29% P_2O_5 . The acid is evaporated to 54% P_2O_5 phosphoric acid. The plant uses wet rock grinding. Available fluorides are recovered as fluorosilicic acid.

The application also covers the acid storage and clarification area; an area common to the "A" and "B" phosphoric acid plants. The storage tanks, acid clarifiers and miscellaneous vents are vented through a common venturi scrubber.

See the project PSD package for a more detailed description of the acid plant and storage area.

The sources will operate in compliance with all applicable air quality regulations.

E. Requested permitted equipment operating time: hrs/day 24; days/wk 7; wks/yr 52; if power plant, hrs/yr _____; if seasonal, describe: Annual operating time will not exceed 7,968 hours. Acid storage and clarification area will be active 8,760
hours per year.

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

1. Is this source in a non-attainment area for a particular pollutant? NO
a. If yes, has "offset" been applied? --
b. If yes, has "Lowest Achievable Emission Rate" been applied? --
c. If yes, list non-attainment pollutants. _____
2. Does best available control technology (BACT) apply to this source? YES
If yes, see Section VI.
3. Does the State "Prevention of Significant Deterioration" (PSD) requirement apply to this source? If yes, see Sections VI and VII. YES
4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? YES
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO
- H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? NO
a. If yes, for what pollutants? _____
b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

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

See project PSD Application Package.

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		
Phosphate Rock	Fluorine	3.5	290,461 (1)	A (Attachment 1)
Sulfuric Acid	None	---	229,592 (2)	B (Attachment 1)
(1) P ₂ O ₅ Input is	87,719 lbs/hr			
(2) As 98% acid.				

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

1. Total Process Input Rate (lbs/hr): 520,053 (phosphate rock and sulfuric acid)

2. Product Weight (lbs/hr): 287,356 as 29% P₂O₅ phosphoric acid.

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

Name of Contaminant	Emission ¹		Allowed Emission Rate per Rule 17-2	Allowable Emission lbs/hr	Potential ⁴ Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
Fluoride *	0.88	3.5	0.02 lb/ton	0.88	2,350	9,362	C&D(Attach. 1)
* Combined emissions from the phosphoric acid plant scrubber and the acid storage and clarification area scrubber..							

¹See Section V, Item 2.

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

³Calculated from operating rate and applicable standard.

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

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particle Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
Acid Plant Venturi Scrubber	Fluoride	99.96%	NA	Estimate (1)
Stg. & Clair Venturi Scrubber	Fluoride	95%	NA	Vendor Est.
(1) Calculated in Section V.5 based on AP-42 uncontrolled emission factor and NSPS emission limit.				

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

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

Fuel Analysis:

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

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

Annual Average Not Applicable Maximum _____

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

Gypsum slurry is transferred to an on-site gypsum disposal area. The process and scrubber water is recycled through the process water cooling pond. Scrubber water from acid clarification is recycled through the process water cooling pond.

(Acid plant/Acid Clarification)

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

Stack Height: 85/60 ft. Stack Diameter: 3.4/2.0 ft.
Gas Flow Rate: 12,000/6,000 ACFM 10,635/5,690 DSCFM Gas Exit Temperature: 100/80 °F.
Water Vapor Content: 6/3 % Velocity: 22.0/32.0 FPS

SECTION IV: INCINERATOR INFORMATION

NOT APPLICABLE

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

Description of Waste _____

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

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

Manufacturer _____

Date Constructed _____ Model No. _____

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

Stack Height: _____ ft. Stack 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: _____

See PSD Application package

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

See Section III, G

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

(See Page 7a)

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).
6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

SECTION V
SUPPLEMENTAL REQUIREMENTS

1. Production and Material Input Rates

Product

1,000 STPD of 100% P_2O_5 as 29% P_2O_5 phosphoric acid. Over 90% of the acid is concentrated in two stages to 54% P_2O_5 phosphoric acid.
= (1000 STPD)(2000 lb/ton)/(0.29)(24 hrs/day)
= 287,356 lb/hr of 29% acid.

Process Losses

P_2O_5 losses to the gypsum area are 5.0%.

Material Input

Wet phosphate rock (dry weight basis) @ 30.2% P_2O_5
= (1000 STPD)(2000)/(1-0.05 loss factor)(0.302)(24)
= 290,461 lbs/hr phosphate rock
x 0.302
= 87,719 lb/hr P_2O_5 .

98% Sulfuric Acid at a use rate of 2.7 tons of 100% acid per ton of P_2O_5 produced
= (1000 STPD)(2000)(2.7)/(0.98 acid strength)(24)
= 229,592 lbs/hr 98% sulfuric acid.

2&3. Controlled and Uncontrolled Emissions from acid plant and acid clarification area (total).

Fluoride

Uncontrolled @ 56.4 lb/ton of P_2O_5 produced (AP-42, Supp. 10)
= (1000 STPD)(56.4)/24
= 2,350 lb/hr
x 7968/2000
= 9362 tpy

Controlled @ 0.02 lb/ton P_2O_5 Input
= (87,719 lb/hr P_2O_5)(0.02)/2000
= 0.88 lb/hr
x 7968/2000
= 3.5 tpy

4. See PSD package for description of control system.

5. Fluoride Control Efficiency
Acid Plant

$E = (2350 - 0.88)(100)/2350$
= 99.96%.

Acid Clarification - $E = 95\%$ based on supplier guarantee.

6. Flow Diagram - Attachment 1.

7. Location Map - Attachment 2.

8. Site Map - Attachment 3.

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.
10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

(See PSD Package for BACT Analysis)
 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

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

Contaminant	Rate or Concentration

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

Contaminant

Rate or Concentration

Contaminant	Rate or Concentration

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

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

*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant

Rate or Concentration

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height:

ft.

b. Diameter:

ft.

c. Flow Rate:

ACFM

d. Temperature:

°F.

e. Velocity:

FPS

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

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:¹

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:²

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

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

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:¹

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:²

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

¹Explain method of determining efficiency.

²Energy to be reported in units of electrical power - KWH design rate.

- j. Applicability to manufacturing processes:
- k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

- a. Control Device:
- b. Operating Principles:
- c. Efficiency:¹
- d. Capital Cost:
- e. Useful Life:
- f. Operating Cost:
- g. Energy:²
- h. Maintenance Cost:
- i. Availability of construction materials and process chemicals:
- j. Applicability to manufacturing processes:
- k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

- a. Control Device:
- b. Operating Principles:
- c. Efficiency:¹
- d. Capital Cost:
- e. Useful Life:
- f. Operating Cost:
- g. Energy:²
- h. Maintenance Cost:
- i. Availability of construction materials and process chemicals:
- j. Applicability to manufacturing processes:
- k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

- 1. Control Device:
- 2. Efficiency:¹
- 3. Capital Cost:
- 4. Useful Life:
- 5. Operating Cost:
- 6. Energy:²
- 7. Maintenance Cost:
- 8. Manufacturer:
- 9. Other locations where employed on similar processes:
- a. (1) Company:
- (2) Mailing Address:
- (3) City:
- (4) State:

¹Explain method of determining efficiency.

²Energy to be reported in units of electrical power - KWH design rate.

- (5) Environmental Manager:
- (6) Telephone No.:
- (7) Emissions:¹

Contaminant	Rate or Concentration

(8) Process Rate:¹

- b. (1) Company:
- (2) Mailing Address:
- (3) City: (4) State:
- (5) Environmental Manager:
- (6) Telephone No.:
- (7) Emissions:¹

Contaminant	Rate or Concentration

(8) Process Rate:¹

10. Reason for selection and description of systems:

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

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION
(See PSD Package for Air Quality Review)

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.

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

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

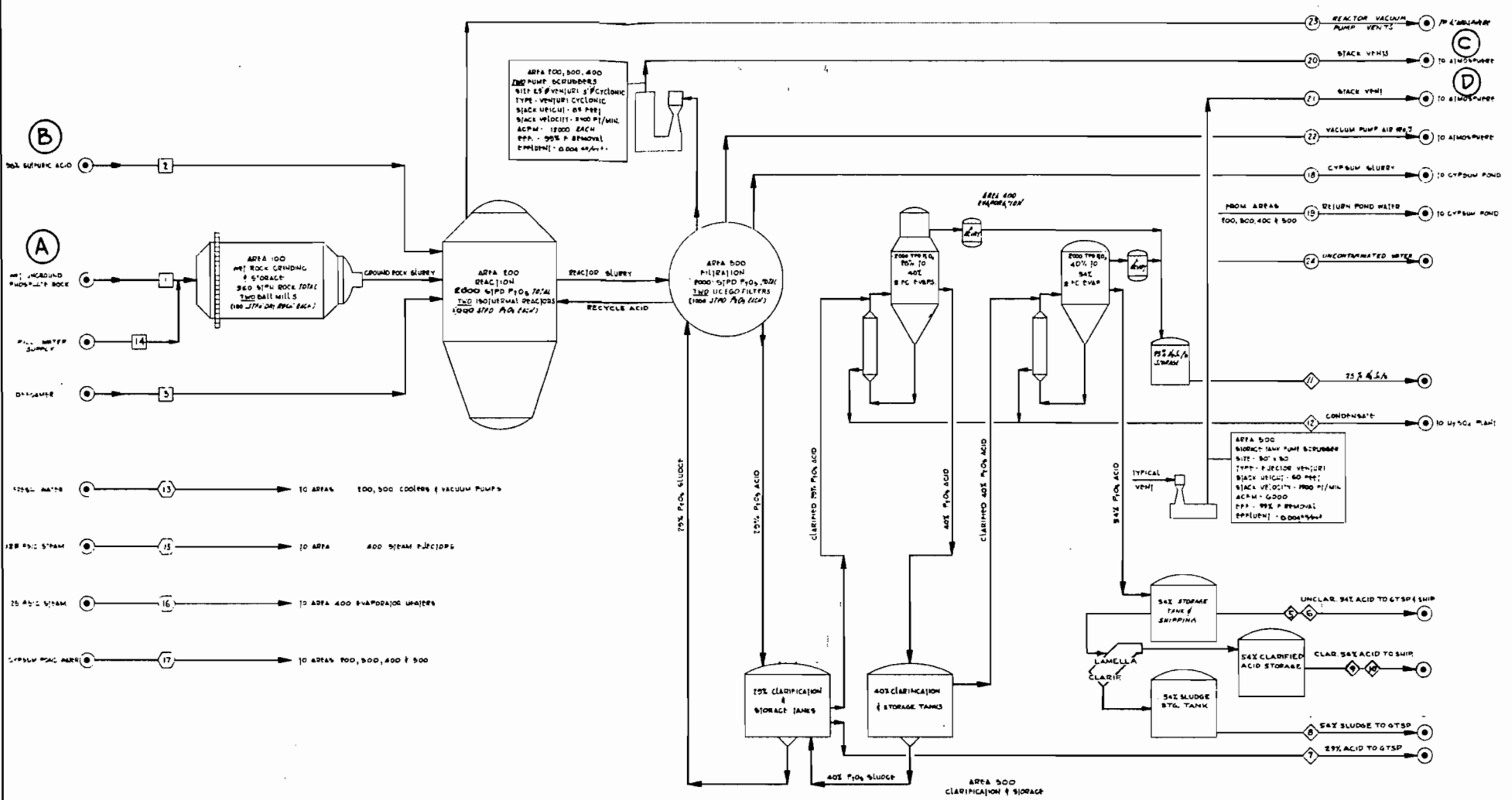
Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

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

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

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

0-9611667-03 ON 040



STREAM NUMBER	RAW MATERIALS				PRODUCTS										UTILITIES				EFFLUENTS						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
PHOSPHORIC ACID																									
WATER																									
TEMPERATURE °F	100	100	90		130	130	130	130	140	140	140	210	80	100	263	267	95	140		100	100	100	100		
PHOSPHORIC ACID																									
WATER																									

REVISED 1/83 SKC

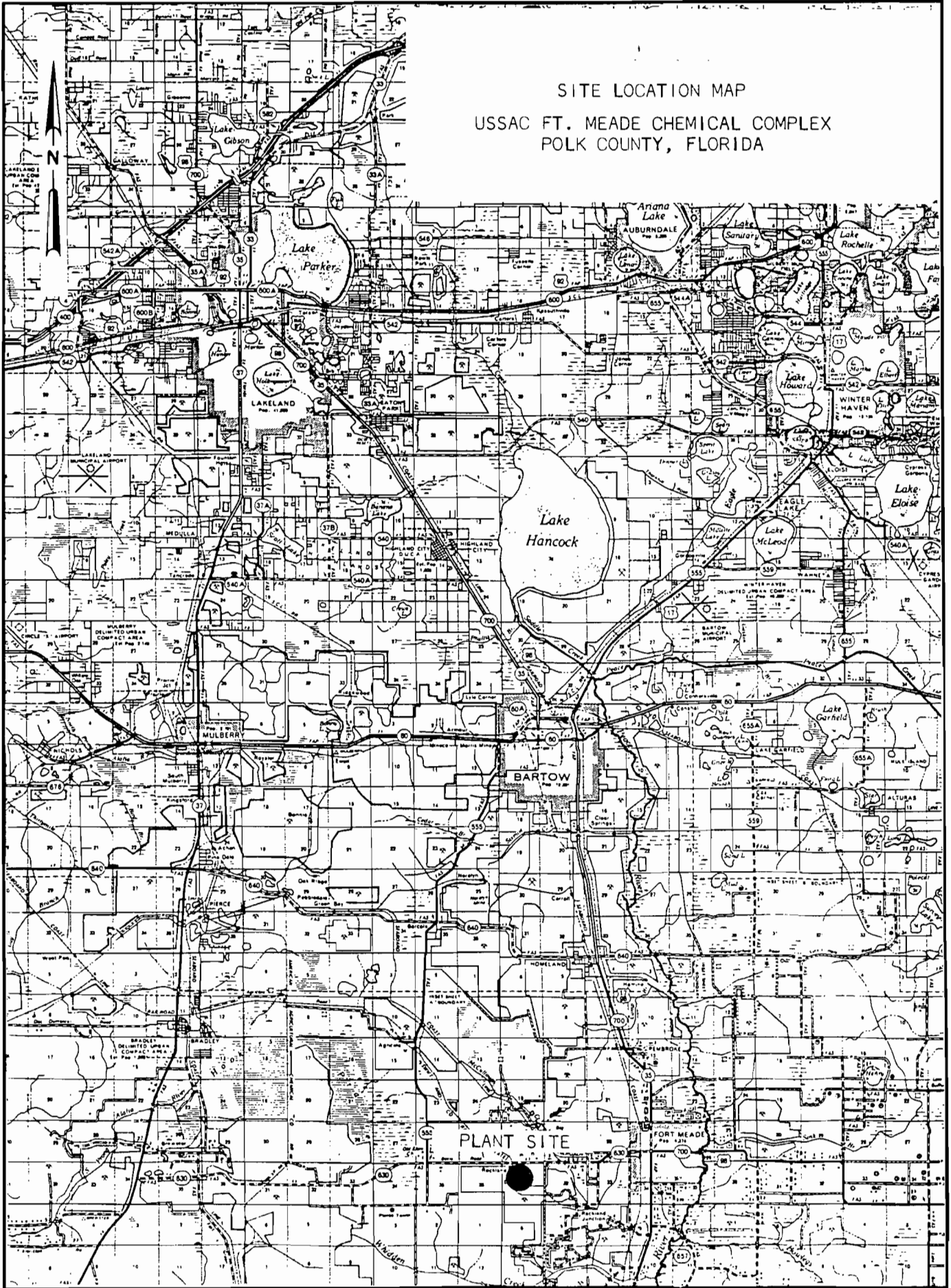
FLOW DIAGRAM
RAW MATERIALS, PRODUCTS,
UTILITIES AND EFFLUENTS
PHOSPHORIC ACID PLANT
USS AGRI-CHEMICALS

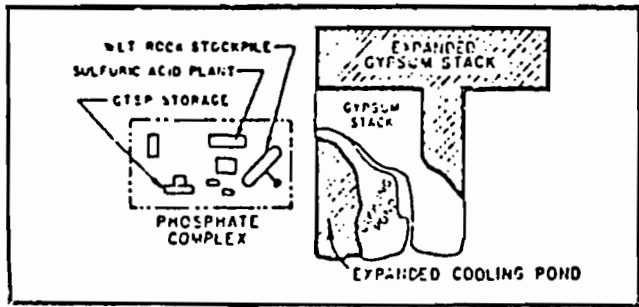
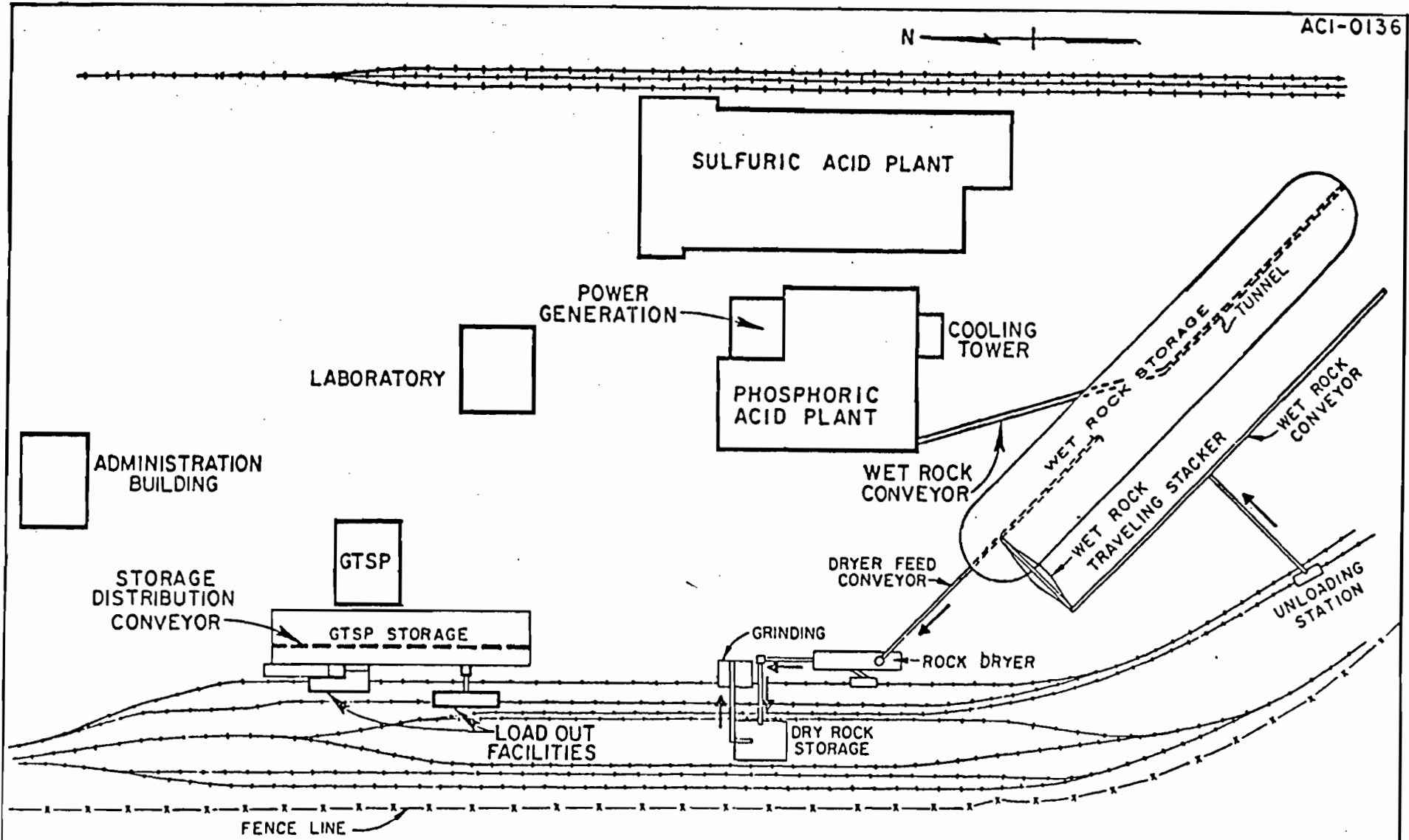
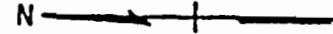
FT. MEADE FLORIDA

BADGER AMERICA INC.
ENGINEERING DEPARTMENT
10000 W. 11TH AVENUE
DENVER, CO 80202

DATE: 1/83
BY: SKC

SITE LOCATION MAP
USSAC FT. MEADE CHEMICAL COMPLEX
POLK COUNTY, FLORIDA





FT. MEADE PHOSPHATE COMPLEX
 U.S. STEEL AGRI-CHEMICALS
 FT. MEADE, FLORIDA

GRAPHIC SERVICES-ENGINEERING-PITTSBURGH
 UNITED STATES STEEL CORPORATION

7925/7926	ALTIERI	FRICHARD	5-12-60	PD 108
DF3705-2		STORY		