USS Agri-Chemicals
Division of United States Steel

MAIL: P. O. BOX 867
FORT MEADE, FLORIDA 33841
813/285-8121

New Address: 3225 State Road 630 West
Ft. Meade, FL 33841-9799

May 1, 1985

DER

MAY 20 1985

BAQM

Dr. Richard D. Garrity
District Manager
Florida Department of Environmental Regulation
7601 Highway 301 North
Tampa, Florida 33610

Dear Dr. Garrity:

Attached is the semi-annual emission report for sources at USS Agri-Chemicals plants in Fort Meade and Bartow, including the calibrations for instruments employed for testing.

Source identification, permit numbers, production rates and results are summarized in the attached table in addition to the actual test data. All sources show compliance with emission standards and requirements outlined in the source operating permits.

Kindly contact me if there are any questions.

Very truly yours,

USS AGRI-CHEMICALS

James H. Carroll, PE
Environmental Engineer

JHC:cam

Att.

bcc: CIRCULATE
G. W. Beck
R. E. Knecht
W. R. Brobeck
J. C. Daniel
Eugene Williams
File

Dr. Richard Garrity, DER
May 1, 1985

USS AGRI-CHEMICALS EMISSION TEST SUMMARY

SCHEDULED COMPLIANCE TESTS

	SOURCE DESCRIPTION	TEST DATE (1985)	PERMIT NUMBER (A053-)	PRODUCTION RATE	EMISSIONS
1.	Phosphoric Acid	April 2	69839	722 T-P2O5/Day	0.001 Lb-F/Ton P2O5
	B Train Scrubber	April 2	69839	632 T-P2O5/Day	0.001 Lb-F/Ton P2O5
		April 2	69839	617 T-P2O5/Day	0.001 Lb-F/Ton P2O5
2.	Phosphoric Acid	April 2	69840	697 T-P2O5/Day	0.003 Lb-F/Ton P2O5
	A Train Scrubber	April 2	69840	697 T-P2O5/Day	0.002 Lb-F/Ton P2O5
		April 2	69840	697 T-P2O5/Day	0.003 Lb-F/Ton P2O5
3.	Phosphoric Acid	April 8	69842	1373 T-P2O5/Day	0.0003 Lb-F/Ton P2O5
	Tank Farm	April 8	69842	1373 T-P2O5/Day	0.0003 Lb-F/Ton P2O5
	Scrubber	April 8	69842	1373 T-P2O5/Day	0.0003 Lb-F/Ton P2O5

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DER
MAY 6 1985
BAQM

April 24, 1985

Mr. C. H. Fancy
Deputy Chief
Bureau of Air Quality Management
Florida Department of
Environmental Regulation
Northwest District Branch Office
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Subject: USS Agri-Chemicals
Ft. Meade Chemical Complex
Sulfuric Acid Plant & Phosphoric Acid Plant Modifications

Dear Mr. Fancy:

In partial response to your letter of February 21, 1984, addressed to J. B. Kongler, regarding construciton permits to modify two existing sulfuric acid plants and two existing phosphoric acid plants at the USS Agri-Chemicals (USSAC) Ft. Meade Chemical Complex technical information was forwarded to your office and received on May 21, 1984. The issues not addressed in our response received on May 21st were discussed during a meeting with your staff in Tallahassee on July 27, 1984, and are addressed herein. A copy of your letter of February 21st is attached for your ready reference.

On May 21, 1984, information from Sholtes & Koogler, Environmental Consultants (SKEC) was received in your office regarding documents referenced in the calculation of the fluoride emissions from the process water cooling pond. The documents included TRW (an EPA Contractor) interoffice correspondence dated August 27, 1980 and sections of EPA document 650/2-74-095. It is our understanding that the information, as received in your office on May 21, 1984, satisfies the request in your letter of February 21, 1984 for information on that specific issue.

Regarding the other issues addressed in your correspondence of February 21, 1984, representatives of USSAC met with Mr. Willard Hanks in your offices on July 27, 1984 to discuss the specific information that would be required to provide your staff with the information they need to complete the review of the subject permit applications. Based upon this meeting, the following information is provided to complete the Construction Permit applications for the modifications to the sulfuric acid and phosphoric acid plants.

Permit Fees

An additional permit fee of $1,200 is enclosed. This will complete the total fee of $2,200 required for the four permit applications; $1,000 for each of two sulfuric acid plants and $100 for each of two phosphoric acid plants.

Physical Modifications to the Sulfuric Acid Plants

In the permit applications for the revisions to the sulfuric acid plants, it was stated that certain physical modifications would be necessary. As discussed during the July 27, 1984 meeting, the details of these physical modifications are not now known and will not be known until detailed engineering is completed to determine just where bottle-necks might occur. The one physical change that will almost certainly be involved is an increase in the amount of catalyst in the converter of the sulfuric acid plant. Equipment in the sulfuric acid plants that will not require modification include the demisters for acid mist control, the sulfur burner, the absorber, the cooling tower or the blower.

In summary, USSAC can only state that the physical modifications that will be required are expected to be minor in nature and will not be fully known until final engineering is completed. It can be stated, however, that none of the changes will effect compliance with New Source Performance Standards (NSPS) for the sulfuric acid plant.

Phosphoric Acid Plant Modifications

No major or significant changes are anticipated. The existing pollution control system is adequate to control emissions at the acid production units and product storage tank farm.

Gypsum Disposal Area

The life of the gypsum disposal area associated with phosphoric acid production is a function of the phosphoric acid production capacity of the USSAC Ft. Meade Chemical Complex. The modifications to the two phosphoric acid plants will result in a 25 percent increase in the permitted production rates of the plants; from 800 tpd, each, to 1,000 tpd, each. When the plants operate at a production capacity 25 percent greater than presently permitted, the life of the gypsum disposal area will be decreased in proportion to the incremental change in production.

More germane to the subject permit applications is the wetted surface area on the gypsum disposal area and in the process water cooling ponds. The presently permitted wetted area in both the gypsum disposal area and the process water cooling pond is sufficient to provide the necessary cooling. There will be no increase in the wetted surface area on either the gypsum disposal area or the cooling ponds. The changes in fluoride emission rates from these wetted surface areas have been addressed in the original permit applications.

The information provided herein should complete the permit applications for the requested rate increases for the sulfuric acid and phosphoric acid plants at the USSAC Ft. Meade Chemical Complex. If additional information is required or if there are any questions regarding information contained herein, please do not hesitate to contact us.

Very truly yours,

USS AGRI-CHEMICALS

James C. Daniel
Manager, Environmental and Special Projects

Attachments:
- C. H. Fancey letter to J. B. Koogler, February 21, 1984
- $1,200 application fee
- 4 copies each, construction permit applications to modify permitted Plants:

  A053-69837 Sulfuric Acid Manufacture
  A053-69838 Sulfuric Acid Manufacture
  A053-69839 Phosphoric Acid Manufacture
  A053-69840 Phosphoric Acid Manufacture

JCD:cam

cc: Dr. Richard Garrity, DER Tampa

~~Clair~~, Bill 5/9
Inc. response -
Ed, Hilland + Tom
have copies
Please return for
file -

Patty

USS Agri-Chemicals
Division of United States Steel

MAIL: P. O. BOX 867
FORT MEADE, FLORIDA 33841
813/285-8121

April 24, 1985

Mr. C. H. Fancy
Deputy Chief
Bureau of Air Quality Management
Florida Department of
Environmental Regulation
Northwest District Branch Office
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Subject: USS Agri-Chemicals
Ft. Meade Chemical Complex
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More germane to the subject permit applications is the wetted surface area on the gypsum disposal area and in the process water cooling ponds. The presently permitted wetted area in both the gypsum disposal area and the process water cooling pond is sufficient to provide the necessary cooling. There will be no increase in the wetted surface area on either the gypsum disposal area or the cooling ponds. The changes in fluoride emission rates from these wetted surface areas have been addressed in the original permit applications.

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 Deterioriation" (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		
Sulfur	Ash	0.5%	81,878	A (Attachment 1)

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

$H_2SO_4 = 98$
$S = 32$

1. Total Process Input Rate (lbs/hr): 81,878 (sulfur) $\frac{98}{32} \Big| \frac{}{2000} \times 24 =$ 3009 TPD H_2SO_4 (less 0.5%)

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

based on ~7967 hr/yr

[1]See Section V, Item 2.

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

[3]Calculated from operating rate and applicable standard.

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

SECTION V - SUPPLEMENTAL REQUIREMENTS

1. Production and Material Input Rates

Product

3,000 STPD of ~~100%~~ sulfuric acid as 98% acid (want 100% acid rate not 98% acid rate)
= 3,000 STPD (2000 lb/ton)/(0.98)(24 hr/day)
= 255,102 lb/hr of 98% acid.

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

= 3,000 STPD (32/98 ton S/ton acid)/(0.997)
= 983 STPD
x 2,000/24
= 81,878 lb/hr of sulfur. (back Calculated from proposed production.)

2&3. Controlled and Uncontrolled Emissions

Sulfur Dioxide

Controlled and uncontrolled @ 4 lb/ton of acid
= 4 lb/ton (3,000)/24
= 500 lb/hr
x 7,967/2000
= 1,992 tpy

Acid Mist

Uncontrolled @ 1.7 lb/ton of acid (AP-42, Supp. 12)
= 1.7 lb/ton (3,000)/24
= 213 lb/hr
x 7,967/2000
= 846 tpy

Controlled @ 0.15 lb/ton of acid
= 0.15 lb/ton (3,000)/24
= 18.8 lb/hr
x 7,967/2000
= 74.7 tpy

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

E = (213-18.8)(100)/213
= 91.2%. 2 back Calculated

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_2O_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% P_2O_5 phosphoric acid. 41.7 TPH P_2O_5 proposed

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

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
Fluoride	0.88 (2.1 lbs/hr)	3.5	0.02 lb/ton	0.88	2,350	9,362	C (Attachment 1)
				44 TPH P_2O_5 input			

[1]See Section V, Item 2.

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

[3]Calculated from operating rate and applicable standard.

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

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, 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) 5-20-85 Construct dates per Mr. Dowd [illegible]

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

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

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

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Sulfuric Acid	None	---	229,592 (2)	B (Attachment 1)
(1) P_2O_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% P_2O_5 phosphoric acid.

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

(0.88)(7988 hr/yr)/2000 =

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
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..							

[1]See Section V, Item 2.

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

[3]Calculated from operating rate and applicable standard.

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