State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee

To: _____ Loctn.: _____
To: _____ Loctn.: _____
To: _____ Loctn.: _____
From: _____ Date: _____

TO: Willard Hanks

FROM: Bob King B. King

DATE: October 24, 1980

SUBJ: BACT Determination - USS Agri-Chemicals.

1. For the phosphoric acid plant, I agree with the applicant's proposal, 0.02 lbs. fluorides per ton of equivalent P_2O_5 feed, which is the NSPS standard for this type of source.

2. For the sulfuric acid plant, EPA has declared NSPS and the best available control technology for this class of source as follows:

SO_2	4 lb/ton 100% H_2SO_4 Produced
H_2SO_4 Mist	0.15 lb/ton 100% H_2SO_4 Produced

I agree with the applicant and proposed the same emission rate as BACT.

3. For the 100 million BTU/hr heat input auxiliary boiler, the applicant proposed and NSPS are as follows:

Proposed	NSPS*
0.051 lb $SO_2/10^6$BTU	0.8 lb $SO_2/10^6$BTU (Fuel Oil)
0.3 lb NO_x / 10^6 BTU	0.3 lb $NO_x/10^6$BTU (Fuel Oil)
0.2 lb NO_x / 10^6 BTU	0.2 lb $NO_x/10^6$BTU (Natural Gas)

I agree with the applicant's proposal.

* The NSPS is for boilers larger than 250 million BTU/hr. no NSPS for smaller boilers.

BK:dav

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee
To: _____ Loctn.: _____
To: _____ Loctn.: _____
To: _____ Loctn.: _____
From: _____ Date: _____

TO: Mark G. Hodges, BAQM, Tall.

FROM: Bob Garrett, S.W. District RRG

DATE: October 20, 1980

SUBJECT: BACT Recommendations - USS Agri-Chem, Ft. Meade
Air Construction Permit Applications

1. New sulfuric acid plants (replacement no. 1 and 2 train)
NSPS Standards: 4 lbs SO_2/ton of 100% H_2SO_4 produced
0.15 lbs Acid Mist/ton of 100% H_2SO_4
Limit of 10% maximum opacity

The replacement of the existing plants and common limerock scrubber will solve this Districts enforcement problems of frequent existing breakdowns.

2. Rock dryer (existing on AO53-5823)
*140 lbs/hr SO_2 when burning fuel oil
*25 lbs/hr TSP

3. GTSP Plant (existing on permits AO53-4560, 4561, & 4558)
*75 lbs/hr SO_2 each plant
0.15 lbs F/ton P_2O_5 each plant (NSPS)
*TSP, 32 lbs/hr

4. New phosphoric acid plants (replacement, train A & B)
0.02 lbs F/ton P_2O_5 (NSPS)
TSP (deferred**)

**Particulate emissions from phos acid scrubbers are historically deminimus and we have removed this test requirement from a majority of our District wet process plants.

5. Auxiliary boiler - burning oil, limit of 0.5% sulfur
0.51 lbs $SO_2/10^6$ BTU
0.3 lbs $NO_x/10^6$ BTU
less than 0.2 lbs CO, HC, & TSP/10^6 BTU

*Should modeling require restriction of these emissions other than "as permitted".

RRT/rkt

State of Florida

DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

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To:	Loctn.:
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TO: Willard Hanks

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DATE: October 24, 1980

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Proposed	NSPS*
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I agree with the applicant's proposal.

* The NSPS is for boilers larger than 250 million BTU/hr. no NSPS for smaller boilers.

BK:dav

State of Florida

DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

Routing To District Offices
Answer To Other Than The Addressee

To: _____ Loctn.: _____
To: _____ Loctn.: _____
To: _____ Loctn.: _____
From: _____ Date: _____

TO: Willard Hanks

FROM: Teresa Heron TH.

DATE: October 28, 1980

SUBJ: BACT Recommendation - U.S.S. Agri-Chemicals

This project consists of two identical phosphoric acid plants as well as two double absorption sulfuric acid plants and a boiler.

Fluoride emissions from the phosphoric acid plants will be controlled by two Venturi Cyclone Scrubbers and a Fluoride Recovery System.

The installation of the double absorption system and mist eliminator is considered to be the best method available to minimize emissions of sulfur dioxide and acid sulfuric mist from sulfuric acid plants.

I recommend that the applicant proposed NSPS limits as set forth in 17-2.05(6) B (2) and 17-2.05 (6) C(1)(a) be adopted as BACT for the above sources.

In regard to the auxiliary boiler the proposed control technology of low-sulfur fuel No. 2 (0.5% S) should be considered as BACT.

The emission limitations decided to constitute BACT are as follows:

Unit	Pollutant	Emission Rate
Boiler	SO_2- fuel oil	0.51 lb/10^6 BTU
Boiler	NO_2- fuel oil	0.3 lb/10^6 BTU
Boiler	NO_2- Natural Gas	0.2 lb/10^6 BTU
Sulfuric Acid Plant	SO_2	4 lbSO_2/ton H_2SO_4
Sulfuric Acid Plant	H_2SO_4 Mist	0.15 lb mist/ ton H_2SO_4
Phosphoric Acid Plant	Fluoride	0.02 lb F/ton P_2O_5
Phosphoric Acid Plant	Particulate	5.9 lb/hr

TH:dav

EXHIBIT A

ANCHORAGE LOS ANGELES
ATLANTA NEW YORK
BOCA RATON PHOENIX
BOSTON PORTLAND
CHICAGO SALT LAKE CITY
CINCINNATI SAN FRANCISCO
CRANFORD SANTA BARBARA
DENVER SEATTLE
HONOLULU SYRACUSE
HOUSTON WASHINGTON, D.C.
LEXINGTON, KY WHITE PLAINS

JAKARTA SINGAPORE
KUWAIT SYDNEY
LONDON TEHRAN
MADRID TOKYO
PERTH TORONTO
RIYADH VANCOUVER

DAMES & MOORE

CONSULTANTS IN THE ENVIRONMENTAL AND APPLIED EARTH SCIENCES

SUITE 200, 455 EAST PACES FERRY ROAD · ATLANTA, GEORGIA 30363 · (404) 262-2915
CABLE: DAMEMORE TWX: 810-751-8218

September 24, 1980

USS Agri-Chemicals
Post Office Box 150
Bartow, Florida 33830

Attention: Mr. Basil Powell

Re: Evaluation of Ambient
Sulfur Dioxide Concentrations
Attributable to All
USSAC Emission Sources
After Proposed Modifications
Are Completed

Gentlemen:

As requested by the Florida Department of Environmental Regulation, attached is a modeling evaluation of ambient sulufur dioxide concentrations resulting from simultaneous operation of the propoed new sulfuric acid plant and existing emission sources. Concentrations predicted are shown in comparison with applicable ambient air quality standards.

Please call if there are any questions regarding this report.

Yours very truly,

DAMES & MOORE

James W. Little

James W. Little
Senior Air Quality Analyst

JWL:ht

USS
Agri-Chemicals
Division of United States Steel Corporation

MAIL: P. O. BOX 150
BARTOW, FLORIDA 33830
813 - 533-0471

September 25, 1980

Mr. Steve Smallwood
Florida Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

Re: Construction Permits, Air Sources
Ft. Meade Phosphate Chemical Complex

Dear Mr. Smallwood:

In response to your letter of August 29, 1980, received September 12, please refer to enclosed Exhibits A through D which provide the additional information requested by the Bureau.

We trust you will find this is satisfactory to your requirements and that the construction permits will issue in the near future.

Very truly yours,

USS AGRI-CHEMICALS

G. W. Beck, Manager
Florida Phosphate Operations

GWB:BP:myv

Encls.

EXHIBIT-A

FLORIDA AMBIENT AIR QUALITY STANDARDS FOR SO_2

Herewith, as EXHIBIT-A, is a report from USSAC's consultant, Dames & Moore, which addresses the question raised by DER's letter of August 29, 1980 concerning ambient air quality.

In summary, the modeling evaluation concludes that ambient air quality standards will not be violated with operation of the new sulfuric acid plant along with the existing rock dryer and existing GTSP plant. Numerical comparisons to Florida Standards are shown Table 2, page 8. Details are included elsewhere in the report.

EXHIBIT A

DAMES & MOORE

September 24, 1980

USS Agri-Chemicals
Post Office Box 150
Bartow, Florida 33830

Attention: Mr. Basil Powell

Re: Evaluation of Ambient
Sulfur Dioxide Concentrations
Attributable to All
USSAC Emission Sources
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Gentlemen:

As requested by the Florida Department of Environmental Regulation, attached is a modeling evaluation of ambient sulufur dioxide concentrations resulting from simultaneous operation of the propoed new sulfuric acid plant and existing emission sources. Concentrations predicted are shown in comparison with applicable ambient air quality standards.

Please call if there are any questions regarding this report.

Yours very truly,

DAMES & MOORE

James W. Little

James W. Little
Senior Air Quality Analyst

JWL:ht

EVALUATION OF AMBIENT SULFUR DIOXIDE CONCENTRATIONS ATTRIBUTABLE TO ALL USS AGRI-CHEMICALS EMISSION SOURCES AFTER PROPOSED MODIFICATIONS ARE COMPLETED

1. INTRODUCTION

USS Agri-Chemicals (USSAC) is proposing to replace an existing sulfuric acid plant at its Fort Meade Phosphate Chemical Complex with a new sulfuric acid plant. This new plant will have a greater production capacity than the existing plant, but at the same time will be able to achieve a much lower sulfur dioxide (SO_2) emission rate on a pounds per ton basis. In fact, annual average SO_2 emissions from the new plant are expected to be less than those from the existing plant even though sulfuric acid production will substantially increase.

On a short-term basis, however, SO_2 emissions from the new plant can exceed those from the existing plant. At its permitted production rate of 1500 tons per day (100 percent H_2SO_4), the existing plant is allowed to emit and frequently does emit SO_2 at the rate of 10 pounds per ton (lb/ton), which is equivalent to a rate of 625 pounds per hour (lb/h) or 15,000 pounds per day (lb/d). In comparison, the new plant is expected to be able to achieve a daily production rate of up to 4,400 tons. At the maximum allowable SO_2 emission rate of 4 lb/ton, maximum short-term SO_2 emissions from the new plant would be 733 lb/h and 17,600 lb/d.

In a previous modeling evaluation submitted to DER, it was shown that replacement of the existing sulfuric acid plant by the new plant should result in only a very minor increase in ambient SO_2 concentrations (less than the EPA significance levels), even under the worst dispersion conditions. Although <u>increases</u> in ambient SO_2 concentrations (if any) will apparently be very minor when the existing sulfuric plant is replaced, DER has requested an evaluation to determine if <u>total</u> SO_2 concentrations resulting from the combined contribution of new emission sources and existing emission sources which will continue in operation will be in compliance with ambient air quality standards. That is the purpose of this report.

2. DESCRIPTION OF EMISSION SOURCES

After the proposed changes have been completed, major SO_2 emission sources at the Fort Meade Phosphate Chemical Complex will consist of the new sulfuric acid plant, the existing rock dryer, and the existing granular triple superphosphate (GTSP) plant which involves a product drying operation. There will also be a new auxiliary boiler associated with the new sulfuric acid plant. However, this new boiler will merely be a replacement for an existing boiler of about the same size, it will only operate about 5 weeks a year, and it will use natural gas as a preferred fuel whenever available. This new boiler will have a stack height of 70 ft and will not be as prone to stack downwash as are some small boilers with a lower stack. Moreover, the purpose of the auxiliary boiler is to supply steam when one or both trains of the sulfuric plant are inoperative. Hence, there would be no need to operate the boiler when the sulfuric acid plant was operating at capacity as assumed in this evaluation. In light of these considerations, the new auxiliary boiler has not been included in the modeling analysis.

Existing Rock Dryer

The existing rock dryer can operate on both fuel oil or natural gas. Use of fuel oil of course results in greatest SO_2 emissions. Although the simplest method of estimating SO_2 emissions is to assume that all fuel oil sulfur is converted to SO_2 and released to the atmosphere, this is not an accurate method. Sulfur removal can occur through retention in the material being dried and through absorption in the wet scrubber used for particulate control.

A recent test involving both dryer stacks was run to compare fuel oil sulfur content with sulfur emissions. During this test, No. 6 oil was burned at a rate of 8.5 gal/min. This fuel contained 2.2 percent sulfur by weight and had a density of 8.155 lb/gal. Therefore, if all fuel oil sulfur had been emitted as SO_2, the emission rate would have been 183 lb/h. The actual measured emission rate, however, was 58.0 lb/h from one stack and 67.3 lb/h from the other stack, for a total of

125.3 lb/h. Therefore, approximately 31 percent of the original sulfur present in the fuel was removed.

The rock drying rate during the test was 235 ton/h compared to the allowable rate of 250 ton/h. For modeling purposes, the measured SO_2 emission rate and the measured volumetric flow were scaled upward to reflect the amount of fuel oil which would be used at the allowable drying rate. Resulting emission characteristics are shown in Table 1. (It should be noted that 24-hour and annual modeling results based on allowable hourly drying rates are probably conservative because actual average drying rates are less than allowable and the dryer does not run 24 hours per day.)

Existing GTSP Plant

The existing GTSP plant includes dryers which use natural gas as a fuel when available and fuel oil otherwise. SO_2 emissions during fuel oil combustion can be calculated based on fuel sulfur content; but, as is the case with the rock dryer, this is not the most accurate method because sulfur removal is possible before combustion products are released to the atmosphere. Removal can occur through retention on the product being dryed and through absorption in the scrubber used for control of other emissions.

To determine sulfur removal efficiency, a recent test was run on one of the GTSP production trains. (The two trains are identical, so it is assumed that a test run on one train will be valid for both.) No. 6 fuel oil was burned at a rate of 3.1 gal/min during the test. This fuel contained 2.48 percent sulfur by weight and had a density of 8.155 lb/gal. If all the sulfur in the fuel had been emitted as SO_2, the resultant emission rate would have been 75.2 lb/h. The actual measured emission rate, however, was 72.5 lb/h, representing a sulfur removal efficiency of a little more than 3 percent. The large difference in sulfur removal efficiency between the GTSP plant and the rock dryer can be attributed primarily to differences in the pH of scrubber water. The GTSP plant scrubber uses recycled acid pond water with a pH of 4 or less, whereas the pH of rock dryer scrubber water is about 7.

The total GTSP production rate (both trains combined) during the stack test period was 21.2 ton/h on a P_2O_5 basis. This is equivalent to 509 tons of P_2O_5 per day, compared to the allowable total P_2O_5 production rate of 519 ton/d. For modeling purposes, the measured SO_2 emission rate and the measured volumetric flow were scaled upward to reflect the amount of fuel oil which would be used at the allowable production rate. Resulting emission characteristics are shown in Table 1.

New Sulfuric Acid Plant

The new sulfuric acid plant will consist of two identical trains with a combined production capacity of up to 4,400 tons of 100 percent H_2SO_4 per day. Emission characteristics used for modeling purposes are listed in Table 1. The SO_2 emission rate shown is based on the allowable level of 4 lb SO_2 per ton 100 percent H_2SO_4.

3. ANALYSIS PROCEDURES

Model

EPA's single-source CRSTER Model was used to assess 3-hour, 24-hour, and annual average SO_2 concentrations.

Emission Characteristics

Specific emission source characteristics used for modeling purposes are discussed above, and are listed in Attachment A (a copy from one of the modeling run printouts). The two stacks of each production unit were treated as a single stack in the usual conservative fashion of considering total SO_2 emissions to be released with the dispersion characteristics (stack height, stack diameter, exit velocity, exit temperature) of one of the two stacks. In addition, all three emission sources were considered to be located at the same point even though in reality they are separated by distances of several hundred feet. This adds to the conservatism of the modeling analysis, especially at receptor points located relatively close to the emission source point.

Meteorological Input

The meteorological observation station typically used for central Florida modeling studies is the Tampa National Weather Service station. Following this typical practice, Tampa surface and upper air data were used for the present analysis. Although several years of Tampa data are available in the correct format for the CRSTER Model, only a single year was used. The year 1972 was selected because of the high 24-hour concentrations typically resulting from use of this data set.

Receptor Grid

A point centered between the locations of the new sulfuric acid plant, the existing rock dryer, and the existing GTSP plant was selected as the point from which SO_2 emissions originate. This point is at least 0.6 km from the nearest USSAC property line (State Road 630 to the north), and in most directions is even further away from the boundaries of USSAC-owned property. Therefore, the receptor distances evaluated through the CRSTER Model begin at 0.6 km and continue outward. (The CRSTER Model establishes a polar coordinate receptor grid so that it is only necessary to specify radial distances and calculations are automatically made at ten-degree direction increments for each distance selected.)

The following distances were evaluated using the entire year of meteorological data: 0.6, 0.7, 0.8, 0.9, 1.0, 1.1, 1.2, 1.3, 1.5, and 2.0 km. It was unnecessary to go beyond 2.0 km to determine that distances of maximum concentration had been reached for all averaging periods, as can be seen in the attached computer printouts.

4. MODELING RESULTS

Modeling results are summarized in Table 2 and presented in detail in Attachments B and C. Table 2 shows highest predicted 3-hour, 24-hour, and annual average SO_2 concentrations in comparsion with Florida and national ambient air quality standards.

As can be seen, highest predicted 3-hour and annual average concentrations are less than 50 percent of applicable standards. Also,

it should be noted that annual concentrations were calculated assuming continuous operation of emission sources at maximum production rates. If average emission rates had been used, the predicted highest annual concentration would be less than that shown.

The highest predicted 24-hour concentration is 251 $\mu g/m^3$, slightly less than the Florida standard of 260 $\mu g/m^3$ and considerably less than the national standard of 365 $\mu g/m^3$. This highest concentration (and several of the next highest concentrations as well) is associated with an unusual meteorological episode of very persistent westerly winds which occurred in the aftermath of Hurricane Agnes. If this episode is excluded, then the highest predicted 24-hour concentration is 180 $\mu g/m^3$ as shown in Table 2.

The SO_2 concentrations which have been calculated are solely attributable to emissions from the Fort Meade Phosphate Chemical Complex. They do not include any allowance for background SO_2 levels, nor do they include contributions from other point sources in the general region. Background SO_2 concentrations in rural areas of Florida are normally very low, often below the detection limit of standard monitoring instruments. Therefore, addition of a background concentration would not significantly increase the predicted concentrations reported in Table 2. Regarding possible interaction with other emission sources, there are no other large existing SO_2 sources in the immediate vicinity of the Fort Meade Phosphate Chemical Complex, and thus there is little likelihood of significant interaction at points of highest concentration attributable to USSAC emissions during the specific meteorological conditions associated with highest predicted concentrations.

The conclusion is reached, therefore, that operation of the new sulfuric acid plant along with operation of the existing rock dryer and existing GTSP plant should result in compliance with ambient SO_2 standards.

TABLE 1

USS Agri-Chemicals Emission Source Characteristics

Source	SO_2 Emission Rate As Measured in Recent Stack Test (lb/h)	SO_2 Emission Rate Scaled Up To Allowable Production Levels (lb/h)	Volumetric Flow As Measured in Recent Stack Test (ft^3/min)	Volumetric Flow Scaled Up To Allowable Production Levels (ft^3/min)	Stack Height (ft)	Stack Diameter (ft)	Exit Temperature (°F)
Rock Dryer							
East Stack	58.0	--	65,300	--	52	6	136
West Stack	67.3	--	64,200	--	52	6	142
Composite[a]	--	133.3	--	68,900	52	6	139
GTSP Plant							
Stack 11X	72.5	--	72,600	--	93	5	122
Stack 11Y	72.5[b]	--	72,600[b]	--	93	5	122
Composite[a]	--	148.0	--	74,200	93	5	122
New Sulfuric Acid Plant							
Composite[a,c]	--	733	--	105,500[d]	175	8.5	180

[a] For modeling purposes, a single composite stack was used with an emission rate equal to the total for both stacks.
[b] A stack test was not actually performed on Stack 11Y. Stack 11Y characteristics are assumed to be the same as those for Stack 11X.
[c] The new sulfuric acid plant will have two identical stacks.
[d] The most recent design volumetric flow rate is slightly higher than this rate (see permit application). This lower, more conservative value was used in the previous PSD modeling analysis and is used again here for consistency.

TABLE 2

SO_2 Modeling Results

Averaging Period	Highest Predicted Concentration ($\mu g/m^3$)	Distance and Direction to Highest Concentration From Point of Emissions	Florida Ambient Standards ($\mu g/m^3$)	National Ambient Standards ($\mu g/m^3$)
3-Hour	644	0.6 km, 100°	1300	1300
24-Hour	251[a] 180[b]	0.8 km, 90° 0.9 km, 280°	260	365
Annual	23[c]	0.6 km, 90°	60	80

[a] Highest concentration based on entire 1972 Tampa meteorological data set.

[b] Highest concentration excluding Days 173 through 178 of 1972 Tampa meteorological data set.

[c] Highest annual concentration based on continuous emission at maximum hourly rates.

ATTACHMENT A

Emission Source Characteristics
Used in All Modeling Runs

STACK # 1--SULFUNIC ACID PLANT
STACK # 2--ROCK DRIER
STACK # 3--GTSP PLANT

STACK	MONTH	EMISSION RATE (GMS/SEC)	HEIGHT (METERS)	DIAMETER (METERS)	EXIT VELOCITY (M/SEC)	TEMP (DEG.K)	VOLUMETRIC FLOW (M**3/SEC)
1	ALL	92.3600	53.30	2.59	9.45	355.00	49.79
2	ALL	16.8000	15.80	1.83	12.40	332.00	32.61
3	ALL	18.6000	28.30	1.52	19.20	323.00	34.84

ATTACHMENT B

Concentrations at Distances of 0.6, 0.8, 1.0, 1.5, and 2.0 km Using Entire 1972 Meteorological Data Set

PLANT NAME: USS AGRI-CHEMICALS POLLUTANT: EMISSION UNITS: GM/SEC AIR QUALITY UNITS: GM/M**3

MAXIMUM MEAN CONC= 2.3044E-05 DIRECTION= 9 DISTANCE= .6 KM

ANNUAL MEAN CONCENTRATION AT EACH RECEPTOR

DIR	RANGE	.6 KM	.8 KM	1.0 KM	1.5 KM	2.0 KM
1		7.21257E-06	7.38545E-06	7.01341E-06	5.54029E-06	4.45748E-06
2		9.34694E-06	9.67064E-06	9.24435E-06	7.35614E-06	5.94374E-06
3		8.41691E-06	8.40231E-06	7.85451E-06	6.06429E-06	4.81634E-06
4		7.19796E-06	6.91568E-06	6.28644E-06	4.69330E-06	3.71811E-06
5		8.54045E-06	8.08641E-06	7.27821E-06	5.36873E-06	4.22796E-06
6		1.00808E-05	9.53316E-06	8.56373E-06	6.23197E-06	4.76610E-06
7		1.12692E-05	1.05928E-05	9.44444E-06	6.78694E-06	5.17023E-06
8		1.53909E-05	1.44503E-05	1.28520E-05	9.14846E-06	6.86748E-06
9		2.30435E-05	2.24179E-05	2.05773E-05	1.54989E-05	1.20775E-05
10		1.57522E-05	1.52267E-05	1.39042E-05	1.03703E-05	8.03905E-06
11		8.35690E-06	8.39111E-06	7.95128E-06	6.38252E-06	5.24948E-06
12		5.57181E-06	5.77293E-06	5.60691E-06	4.68616E-06	3.98099E-06
13		5.63851E-06	6.06765E-06	6.04578E-06	5.23988E-06	4.54838E-06
14		5.17672E-06	5.70274E-06	5.75653E-06	5.15297E-06	4.65288E-06
15		5.09149E-06	5.73840E-06	5.87276E-06	5.28509E-06	4.69549E-06
16		4.57963E-06	5.04065E-06	5.04941E-06	4.37606E-06	3.78819E-06
17		4.56597E-06	4.95481E-06	4.90806E-06	4.13966E-06	3.50478E-06
18		4.85514E-06	5.42059E-06	5.47593E-06	4.77517E-06	4.16108E-06
19		3.88740E-06	4.21382E-06	4.18949E-06	3.60402E-06	3.13376E-06
20		3.77076E-06	3.99775E-06	3.94525E-06	3.36106E-06	2.89702E-06
21		5.37556E-06	5.85280E-06	5.86017E-06	5.08277E-06	4.46892E-06
22		7.60621E-06	8.21623E-06	8.16823E-06	6.94798E-06	5.92603E-06
23		9.83125E-06	1.07582E-05	1.08555E-05	9.63474E-06	8.61778E-06
24		1.06363E-05	1.16503E-05	1.17939E-05	1.05341E-05	9.43468E-06
25		1.07541E-05	1.16988E-05	1.18394E-05	1.06667E-05	9.72075E-06
26		1.20145E-05	1.30038E-05	1.30724E-05	1.15726E-05	1.03511E-05
27		1.56308E-05	1.72239E-05	1.75073E-05	1.57730E-05	1.42100E-05
28		1.26144E-05	1.35582E-05	1.34719E-05	1.16222E-05	1.01346E-05
29		9.42521E-06	1.00527E-05	9.97460E-06	8.62270E-06	7.55895E-06
30		8.39202E-06	8.94485E-06	8.83513E-06	7.62622E-06	6.71654E-06
31		7.53232E-06	8.01430E-06	7.90124E-06	6.72825E-06	5.80427E-06
32		7.25560E-06	7.64512E-06	7.41745E-06	6.06343E-06	5.01805E-06
33		7.61883E-06	8.06467E-06	7.86607E-06	6.52722E-06	5.51685E-06
34		6.15305E-06	6.59618E-06	6.45156E-06	5.30661E-06	4.37950E-06
35		4.31158E-06	4.60475E-06	4.51851E-06	3.77964E-06	3.18949E-06
36		6.18459E-06	6.59263E-06	6.47503E-06	5.43413E-06	4.58115E-06

PLANT NAME: USS AGRI-CHEMICALS POLLUTANT: EMISSION UNITS: GM/SEC AIR QUALITY UNITS: GM/M**3

YEARLY MAXIMUM 24-HOUR CONC= 2.5144E-04 DIRECTION= 9 DISTANCE= .8 KM DAY=175

HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

RANGE	.6 KM	.8 KM	1.0 KM	1.5 KM	2.0 KM
DIR					
1	9.0688E-05 (113)	8.1982E-05 (113)	7.3156E-05 (330)	6.4474E-05 (65)	5.9170E-05 (65)
2	1.1629E-04 (55)	1.1618E-04 (55)	1.0620E-04 (55)	7.8537E-05 (89)	6.6352E-05 (89)
3	1.1629E-04 (76)	1.2923E-04 (76)	1.2992E-04 (76)	1.1211E-04 (76)	9.3956E-05 (76)
4	7.6933E-05 (135)	6.8984E-05 (135)	6.0285E-05 (269)	5.9532E-05 (125)	5.5756E-05 (125)
5	1.0204E-04 (211)	8.7444E-05 (211)	7.2131E-05 (211)	5.0659E-05 (98)	4.4138E-05 (98)
6	9.9099E-05 (261)	8.9197E-05 (210)	8.0860E-05 (210)	6.1047E-05 (210)	4.9112E-05 (210)
7	9.4578E-05 (316)	1.0389E-04 (220)	1.0255E-04 (220)	8.6865E-05 (220)	7.4216E-05 (220)
8	1.6456E-04 (177)	1.7465E-04 (177)	1.7287E-04 (177)	1.4715E-04 (177)	1.2283E-04 (177)
9	2.3998E-04 (175)	2.5144E-04 (175)	2.4456E-04 (175)	2.0202E-04 (175)	1.6577E-04 (175)
10	1.6079E-04 (183)	1.4446E-04 (183)	1.2911E-04 (178)	1.0790E-04 (178)	8.8937E-05 (178)
11	9.8410E-05 (143)	9.6237E-05 (143)	9.0988E-05 (183)	7.8207E-05 (44)	6.8404E-05 (183)
12	7.3998E-05 (143)	7.5721E-05 (245)	7.6170E-05 (245)	6.1538E-05 (245)	4.9252E-05 (245)
13	8.4480E-05 (146)	7.8507E-05 (50)	7.6036E-05 (50)	6.5547E-05 (91)	5.9643E-05 (91)
14	6.5870E-05 (281)	6.8148E-05 (281)	6.6631E-05 (281)	5.5562E-05 (281)	4.8745E-05 (325)
15	1.0314E-04 (50)	1.1874E-04 (50)	1.2280E-04 (50)	1.0892E-04 (50)	9.2482E-05 (50)
16	6.9743E-05 (263)	6.4383E-05 (51)	6.7276E-05 (6)	6.2645E-05 (6)	5.5357E-05 (6)
17	8.8012E-05 (263)	9.5640E-05 (326)	1.0143E-04 (326)	9.0209E-05 (326)	7.5805E-05 (326)
18	9.0737E-05 (326)	1.1131E-04 (326)	1.1682E-04 (326)	1.0176E-04 (326)	8.5384E-05 (326)
19	7.8498E-05 (35)	9.7420E-05 (35)	1.0426E-04 (35)	9.5971E-05 (35)	8.3605E-05 (35)
20	6.1220E-05 (252)	6.1985E-05 (336)	5.8434E-05 (336)	4.3500E-05 (40)	3.7025E-05 (40)
21	8.5224E-05 (252)	7.4112E-05 (252)	6.6707E-05 (16)	5.9228E-05 (16)	5.0216E-05 (336)
22	9.5621E-05 (69)	1.0525E-04 (69)	1.0608E-04 (69)	9.1149E-05 (69)	7.5946E-05 (69)
23	1.1243E-04 (117)	1.2140E-04 (117)	1.2043E-04 (117)	1.0258E-04 (69)	8.8545E-05 (353)
24	1.2890E-04 (42)	1.4772E-04 (42)	1.4926E-04 (42)	1.2625E-04 (42)	1.0415E-04 (42)
25	1.2048E-04 (156)	1.1250E-04 (156)	1.0700E-04 (100)	9.0799E-05 (100)	7.7281E-05 (311)
26	1.3313E-04 (265)	1.2803E-04 (265)	1.1524E-04 (265)	8.5522E-05 (284)	7.0286E-05 (203)
27	1.5257E-04 (306)	1.6697E-04 (306)	1.6840E-04 (306)	1.5054E-04 (306)	1.3450E-04 (306)
28	1.5884E-04 (133)	1.7830E-04 (133)	1.8003E-04 (133)	1.5519E-04 (133)	1.3078E-04 (133)
29	1.1954E-04 (101)	1.2205E-04 (101)	1.1540E-04 (101)	9.1272E-05 (119)	7.3867E-05 (119)
30	8.0975E-05 (347)	8.4163E-05 (347)	8.0973E-05 (347)	6.5447E-05 (347)	5.7297E-05 (324)
31	7.8708E-05 (318)	8.2484E-05 (318)	7.8537E-05 (318)	6.0936E-05 (318)	5.0093E-05 (213)
32	9.1448E-05 (61)	9.1397E-05 (301)	9.6759E-05 (301)	9.0005E-05 (301)	8.0269E-05 (301)
33	9.9749E-05 (301)	1.1656E-04 (12)	1.2100E-04 (12)	1.0651E-04 (12)	9.2528E-05 (12)
34	6.6541E-05 (210)	7.0556E-05 (236)	7.4684E-05 (236)	6.5241E-05 (236)	5.7823E-05 (237)
35	4.8774E-05 (236)	5.6366E-05 (236)	5.7365E-05 (309)	5.1542E-05 (309)	4.2914E-05 (309)
36	8.1131E-05 (171)	8.5317E-05 (14)	9.4059E-05 (14)	9.0254E-05 (14)	8.1521E-05 (14)

PLANT NAME: USS AGRI-CHEMICALS POLLUTANT: EMISSION UNITS: GM/SEC AIR QUALITY UNITS: GM/M**3

YEARLY SECOND MAXIMUM 24-HOUR CONC= 2.3862E-04 DIRECTION= 9 DISTANCE= .8 KM DAY=173

SECOND HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

RANGE DIR	.6 KM	.8 KM	1.0 KM	1.5 KM	2.0 KM
1	7.7711E-05 (171)	7.2352E-05 (330)	7.0699E-05 (113)	6.3531E-05 (330)	5.3560E-05 (330)
2	9.4565E-05 (57)	9.4552E-05 (89)	9.3114E-05 (89)	7.6051E-05 (55)	6.4909E-05 (22)
3	1.0144E-04 (129)	1.0269E-04 (129)	9.6803E-05 (129)	8.1629E-05 (89)	7.2341E-05 (89)
4	7.4298E-05 (269)	6.8921E-05 (269)	5.8673E-05 (135)	4.0037E-05 (269)	3.2994E-05 (104)
5	9.5651E-05 (261)	7.9003E-05 (261)	6.5258E-05 (233)	4.7071E-05 (172)	3.8125E-05 (172)
6	9.3716E-05 (210)	8.4426E-05 (261)	7.2937E-05 (107)	5.9121E-05 (107)	4.8667E-05 (107)
7	9.4573E-05 (309)	9.5075E-05 (316)	8.7601E-05 (316)	6.3521E-05 (316)	5.0803E-05 (177)
8	1.1695E-04 (219)	1.1036E-04 (153)	1.0882E-04 (153)	8.8682E-05 (153)	7.6599E-05 (180)
9	2.2858E-04 (173)	2.3862E-04 (173)	2.3392E-04 (173)	1.9604E-04 (173)	1.6245E-04 (174)
10	1.4638E-04 (242)	1.3809E-04 (182)	1.2883E-04 (182)	9.4730E-05 (182)	7.1595E-05 (182)
11	9.4554E-05 (183)	9.5116E-05 (183)	8.9807E-05 (143)	7.6807E-05 (183)	6.6183E-05 (44)
12	7.1666E-05 (184)	7.3927E-05 (143)	6.9079E-05 (143)	5.3777E-05 (143)	4.7312E-05 (142)
13	7.7894E-05 (50)	7.5293E-05 (146)	7.1810E-05 (44)	6.3598E-05 (44)	5.4132E-05 (44)
14	6.0573E-05 (280)	6.3722E-05 (280)	6.2595E-05 (280)	5.2622E-05 (280)	4.5646E-05 (281)
15	5.8413E-05 (259)	6.3031E-05 (6)	7.4075E-05 (6)	7.6687E-05 (6)	7.2791E-05 (6)
16	5.6037E-05 (51)	6.2387E-05 (6)	6.6861E-05 (51)	5.9641E-05 (51)	5.0895E-05 (51)
17	7.6307E-05 (326)	8.5654E-05 (6)	8.8666E-05 (6)	7.8503E-05 (6)	6.6669E-05 (6)
18	6.3880E-05 (35)	7.6215E-05 (320)	8.6104E-05 (328)	8.8153E-05 (328)	8.2935E-05 (328)
19	4.4576E-05 (239)	5.3270E-05 (16)	5.7050E-05 (16)	5.2399E-05 (16)	5.2237E-05 (236)
20	5.9095E-05 (336)	4.9387E-05 (252)	4.8649E-05 (40)	4.3311E-05 (336)	3.1935E-05 (336)
21	6.4778E-05 (189)	6.4055E-05 (16)	6.4804E-05 (92)	5.6800E-05 (92)	5.0128E-05 (16)
22	8.5523E-05 (191)	9.0120E-05 (191)	9.0362E-05 (66)	8.1277E-05 (329)	7.3481E-05 (329)
23	1.0911E-04 (69)	1.1937E-04 (69)	1.1991E-04 (69)	1.0218E-04 (117)	8.5582E-05 (117)
24	1.1207E-04 (294)	1.1369E-04 (271)	1.1004E-04 (294)	9.0000E-05 (294)	7.3318E-05 (100)
25	9.9252E-05 (100)	1.0728E-04 (100)	1.0430E-04 (156)	8.6053E-05 (311)	7.5054E-05 (100)
26	1.1116E-04 (257)	1.0733E-04 (284)	1.0377E-04 (284)	8.2971E-05 (203)	7.0127E-05 (284)
27	1.3335E-04 (268)	1.4244E-04 (268)	1.3865E-04 (268)	1.1801E-04 (202)	1.0268E-04 (202)
28	1.4250E-04 (121)	1.6065E-04 (121)	1.6353E-04 (121)	1.4364E-04 (121)	1.2255E-04 (121)
29	1.1242E-04 (119)	1.1610E-04 (119)	1.1210E-04 (119)	8.9730E-05 (101)	7.0607E-05 (101)
30	8.0697E-05 (185)	7.4138E-05 (185)	6.9496E-05 (324)	6.4861E-05 (324)	5.3382E-05 (347)
31	7.7327E-05 (269)	7.5065E-05 (269)	7.1948E-05 (332)	5.6455E-05 (213)	4.7486E-05 (318)
32	7.6630E-05 (364)	9.1073E-05 (61)	8.4023E-05 (61)	6.1832E-05 (61)	4.9022E-05 (1)
33	9.9478E-05 (12)	1.1379E-04 (301)	1.1587E-04 (301)	1.0130E-04 (301)	8.6131E-05 (301)
34	5.7686E-05 (236)	6.7068E-05 (210)	6.2929E-05 (237)	6.4003E-05 (237)	5.4848E-05 (236)
35	4.7650E-05 (319)	5.4557E-05 (309)	5.6712E-05 (236)	4.6448E-05 (236)	3.7157E-05 (236)
36	6.9241E-05 (301)	7.8280E-05 (171)	7.5959E-05 (301)	6.5356E-05 (301)	5.4955E-05 (301)

PLANT NAME: USS AGRI-CHEMICALS POLLUTANT: EMISSION UNITS: GM/SEC AIR QUALITY UNITS: GM/M**3

YEARLY MAXIMUM 3-HOUR CONC= 6.4412E-04 DIRECTION= 10 DISTANCE= .6 KM DAY=209 TIME PERIOD= 6

HR	HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR RANGE .6 KM	.8 KM	1.0 KM	1.5 KM	2.0 KM
1	4.0385E-04 (107, 4)	3.7050E-04 (107, 4)	3.6108E-04 (330, 7)	3.2416E-04 (330, 7)	2.7974E-04 (330, 7)
2	4.6720E-04 (55, 5)	4.2194E-04 (55, 5)	4.0684E-04 (237, 6)	3.8459E-04 (237, 6)	3.1505E-04 (237, 6)
3	3.7473E-04 (135, 5)	3.4508E-04 (57, 5)	3.2855E-04 (5, 5)	2.8711E-04 (76, 7)	2.4361E-04 (76, 7)
4	4.1862E-04 (110, 5)	3.8988E-04 (269, 6)	3.5848E-04 (269, 6)	2.5481E-04 (269, 6)	1.8766E-04 (125, 1)
5	4.2357E-04 (233, 4)	3.7997E-04 (233, 4)	3.3322E-04 (211, 6)	2.5403E-04 (130, 3)	2.3242E-04 (176, 8)
6	5.1161E-04 (210, 6)	4.5767E-04 (210, 6)	3.8798E-04 (210, 6)	2.6929E-04 (244, 4)	2.4780E-04 (350, 6)
7	5.7655E-04 (309, 5)	5.2270E-04 (309, 5)	4.4571E-04 (309, 5)	3.0627E-04 (220, 2)	2.6859E-04 (220, 2)
8	4.8874E-04 (220, 4)	4.3787E-04 (220, 4)	3.7096E-04 (153, 4)	3.0781E-04 (175, 7)	2.7133E-04 (175, 7)
9	5.6807E-04 (207, 4)	5.3271E-04 (207, 6)	4.9310E-04 (207, 6)	3.5223E-04 (207, 6)	3.0386E-04 (152, 7)
10	6.4412E-04 (209, 6)	6.1617E-04 (209, 6)	5.5128E-04 (209, 6)	3.7584E-04 (209, 6)	2.6603E-04 (96, 6)
11	3.8560E-04 (144, 6)	3.9382E-04 (144, 6)	3.8394E-04 (144, 6)	3.2170E-04 (144, 6)	2.6549E-04 (144, 6)
12	5.7310E-04 (184, 4)	4.8068E-04 (184, 4)	4.2333E-04 (245, 6)	3.3343E-04 (245, 6)	2.5864E-04 (245, 6)
13	3.7512E-04 (146, 4)	4.1435E-04 (226, 6)	4.2820E-04 (226, 6)	3.6977E-04 (226, 6)	2.9460E-04 (226, 6)
14	4.6699E-04 (249, 6)	4.5390E-04 (249, 6)	4.0942E-04 (249, 6)	3.5739E-04 (65, 6)	3.2101E-04 (65, 6)
15	2.7813E-04 (109, 6)	2.9761E-04 (50, 1)	3.1132E-04 (50, 1)	3.0843E-04 (6, 3)	2.8576E-04 (6, 3)
16	4.3444E-04 (263, 4)	3.5728E-04 (263, 4)	2.7995E-04 (263, 4)	2.2075E-04 (148, 6)	1.9108E-04 (148, 6)
17	5.6485E-04 (263, 4)	4.9479E-04 (263, 4)	4.1287E-04 (263, 4)	2.5773E-04 (263, 4)	1.9786E-04 (326, 2)
18	3.5896E-04 (147, 4)	3.7100E-04 (147, 4)	3.5323E-04 (147, 4)	3.1685E-04 (15, 4)	2.8334E-04 (15, 4)
19	3.2047E-04 (208, 5)	3.4217E-04 (208, 5)	3.3539E-04 (236, 6)	3.8464E-04 (236, 6)	3.6948E-04 (236, 6)
20	2.6967E-04 (336, 5)	2.7376E-04 (336, 5)	2.6799E-04 (31, 4)	2.4288E-04 (31, 4)	2.1019E-04 (31, 4)
21	4.0033E-04 (256, 5)	3.6998E-04 (256, 5)	3.1761E-04 (288, 5)	2.1523E-04 (329, 1)	2.0856E-04 (329, 1)
22	3.6260E-04 (122, 5)	3.4486E-04 (122, 5)	3.1493E-04 (69, 2)	2.7687E-04 (69, 2)	2.3699E-04 (69, 2)
23	3.9763E-04 (283, 4)	3.4483E-04 (283, 4)	3.1200E-04 (70, 1)	2.9610E-04 (17, 8)	2.6483E-04 (17, 8)
24	3.7042E-04 (158, 5)	4.1236E-04 (267, 6)	4.0826E-04 (267, 6)	3.3555E-04 (267, 6)	2.7487E-04 (267, 6)
25	5.2442E-04 (86, 5)	4.9347E-04 (86, 5)	4.1917E-04 (86, 5)	2.9051E-04 (203, 3)	2.4553E-04 (101, 1)
26	4.9723E-04 (257, 4)	4.3987E-04 (257, 4)	4.1903E-04 (164, 3)	3.2939E-04 (66, 6)	2.8793E-04 (66, 6)
27	4.4576E-04 (306, 5)	4.3806E-04 (306, 5)	4.1419E-04 (306, 6)	3.6469E-04 (306, 6)	3.1795E-04 (268, 8)
28	6.1776E-04 (230, 4)	6.0019E-04 (230, 4)	5.3940E-04 (230, 4)	3.6975E-04 (230, 4)	2.9372E-04 (133, 7)
29	2.9794E-04 (185, 4)	2.9570E-04 (101, 6)	2.8186E-04 (101, 6)	2.6919E-04 (47, 2)	2.6582E-04 (47, 2)
30	4.7236E-04 (185, 4)	4.3086E-04 (1, 4)	3.8778E-04 (1, 4)	3.4017E-04 (324, 3)	3.0256E-04 (324, 3)
31	3.6636E-04 (269, 4)	3.6029E-04 (269, 4)	3.3150E-04 (269, 4)	2.4884E-04 (269, 4)	2.0954E-04 (1, 6)
32	4.7052E-04 (364, 5)	4.7474E-04 (364, 5)	4.3641E-04 (364, 5)	3.1237E-04 (301, 2)	2.7920E-04 (301, 2)
33	5.4250E-04 (1, 5)	5.2474E-04 (1, 5)	4.6925E-04 (1, 5)	3.1759E-04 (1, 5)	2.4091E-04 (301, 8)
34	4.0966E-04 (210, 3)	4.2548E-04 (210, 3)	4.0297E-04 (210, 3)	3.0418E-04 (210, 3)	2.2916E-04 (210, 3)
35	2.9394E-04 (213, 5)	3.3298E-04 (309, 3)	3.7653E-04 (309, 3)	3.6791E-04 (309, 3)	3.1725E-04 (309, 3)
36	3.5630E-04 (136, 4)	3.2057E-04 (64, 4)	3.0423E-04 (91, 1)	2.5766E-04 (357, 3)	2.2752E-04 (357, 3)

PLANT NAME: USS AGRI-CHEMICALS POLLUTANT: EMISSION UNITS: GM/SEC AIR QUALITY UNITS: GM/M**3

YEARLY SECOND MAXIMUM 3-HOUR CONC= 5.5573E-04 DIRECTION= 9 DISTANCE= .6 KM DAY=124 TIME PERIOD= 4

SECOND HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE .6 KM	.8 KM	1.0 KM	1.5 KM	2.0 KM
1	3.6412E-04 (113, 5)	3.4875E-04 (330, 7)	3.1795E-04 (107, 4)	2.5775E-04 (38, 2)	2.4082E-04 (38, 2)
2	3.7852E-04 (57, 4)	3.6550E-04 (237, 6)	3.5465E-04 (55, 5)	3.1138E-04 (5, 6)	2.7990E-04 (5, 6)
3	3.7088E-04 (57, 5)	3.2973E-04 (5, 5)	3.2644E-04 (76, 7)	2.8199E-04 (5, 5)	2.3637E-04 (5, 5)
4	3.9598E-04 (269, 6)	3.5674E-04 (245, 5)	3.3199E-04 (245, 5)	2.4828E-04 (245, 5)	1.8468E-04 (76, 8)
5	4.1841E-04 (150, 4)	3.7041E-04 (211, 6)	3.1909E-04 (233, 4)	2.3212E-04 (55, 4)	2.2815E-04 (130, 3)
6	4.3484E-04 (261, 5)	4.0132E-04 (85, 4)	3.6421E-04 (85, 4)	2.6091E-04 (85, 4)	2.3126E-04 (366, 5)
7	5.1479E-04 (298, 5)	4.3829E-04 (298, 5)	3.7680E-04 (150, 6)	2.8346E-04 (309, 5)	2.0874E-04 (104, 6)
8	4.3919E-04 (153, 4)	4.1859E-04 (153, 4)	3.7027E-04 (220, 4)	2.9152E-04 (177, 6)	2.4074E-04 (177, 6)
9	5.5573E-04 (124, 4)	5.0109E-04 (182, 4)	4.3194E-04 (75, 6)	3.4811E-04 (152, 7)	2.7290E-04 (173, 7)
10	5.3391E-04 (183, 5)	4.4044E-04 (214, 5)	3.8081E-04 (214, 5)	3.1736E-04 (96, 6)	2.5728E-04 (209, 6)
11	3.5262E-04 (248, 5)	3.2536E-04 (131, 6)	2.8954E-04 (44, 6)	2.5144E-04 (44, 6)	2.2432E-04 (77, 3)
12	3.6427E-04 (245, 6)	4.2403E-04 (245, 6)	4.0271E-04 (184, 4)	2.7127E-04 (184, 4)	2.1487E-04 (5, 8)
13	3.5816E-04 (184, 4)	3.3911E-04 (146, 4)	2.8853E-04 (146, 4)	2.2114E-04 (262, 6)	1.9015E-04 (262, 6)
14	3.6578E-04 (281, 4)	3.6644E-04 (281, 4)	3.7466E-04 (65, 6)	2.9994E-04 (322, 5)	2.5744E-04 (322, 5)
15	2.6335E-04 (259, 6)	2.9357E-04 (259, 6)	3.0649E-04 (6, 3)	2.8114E-04 (50, 1)	2.4183E-04 (50, 1)
16	2.6533E-04 (259, 6)	2.6825E-04 (259, 6)	2.4761E-04 (259, 6)	2.0550E-04 (313, 4)	1.7178E-04 (313, 4)
17	2.6752E-04 (279, 5)	2.7383E-04 (23, 4)	2.6743E-04 (23, 4)	2.1934E-04 (326, 2)	1.9411E-04 (351, 6)
18	3.1874E-04 (260, 4)	3.2855E-04 (326, 4)	3.3841E-04 (15, 4)	2.6739E-04 (48, 1)	2.4541E-04 (351, 7)
19	2.4428E-04 (313, 5)	2.6782E-04 (236, 6)	3.2399E-04 (208, 5)	2.3683E-04 (208, 5)	2.0325E-04 (16, 2)
20	2.4743E-04 (256, 5)	2.5434E-04 (31, 4)	2.5036E-04 (336, 5)	2.0111E-04 (40, 7)	1.7222E-04 (40, 7)
21	3.5259E-04 (157, 6)	3.4914E-04 (288, 5)	3.1569E-04 (256, 5)	2.1189E-04 (288, 5)	2.0475E-04 (338, 5)
22	2.9903E-04 (283, 4)	3.0642E-04 (69, 2)	3.0663E-04 (122, 5)	2.4333E-04 (16, 7)	2.2763E-04 (244, 6)
23	3.3511E-04 (122, 5)	3.2205E-04 (122, 5)	3.0870E-04 (17, 8)	2.9051E-04 (70, 1)	2.5465E-04 (70, 1)
24	3.6985E-04 (267, 6)	3.2584E-04 (18, 4)	3.0956E-04 (118, 3)	2.6420E-04 (118, 3)	2.4785E-04 (118, 3)
25	3.8799E-04 (226, 4)	3.7289E-04 (203, 3)	3.6327E-04 (203, 3)	2.8506E-04 (100, 5)	2.3992E-04 (100, 5)
26	4.2399E-04 (247, 4)	4.3598E-04 (164, 3)	3.6664E-04 (257, 4)	3.2569E-04 (164, 3)	2.4875E-04 (164, 3)
27	4.1155E-04 (18, 5)	4.3110E-04 (18, 5)	4.1017E-04 (18, 5)	3.5987E-04 (268, 8)	3.1232E-04 (306, 6)
28	4.4404E-04 (168, 5)	4.2345E-04 (168, 5)	3.9214E-04 (133, 7)	3.4465E-04 (133, 7)	2.6684E-04 (119, 8)
29	2.9655E-04 (119, 5)	2.8967E-04 (253, 4)	2.7251E-04 (253, 4)	2.6371E-04 (346, 4)	2.4579E-04 (346, 4)
30	4.3983E-04 (1, 4)	3.9085E-04 (185, 4)	3.6099E-04 (324, 3)	2.8526E-04 (268, 5)	2.3103E-04 (343, 4)
31	3.3373E-04 (209, 3)	3.3225E-04 (332, 5)	3.0791E-04 (332, 5)	2.3590E-04 (1, 6)	1.9426E-04 (366, 4)
32	3.6397E-04 (61, 4)	3.4102E-04 (61, 4)	3.3092E-04 (301, 2)	3.0565E-04 (364, 5)	2.4501E-04 (135, 1)
33	4.1866E-04 (229, 4)	4.1299E-04 (12, 4)	3.7672E-04 (12, 4)	2.7123E-04 (301, 4)	2.3627E-04 (12, 2)
34	3.8197E-04 (211, 3)	3.6973E-04 (308, 3)	3.4148E-04 (308, 3)	2.7407E-04 (161, 4)	2.1567E-04 (161, 4)
35	2.5580E-04 (236, 4)	2.8113E-04 (236, 4)	2.7004E-04 (236, 4)	2.3599E-04 (274, 3)	2.1944E-04 (274, 3)
36	3.5360E-04 (64, 4)	3.1474E-04 (91, 1)	2.8692E-04 (28, 4)	2.4993E-04 (91, 1)	2.1578E-04 (302, 3)

PLANT NAME: USS AGRI-CHEMICALS POLLUTANT: EMISSION UNITS: GM/SEC AIR QUALITY UNITS: GM/M**3

MAXIMUM DAILY CONCENTRATIONS

DAY	24-HOUR CONCENTRATION	DIRECTION	DISTANCE
175	2.5144E-04	9	.80
173	2.3862E-04	9	.80
174	2.3574E-04	9	.80
178	1.8764E-04	9	.80
133	1.8003E-04	28	1.00
242	1.7739E-04	9	.60
177	1.7465E-04	8	.80
306	1.6840E-04	27	1.00
121	1.6353E-04	28	1.00
183	1.6079E-04	10	.60
180	1.5767E-04	9	.60
176	1.5745E-04	9	.80
182	1.4956E-04	9	.60
42	1.4926E-04	24	1.00
207	1.4893E-04	9	.60
219	1.4502E-04	9	.60
124	1.4371E-04	9	.60
268	1.4244E-04	27	.80
152	1.4064E-04	9	1.00
181	1.4015E-04	10	.60
265	1.3313E-04	26	.60
202	1.3045E-04	27	1.00
76	1.2992E-04	3	1.00
170	1.2869E-04	27	.80
254	1.2765E-04	27	.60
169	1.2672E-04	27	.80
179	1.2498E-04	9	.60
230	1.2426E-04	28	.60
165	1.2369E-04	28	1.00
50	1.2280E-04	15	1.00
101	1.2205E-04	29	.80
117	1.2140E-04	23	.80
12	1.2100E-04	33	1.00
156	1.2048E-04	25	.60
69	1.1991E-04	23	1.00
326	1.1662E-04	18	1.00
220	1.1663E-04	9	.60
55	1.1629E-04	2	.60
119	1.1610E-04	29	.80
301	1.1587E-04	33	1.00
144	1.1562E-04	9	.60
168	1.1546E-04	28	.60
225	1.1525E-04	9	.60
103	1.1439E-04	10	.60
271	1.1369E-04	24	.80
294	1.1367E-04	24	.80
257	1.1118E-04	26	.60
153	1.1036E-04	8	.80
127	1.0939E-04	28	.80
70	1.0915E-04	23	1.00

PLANT NAME: USS AGRI-CHEMICALS POLLUTANT: EMISSION UNITS: GM/SEC AIR QUALITY UNITS: GM/M**3

MAXIMUM 3-HOURLY CONCENTRATIONS

DAY	3-HOUR CONCENTRATION	DIRECTION	DISTANCE	TIME PERIOD
209	6.4412E-04	10	.60	6
230	6.1776E-04	28	.60	4
209	6.1617E-04	10	.80	6
230	6.0019E-04	28	.80	4
309	5.7655E-04	7	.60	5
184	5.7310E-04	12	.60	4
207	5.6807E-04	9	.60	4
263	5.6485E-04	17	.60	4
124	5.5573E-04	9	.60	4
209	5.5128E-04	10	1.00	6
182	5.4880E-04	9	.60	4
1	5.4250E-04	33	.60	5
183	5.4195E-04	9	.60	4
230	5.3940E-04	28	1.00	4
183	5.3391E-04	10	.60	5
207	5.3271E-04	9	.80	6
207	5.3255E-04	9	.60	6
1	5.2474E-04	33	.80	5
86	5.2442E-04	25	.60	5
309	5.2270E-04	7	.80	5
298	5.1979E-04	7	.60	5
210	5.1161E-04	6	.60	6
242	5.0547E-04	9	.60	4
182	5.0109E-04	9	.80	4
257	4.9723E-04	26	.60	4
109	4.9532E-04	9	.60	5
263	4.9479E-04	17	.80	4
86	4.9347E-04	25	.80	5
207	4.9310E-04	9	1.00	6
220	4.8874E-04	8	.60	4
60	4.8465E-04	9	.60	5
184	4.8068E-04	12	.80	4
214	4.7751E-04	10	.60	5
124	4.7733E-04	9	.80	4
242	4.7578E-04	10	.60	4
364	4.7474E-04	32	.80	5
165	4.7236E-04	30	.60	4
180	4.7180E-04	10	.60	4
304	4.7052E-04	32	.60	5
1	4.6925E-04	33	1.00	5
55	4.6720E-04	2	.60	5
249	4.6699E-04	14	.60	6
215	4.5926E-04	10	.60	5
210	4.5767E-04	6	.80	6
183	4.5607E-04	9	.80	4
109	4.5462E-04	9	.80	5
249	4.5390E-04	14	.80	6
242	4.5282E-04	9	.60	5
75	4.4867E-04	9	.60	6
306	4.4576E-04	27	.60	5

ATTACHMENT C

Concentrations at Distances of 0.7, 0.9, 1.1, 1.2, and 1.3 km Using Entire 1972 Meteorological Data Set

PLANT NAME: USS AGRI-CHEMICALS POLLUTANT: EMISSION UNITS: GM/SEC AIR QUALITY UNITS: GM/M**3

MAXIMUM MEAN CONC= 2.3026E-05 DIRECTION= 9 DISTANCE= .7 KM

ANNUAL MEAN CONCENTRATION AT EACH RECEPTOR

DIR	RANGE	.7 KM	.9 KM	1.1 KM	1.2 KM	1.3 KM
1		7.41474E-06	7.23022E-06	6.69489E-06	6.38324E-06	6.08540E-06
2		9.66181E-06	9.50357E-06	8.84440E-06	8.44703E-06	8.06356E-06
3		8.52592E-06	8.15667E-06	7.45945E-06	7.07728E-06	6.71580E-06
4		7.14137E-06	6.81274E-06	5.91001E-06	5.56071E-06	5.24205E-06
5		8.40541E-06	7.69067E-06	6.82182E-06	6.40137E-06	6.02012E-06
6		9.91511E-06	9.06017E-06	8.01893E-06	7.51064E-06	7.04380E-06
7		1.10567E-05	1.00283E-05	8.81000E-06	8.22640E-06	7.69651E-06
8		1.50951E-05	1.36654E-05	1.19721E-05	1.11608E-05	1.04220E-05
9		2.30258E-05	2.15453E-05	1.94186E-05	1.83249E-05	1.73069E-05
10		1.56863E-05	1.45943E-05	1.30903E-05	1.23265E-05	1.16190E-05
11		8.48715E-06	8.19191E-06	7.60012E-06	7.26614E-06	6.95195E-06
12		5.75379E-06	5.70974E-06	5.41046E-06	5.21735E-06	5.03135E-06
13		5.94537E-06	6.08575E-06	5.88729E-06	5.72272E-06	5.55804E-06
14		5.54057E-06	5.75707E-06	5.63372E-06	5.50879E-06	5.38597E-06
15		5.52174E-06	5.83769E-06	5.76610E-06	5.65040E-06	5.53013E-06
16		4.90293E-06	5.07357E-06	4.91838E-06	4.78137E-06	4.64364E-06
17		4.84820E-06	4.95988E-06	4.75636E-06	4.59857E-06	4.44109E-06
18		5.23684E-06	5.48330E-06	5.34372E-06	5.20146E-06	5.05683E-06
19		4.12128E-06	4.22395E-06	4.07086E-06	3.94931E-06	3.82964E-06
20		3.94133E-06	3.98931E-06	3.82645E-06	3.70518E-06	3.58584E-06
21		5.70405E-06	5.88951E-06	5.70658E-06	5.54552E-06	5.38524E-06
22		8.04117E-06	8.23694E-06	7.92800E-06	7.67787E-06	7.42788E-06
23		1.04644E-05	1.08598E-05	1.06132E-05	1.03617E-05	1.01117E-05
24		1.13215E-05	1.17783E-05	1.15507E-05	1.12940E-05	1.10353E-05
25		1.13901E-05	1.16213E-05	1.16070E-05	1.13641E-05	1.11228E-05
26		1.26964E-05	1.30971E-05	1.27709E-05	1.24605E-05	1.21537E-05
27		1.66960E-05	1.74494E-05	1.71781E-05	1.68272E-05	1.64709E-05
28		1.32991E-05	1.35800E-05	1.30974E-05	1.27141E-05	1.23362E-05
29		9.88538E-06	1.00581E-05	9.69999E-06	9.41885E-06	9.14222E-06
30		8.80592E-06	8.93053E-06	8.58559E-06	8.33150E-06	8.08383E-06
31		7.89569E-06	7.99505E-06	7.66244E-06	7.41833E-06	7.17845E-06
32		7.57707E-06	7.56948E-06	7.13592E-06	6.85267E-06	6.57696E-06
33		7.97269E-06	8.00593E-06	7.58833E-06	7.30730E-06	7.03374E-06
34		6.49066E-06	6.56311E-06	6.22442E-06	5.98838E-06	5.75346E-06
35		4.53482E-06	4.58571E-06	4.36853E-06	4.21529E-06	4.06441E-06
36		6.49675E-06	6.56659E-06	6.26338E-06	6.04826E-06	5.83640E-06

PLANT NAME: USS AGRI-CHEMICALS POLLUTANT: EMISSION UNITS: GM/SEC AIR QUALITY UNITS: GM/M**3

YEARLY MAXIMUM 24-HOUR CONC= 2.4996E-04 DIRECTION= 9 DISTANCE= .7 KM DAY=175

HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE .7 KM	.9 KM	1.1 KM	1.2 KM	1.3 KM
1	8.7074E-05 (113)	7.6346E-05 (113)	7.1388E-05 (330)	6.9514E-05 (330)	6.7563E-05 (330)
2	1.1819E-04 (55)	1.1180E-04 (55)	9.9675E-05 (55)	9.3230E-05 (55)	8.7087E-05 (55)
3	1.2604E-04 (76)	1.3022E-04 (76)	1.2663E-04 (76)	1.2316E-04 (76)	1.1955E-04 (76)
4	7.3650E-05 (135)	6.4772E-05 (269)	5.9549E-05 (125)	5.9970E-05 (125)	6.0061E-05 (125)
5	9.5260E-05 (211)	7.9566E-05 (211)	6.5363E-05 (211)	5.9346E-05 (211)	5.4077E-05 (211)
6	9.2439E-05 (210)	8.5109E-05 (210)	7.6117E-05 (210)	7.1756E-05 (210)	6.7804E-05 (210)
7	1.0141E-04 (220)	1.0380E-04 (220)	9.9149E-05 (220)	9.5855E-05 (220)	9.2712E-05 (220)
8	1.7239E-04 (177)	1.7442E-04 (177)	1.6780E-04 (177)	1.6266E-04 (177)	1.5749E-04 (177)
9	2.4996E-04 (175)	2.4897E-04 (175)	2.3571E-04 (175)	2.2698E-04 (175)	2.1843E-04 (175)
10	1.5404E-04 (183)	1.3441E-04 (182)	1.2476E-04 (178)	1.2046E-04 (178)	1.1621E-04 (178)
11	9.8435E-05 (143)	9.3263E-05 (183)	8.7618E-05 (183)	8.5184E-05 (44)	8.2951E-05 (44)
12	7.5097E-05 (143)	7.6851E-05 (245)	7.3753E-05 (245)	7.0814E-05 (245)	6.7680E-05 (245)
13	8.0570E-05 (146)	7.7533E-05 (50)	7.3145E-05 (50)	7.0248E-05 (50)	6.7371E-05 (50)
14	6.7894E-05 (281)	6.7615E-05 (281)	6.4387E-05 (281)	6.2149E-05 (281)	5.9924E-05 (281)
15	1.1331E-04 (50)	1.2154E-04 (50)	1.2061E-04 (50)	1.1805E-04 (50)	1.1519E-04 (50)
16	6.5356E-05 (263)	6.6060E-05 (51)	6.6799E-05 (6)	6.6034E-05 (6)	6.5055E-05 (6)
17	8.8355E-05 (326)	9.9630E-05 (326)	1.0014E-04 (326)	9.8158E-05 (326)	9.5741E-05 (326)
18	1.0339E-04 (326)	1.1540E-04 (326)	1.1476E-04 (326)	1.1193E-04 (326)	1.0866E-04 (326)
19	9.0295E-05 (35)	1.0173E-04 (35)	1.0334E-04 (35)	1.0194E-04 (35)	1.0020E-04 (35)
20	6.1726E-05 (336)	6.0675E-05 (336)	5.5420E-05 (336)	5.2269E-05 (336)	4.9147E-05 (336)
21	8.0416E-05 (252)	6.7369E-05 (252)	6.5579E-05 (16)	6.4213E-05 (16)	6.2667E-05 (16)
22	1.0236E-04 (69)	1.0623E-04 (69)	1.0334E-04 (69)	1.0044E-04 (69)	9.7404E-05 (69)
23	1.1908E-04 (117)	1.2150E-04 (117)	1.1683E-04 (117)	1.1331E-04 (69)	1.0979E-04 (69)
24	1.4175E-04 (42)	1.4965E-04 (42)	1.4505E-04 (42)	1.4049E-04 (42)	1.3577E-04 (42)
25	1.1715E-04 (156)	1.0811E-04 (156)	1.0391E-04 (100)	1.0071E-04 (100)	9.7437E-05 (100)
26	1.3224E-04 (265)	1.2201E-04 (265)	1.0772E-04 (265)	1.0055E-04 (265)	9.3882E-05 (265)
27	1.6264E-04 (306)	1.6842E-04 (306)	1.6489E-04 (306)	1.6127E-04 (306)	1.5764E-04 (306)
28	1.7221E-04 (133)	1.6032E-04 (133)	1.7541E-04 (133)	1.7049E-04 (133)	1.6543E-04 (133)
29	1.2270E-04 (101)	1.1927E-04 (101)	1.0998E-04 (101)	1.0459E-04 (101)	9.9366E-05 (101)
30	8.3881E-05 (347)	8.2952E-05 (347)	7.7772E-05 (347)	7.4535E-05 (347)	7.1370E-05 (347)
31	8.2143E-05 (318)	8.0999E-05 (318)	7.4884E-05 (318)	7.1204E-05 (318)	6.7616E-05 (318)
32	9.2604E-05 (61)	9.4761E-05 (301)	9.5857E-05 (301)	9.4683E-05 (301)	9.3293E-05 (301)
33	1.0994E-04 (12)	1.1994E-04 (12)	1.1878E-04 (12)	1.1595E-04 (12)	1.1284E-04 (12)
34	6.7801E-05 (210)	7.3511E-05 (236)	7.3679E-05 (236)	7.1965E-05 (236)	6.9856E-05 (236)
35	5.3818E-05 (236)	5.7151E-05 (236)	5.6891E-05 (309)	5.5440E-05 (309)	5.4665E-05 (309)
36	8.0274E-05 (171)	9.0607E-05 (14)	9.4095E-05 (14)	9.3621E-05 (14)	9.2768E-05 (14)

PLANT NAME: USS AGRI-CHEMICALS POLLUTANT: EMISSION UNITS: GM/SEC AIR QUALITY UNITS: GM/M**3

YEARLY SECOND MAXIMUM 24-HOUR CONC= 2.3710E-04 DIRECTION= 9 DISTANCE= .9 KM DAY=173

SECOND HIGHEST 24-HOUR CONCENTRATION AT EACH RECEPTOR

RANGE DIR	.7 KM	.9 KM	1.1 KM	1.2 KM	1.3 KM
1	7.5755E-05 (107)	7.3158E-05 (330)	6.5858E-05 (65)	6.5945E-05 (65)	6.5690E-05 (65)
2	9.4612E-05 (57)	9.4293E-05 (89)	9.0089E-05 (89)	8.7072E-05 (89)	8.4129E-05 (89)
3	1.0378E-04 (129)	1.0005E-04 (129)	9.2227E-05 (129)	8.7861E-05 (129)	8.5211E-05 (89)
4	7.2299E-05 (269)	6.3818E-05 (135)	5.5763E-05 (269)	5.1397E-05 (269)	4.7294E-05 (269)
5	8.8020E-05 (261)	7.0112E-05 (261)	6.0538E-05 (233)	5.6103E-05 (233)	5.3331E-05 (98)
6	9.2430E-05 (261)	7.6412E-05 (261)	6.9948E-05 (107)	6.7044E-05 (107)	6.4262E-05 (107)
7	9.6285E-05 (316)	9.1884E-05 (316)	8.2471E-05 (316)	7.7348E-05 (316)	7.2427E-05 (316)
8	1.1397E-04 (220)	1.1053E-04 (153)	1.0486E-04 (153)	1.0070E-04 (153)	9.6549E-05 (153)
9	2.3709E-04 (173)	2.3710E-04 (173)	2.2625E-04 (173)	2.1860E-04 (173)	2.1099E-04 (173)
10	1.4134E-04 (242)	1.3401E-04 (183)	1.2141E-04 (182)	1.1412E-04 (182)	1.0718E-04 (182)
11	9.5942E-05 (183)	9.3161E-05 (143)	8.7268E-05 (44)	8.4490E-05 (183)	8.1647E-05 (183)
12	7.2023E-05 (245)	7.1700E-05 (143)	6.5612E-05 (143)	6.2333E-05 (143)	5.9271E-05 (143)
13	7.8819E-05 (50)	7.1263E-05 (44)	7.0454E-05 (44)	6.8915E-05 (44)	6.7235E-05 (44)
14	6.3149E-05 (280)	6.3393E-05 (280)	6.0559E-05 (280)	5.8537E-05 (280)	5.6536E-05 (280)
15	6.1035E-05 (259)	6.9423E-05 (6)	7.5487E-05 (6)	7.6351E-05 (6)	7.6790E-05 (6)
16	6.1374E-05 (51)	6.5436E-05 (6)	6.5753E-05 (51)	6.4429E-05 (51)	6.2940E-05 (51)
17	8.2300E-05 (263)	8.7790E-05 (6)	8.7023E-05 (6)	8.5124E-05 (6)	8.3038E-05 (6)
18	7.1538E-05 (320)	8.1217E-05 (328)	8.7488E-05 (328)	8.8292E-05 (328)	8.8621E-05 (328)
19	4.9333E-05 (16)	5.5652E-05 (16)	5.6554E-05 (16)	5.5784E-05 (16)	5.4803E-05 (16)
20	5.5716E-05 (252)	4.7899E-05 (40)	4.7899E-05 (40)	4.6967E-05 (40)	4.5900E-05 (40)
21	6.0723E-05 (16)	6.5866E-05 (16)	6.3435E-05 (92)	6.1898E-05 (92)	6.0255E-05 (92)
22	8.8935E-05 (191)	8.9747E-05 (191)	8.8902E-05 (66)	8.7141E-05 (66)	8.5153E-05 (66)
23	1.1636E-04 (69)	1.2026E-04 (69)	1.1670E-04 (69)	1.1314E-04 (117)	1.0945E-04 (117)
24	1.1414E-04 (294)	1.1217E-04 (294)	1.0591E-04 (294)	1.0183E-04 (294)	9.7803E-05 (294)
25	1.0514E-04 (100)	1.0765E-04 (100)	1.0045E-04 (42)	9.6696E-05 (42)	9.2869E-05 (42)
26	1.0947E-04 (257)	1.0585E-04 (284)	1.0010E-04 (284)	9.6383E-05 (284)	9.2678E-05 (284)
27	1.4072E-04 (268)	1.4126E-04 (268)	1.3356E-04 (268)	1.2848E-04 (268)	1.2370E-04 (202)
28	1.5482E-04 (121)	1.6305E-04 (121)	1.5999E-04 (121)	1.5615E-04 (121)	1.5210E-04 (121)
29	1.1607E-04 (119)	1.1451E-04 (119)	1.0775E-04 (119)	1.0347E-04 (119)	9.9278E-05 (119)
30	7.9617E-05 (185)	6.7828E-05 (185)	6.9047E-05 (324)	6.8295E-05 (324)	6.7315E-05 (324)
31	7.7255E-05 (269)	7.3717E-05 (332)	6.8987E-05 (332)	6.5727E-05 (332)	6.2408E-05 (332)
32	8.5553E-05 (301)	6.7950E-05 (61)	7.9162E-05 (61)	7.4420E-05 (61)	6.9922E-05 (61)
33	1.0929E-04 (301)	1.1558E-04 (301)	1.1322E-04 (301)	1.1038E-04 (301)	1.0741E-04 (301)
34	6.5377E-05 (236)	6.5014E-05 (210)	6.4463E-05 (237)	6.5151E-05 (237)	6.5199E-05 (237)
35	5.0669E-05 (309)	5.6585E-05 (309)	5.5056E-05 (236)	5.3034E-05 (236)	5.0848E-05 (236)
36	7.7210E-05 (14)	7.6328E-05 (301)	7.3913E-05 (301)	7.1812E-05 (301)	6.9675E-05 (301)

PLANT NAME: USS AGRI-CHEMICALS POLLUTANT: EMISSION UNITS: GM/SEC AIR QUALITY UNITS: GM/M**3

YEARLY MAXIMUM 3-HOUR CONC= 6.3644E-04 DIRECTION= 10 DISTANCE= .7 KM DAY=209 TIME PERIOD= 6

RANGE	HIGHEST .7 KM	3-HOUR CONCENTRATION AT EACH RECEPTOR .9 KM	1.1 KM	1.2 KM	1.3 KM
DIM					
1	3.9129E-04 (107, 4)	3.5734E-04 (330, 7)	3.5515E-04 (330, 7)	3.4830E-04 (330, 7)	3.4075E-04 (330, 7)
2	4.5024E-04 (55, 5)	3.9151E-04 (237, 6)	4.1300E-04 (237, 6)	4.1204E-04 (237, 6)	4.0596E-04 (237, 6)
3	3.6212E-04 (57, 5)	3.3056E-04 (5, 5)	3.1967E-04 (76, 7)	3.1219E-04 (76, 7)	3.0417E-04 (76, 7)
4	3.9687E-04 (269, 6)	3.7644E-04 (269, 6)	3.3795E-04 (269, 6)	3.1642E-04 (269, 6)	2.9498E-04 (269, 6)
5	4.0636E-04 (233, 4)	3.5364E-04 (211, 6)	3.1117E-04 (211, 6)	2.8895E-04 (211, 6)	2.6746E-04 (211, 6)
6	4.8878E-04 (210, 6)	4.2305E-04 (210, 6)	3.5427E-04 (210, 6)	3.2643E-04 (244, 4)	3.0735E-04 (244, 4)
7	5.5525E-04 (309, 5)	4.8485E-04 (309, 5)	4.0771E-04 (309, 5)	3.7212E-04 (309, 5)	3.3950E-04 (309, 5)
8	4.6865E-04 (220, 4)	4.0393E-04 (220, 4)	3.4420E-04 (153, 4)	3.2660E-04 (175, 7)	3.2081E-04 (175, 7)
9	5.3893E-04 (207, 6)	5.1642E-04 (207, 6)	4.6571E-04 (207, 6)	4.3660E-04 (207, 6)	4.0737E-04 (207, 6)
10	6.3644E-04 (209, 6)	5.8649E-04 (209, 6)	5.1385E-04 (209, 6)	4.7649E-04 (209, 6)	4.4060E-04 (209, 6)
11	3.9424E-04 (144, 6)	3.8988E-04 (144, 6)	3.7131E-04 (144, 6)	3.5875E-04 (144, 6)	3.4626E-04 (144, 6)
12	5.2589E-04 (184, 4)	4.3904E-04 (184, 4)	4.0777E-04 (245, 6)	3.8957E-04 (245, 6)	3.7050E-04 (245, 6)
13	3.8979E-04 (226, 6)	4.2638E-04 (226, 6)	4.2274E-04 (226, 6)	4.1258E-04 (226, 6)	3.9961E-04 (226, 6)
14	4.6684E-04 (249, 6)	4.3342E-04 (249, 6)	3.8277E-04 (249, 6)	3.7180E-04 (65, 6)	3.6803E-04 (65, 6)
15	2.8507E-04 (259, 6)	3.0665E-04 (50, 1)	3.1068E-04 (6, 3)	3.1241E-04 (6, 3)	3.1236E-04 (6, 3)
16	3.9860E-04 (263, 4)	3.1665E-04 (263, 4)	2.4737E-04 (263, 4)	2.3674E-04 (148, 6)	2.3174E-04 (148, 6)
17	5.3429E-04 (263, 4)	4.5322E-04 (263, 4)	3.7524E-04 (263, 4)	3.4092E-04 (263, 4)	3.1001E-04 (263, 4)
18	3.7006E-04 (147, 4)	3.6536E-04 (147, 4)	3.3721E-04 (147, 4)	3.3275E-04 (15, 4)	3.2815E-04 (15, 4)
19	3.3639E-04 (208, 5)	3.3623E-04 (208, 5)	3.5579E-04 (236, 6)	3.6946E-04 (236, 6)	3.7804E-04 (236, 6)
20	2.7663E-04 (336, 5)	2.6410E-04 (336, 5)	2.6437E-04 (31, 4)	2.5984E-04 (31, 4)	2.5465E-04 (31, 4)
21	3.9055E-04 (256, 5)	3.4375E-04 (256, 5)	2.9603E-04 (288, 5)	2.7363E-04 (288, 5)	2.5172E-04 (288, 5)
22	3.5771E-04 (122, 5)	3.2701E-04 (122, 5)	3.0907E-04 (69, 2)	3.0234E-04 (69, 2)	2.9495E-04 (69, 2)
23	3.7729E-04 (283, 4)	3.0871E-04 (283, 4)	3.1010E-04 (70, 1)	3.0766E-04 (17, 8)	3.0483E-04 (17, 8)
24	3.9949E-04 (267, 6)	4.1375E-04 (267, 6)	3.9420E-04 (267, 6)	3.7928E-04 (267, 6)	3.6428E-04 (267, 6)
25	5.1698E-04 (86, 5)	4.5795E-04 (86, 5)	3.8094E-04 (86, 5)	3.4516E-04 (86, 5)	3.1932E-04 (203, 3)
26	4.7312E-04 (257, 4)	4.3059E-04 (164, 3)	4.0136E-04 (164, 3)	3.8234E-04 (164, 3)	3.6301E-04 (164, 3)
27	4.4734E-04 (306, 5)	4.2408E-04 (306, 5)	4.0507E-04 (306, 6)	3.9544E-04 (306, 6)	3.8544E-04 (306, 6)
28	6.1713E-04 (230, 4)	5.7275E-04 (230, 4)	5.0358E-04 (230, 4)	4.6759E-04 (230, 4)	4.3283E-04 (230, 4)
29	2.9471E-04 (101, 6)	2.9044E-04 (101, 6)	2.6917E-04 (101, 6)	2.6759E-04 (346, 4)	2.6721E-04 (346, 4)
30	4.4493E-04 (185, 4)	4.1179E-04 (1, 4)	3.6162E-04 (1, 4)	3.5628E-04 (324, 3)	3.5184E-04 (324, 3)
31	3.6856E-04 (269, 4)	3.4694E-04 (269, 4)	3.1310E-04 (269, 4)	2.9544E-04 (269, 4)	2.7880E-04 (269, 4)
32	4.7980E-04 (364, 5)	4.5896E-04 (364, 5)	4.1029E-04 (364, 5)	3.8294E-04 (364, 5)	3.5587E-04 (364, 5)
33	5.4038E-04 (1, 5)	4.9964E-04 (1, 5)	4.3679E-04 (1, 5)	4.0441E-04 (1, 5)	3.7338E-04 (1, 5)
34	4.2444E-04 (210, 3)	4.1718E-04 (210, 3)	3.8379E-04 (210, 3)	3.6340E-04 (210, 3)	3.4291E-04 (210, 3)
35	2.9286E-04 (309, 3)	3.5978E-04 (309, 3)	3.8245E-04 (309, 3)	3.8348E-04 (309, 3)	3.8080E-04 (309, 3)
36	3.4206E-04 (64, 4)	3.1024E-04 (91, 1)	2.9306E-04 (91, 1)	2.8203E-04 (91, 1)	2.7113E-04 (91, 1)

PLANT NAME: USS AGRI-CHEMICALS POLLUTANT: EMISSION UNITS: GM/SEC AIR QUALITY UNITS: GM/M**3

YEARLY SECOND MAXIMUM 3-HOUR CONC= 5.3010E-04 DIRECTION= 9 DISTANCE= .7 KM DAY=182 TIME PERIOD= 4

SECOND HIGHEST 3-HOUR CONCENTRATION AT EACH RECEPTOR

DIR	RANGE .7 KM	.9 KM	1.1 KM	1.2 KM	1.3 KM
1	3.5224E-04 (113, 5)	3.4505E-04 (107, 4)	2.9120E-04 (107, 4)	2.6592E-04 (107, 4)	2.6067E-04 (38, 2)
2	3.7673E-04 (57, 4)	3.8871E-04 (55, 5)	3.3957E-04 (355, 5)	3.2823E-04 (355, 5)	3.2116E-04 (5, 6)
3	3.4713E-04 (135, 5)	3.2503E-04 (76, 7)	3.1956E-04 (5, 5)	3.1035E-04 (5, 5)	3.0097E-04 (5, 5)
4	3.8720E-04 (110, 5)	3.4625E-04 (245, 5)	3.1579E-04 (245, 5)	2.9873E-04 (245, 5)	2.8151E-04 (245, 5)
5	3.9298E-04 (150, 4)	3.4974E-04 (233, 4)	2.8987E-04 (233, 4)	2.6548E-04 (130, 3)	2.6223E-04 (130, 3)
6	4.1214E-04 (85, 4)	3.8424E-04 (85, 4)	3.4434E-04 (244, 4)	3.2287E-04 (210, 6)	2.9842E-04 (85, 4)
7	4.8350E-04 (298, 5)	3.9969E-04 (150, 6)	3.5197E-04 (150, 6)	3.2685E-04 (150, 6)	3.2007E-04 (220, 2)
8	4.3386E-04 (153, 4)	3.9656E-04 (153, 4)	3.3843E-04 (220, 4)	3.2460E-04 (177, 6)	3.1359E-04 (177, 6)
9	5.3010E-04 (182, 4)	4.6634E-04 (182, 4)	4.1556E-04 (67, 6)	3.9736E-04 (67, 6)	3.7789E-04 (67, 6)
10	4.8750E-04 (183, 5)	4.1113E-04 (214, 5)	3.5914E-04 (96, 6)	3.4902E-04 (96, 6)	3.3861E-04 (96, 6)
11	3.4122E-04 (131, 6)	3.0506E-04 (131, 6)	2.8275E-04 (44, 6)	2.7542E-04 (44, 6)	2.6767E-04 (44, 6)
12	4.0345E-04 (245, 6)	4.2906E-04 (245, 6)	3.7005E-04 (184, 4)	3.4140E-04 (184, 4)	3.1587E-04 (184, 4)
13	3.6052E-04 (146, 4)	3.1423E-04 (146, 4)	2.6363E-04 (146, 4)	2.4041E-04 (146, 4)	2.3359E-04 (262, 6)
14	3.6922E-04 (281, 4)	3.6209E-04 (65, 6)	3.7417E-04 (65, 6)	3.5694E-04 (249, 6)	3.3259E-04 (249, 6)
15	2.6165E-04 (50, 1)	2.9433E-04 (259, 6)	3.0706E-04 (50, 1)	3.0168E-04 (50, 1)	2.9543E-04 (50, 1)
16	2.7113E-04 (259, 6)	2.5954E-04 (259, 6)	2.4127E-04 (148, 6)	2.2645E-04 (313, 4)	2.1955E-04 (313, 4)
17	2.7420E-04 (279, 5)	2.7308E-04 (23, 4)	2.5835E-04 (23, 4)	2.4709E-04 (23, 4)	2.3463E-04 (23, 4)
18	3.2741E-04 (326, 4)	3.2942E-04 (15, 4)	3.3630E-04 (15, 4)	3.1903E-04 (147, 4)	3.0001E-04 (147, 4)
19	2.4081E-04 (313, 5)	3.0646E-04 (236, 6)	3.0807E-04 (208, 5)	2.9035E-04 (208, 5)	2.7210E-04 (208, 5)
20	2.3730E-04 (31, 4)	2.6342E-04 (31, 4)	2.3463E-04 (336, 5)	2.1834E-04 (336, 5)	2.1159E-04 (40, 7)
21	3.5310E-04 (288, 5)	3.3628E-04 (288, 5)	2.8809E-04 (256, 5)	2.6217E-04 (256, 5)	2.3844E-04 (256, 5)
22	2.9404E-04 (69, 2)	3.1258E-04 (69, 2)	2.8490E-04 (122, 5)	2.6369E-04 (122, 5)	2.5420E-04 (16, 7)
23	3.3231E-04 (122, 5)	3.0740E-04 (122, 5)	3.090HE-04 (17, 8)	3.0670E-04 (70, 1)	3.0215E-04 (70, 1)
24	3.3286E-04 (158, 5)	3.1746E-04 (18, 4)	3.0640E-04 (118, 3)	3.0202E-04 (118, 3)	2.9673E-04 (118, 3)
25	3.7516E-04 (226, 4)	3.7078E-04 (203, 3)	3.4917E-04 (203, 3)	3.3429E-04 (203, 3)	3.1257E-04 (86, 5)
26	4.3138E-04 (164, 3)	4.0319E-04 (257, 4)	3.5515E-04 (66, 6)	3.4995E-04 (66, 6)	3.4379E-04 (66, 6)
27	4.2881E-04 (18, 5)	4.2362E-04 (18, 5)	3.9110E-04 (18, 5)	3.8047E-04 (268, 8)	3.7429E-04 (268, 8)
28	4.3819E-04 (168, 5)	4.0380E-04 (168, 5)	3.835HE-04 (133, 7)	3.7442E-04 (133, 7)	3.6480E-04 (133, 7)
29	2.9031E-04 (119, 5)	2.8430E-04 (253, 4)	2.6660E-04 (346, 4)	2.5735E-04 (47, 2)	2.6306E-04 (47, 2)
30	4.4139E-04 (1, 4)	3.7443E-04 (196, 4)	3.5947E-04 (324, 3)	3.3523E-04 (1, 4)	3.1392E-04 (268, 5)
31	3.3392E-04 (332, 5)	3.2266E-04 (332, 5)	2.9036E-04 (332, 5)	2.7171E-04 (332, 5)	2.5305E-04 (332, 5)
32	3.5667E-04 (61, 4)	3.2741E-04 (209, 3)	3.2956E-04 (301, 2)	3.2668E-04 (301, 2)	3.2270E-04 (301, 2)
33	4.1963E-04 (12, 4)	3.9758E-04 (12, 4)	3.5314E-04 (12, 4)	3.2879E-04 (12, 4)	3.0491E-04 (12, 4)
34	3.7663E-04 (211, 3)	3.5819E-04 (308, 3)	3.2782E-04 (161, 4)	3.1475E-04 (161, 4)	3.0112E-04 (161, 4)
35	2.7827E-04 (213, 5)	2.7883E-04 (236, 4)	2.5727E-04 (236, 4)	2.4562E-04 (274, 3)	2.4259E-04 (274, 3)
36	3.3237E-04 (136, 4)	2.9897E-04 (28, 4)	2.7442E-04 (357, 3)	2.7139E-04 (357, 3)	2.6746E-04 (357, 3)

PLANT NAME: USS AGRI-CHEMICALS POLLUTANT: EMISSION UNITS: GM/SEC AIR QUALITY UNITS: GM/M**3

MAXIMUM DAILY CONCENTRATIONS

DAY	24-HOUR CONCENTRATION	DIRECTION	DISTANCE
175	2.4996E-04	9	.70
173	2.3710E-04	9	.90
174	2.3473E-04	9	.90
178	1.8772E-04	9	.90
133	1.8032E-04	28	.90
177	1.7442E-04	8	.90
242	1.6909E-04	9	.70
306	1.6842E-04	27	.90
121	1.6305E-04	28	.90
180	1.5700E-04	9	.70
176	1.5677E-04	9	.70
183	1.5404E-04	10	.70
42	1.4965E-04	24	.90
182	1.4857E-04	9	.70
207	1.4382E-04	9	.70
268	1.4126E-04	27	.90
152	1.4118E-04	9	.90
219	1.4096E-04	9	.70
124	1.3803E-04	9	.70
181	1.3767E-04	10	.70
265	1.3224E-04	26	.70
76	1.3022E-04	3	.90
170	1.2977E-04	27	.70
202	1.2859E-04	27	1.10
254	1.2770E-04	27	.70
169	1.2661E-04	27	.70
179	1.2646E-04	9	.70
230	1.2462E-04	28	.70
165	1.2281E-04	28	.90
101	1.2270E-04	29	.70
50	1.2158E-04	15	.90
117	1.2150E-04	23	.90
69	1.2026E-04	23	.90
12	1.1994E-04	33	.90
55	1.1819E-04	2	.70
156	1.1715E-04	25	.70
119	1.1607E-04	29	.70
168	1.1591E-04	28	.70
144	1.1582E-04	9	.70
301	1.1558E-04	33	.90
326	1.1540E-04	18	.90
294	1.1414E-04	24	.70
220	1.1397E-04	8	.70
271	1.1308E-04	24	.70
103	1.1264E-04	10	.70
153	1.1053E-04	8	.90
127	1.1033E-04	28	.70
225	1.1031E-04	9	.70
257	1.0947E-04	26	.70
70	1.0866E-04	23	.90

September 24, 1980

USS Agri-Chemicals
Post Office Box 150
Bartow, Florida 33830

Attention: Mr. Basil Powell

Re: Evaluation of Ambient
Sulfur Dioxide Concentrations
Attributable to All
USSAC Emission Sources
After Proposed Modifications
Are Completed

Gentlemen:

As requested by the Florida Department of Environmental Regulation, attached is a modeling evaluation of ambient sulufur dioxide concentrations resulting from simultaneous operation of the propoed new sulfuric acid plant and existing emission sources. Concentrations predicted are shown in comparison with applicable ambient air quality standards.

Please call if there are any questions regarding this report.

Yours very truly,

DAMES & MOORE

James W. Little

James W. Little
Senior Air Quality Analyst

JWL:ht

PLANT NAME: USS AGRI-CHEMICALS POLLUTANT: EMISSION UNITS: GM/SEC AIR QUALITY UNITS: GM/M**3

MAXIMUM 3-HOURLY CONCENTRATIONS

DAY	3-HOUR CONCENTRATION	DIRECTION	DISTANCE	TIME PERIOD
209	6.3644E-04	10	.70	6
230	6.1713E-04	28	.70	4
209	5.8649E-04	10	.90	6
230	5.7275E-04	28	.90	4
309	5.5525E-04	7	.70	5
1	5.4038E-04	33	.70	5
207	5.3893E-04	9	.70	6
263	5.3429E-04	17	.70	4
182	5.3010E-04	9	.70	4
184	5.2589E-04	12	.70	4
124	5.2472E-04	9	.70	4
86	5.1898E-04	25	.70	5
207	5.1642E-04	9	.90	6
209	5.1385E-04	10	1.10	6
230	5.0358E-04	28	1.10	4
183	5.0270E-04	9	.70	4
207	5.0057E-04	9	.70	4
1	4.9964E-04	33	.90	5
210	4.8878E-04	6	.70	6
183	4.8750E-04	10	.70	5
309	4.8485E-04	7	.90	5
298	4.8350E-04	7	.70	5
109	4.7992E-04	9	.70	5
364	4.7980E-04	32	.70	5
209	4.7649E-04	10	1.20	6
257	4.7312E-04	26	.70	4
220	4.6865E-04	8	.70	4
230	4.6759E-04	28	1.20	4
249	4.6684E-04	14	.70	6
182	4.6634E-04	9	.90	4
207	4.6571E-04	9	1.10	6
214	4.6484E-04	10	.70	5
364	4.5898E-04	32	.90	5
242	4.5836E-04	9	.70	4
86	4.5795E-04	25	.90	5
60	4.5719E-04	9	.70	5
263	4.5322E-04	17	.90	4
55	4.5024E-04	2	.70	5
180	4.4863E-04	10	.70	4
215	4.4804E-04	10	.70	5
306	4.4734E-04	27	.70	5
158	4.4563E-04	9	.70	6
185	4.4493E-04	30	.70	4
75	4.4311E-04	9	.90	6
1	4.4139E-04	30	.70	4
209	4.4060E-04	10	1.30	6
184	4.3964E-04	12	.90	4
67	4.3845E-04	9	.90	6
166	4.3819E-04	28	.70	5
75	4.3800E-04	9	.70	6

EXHIBIT-B

EXISTING CONTROL TECHNOLOGY

Information requested section VI D of the permit application is given in Construction Permit AC53-2582 for the existing control unit, which is on file with DER. For ready reference a copy is herewith included as EXHIBIT-B.

EXHIBIT - B

STATE OF FLORIDA
DEPARTMENT OF POLLUTION CONTROL
500 EAST CENTRAL AVENUE P.O. BOX 9205
WINTER HAVEN, FLORIDA 33881

PETER P BALJET
EXECUTIVE DIRECTOR

POLK COUNTY AP
USS AGRI-CHEMICALS (FT. MEADE)

W. D. FREDERICK, JR.
CHAIRMAN

RECEIVED
OCT 2 1 1974

Mr. George W. Beck
General Manager
USS Agri-Chemicals
P.O. Box 150
Bartow, Florida 33830

Dear Mr. Beck:

Pursuant to your recent application, please find enclosed a permit (No. AC53-2582) dated Oct. 21, 1974 to construct/ ~~operate~~ the subject pollution source.

This permit will expire on August 21, 1975 and will be subject to the conditions, requirements and restrictions checked or indicated otherwise in the attached sheet "Construction/~~Operation~~ Permit Conditions".

This permit is issued under the authority of Florida Statute 403.061(16). The time limits imposed herein are a condition to this permit and are enforceable under Florida Statute 403.161. You are hereby placed on Notice that the Department will review this permit before the scheduled date of expiry and will seek court action for violation of the conditions and requirements of this permit.

You have ten days from the date of receipt hereof within which to seek a review of the conditions and requirements contained in this permit. Failure to file a written request to review or modify the conditions or requirements contained in this permit shall be deemed a waiver of any objections thereto.

Your continued cooperation in this matter is appreciated and in future communication please refer to your permit number.

Yours very truly,

for J. H. Kerns, P.E.
Regional Engineer
West Central Region

JHK/FW/pm
cc: Nickonovitz

John R. Middlemas
BOARD MEMBER

Alice C. Wainwright
BOARD MEMBER

Mark D. Hollis
BOARD MEMBER

Y. E. Hali
BOARD MEMBER

FS 3
1-74

STATE OF FLORIDA

DEPARTMENT OF POLLUTION CONTROL

CONSTRUCTION PERMIT

FOR USS Agri-Chemicals
P.O. Box 150
Bartow, Florida 33830

PERMIT NO. AC53-2582 DATE October 21, 1974

PURSUANT TO THE PROVISION OF SECTION 403.061(16) OF CHAPTER 403, FLORIDA STATUTES AND CHAPTER 17-4, FLORIDA ADMINISTRATIVE CODE, THIS PERMIT IS ISSUED TO:
Mr. George W. Beck, General Manager

FOR THE CONSTRUCTION OF:
A limestone scrubbing process to serve existing sulfuric acid plants

LOCATED AT: Ft. Meade chemical plant, S.R. 630, 3 miles West of Ft. Meade, Polk County UTM 17-416000 East, 3069000 North

IN ACCORDANCE WITH THE APPLICATION DATED September 5, 1974

AND IN CONFORMITY WITH THE STATEMENTS AND SUPPORTING DATA ENTERED THEREIN, ALL OF WHICH ARE FILED WITH THE DEPARTMENT AND ARE CONSIDERED A PART OF THIS PERMIT.

THIS PERMIT SHALL BE EFFECTIVE FROM THE DATE OF ITS ISSUANCE UNTIL Aug. 21, 1975 AND SHALL BE SUBJECT TO ALL APPLICABLE LAWS OF THE STATE AND THE RULES AND REGULATIONS OF THE DEPARTMENT.

CHIEF, BUREAU OF PERMITTING

J. H. KERNS, P.E. EXECUTIVE DIRECTOR
WEST CENTRAL REGION

FORM 1-J

STATE OF FLORIDA

DEPARTMENT OF POLLUTION CONTROL

CONSTRUCTION PERMIT PROVISOS

AIR POLLUTION SOURCES

Permit No. AC53-2582

Date: October 21, 1974

(X) 1. Construction of this installation shall be completed by June 30, 1975. Application for Permit to Operate to be submitted by _____.

(X) 2. This construction permit expires on August 21, 1975 following an initial period of operation for appropriate testing to determine compliance with the Rules of the Florida Pollution Control Board.

(X) 3. All applicable rules of the Department including design discharge limitations specified in the application shall be adhered to. The permit holder may also need to comply with county, municipal, federal, or other state regulations prior to construction.

(X) 4. The applicant shall continue the retention of the engineer of record for the inspection of the construction of this project. Upon completion the engineer shall inspect for conformity to construction permit applications and associated documents. A report of such inspection shall be submitted by the engineer to the Department of Pollution Control for consideration toward the issuance of an operation permit.

(X) 5. This scrubber stack shall be tested* for sulfur dioxide and sulfuric acid mist within 10 days after it is placed in operation. These test results are required prior to our issuance of an operation permit and shall be submitted in duplicate to the DPC West Central Florida Regional Office P.O. Box 9205, Winter Haven, Florida 33880

*FUEL ANALYSIS MAY BE SUBMITTED FOR REQUIRED SULFUR DIOXIDE EMISSION TEST.

( ) 6. The operation of this installation shall be observed for visible emissions in accordance with Method 9 - Visible Determination of the Opacity of Emissions from Stationary Sources (36FR24895; Federal Register, December 23, 1971). The observation results are required prior to our issuance of an operation permit, and shall be submitted in duplicate to the DPC _____ Florida Regional Office, _____.

(X) 7. Satisfactory ladders, platforms, and other safety devices shall be provided/available as well as necessary ports to facilitate the carrying out of an adequate sampling program.

( ) 8. There shall be no discharges of liquid effluents or contaminated runoff from the plant site.

( ) 9. All fugitive dust generated at this site shall be adequately controlled.

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1-74

(X) 10. Recognition of the foregoing estimated date of completion shall not be construed as the granting of a variance or the waiver of permittee's responsibility to conduct operations in timely compliance with applicable law.

(X) 11. The compliance schedule for this plant established by permit A053-2144 remains in effect.

53-493

STATE OF FLORIDA
DEPARTMENT OF POLLUTION CONTROL

APPLICATION TO ~~OPERATE~~/CONSTRUCT POLLUTION ~~CONTROL~~/CONTROL EQUIPMENT

SECTION I – GENERAL INFORMATION FOR ALL POLLUTION SOURCES

I TO BE FILLED IN BY APPLICANT

Source Type: Air Poilution
Type application: [ ] Operation [ ] Temporary Operation [x] Construction
Status Source: [x] New [ ] Existing [ ] Modification

Source Name: Ft. Meade Phosphate Chemical Plant County: Polk

Source Location: Street: 3 miles west of City: Ft. Meade
(Water Source Only) Lat: ____° ____' ____" Long: ____° ____' ____"
(Air Source Only) UTM: East ~~166.2~~ 17.446000 North ~~277.0~~ 3069000

Appl. Name and Title: G. W. Beck, Manager Florida Phosphate Operations
Appl. Address: c/o USS Agri-Chemicals, P.O.Box 150, Bartow, Florida 33830

II TO BE FILLED IN BY REGION (*BY BUREAU OF PERMITTING)

Control No: Region _____ County _____ Type _____ *Project _____

Type Permit	Date Rec'd	*Permit No.	*Issue Date	*Compl. Date	*Exp. Date

Source Description: _____
Control Equipment: _____

Water Permits

Receiving Body Code: _____ Surface Water Code: _____
Station No.: Influent: _____ Effluent: _____

Effluent:	Average	Design	% Reduction
Flow rate, MGD			
BOD, lbs/day			
Susp. Sol., lbs/day			
Other:			

Air Permits

Operating Time: [ ] Continuous [ ] Intermittent
Fuel: Type _____ M-BTU/hr. In Put _____
Incinerator: Capacity, tons/day _____ Type Waste _____
Mfg. & Model _____

Pollutant Emissions, lbs/day	Actual	Design	Allowable
Particulate			
Sulfur Oxides			
Other:			

Implementation: Estimated Appl. Filing Date _____
Estimated Start of Const. _____ Estimated Compliance Date _____

Ft. Meade

DESCRIPTION OF PROPOSED PROJECT

A. Describe the nature and extent of the proposed project. Refer to existing pollution control facilities, DPC permits, conditions, orders and notices, expected improvement in performance of the facilities and state whether the proposed project will result in full compliance of the source. Attach additional sheet if necessary.

The existing sulfuric acid plant is operating under permit no.A053-2144 which expires July 1, 1975. A compliance schedule was submitted to DPC on February 25, 1974. Work is on schedule and, subject to the prior issue of a construction permit, construction is expected to begin on the dates shown below. The Peabody Limestone Scrubbing Process will be used to achieve emissions at the levels required for a compliance with Chapter 17-2 rules. Refer to flow diagram E-65011-0100/A for a further description of the process.

B. Schedule of Project Covered in this Application (Construction Permit Application Only).

Federally or State Financed Projects only:

Planning Complete NA

Financing Program Complete NA

Indicate other local, state and/or federal agency approvals and dates NA

NA-Not applicable

All projects:

Start of Construction On or before 10/31/74

Completion of Construction 6/1/75 to 6/31/75 (Start-up by 6/15/75)

C. Costs of Construction (Show a breakdown of costs for individual components/units of the proposed project serving pollution control purpose only). Information on actual costs shall be furnished with the application for operation permit.

SO_2 Abatement Process Unit	$2,514,000
Disposal Pond	156,000
Supernate Pumping	63,000
Utility Tie-ins	63,000
Total	$2,796,000

D. Indicate any previous DPC permits, issuance dates, and expiration dates.

This construction permit application is for a new facility. No previous permits have been issued.

Ft. Meade

AIR POLLUTION SOURCES & CONTROL DEVICES

A. Identification of Air Contaminants

1) [ ] Particulates
   a) [ ] Dust b) [ ] Fly Ash c) [ ] Smoke d) [ ] Other (Identify)

2) [x] Sulfur Compounds
   a) [x] SO_x as SO_2 b) [ ] Reduced Sulfur as H_2S c) [ ] Other (Identify)

3) [ ] Nitrogen Compounds
   a) [ ] NO_x as NO_2 b) [ ] NH_3 c) [ ] Other (Identify)

4) [ ] Flourides 5) [x] Acid Mist 6) [ ] Odor

7) [ ] Hydrocarbons 8) [ ] Volatile Organic Compounds

9) [ ] Other (Specify): _____

B. Raw Materials and Chemicals Used (Be Specific)

Description	Utilization ~~Tons/day~~ ~~Gals/day~~ lbs./hr.	Approximate Contaminant Content		Relate to Flow Diagram
		Type	% Wt.	
Tail gas from an existing 1500 ton/ day sulfuric acid plant	609,190	SO_x + acid mist	0.786	E-65011-0100/A (Stream #1)

C. Process Weight:

1) Total Process Weight Rate NA lbs./hr. [See Sec. 17-2.04(2)]
2) Product Weight NA lb./hr. expressed as NA
3) Normal Operating Time 24 hrs. per day, if seasonal describe: Not seasonal
   NA-Not applicable

D. Airborne Contaminants Discharged:

Name of Contaminant	Design Actual Discharge	Discharge Criteria*	Allowable Discharge*	Relate Location to Flow Diagram
SO_2	10 max.	#/ton H_2SO_4	10	E-65011-0100/A
Acid mist	0.15 max.	#/ton H_2SO_4	0.15	(Stream #4)

* Refer to Chapter 17-2 Florida Administrative Code
(Discharge Criteria: Process Weight Rate, #/ton P_2O_5, #/M BTU/hr etc.)

Ft. Meade

E. Control Devices:

Name	% Eff.	Conditions of Operation, Particle Size Range, etc.	Relate to Flow Diagram
Limestone Scrubbing Unit	86.9	Continuous	E-65011-0100/A

F. Fuels:

Type (Be specific)	Daily Consumption	Heat Input BTU/hr.	Relate to Flow Diagram
None	None	None	----

G. Describe briefly, without revealing trade secrets, the unit processes/operations generating the airborne emissions identified in this application:

The control devices of this construction permit application are to reduce the airborne emissions generated in an existing sulfuric acid plant.

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

Slurry discharges to the disposal pond where solids settle to the bottom. The supernate is recycled to the existing rock beneficiation plant. Alternatively the recycle may be recycled to the chemical plant. Disposal pond and recycle system totally contained on company property.

Ft. Meade

STATEMENTS BY APPLICANT AND ENGINEER

A. Applicant

The undersigned owner or authorized representative of * USS Agri-Chemicals is fully aware that the statements made in this application for a construction permit are true, correct and complete to the best of his knowledge and belief. Further, the undersigned agrees to maintain and operate the pollution source and pollution control facilities in such a manner as to comply with the provisions of Chapter 403 Florida Statutes and all the rules and regulations of the Department or revisions thereof. He also understands that a permit, if granted by the Department, will be non-transferable and he will promptly notify the Department upon sale or legal transfer of the permitted establishment.

Signature of the Owner or Authorized Representative

G. W. Beck, Manager Florida Phosphate Operations
Name and Title (Please Type)

Date: 9-5-74 Telephone No.: (813) 533-1495

* Attach a letter of authorization

B. Professional Engineer Registered in Florida:

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 control and discharge of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that the pollution source(s) with appropriate control facilities, when properly maintained and operated, will comply 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 the applicant a set of instructions for the proper maintenance and operation of the installation covered in this application.

Signature _____ Mailing Address: P. O. Box 150
Bartow, Florida 33830

Name: Arthur O. Hansen
(please type)

Telephone No.: (813) 533-1495

Florida Registration Number 12037
(Please affix seal)

Date: 9/6/74

ACS3-2562
October 21, 1974

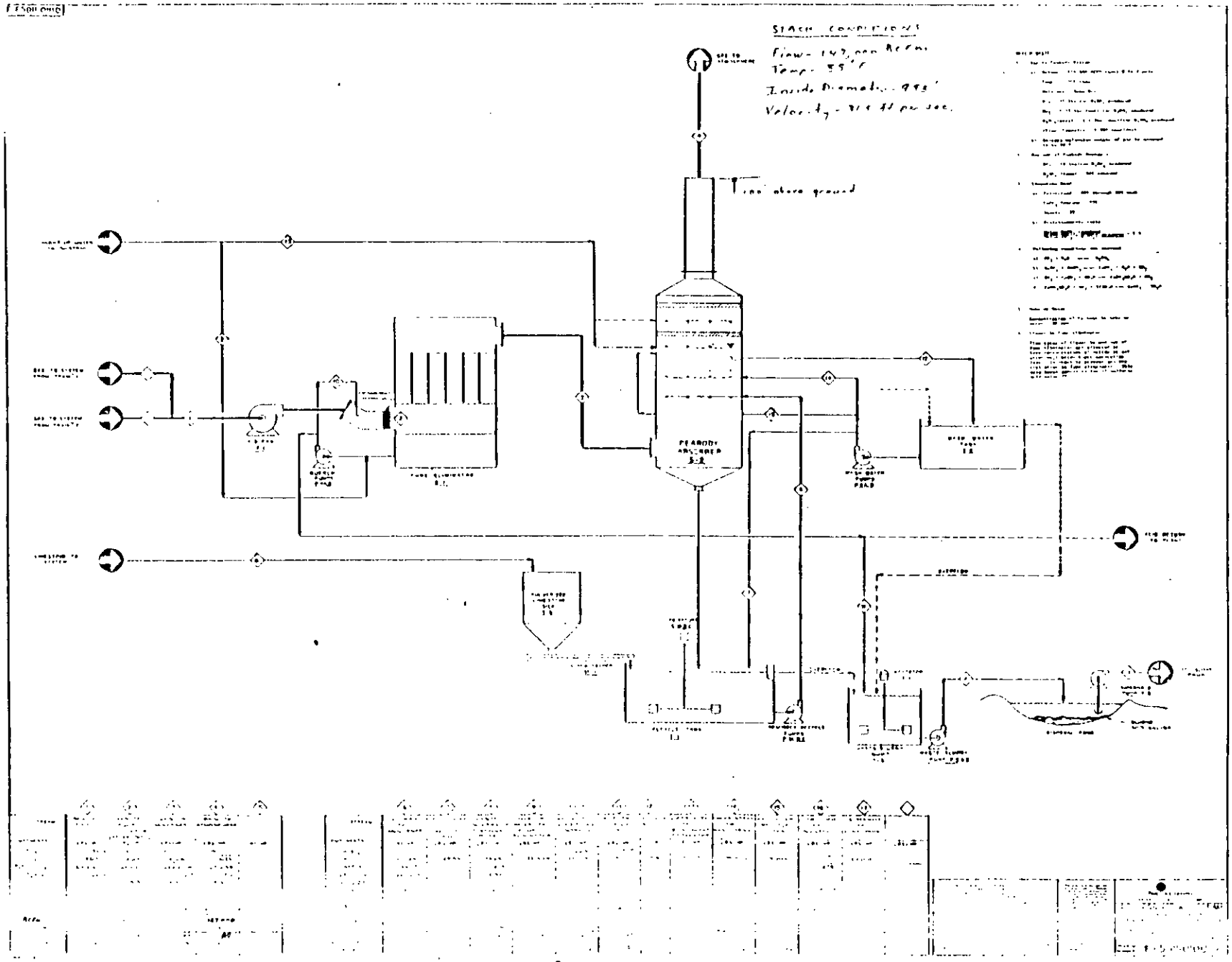
STACK CONDITIONS
Flow- 143,000 ACFM
Temp- 55°F
Inside Diameter- 9'8"
Velocity- 91.4 ft per sec.
100' above ground
PEABODY ARCHDEN

EXHIBIT-C

AVAILABLE CONTROL TECHNOLOGY
(Refer Section VI E of Application)

USS Agri-Chemicals has investigated numerous processes to control SO_2 emissions from sulfuric acid plants. Basically these fall into two groups:

I. HIGH EFFICIENCY PROCESSES

These processes (double absorption and high pressure plants) achieve minimal SO_2 emissions by super high efficiency. Sulfur dioxide control is integrated into the production equipment and sulfur dioxide that would be lost in lower efficiency plants becomes part of the sulfuric acid production. High pressure processes are not feasible for large plants. The double absorption process is most favorable for plants with large capacities.

II. ABSORPTION PROCESSES

These processes utilize absorbers (scrubbers) which are applied to the exhaust gas from low efficiency sulfuric acid processes. It is a common trait that the SO_2 prevented from entry to the atmosphere becomes incorporated into the absorbing solution and ultimately must be disposed of in balance with the rate at which it is being absorbed. This poses a real or potential threat to the ground or water environment. In Group II, USSAC has investigated Limestone Scrubbing, Ammonia Scrubbing, Double Alkali, Sodium Systems (Wellman Lord Process),and Molecular Sieves.

All investigations supported a Double Absorption Sulfuric Acid Plant as the best available technology for a new source. It has the advantage of more acid production per ton of raw material used, and does not introduce any associated pollution threats from the SO_2 control unit to the ground and water environment.

Included herewith for more detailed information on the various available processes is a list of published technical articles which are incorporated by reference into this EXHIBIT-C.

EXHIBIT - C

REFERENCES

STUDY OF SO_2 SCRUBBERS
NATIONAL AIR POLLUTION CONTROL ADMINISTRATION

1. Aerojet-General Corp., "Applicability of Aqueous Solutions to the Removal of SO_2 from Flue Gases" (Report S-4850-01-2), Contract PH86-68-77

2. Backstrom, H. L. J., "The Chain-Reaction Theory of Negative Catalysis," *Journal of the American Chemical Society*, 49, 1460, 1927

3. Barron, C. H., and O'Hern, H. A., "Reaction Kinetics of Sodium Sulfite Oxidation by the Rapid-Mixing Method," *Chemical Engineering Science*, 21, 397, 1966

4. Bartholomew, W. H., Karow, E. O., Sfat M. R., and Whilhelm, R. H., "Oxygen Transfer and Agitation in Submerged Fermentations," *Industrial and Engineering Chemistry*, 42, 1801, 1950

5. Betz, W. H., and Betz, L. D., "Oxygen Removal with Na_2SO_3," Technical Paper No. 114

6. Cooper, C. M., Fernstrom, G. A., and Miller, S. A., "Performance of Agitated Gas-Liquid Contactors," *Industrial and Engineering Chemistry*, 36, 504, 1944

7. Frankenberg, T. T., "Removal of Sulfur from Products of Combustion," *API* Preprint No. 53-65, May 12, 1965

8. Fuller, E. C., and Crist, R. H., "The Rate of Oxidation of Sulfite Ions by Oxygen," *Journal of the American Chemical Society*, 63, 1644, 1941

9. Hixson, A. W., and Gaden, E. L., Jr., "Oxygen Transfer in Submerged Fermentation," *Industrial and Engineering Chemistry*, 42, 1792, 1950

10. Johnstone, H. F., and Singh, A. D., "Recovery of Sulfur Dioxide from Waste Gases," *Industrial and Engineering Chemistry*, 32, 1037, 1940

11. Johnstone, H. F., and Kleinschmidt, R. V., "The Absorption of Gases in Wet Cyclone Scrubbers," *Transactions of the American Institute of Chemical Engineers*, 34, 181, 1938

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15. Maxon, W. D., and Johnson, M. J., "Aeration Studies on Propagation of Baker's Yeast," *Industrial and Engineering Chemistry*, 45, 2554, 1953

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17. Srivastana, R. D., McMillan, A. F., and Harris, I. J., "The Kinetics of Oxidation of Sodium Sulphite," *Canadian Journal of Chemical Engineering*, 46, 181, 1968

18. Wartman, F. S., "Oxidation of Ammonium Sulphite Solution," United States Bureau of Mines, Progress Reports – R.I. 3339 Metallurgical Division, No. 17, May 1937

19. Yagi, S., and Inoue, H., "The Absorption of Oxygen into Sodium Sulphite Solution," *Chemical Engineering Science*, 17, 411, 1962

20. Johnstone, H. F., "Recovery of Sulfur Dioxide from Waste Gases," *Industrial and Engineering Chemistry*, 27, 587, 1935

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22. Johnstone, H. F., and Singh, A. D., "Recovery of Sulfur Dioxide from Waste Gases," *Industrial and Engineering Chemistry*, 29, 286, 1937

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32. Kopita, R., and Gleason, T. G., "Wet Scrubbing of Boiler Flue Gas," *Chemical Engineering Progress*, 64, 74, 1968

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34. Danckwerts, P. V., "Gas Absorption with Instantaneous Reaction," *Chemical Engineering Science*, 23, 1045, 1968

ADDITIONAL REFERENCES

1. Various authors, "SO_2 Processing", Chemical Engineering Progress, Vol. 71, no. 5, 1975.

2. Karan S. Gaus, "Pollution Control with SO_2 Recovery", Pollution Engineering, Vol. 10, no. 5, 1978.

3. J. B. Rinckhoff and J. J. Friedman, "Design Options for Sulfuric Acid Plants", Chemical Engineering Progress, March, 1977.

4. C.I.L., "Improving H_2SO_4 Plant Efficiency without Interpass Absorption", Sulfur, Nov./Dec., 1978.

EXHIBIT-D

AVERAGE AND MAXIMUM PRODUCTION/EMISSION RATES

The material balance on the contractors drawing, Attachment-E of the permit application, represents nominal design rates under average conditions.

USSAC expects maximum sustainable production rates to be 10% in excess of the nominal design. The application form section III C, first column, specifies emissions to be recorded as "maximum,lbs./hr.", and the numbers entered comply with this specification. For consistency, maxima were also used in section III B.

For further clarification tables have been prepared to summarize average and maximum rates, and are included as part of EXHIBIT-D. See tables IA, IB, IIA, and IIB. Numbers are given in lbs./hr. to be more easily identified with permit application numbers which are also in lbs./hr.

There are no fluoride emissions in streams 22 and 23 on Attachment-E of the permit application. This is verified by the designer/contractor letter which is included with this EXHIBIT-D.

EXHIBIT D

TABLE IA-AVERAGE RAW MATERIAL & PRODUCTION RATES
(Refer Attachment E)

	Pounds Per Hour Train A	Pounds Per Hour Train B	Pounds Per Hour Total	(Tons/Day)
Rock Feed, P_2O_5	61,085	61,085	122,170	(1466)
Production, P_2O_5	58,335	58,335	116,670	(1400)

TABLE IB-FLUORIDE EMISSIONS AT AVERAGE PRODUCTION RATE
(Refer Attachment E)

	Pounds Per Hour Train A	Pounds Per Hour Train B	Pounds Per Hour Total	(Lbs./Day)
Reaction Area, Stream 20	0.45	0.45	0.90	(21.6)
Storage Area, Stream 21	0.16	0.16	0.32*	(7.6)
Other	0	0	0	0
Total	0.61	0.61	1.22	(29.2)

*The storage area scrubber is common to both trains.

TABLE IIA-MAXIMUM RAW MATERIAL & PRODUCTION RATES

	Pounds Per Hour Train A	Pounds Per Hour Train B	Pounds Per Hour Total	(Tons/Day)
Rock Feed, P_2O_5	70,510	70,510	141,020	(1692)
Production, P_2O_5	64,165	64,165	128,330	(1540)

TABLE IIB-FLUORIDE EMISSIONS AT MAXIMUM PRODUCTION RATE

	Pounds Per Hour Train A	Pounds Per Hour Train B	Pounds Per Hour Total	(Lbs./Day)
Reaction Area, Stream 20	0.53	0.53	1.06	(25.4)
Storage Area, Stream 21	0.18	0.18	0.36*	(8.6)
Other	0	0	0	0
Total	0.71	0.71	1.42	(34.0)

*The storage area scrubber is common to both trains.

Badger

EXHIBIT - D

RECEIVED
SEP 18 1980
USS ENG. - FT. MEADE

GULF DESIGN DIVISION
1401 NORTH WESTSHORE BOULEVARD ▫ P.O. BOX 22317 ▫ TAMPA, FLORIDA 33622 ▫ TELEPHONE: 813/879-0715

September 19, 1980
Letter No. GD/USSAC-030L

USS Agri-Chemicals
P.O. Box 150
Bartow, Florida 33830

Attention: Mr. R. T. Lindsay
Project Manager

Subject: Exhaust Gases from Vacuum Pump Silencer
Phosphoric Acid Plant
Fort Meade, Florida
Badger Study No. E-7541

Dear Bob:

In recent discussions, your technical team questioned the nature of gases exhausting from the Reactor and Filter Vacuum Pumps in our phosphoric acid plant. Please be advised that these gases are primarily air, carbon dioxide, and water vapor. We have not detected fluorine compounds in gases leaving these silencers.

Very truly yours,

BADGER AMERICA, INC.

J. W. Salter
Project Manager

JWS:mey

EXHIBIT-E

ERRATA

A numerical error has been found in Attachment-B, paragraph 3, of the permit application.

Attachment-B revised for correction is included as EXHIBIT-E. The error was not reflected elsewhere in the application.

EXHIBIT-E

TRAIN - A

ATTACHMENT B

(For Section V of Application)

1. Total Process Input Rate and Product Weight

P_2O_5 Input	=	70510	lb/h
P_2O_5 in Product	=	64165	lb/h
P_2O_5 Loss to Gypsum Storage	=	6345	lb/h

2. Emission Estimate and Test Methods

(a) Basis of Emission Estimate - performance guarantee from Badger America Inc. (Attachment A) which equates to meeting Federal NSPS and Florida Emission Limiting Standards.

(b) Compliance Test Methods - in accordance with 40 CFR 60, or DER/EPA approved alternate methods.

3. Basis of Potential Discharge

(Refer to Flow Diagram, Attachment E)

Based on guarantees from Bader America, fluoride emissions from the reactor area fume scrubber will be 10.8 pounds per day (lb/d) at a scrubber efficiency of 99%. Fluoride emissions from the storage tank area fume scrubber will be 3.8 lb/d at a scrubber efficiency of 95%. Total potential (uncontrolled) emission rates will be as follows:

Reactor Area	=	10.8 lb/d / 0.01 (effic. factor)	=	~~2090~~ 1080 lb/d ★
Storage Tank Area	=	~~7.8~~ 3.8 lb/d / 0.05 (effic. factor)	=	~~156~~ 76 lb/d ★
TOTAL			=	~~2246~~ 1156 lb/d ★
			=	~~94~~ 48 lb/h ★

4. Design Details of Pollution Control Equipment

Design details are not yet available. Refer to flow diagram in Attachment E for additional information.

★ Revised to correct error - 9/15/80

EXHIBIT - E

TRAIN-B

ATTACHMENT B

(For Section V of Application)

1. Total Process Input Rate and Product Weight

P_2O_5 Input	=	70510	lb/h
P_2O_5 in Product	=	64165	lb/h
P_2O_5 Loss to Gypsum Storage	=	6345	lb/h

2. Emission Estimate and Test Methods

(a) Basis of Emission Estimate - performance guarantee from Badger America Inc. (Attachment A) which equates to meeting Federal NSPS and Florida Emission Limiting Standards.

(b) Compliance Test Methods - in accordance with 40 CFR 60, or DER/EPA approved alternate methods.

3. Basis of Potential Discharge

(Refer to Flow Diagram, Attachment E)

Based on guarantees from Bader America, fluoride emissions from the reactor area fume scrubber will be 10.8 pounds per day (lb/d) at a scrubber efficiency of 99%. Fluoride emissions from the storage tank area fume scrubber will be 3.8 lb/d at a scrubber efficiency of 95%. Total potential (uncontrolled) emission rates will be as follows:

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Storage Tank Area	=	$\frac{\text{~~7.8~~ } 3.8 \text{ lb/d}}{0.05 \text{ (effic. factor)}}$	=	~~156~~ 76 lb/d ★
TOTAL			=	~~2246~~ 1156 lb/d ★
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