AMAX Chemical Corporation
A SUBSIDIARY OF AMAX INC
402 SOUTH KENTUCKY AVENUE · SUITE 600 · LAKELAND, FLORIDA 33801 · (813) 687-2581

11/22 Pls handle Willard

December 16, 1983

Mr. C. H. Fancy, P.E.
Deputy Bureau Chief
Buruea of Air Quality Management
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301-8241

DER
DEC 21 1983
BAQM

SUBJECT: AMAX Big Four Mine Dryer Construction
Permit No. AC29-65834

Dear Mr. Fancy:

Recently your department issued a construction permit to AMAX Chemical Corporation for the fuel conversion of its Big Four Mine Dryer to high sulfur coal-oil-water mixture. AMAX would like to request an extension of the expiration date of the permit from the current March 1, 1984, to June 15, 1984. Also, AMAX requests that the modifications date of March 1, 1984, found in specific condition 20 be extended to June 15, 1984.

If you have any questions concerning this request for extension, please let me know.

Sincerely,

Fred G. Mullins
Regulatory Compliance Manager

FGM/ds

cc: S.R. Sandrik
G.P. Uebelhoer
R.F. Crabill

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

November 22, 1983

Mr. S. R. Sandrik, Plant Manager
AMAX Phosphate, Inc.
Post Office Box 508
Bradley, Florida 33835

Re: PSD-Fl-094

Dear Mr. Sandrik:

The Department recently issued AMAX Phosphate, Inc. state construction permit No. AC 29-65834 which will allow the use of an alternate fuel in the phosphate rock dryer at the Ft. Lonesome plant. A federal permit from the Environmental Protection Agency must also be obtained before your Company proceeds with the use of this alternate fuel.

The Environmental Protection Agency approves of the emission standards for particulate matter and sulfur dioxide that are in the state permit. However, they question if these standards can be achieved with the existing scrubber serving the dryer. The attached November 3, 1983 letter from EPA shows their evaluation of your data that led to this conclusion.

Your environmental staff has stated that additional emission data for this scrubber is available. We request that you use the latest data to reevaluate the performances of the existing dryer scrubber to determine if the emission standards listed in the state permit will be met under all dryer operating conditions. Please send us a copy of all data and calculations used in the reevaluation and your comments on the issues raised by the Environmental Protection Agency in their November 3 letter.

If you have any questions on the information requested, please call Willard Hanks at (904)/488-1344.

Sincerely,

C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

CHF/WH/s
Enclosure
cc: Michael Brandon, EPA
Jerry Campbell, Hillsborough Cty.
Bill Thomas, SW District

A copy of USEPA's letter dated 11/3/83
was attached to DER's letter dated 11/22/83

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA GEORGIA 30365

NOV 3 1983

4AW-AM

Mr. Clair H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301-8241

RE: PSD-FL-094 AMAX Phosphate, Inc.

Dear Mr. Fancy:

This is to acknowledge receipt of your letter containing the preliminary determination for the above company's use of alternate fuels and production increase at their Fort Lonesome facility.

We concur with the permit conditions as stipulated. However, data submittals (i.e., performance test results) do not substantiate the proposed emission limits. Preliminary calculations predict that the particulate emission limits will be met, but performance test data (test of March 2, 1982) show an emission rate of 0.069 lbs. of particulate per ton of phosphate rock feed exceeding New Source Performance Standards for Phosphate Rock Dryers (40CFR60.402). In addition, an analysis of sulfur dioxide removal efficiency data predicts that sulfur dioxide emission limits will also be exceeded (see enclosures).

Since we don't want to have to revise the conditions of the Federal Prevention of Significant Deterioration construction permit after it has been issued, we ask that you have the source submit further substantiation of their emission control claims. If they cannot, your permit should require them to upgrade or add on control equipment in the event that performance testing under worst-case conditions indicates the existing equipment is not adequate to meet emission limits. We also welcome any other proposals you may have for dealing with compliance test failure.

If you have any comments or questions regarding this letter or enclosures, please contact Michael Brandon at 404/881-7654.

Sincerely yours,

James T. Wilburn, Chief
Air Management Branch
Air and Waste Management Branch

Enclosures

Particulate Emissions Given:

1. Application reports from 600 to 1500 lbs/hr of uncontrolled particulate emissions.

2. Impingement scrubbers are reported to control 90-98% of particles in the 1 micron size range.

3. AP-42 reports approximately 11% of particulates from dryers are less than 1 micron.

Assumed:

1. Scrubber is 99.5% efficient for particles in size range greater than 1 micron.

2. Scrubber is 94% efficient for particles less than 1 micron.

3. Worst case uncontrolled emissions are 1500 lbs/hr.

Calculations:

Ash content of COM = 1.86% (appears low)

118×10^6 btu/hr ÷ 14,704 btu/lb COM x .0186 = 149 lbs/hr Ash

1500 + 149 = 1649 lbs/hr uncontrolled particulate emissions

[1649 x (1 - .11)] x (1 - .995) + (1649 x .11) x (1 - .94) =

1649 x .89 x .005 + 1649 x .11 x .06 =

7.3 + 10.88 = 18.22 lbs/hr

at 300 TPH emissions are $\frac{18.22}{300}$ = 0.06 lbs/ton

COM Test Data:

252 TPH .061 lbs/ton
.056 lbs/ton
.091 lbs/ton

.069 lb/ton worst case pebble drying

Proposed Emission Rate = .06 lb/ton

Conclusion: Impingment scrubber is not capable of meeting the permitted emission limit.

Sulfur Dioxide emission:

Given:

1. Sulfur Dioxide removal efficiency tests on dryer and scrubber system at AMAX 9/81 to 4/82.

2. Proposed limit is to be 1.1 lbs SO_2/mmbtu heat input.

3. Maximum sulfur content of fuel is to be 2.5% or what is required to meet 1.1 lbs SO_2/mmbtu.

4. Greater air volumes will result in lower residence time for dryer gases.

Assume:

1. Higher product rates result in greater dryer gas volumes.

2. Residence time in dryer effects sulfur dioxide removal efficiencies.

3. Straight line correlations are possible with data at some product rate.

4. Product mix does not appreciably effect sulfur dioxide removal.

Data Interpretation:

Runs 1 through 3 gives sulfur dioxide removal efficiency as follows: $y = mx + b$

y = efficiency m = slope x = sulfur content b = y at x = o

Values 1. x = 3 y = 48 $\frac{y - y_2}{x - x_2} = M$

2 & 3 x = 1 y = 74

$m = \frac{-26}{2} = -13$ $48 = -13(3) + B$ $B = 87$

$\underline{y = -13x + 87}$ For 300 TPH

Runs 4 and 8

Values 4. x = 2.4 y = 69

8. x = 1.5 y = 78

$$\frac{69 - 78}{2.4 - 1.5} = \frac{-9}{.9} = -10$$

69 = -10 (2.4) + B B = 93

<u>y = -10x + 93</u> <u>For 250 TPH</u>

Calculations:

118 x 10^6 Btu/hr ÷ 14,704 Btu/lb com = 8025 lbs/hr

8025 lbs/hr fuel x 2.5% S x $\frac{2 \text{ lbs } SO_2}{\text{lbs}}$ = 401 lbs/hr SO_2

300 TPH y = -13(2.5) + 87 = 55%

250 TPH y = -10(2.5) + 93 = 68%

<u>at 300 TPH</u> 401 x (1 - .55) / 118. = 1.5 lbs SO_2/mmbtu

<u>at 250 TPH</u> 401 x (1 - .68) / 118 = 1.08 lbs SO_2/mmbtu

minimum eff. 118 x 1.1 = 401 (1 = y)
at 300 TPH y = 68%

<u>Max Sulfur fuel content at 300 TPH</u>

68 = -13(x) + 87

x = 1.46%

Conclusions:

The sulfur dioxide emissions limit will not be met based on 300 TPH with 2.5% S fuel. A lower sulfur content fuel will probably be needed base on the above assumptions. However, if the variable moisture content of the rock is taken into account, it is conceivable that the data interpolation in this analysis does not account for variation in the amount of gases needed to dry the rock. The data is therefore subject to interpretation based upon the limited process data taken during these test runs.

Recommendation:

Further testing should be performed on this dryer with pertainment gas flow rates, moisture contents of input and product rock, gas temperature, and scrubber flow rate, pressure drop, PH measured. Such testing can be done during performance tests as the permit flexibility regarding compliance with the 1.1 lb per million BTU emission limit allows for several compliance measures including addition of caustic to scrubbing solution, reduction of fuel sulfur content, and/or reduction of process rates up to 10% (270 Tons/HR - 65% eff.)

AMAX Chemical Corporation
A SUBSIDIARY OF AMAX INC
402 SOUTH KENTUCKY AVENUE • SUITE 600 • LAKELAND, FLORIDA 33801 • (813) 687-2561

October 14, 1983

Mr. Williard Hanks
Dept. of Environmental Regulation
Bureau of Air Quality Management
Twin Towers Office Bldg.
2600 Blair Stone Road
Tallahassee, FL 32301

DER
OCT 18 1983
BAQM

Subject: FDER No. AC29-65834
EPA No. PSD-FL-094

Dear Mr. Hanks:

AMAX Chemical is in receipt of the September 20, 1983 letter from the Hillsborough County Environmental Protection Commission concerning the ambient monitoring requirements for the Big Four Mine Dryer PSD Review. AMAX is in agreement with the specific conditions requested by the HCEPC in that letter.

If you need any further clarification of this agreement, please let me know.

Sincerely,

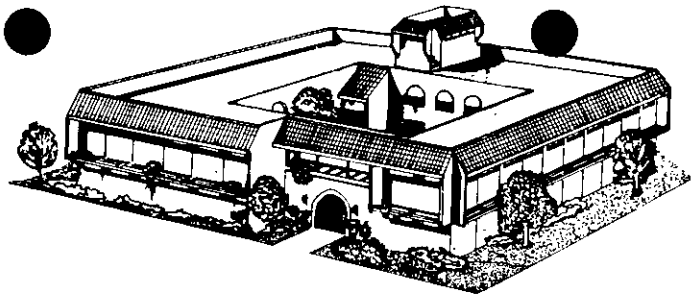
Fred G Mullins/dw

Fred G. Mullins
Regulatory Compliance Manager

FGM:mlm

cc: Dan Williams (FDER, Southwest District)
Debra Sanderson (HCEPC)
Jerry Cambell (HCEPC)
Fred Crabill
Randy Sandrik
Gary Uebelhoer
Bruce Galloway

HILLSBOROUGH COUNTY
ENVIRONMENTAL PROTECTION
COMMISSION
E. L. BING
RODNEY COLSON
MATT JETTON
JOHN R. PAULK
JAN KAMINIS PLATT



ROGER P. STEWART
DIRECTOR

1900 - 9th AVE
TAMPA, FLORIDA 33605

TELEPHONE (813) 272-5960

September 20, 1983

DER
SEP 23 1983
BAQM

Mr. Willard Hanks
Florida Department of Environmental Regulations
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

Dear Mr. Hanks:

This letter is in response to the Preliminary Determination on AMAX's Big Four Mine rock dryer and our recent telephone conversation. As we discussed, the Hillsborough County Environmental Protection Commission (EPC) is working with AMAX to attach a specific condition to the permit to require that AMAX maintain an existing ambient air monitoring network. Debra Sanderson of this office spoke with Fred Mullins to confirm AMAX's commitment on this. It is my understanding that Mr. Mullins will call you to reassure the BAQM that AMAX will not reject the monitoring requirement once the permit is issued.

The EPC recommends that the following specific conditions be attached to AMAX's construction permit for the dryer:

1. AMAX Chemical Corporation's, Big Four Mine sampling locations by UTM coordinates shall be:

   #1 - 478.00E, 1245.39N
   #2 - 475.00E, 1233.70N
   #3 - 477.00E, 1225.33N

2. Total Suspended Particulate (TSP), Fluoride in TSP and sulfur dioxide will be monitored for 24 hours every 6th day according to the National Air Sampling Network schedule at Sites 1,2, and 3.

3. TSP and sulfur dioxide sample collection and analysis shall be performed according to Federal Reference Methods as outlined in the Code of Federal Regulations, Part 50, Appendices A and B.

4. The quality Assurance requirements as defined in the Code of Federal Regulations Part 58, Appendix A shall be followed for TSP and Sulfur Dioxide sampling. AMAX Chemical Corporation is understood to be a single reporting organization for its ambient air sampling activities in Hillsborough County.

5. Quarterly data reports shall be submitted to the Hillsborough County Environmental Protection Commission including precision and accuracy data.

If you have any questions or problems with these conditions, please contact Debra or myself.

Sincerely,

Jerry Campbell

Jerry Campbell
Environmental Engineer II
Hillsborough County Environmental
Protection Commission

JC/ljh

cc: Bill Thomas
Fred Mullins
Fred Crabill

COUNTY OF HILLSBOROUGH

DER

MAR 07 1983

BAQM

MEMORANDUM

February 25, 1983

To Tom Rogers, F.D.E.R., Tallahassee

From Frank Shindle/Iwan Choronenko, H.C.E.P.C. F.S.

Subject: Amax Phosphates, Inc. - PSD Application

My comments are as follows:

1. Secondary emissions calculation due to potential increase in mining activity omitted from the report. The increase of 389,000 tons per year dryer input must be the result of an increase in mining activity.

2. In Volume 1, Page 1-4, there is a statement that there will not be additional rail traffic; yet Page 2-8 indicates additional rail cars will be needed. Please explain.

3. Figure 2-2 indicates the locations of the 8 receptors used in the PTMTPW dispersion model. All these receptors are located beyond the plant boundary, in the direction of maximum impact contributed by Amax's sources.

   Prevention of significant deterioration is not limited to areas beyond plant boundaries. Nor does F.A.C. 17-2.500(1), or Hillsborough County Environmental Protection Commission Act, Chapter I, exclude the area within the plant boundaries. Non-deterioration must be demonstrated for any point within the baseline area [F.A.C. 17-2.500(5)(d) and 17-2.500(1)(a) and (b)].

4. Gulf Coast Lead is a major sulfur dioxide source which is not included in the model.

5. Doubling of the current allowable particulate emission standard may impact the non-attainment area and subject the facility to R.A.C.T. standards. The facilities impact is not modeled for an exemption at the proposed emission level and is also subject to the county non-deterioration clause.

6. Amax proposes application of N.S.P.S. which relaxes the emission limitation. Amax has continuously demonstrated in compliance tests for several years that the current standard can be met with present equipment. Additionally, other phosphate dryers are subject to the same emission limit.

7. Page 3-7 states that extrapolation of the data from PSD-FL-088 indicates SO_2 removal efficiency of approximately 60-65% when fuel with 2.5% sulfur is used to dry pebble rock and that it is the lowest expected SO_2 removal efficiency to be expected. Yet a compliance test conducted on August 27, 1981, utilizing 2.5% sulfur fuel oil demonstrated that SO_2 removal efficiency of less than 60-65% occurred. (See attachment)

8. The urban mixing height was used in the PTMTPW model. Rural mixing heights should have been used.

9. The ISCLT, using 10 meters for the height at which a wind data was measured, is incorrect. It should have been 7 meters.

10. Stability class data for the year 1973, Julian day 24, hour 18, indicates a stability class of 5. The stability class according to the crster preprocessor printout should be class 4.

11. Stability class data for the year 1972, Julian day 220, hour 18, indicates a stability class of 4. This should have been stability class 5.

For the above reasons, I deem the application incomplete.

FS/IC/lw

cc: Fred G. Mullins, AMAX
Willard Hanks, FDER, Tallahassee
Bill Thomas, FDER, Tampa

MEMORANDUM

AMAX Phosphate, Inc.

402 SOUTH KENTUCKY AVENUE · SUITE 500 · LAKELAND, FLORIDA 33801

Mr. Fred Mullins DATE: September 2, 1981

George Townsend

SULFUR DIOXIDE COMPLIANCE TEST

Compliance testing was conducted at the Big Four Mine Dryer on August 27, 1981. During the test procedures No. 6 fuel oil, containing approximately 2.5 percent sulfur, was utilized in the drying operation. Test results and related data were as follows:

OPERATING CONDITIONS

RUN	TPH	GPH #6 FUEL OIL	MMBTU/HR
1	300	445	66.613
2	300	440	65.861
3	300	435	65.115
Avg.	300	440	65.863

	STACK CONDITIONS		SO_2 EMISSIONS	
RUN	DSCFM	TEMP. °F	LBS/HR	LBS/MMBTU
1	42,297	141	83.091	1.247
2	43,788	142	84.850	1.288
3	45,329	142	91.962	1.412
Avg.	43,805	142	86.634	1.316

all above 1.1 # SO_2 MBTU requested

George Townsend

George Townsend

GT:st

cc: Mr. H. P. Mott
Mr. S. R. Sandrik
Mr. R. H. Swanson
Mr. G. P. Uebelhoer

SO_2 Potential = $\frac{440 \text{ gal}}{\text{hr}} \times \frac{8.3 \text{ \#}}{\text{gal}} \times \frac{2.5 \text{ \#S}}{100 \text{ \#oil}} \Big| \frac{2 \text{ \#SO}_2}{\text{\#S}} = 182.6 \frac{\text{\# SO}_2}{\text{hr}}$

$\%\ SO_2 \text{ Removal} = \left[\frac{182.6 - 86.6}{182.6}\right] \times 100 = 52.6\%$ removal

RUN #1

DATE - 8,27,81 ********** EPA METHOD #8 ********** PAGE 1 OF

SULFURIC ACID AND SULFUR DIOXIDE EMISSIONS

AVERAGE ABSOLUTE DRY GAS METER TEMPERATURE(DEG F)= 106

STACK STATIC PRESSURE(IN.HG.)= 0

VELOCITY HEAD OF STACK GAS(IN. H20)= .7687

VOLUME OF GAS SAMPLE MEASURED BY THE DRY GAS METER(DCF)= 42.2

DIAMETER OF SAMPLE NOZZLE(INCHES)= .2477

DIAMETER OF THE STACK(FT)= 5.9583

BAROMETRIC PRESSURE AT SAMPLING SITE(IN.HG.)= 29.935

TOTAL VOLUME OF SAMPLE(ML)= 2000

PITOT TUBE COEFFICIENT= .8526

NORMALITY OF BARIUM PERCHLORATE TITRANT(EQ/L)= .01001

VOLUME OF BARIUM PERCHLORATE TITRANT USED FOR H2S04(ML)= 0

VOLUME OF BARIUM PERCHLORATE TITRANT USED FOR SO2 (ML)= 23.05

AVERAGE PRESSURE DROP ACROSS ORIFICE METER(IN.HG.)= 1.1017

AVERAGE ABSOLUTE STACK GAS TEMPERATURE(DEG F)= 141

AVERAGE SQRT OF STACK GAS VELOCITY HEAD(IN H20^.5)= .590912

DRY GAS METER CALIBRATION FACTOR= 1.004

AREA OF SAMPLE NOZZLE(SQ FT)= 3.34642E-04

AREA OF THE STACK(SQ FT)= 27.8828

TOTAL LIQUID VOLUME FROM IMPINGERS & SILICA GEL(ML)= 222.2

VOLUME OF ALIQUOT(ML)= 25

TOTAL SAMPLING TIME(MIN.)= 72

VOLUME OF BARIUM PERCHLORATE TITRANT USED FOR BLANK(ML)= 0

VOLUME OF BARIUM PERCHLORATE TITRANT USED FOR BLANK(ML)= .1

DRY GAS VOLUME(DSCF)= 39.6352

STANDARD VOLUME OF H20 VAPOR(CF)= 10.459

MOISTURE CONTENT= .233786

SULFURIC ACID MIST CONCENTRATION (INCLUDING SO3)(LB/DSCF)= 0

DATE - 8,27,81 ********** FUEL INFORMATION ********** PAGE 2 OF 3

HIGH HEATING VALUE OF FUEL(BTU/GAL)= 149690

FUEL FIRING RATE (GPM)= 7.25

DENSITY OF OIL(LB/GAL)= 8

AVERAGE TEMPERATURE OF FUEL(DEG F)= 210

AVERAGE %TOTAL SULFUR AS S IN FUEL= 2.5 ←

LBS. OF SULFUR IN PER MIN.= 1.45

LBS. OF SO2 IN PER MIN.= 2.8971

LBS. OF SO2 OUT PER MIN.= 1.5327

REMOVAL EFFICIENCY IN PERCENT= 47.0955% ←

M.M. BTU'S PER MIN.= 1.08525

LBS. OF SO2 EMITTED/10^6 BTU'S INPUT= 1.41229 ←

Run #2

DATE - 8,27,81 ********** EPA METHOD #8 ********** PAGE 1 OF

SULFURIC ACID AND SULFUR DIOXIDE EMISSIONS

AVERAGE ABSOLUTE DRY GAS METER TEMPERATURE(DEG F)= 99.1

AVERAGE PRESSURE DROP ACROSS ORIFICE METER(IN.HG.)= 1.19

STACK STATIC PRESSURE(IN.HG.)= 0

AVERAGE ABSOLUTE STACK GAS TEMPERATURE(DEG F)= 142

VELOCITY HEAD OF STACK GAS(IN. H2O)= .7843

AVERAGE SQRT OF STACK GAS VELOCITY HEAD(IN H2O^.5)= .615091

VOLUME OF GAS SAMPLE MEASURED BY THE DRY GAS METER(DCF)= 44

DRY GAS METER CALIBRATION FACTOR= 1.004

DIAMETER OF SAMPLE NOZZLE(INCHES)= .2477

AREA OF SAMPLE NOZZLE(SQ FT)= 3.34642E-04

DIAMETER OF THE STACK(FT)= 5.9583

AREA OF THE STACK(SQ FT)= 27.8828

BAROMETRIC PRESSURE AT SAMPLING SITE(IN.HG.)= 29.935

TOTAL LIQUID VOLUME FROM IMPINGERS & SILICA GEL(ML)= 240.6

TOTAL VOLUME OF SAMPLE(ML)= 2000

VOLUME OF ALIQUOT(ML)= 25

PITOT TUBE COEFFICIENT= .8526

TOTAL SAMPLING TIME(MIN.)= 72

NORMALITY OF BARIUM PERCHLORATE TITRANT(EQ/L)= .01001

VOLUME OF BARIUM PERCHLORATE TITRANT USED FOR H2SO4(ML)= 0

VOLUME OF BARIUM PERCHLORATE TITRANT USED FOR BLANK(ML)= 0

VOLUME OF BARIUM PERCHLORATE TITRANT USED FOR SO2 (ML)= 24

VOLUME OF BARIUM PERCHLORATE TITRANT USED FOR BLANK(ML)= .1

DRY GAS VOLUME(DSCF)= 41.8449

STANDARD VOLUME OF H2O VAPOR(CF)= 11.325

MOISTURE CONTENT= .237997

SULFURIC ACID MIST CONCENTRATION (INCLUDING SO3)(LB/DSCF)= 0

DATE - 8,27,81

********** FUEL INFORMATION **********

HIGH HEATING VALUE OF FUEL(BTU/GAL)= 149690

FUEL FIRING RATE (GPM)= 7.4167

DENSITY OF OIL(LB/GAL)= 8

AVERAGE TEMPERATURE OF FUEL(DEG F)= 210

AVERAGE %TOTAL SULFUR AS S IN FUEL= 2.5 ←

LBS. OF SULFUR IN PER MIN.= 1.48334

LBS. OF SO2 IN PER MIN.= 2.96371

LBS. OF SO2 OUT PER MIN.= 1.38485

REMOVAL EFFICIENCY IN PERCENT= 53.2732% ←

M.M. BTU'S PER MIN.= 1.11021

LBS. OF SO2 EMITTED/10^6 BTU'S INPUT= 1.24738 ←

Run #3

DATE - 8,27,81

********** EPA METHOD #8 **********

SULFURIC ACID AND SULFUR DIOXIDE EMISSIONS

AVERAGE ABSOLUTE DRY GAS METER TEMPERATURE(DEG F)= 101.8

STACK STATIC PRESSURE(IN.HG.)= 0

VELOCITY HEAD OF STACK GAS(IN. H2O)= .7966

VOLUME OF GAS SAMPLE MEASURED BY THE DRY GAS METER(DCF)= 45.4

DIAMETER OF SAMPLE NOZZLE(INCHES)= .2477

DIAMETER OF THE STACK(FT)= 5.9583

BAROMETRIC PRESSURE AT SAMPLING SITE(IN.HG.)= 29.935

TOTAL VOLUME OF SAMPLE(ML)= 2000

PITOT TUBE COEFFICIENT= .8526

NORMALITY OF BARIUM PERCHLORATE TITRANT(EQ/L)= .01001

VOLUME OF BARIUM PERCHLORATE TITRANT USED FOR H2SO4(ML)= 0

VOLUME OF BARIUM PERCHLORATE TITRANT USED FOR SO2 (ML)= 25.8

AVERAGE PRESSURE DROP ACROSS ORIFICE METER(IN.HG.)= 1.2713

AVERAGE ABSOLUTE STACK GAS TEMPERATURE(DEG F)= 142

AVERAGE SQRT OF STACK GAS VELOCITY HEAD(IN H20^.5)= .634536

DRY GAS METER CALIBRATION FACTOR= 1.004

AREA OF SAMPLE NOZZLE(SQ FT)= 3.34642E-04

AREA OF THE STACK(SQ FT)= 27.8828

TOTAL LIQUID VOLUME FROM IMPINGERS & SILICA GEL(ML)= 242.5

VOLUME OF ALIQUOT(ML)= 25

TOTAL SAMPLING TIME(MIN.)= 72

VOLUME OF BARIUM PERCHLORATE TITRANT USED FOR BLANK(ML)= 0

VOLUME OF BARIUM PERCHLORATE TITRANT USED FOR BLANK(ML)= .1

DRY GAS VOLUME(DSCF)= 42.9774

STANDARD VOLUME OF H2O VAPOR(CF)= 11.4145

MOISTURE CONTENT= .234856

SULFURIC ACID MIST CONCENTRATION (INCLUDING SO3)(LB/DSCF)= 0

HIGH HEATING VALUE OF FUEL(BTU/GAL)= 149690

FUEL FIRING RATE (GPM)= 7.333

DENSITY OF OIL(LB/GAL)= 8

AVERAGE TEMPERATURE OF FUEL(DEG F)= 210

AVERAGE %TOTAL SULFUR AS S IN FUEL= 2.5 ←

LBS. OF SULFUR IN PER MIN.= 1.4666

LBS. OF SO2 IN PER MIN.= 2.93027

LBS. OF SO2 OUT PER MIN.= 1.41416

REMOVAL EFFICIENCY IN PERCENT= 51.7395% ←

M.M. BTU'S PER MIN.= 1.09768

LBS. OF SO2 EMITTED/10^6 BTU'S INPUT= 1.28832 ←

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

March 3, 1983

Mr. S. R. Sandrik, Plant Manager
AMAX Phosphate, Inc.
Post Office Box 508
Bradley, Florida 33835

Subject: AMAX Phosphate, Inc., Big Four Mine, Application for PSD Approval; Request for Additional Information PSD-FL-094, AC 29-65834

Dear Mr. Sandrik:

The Department has initially reviewed your application for PSD approval and has determined that additional information is needed to complete this review. Please respond to the following questions and comments as soon as possible so that our review may be completed.

1. Specify the nature of the plant or facility boundaries as used to place the receptor grids used in the dispersion modeling. Include maps (of larger scale than previously submitted), descriptions, and/or pictures. These boundaries, as used in the modeling, must be physical barriers which preclude the general public from entering the area. Property lines do not necessarily restrict public access. In general, when modeling to determine maximum ground-level concentrations, boundaries should not be used to restrict the placement of receptor grids. Maximum concentrations, as used for permitting purposes, may be adjusted for physical barriers after modeling the entire area. For the purposes of this permit application, however, modeling need only be redone if the boundaries, as initially used, do not conform to the physical barrier definition.

2. You have incorrectly used urban mixing heights in the PTMTPW dispersion model runs. Re-evaluate these runs using the rural heights. In some cases there are no differences between urban and rural mixing heights; these need not be rerun.

3. The STAR data summaries used as input to the ISCLT dispersion model contain frequencies in wind speed

categories that should not occur. Also, the frequencies you have calculated in the proper wind speed categories do not correspond to the FDER STAR summary results. Correct these summaries and rerun the model.

4. The maximum hourly SO_2 emission rate used in the modeling is based upon a maximum heat input rate of 118 million Btu per hour, whereas the maximum rated capacity of the dryer is listed as 125 million Btu per hour. If, in any one hour, this dryer uses in excess of 118 million Btu then the maximum hourly emission rate should be based on the higher heat input value.

5. Give the reasons your company has for wanting to use alternate fuels in the dryer.

6. Give the current and projected cost and availability of No. 6 fuel oil with 0.7 percent sulfur content and No. 6 fuel oil and COM with up to 2.5 percent sulfur content.

7. Furnish any additional data available to support the 60-65 percent sulfur dioxide removal by the dryer system.

8. Are the data used as the basis for the nitrogen oxide standard applicable to AMAX's fluid bed dryer?

When the Department receives the answers to the above questions and comments, the review process will continue. If you have any questions regarding this letter, please call Willard Hanks or Tom Rogers at (904)488-1344 or write me in care of the Bureau of Air Quality Management.

Sincerely,

C. H. Fancy, P.E.
Deputy Bureau Chief
Bureau of Air Quality
Management

CHF/TR/bjm

cc: Dr. John Koogler
Mr. Dan Williams
Mr. Iwan Choronenko

No. 0157983

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