KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
904/377-5822 ▪ FAX 377-7158

KA 124-94-04

March 14, 1995

Mr. A. A. Linero
Florida Department of
Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: Polk County-AP
IMC-Agrico Company
New Wales Plant
Permit Amendment Requests

Dear Mr. Linero:

During recent discussions with FDEP staff, the subject of air permit conditions had come up. Based on those discussions, it is our understanding that all emission limitations in current permits must either be based on a standard, or reflect emission limits requested by a permittee to avoid a specific rule applicability (e.g. PSD, etc.). Any emission limit which is not supported by this criteria can be removed from the permit.

It is anticipated that the removal of such emission limitations from current operation permits and source construction permits will facilitate Title V permit application compilation by IMC-Agrico as well as the compilation of Title V permit conditions by FDEP. Thus, only valid applicable requirements will remain in the source permits.

IMC-Agrico has several air operation (and the preceding construction) permits which contain emission limitations outside of the above FDEP criteria. Often, emission estimates/fuel specifications stated in the application for information purposes were then imposed as permit limitations. As a result, we are requesting FDEP to amend the permits tabulated below. A discussion on these permits is provided in the attachments. The attachment number corresponds to the item number in the table below.

In accordance with FDEP protocol, the request for permit amendment is being submitted to the office where the permit was issued. For permits issued by FDEP's Tampa office, a request for amendment is simultaneously being submitted to that office. The amendment request for construction permits issued by the Bureau of Air Regulation (BAR) is being sent to your attention. The permit listing below, however, includes all the permits to be amended so that both the FDEP District and the BAR offices are aware of the scope of the permit amendments.

It is requested that the following permits be amended:

Item	Unit/Operation	Operation Permit No.	Construction Permit No.	Other Permit No.
	AFI Plant	A053-223229 (D)	AC53-5043 (D)	
	DAP 1	A053-185648 (D)	AC53-33850 (D)	
1.	DAP 2 East Train	A053-215386 (DT)	**AC53-118671 (T)**	AC53-23546(T)
1.	DAP 2 West Train	A053-215387 (DT)	**AC53-118671 (T)**	AC53-23546(T)
	GTSP Plant	A053-206082 (D)	AC53-211264 (D)	AC53-47664(D)
	Multifos Plant	A053-206083 (D)	AC53-40084 (D)	
2.	SAP 1	A053-204057 (DT)	**AC53-192221 (T)**	
2.	SAP 2	A053-204058 (DT)	**AC53-192221 (T)**	
2.	SAP 3	A053-204059 (DT)	**AC53-192221 (T)**	
2.	SAP 4	A053-204060 (DT)	**AC53-192221 (T)**	
2.	SAP 5	A053-204061 (DT)	**AC53-192221 (T)**	
	Standby Boiler	A053-218795 (D)	AC53-2030 (D)	A053-137315(D)

NOTES:

(D) Operation permit amendment expected from FDEP District office.
(DT) Permit amendment expected from FDEP District office after the construction permit amendment is issued by BAR in Tallahassee.
(T) Construction permit amendment expected from BAR in Tallahassee.

A check in the amount of $500 (permit amendments processing fee) is enclosed.

Thank you for your kind assistance. If you have any questions, please call Pradeep Raval or me.

Very truly yours,

KOOGLER & ASSOCIATES

John B. Koogler, Ph.D., P.E.

JBK:par

c: C.D. Turley, IMC-Agrico
G. Kissel, FDEP Tampa
Q. Reynolds
W. Hanks
C. Holladay
Y. Raval, Polk Co
Y. Raval, UPS
Y. Harper, EPA

KOOGLER & ASSOCIATES

ATTACHMENT 1

Unit/Operation : DAP 2 Plant (East & West Trains)

Permit No. : AC53-118671

Amendment Request :

The above referenced permit includes emission limitations for sulfur dioxide and nitrogen oxides (NOx), and, a sulfur content limit for No. 6 fuel oil of 2.5%. This sulfur content reflects a typical analysis of No. 6 fuel oil available on the market. To our knowledge, the sulfur content limit in the permit is not based on a regulatory standard, nor does it reflect a limitation requested by IMC-Agrico to avoid a specific rule applicability (e.g. PSD, etc.). Past permit amendment (attached) indicates a fuel quantity (not a fuel sulfur content) restriction submitted by the permittee to avoid an emissions increase.

Both the sulfur dioxide and nitrogen oxides emission limits are based on past BACT limitations. However, the BACT limits merely represent the expected emissions from the source without the application of add-on controls or fuel sulfur content restriction beyond market specifications. As there are no emission standards for sulfur dioxide and nitrogen oxides from a DAP plant, it is requested that the respective emission limitations and the corresponding testing and recordkeeping requirements be deleted from the permit.

It is requested that the construction permit be amended as follows:

Specific Condition No. 2:

Delete the sulfur dioxide and nitrogen oxides emission limitations.

Specific Condition No. 4:

Delete the first sentence which states the fuel oil sulfur content limitation.

Specific Condition No. 9:

Delete the reference to the fuel oil sulfur content requirement.

Specific Condition No. 11:

Delete the requirement for sulfur dioxide and nitrogen oxides testing.

KOOGLER & ASSOCIATES

DAP II
Inc.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

BOB MARTINEZ
GOVERNOR

DALE TWACHTMANN
SECRETARY

June 29, 1987

RECEIVED BY
JOHN A. BRAFFORD
JUL 9 1987
COPIES DKL, ALG
ROUTE TO JMB (ORG)
VCC: L. Sellers 7/31/87
d.

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. John A. Brafford
Vice President and General Manager
International Minerals & Chemical Corporation
New Wales Operations
Post Office Box 1035
Mulberry, Florida 33860

Dear Mr. Brafford:

Re: Amendment of Construction Permit No. AC 53-118671

The Department has considered your June 4, 1987, request for amendment of construction permit AC 53-118671 for the IMCC/New Wales Operations's No. 2 DAP plant and agrees to amend the permitted capacity as proposed since there will be no increase in permitted emissions. However, the Department finds it necessary to maintain provisional restrictions on fuel consumption and scrubber pressure drop. The wording for these specific conditions has been modified to show that the restrictions will apply unless compliance can be demonstrated under operating conditions less restrictive than those specified.

Amendments are as follows:

Page 1 - Second Paragraph

Present:
For the modification of two 125 TPH trains (140 TPH total allowed) diammonium phosphate plant with a common cooler unit to be located at the permittee's existing phosphate fertilizer complex in the west part of Polk County near the intersection of State Highway 640 and County Line Road. The UTM coordinates of the proposed plant are zone 17, 396.6 km E and 3078.9 km N.

Amended:
For the modification of two 140 TPH trains (280 TPH total allowed) diammonium phosphate plant with a common cooler unit to be located at the permittee's existing phosphate fertilizer complex in the west part of Polk County near the intersection of State Highway 640 and County Line Road. The UTM coordinates of the proposed plant are zone 17, 396.6 km E and 3078.9 km N.

Specific Condition No. 1

Present:
Maximum production for both plants shall not exceed a total of 140 TPH DAP and each plant will not operate over 7,920 hours per year. The cooler will be allowed to operate 8,760 hours per year.

Amended:
Maximum production for each plant shall not exceed 140 TPH DAP or 280 TPH DAP total for both plants combined. Each plant shall not operate over 7,920 hours per year. The cooler will be allowed to operate 8,760 hours per year.

Specific Condition No. 2

Present:
The maximum allowable discharge from the plants will be:

Pollutant	Max. Emission Rate for each Plant	Total Max. Emission for both Plants
Particulate	0.5 lbs/ton P_2O_5	28.2 lbs/hr and 112 TPY
Visible Emissions	20% opacity	20% opacity
Fluoride	0.060 lbs/ton P_2O_5	4.2 lbs/hr & 16.6 TPY
Sulfur Dioxide	0.7 lbs/ton P_2O_5	44 lbs/hr & 174 TPY
Nitrogen Oxides	0.60 lbs/10^6 Btu	25.2 lbs/hr & 110.4 TPY

The max. allowable discharge of particulate from the bag filter serving the cooler will be 0.01 grain/dscf and 4.5 lbs/hr which is 17.8 TPY.

Amended:
The maximum allowable discharge from the plants will be:

Pollutant	Max. Emission Rate for each Plant	Total Max. Emission for each Plant
Particulate	0.5 lbs/ton P_2O_5	14.1 lbs/hr and 56 TPY
Visible Emissions	20% opacity	20% opacity
Fluoride	0.060 lbs/ton P_2O_5	2.1 lbs/hr & 8.3 TPY
Sulfur Dioxide	0.7 lbs/ton P_2O_5	22 lbs/hr & 87 TPY
Nitrogen Oxides	0.60 lbs/10^6 Btu	12.6 lbs/hr & 55.2 TPY

The max. allowable discharge of particulate from the bag filter serving the cooler will be 0.01 grain/dscf and 4.5 lbs/hr which is 17.8 TPY.

Specific Condition No. 4

Present:
No. 6 fuel oil for the dryer shall not contain more than 2.5% sulfur. Total heat input to both trains shall not exceed 42 x 10^6 Btu/hr which is approximately 280 GPH of No. 6 fuel oil.

Amended:
No. 6 fuel oil for the dryer shall not contain more than 2.5% sulfur. The maximum heat input to each train shall not exceed 36 x 10^6 Btu/hr, which is approximately 240 GPH of No. 6 fuel oil, unless emissions compliance can be demonstrated under higher conditions of higher heat input.

Specific Condition No. 6

Present:
The permittee will measure and record the pressure drop across each scrubber system. Pressure drop across the venturi scrubber must be a least 12" H_2O during plant operations. These records will be maintained for 2 years and available for inspection by regulatory agency personnel on request.

Amended:
The permittee will measure and record the pressure drop across each scrubber system. Pressure drop across each of the venturi scrubbers (the reactor/granulator and dryer scrubbers) must be at least 12" H_2O during plant operations, unless emissions compliance can be demonstrated under permitted operating conditions at a lower pressure drop.

Specific Condition No. 9

Present:
Each plant (train) shall be sampled, while operating near 125 TPH DAP production on oil with approximately 2.5% sulfur content, for particulate matter, sulfur dioxide, nitrogen oxides, visible emissions, and fluorides by the reference methods described in 40 CFR 60, Appendix A, or other methods as approved by the Department. Compliance tests shall be conducted prior to the expiration date of this construction permit or within 45 days after placing a plant in operation. P_2O_5 input, pH of the scrubber solution, and pressure drop across the scrubbers will be as normally operated and reported, along with the data and results, to the Department. The Department (SW District) shall be notified 15 days prior to any compliance test.

Amended:
Each plant (train) shall be sampled, while operating near 140 TPH DAP production on oil with approximately 2.5% sulfur content, for particulate matter, sulfur dioxide, nitrogen oxides, visible emissions, and fluorides by the reference methods described in 40 CFR 60, Appendix A, or other methods as approved by the Department. Compliance tests shall be conducted prior to the expiration date of this construction permit or within 45 days after placing a plant in operation. P_2O_5 input, pH of the scrubber solution, and pressure drop across the scrubbers will be as normally operated and reported, along with the data and results, to the Department. The Department (SW District) shall be notified 15 days prior to any compliance test.

Attachment to be Incorporated

13. Dr. John Koogler's letter dated June 4, 1987.

A copy of this letter must be attached to the referenced construction permit and shall become a part of that permit.

Sincerely,

Dale Twachtmann
Secretary

DT/ks

cc: J. Koogler
B. Thomas-SW District
J. Baretincic, IMCC/New Wales Operation

attachment

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

BOB MARTINEZ
GOVERNOR

DALE TWACHTMANN
SECRETARY

PERMITTEE:
International Minerals &
Chemical Corporation
New Wales Operations
Post Office Box 1035
Mulberry, Florida 33860

Permit Number: AC 53-118671
Expiration Date: December 31, 1987
County: Polk
Latitude/Longitude: 27° 49' 56.4"N
82° 02' 59.9"W
Project: No. 2 DAP Plant Modification

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the department and made a part hereof and specifically described as follows:

For the modification of two 125 TPH trains (140 TPH total allowed) diammonium phosphate plant with a common cooler unit to be located at the permittee's existing phosphate fertilizer complex in the west part of Polk County near the intersection of State Highway 640 and County Line Road. The UTM coordinates of the proposed plant are zone 17, 396.6 km E and 3078.9 km N.

Construction shall be in accordance with the attached permit application, plans, documents and drawings except as noted in the Specific Conditions.

Attachments:

1. Application for the No. 2 DAP plant signed by Mr. Brafford on March 31, 1986.
2. October 18, 1985, letter by Dr. Koogler.
3. July 3, 1985, letter by Dr. Koogler.
4. August 19, 1985, letter by Dr. Koogler.
5. April 2, 1986, letter by Dr. Koogler.
6. May 9, 1986, letter by Dr. Koogler.
7. November 10, 1986, letter by Dr. Koogler.
8. December 18, 1986, letter by Dr. Koogler.
9. Waiver of 90 Day Time Limit dated February 26, 1987.
10. March 26, 1987, letter by Dr. Koogler.
11. April 6, 1987, letter by Mr. Bruce P. Miller.
12. April 7, 1987, letter by Mr. James Q. Duane.

PERMITTEE:
International Minerals &
Chemical Corporation

Permit Number: AC 53-118671
Expiration Date: December 31, 1987

SPECIFIC CONDITIONS:

A, or other methods as approved by the department. Compliance tests shall be conducted prior to the expiration date of this construction permit or within 45 days after placing a plant in operation. P_2O_5 input, pH of the scrubber solution, and pressure drop across the scrubbers will be as normally operated and reported, along with the data and results, to the department. The department (SW District) shall be notified 15 days prior to any compliance test.

10. An application for permit to operate the No. 2 DAP plant shall be submitted to the department (SW District) within 45 days of the compliance tests. In the event the application for permit to operate does not include test data on both trains of the No. 2 DAP plant, the permittee shall request the District amend any permit to operate that may be issued for this plant within 45 days of placing the other train in operation.

11. Any permit to operate issued for the No. 2 DAP plant shall require annual tests for particulate matter and fluoride, and on renewal of the permit to operate (every 5 years), tests for sulfur dioxide and nitrogen oxides.

Issued this 21 day of April 1987

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION

Dale Twachtmann, Secretary

____ pages attached

NOx BACT

Best Available Control Technology (BACT) Determination
International Minerals & Chemical Corporation
Polk County

The applicant has installed a dual train diammonium phosphate (DAP) plant with each train capable of producing 125 tons per hour. This (No. 2) DAP plant utilizes a dryer that was designed to be fired with either No. 6 fuel oil or natural gas.

The plant was permitted in 1980 under PSD construction permit PSD-FL-034 for a nitrogen oxides emission rate of 4.3 pounds per hour (0.21 pounds per million Btu heat input) for each of the two 70 tons per hour DAP trains. By letter dated February 27, 1985, EPA modified the nitrogen oxide emission limiting standard to allow a total plant nitrogen oxides emission rate of 8.6 pounds per hour or 0.21 pounds per million Btu heat input.

On May 29, 1985, nitrogen oxides emission measurements were made on the No. 2 DAP plant dryer to demonstrate compliance with the permitted emission limiting standard. The testing, which was performed while operating the dryer on No. 6 fuel oil, resulted in an average nitrogen oxides emission rate of 0.71 pounds per million Btu heat input. Subsequent nitrogen oxides emissions measurements on the No. 2 DAP plant showed nitrogen oxides emissions ranging from 0.80 to 0.88 pounds per million Btu heat input.

In accordance with this finding, the applicant completed a review of the plant operating practices and the dryer burner design, and concluded that there were no practical modifications that could be made to reduce nitrogen oxides emissions to the permitted emission rate of 0.21 pounds per million Btu heat input.

For permitting purposes, the applicant has proposed that the nitrogen oxides limit for the No. 2 DAP plant be set at 1.0 pound of nitrogen oxides (expressed as nitrogen dioxide) per million Btu heat input. At a maximum plant operation rate of 140 tons of DAP per hour and a design heat input rate of 0.3 million Btu per ton of DAP, the proposed limit of 1.0 pound of nitrogen oxides per million Btu heat input will result in a nitrogen oxides emission increase of 151.8 tons per year. The annual increase exceeds the 40 tons per year significant emission increase defined in 17-2.500(2)(e)2 FAC; thus requiring a PSD review and hence a BACT determination for the requested action.

Review Group Members:

This determination was based upon comments received from the applicant and the Stationary Source Control Section.

$60.00 and 28.4 pounds/hour respectively. By comparison, the cost of using natural gas to dry 125 tons of product would compute to $56.34 and an emission rate of 4.7 pounds/hour when using the data submitted by the applicant. This calculation clearly shows that the applicant should be operating on natural gas both from the standpoint of reducing operating costs and emissions.

In addition to the data submitted, which served as the basis for the computations above, the applicant has submitted data which indicates that with proper operation the DAP dryer can be fired with No. 6 fuel oil at a lower throughput per ton of product resulting in a lower emission rate. During discussions with the bureau, the applicant has indicated that the dryer can be operated with a maximum emissions rate not to exceed 0.60 pounds per million Btu when operating at maximum production for one train (125 tons per hour). The data submitted indicates that the cost to operate at this level would be $44.57 with a corresponding emission rate of 12.7 pounds/hour. At this level of operation the incremental costs of switching to natural gas would be $1.47 per pound ($2,940.00/ton) of nitrogen oxides controlled which would indeed be unreasonable in comparison to the guideline of $1,000.00/ton of nitrogen oxides controlled for establishing NSPS. It should be noted that the cost of switching to natural gas only results in a change of operating costs, capital investment is not required to modify the facility to use natural gas as fuel. Based on this evaluation, the applicant's proposal of accepting a limitation of 0.60 pounds, per million Btu is justified.

Environmental Impacts Analysis

Dispersion modeling completed by the applicant indicates that the nitrogen oxides emissions at the originally permitted rate (0.21 pounds/million Btu) result in an ambient concentration level of 0.16 ug/m^3. The proposal to increase the emission rate to 1.0 pound per million Btu would increase the ambient concentration level by approximately 0.5 ug/m^3 for a total of 0.62 ug/m^3. This increase in the nitrogen oxides impact as originally proposed is insignificant in comparison to the maximum existing NO_2 level in urban Hillsborough County of 54 ug/m^3 and the Ambient Air Quality Standard (AAQS) of 100 ug/m^3. Based on the impacts analysis, the proposed emission rate and certainly the counter proposal of 0.6 pounds per million Btu, which would reduce the ambient impacts by a factor of 2, would not constitute a problem from an ambient concentration level standpoint.

Conclusion

In view of the fiscal condition of the phosphate fertilizer industry and the other information presented in the preceeding analysis, the bureau has determined that nitrogen oxides emission

limitation of 0.60 pounds/million Btu is justified in all respects as being BACT for this facility.

From an economic standpoint, the firing of No. 6 fuel oil at the 0.60 lb/MMBtu level does not justify switching to natural gas. In addition, the cost of having the applicant perform modifications to the burner/combustion chamber is not justified during a period when the market price of the applicant's product (DAP) is below the cost of production.

In terms of environmental impacts, it has been shown that the emissions limit, as proposed and as agreed to as being BACT, will be minimal.

It is important to note that the level of emissions determined to be BACT in this analysis is subject to change if deemed necessary in accordance with modifications that may be proposed in the future. At that time, the BACT determination would again be completed on a case-by-case basis taking into account the elements as presented herein.

Details of the Analysis May be Obtained by Contacting:

Barry Andrews, P.E., BACT Coordinator
Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended by:

C. H. Fancy, P.E.
Deputy Bureau Chief, BAQM
4/16/87
Date

Approved by:

Dale Twachtmann, Secretary

21 April 87
Date

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:

SO2 BACT

TO: Jake Varn

FROM: Steve Smallwood MK for S.S.

DATE: March 28, 1980

SUBJECT: Best Available Control Technology (BACT) Determination
Diammonium Phosphate Plant, New Wales Chemicals, Inc.
Polk County

Facility: A 140 ton per hour diammonium phosphate (DAP) plant. The plant will produce DAP fertilizer from anhydrous ammonia, and phosphoric acid using No. 6 oil fired dryer, screens, mills, cooler, reactor and granulator. Estimated potential emission of pollutants subject to the BACT rule are:

Particulate	6,000	tons/year
Sulfur Dioxide	444	tons/year

BACT Determination Requested by the Applicant:

Pollutant	Maximum Allowable Emission
Fluorides	0.060 lbs/ton P_2O_5 Feed

Date of Receipt of a Complete BACT Application:

February 13, 1980

Date of Publication in the Florida Administrative Weekly:

March 28, 1980

Date of Publication in a Newspaper of General Circulation:

April 2, 1980 Tampa Tribune

Justification of DER Determination

Particulate Matter: The 0.5 lbs/ton P_2O_5 feed emission limitation selected is representative of Best Available Control Technology and can be met with the proposed design.

Sulfur Dioxide: On the basis of the information provided the 0.7 lb/ton P_2O_5 limit is attainable with the 2.5% S fuel proposed by the applicant.

Details of the Analysis May be Obtained by Contacting:

Victoria Martinez, BACT Coordinator
Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Twin Towers Office Building
Tallahassee, Florida 32301

Recommendation from: Bureau of Air Quality Management

By: Martin Kahel for
Steve Smallwood

Date: March 31, 1980

Approved by: Jacob D. Varn
Jacob D. Varn

Date: 31st March 1980

SS:jr
attachment

ATTACHMENT 2

Unit/Operation : Sulfuric Acid Plants 1-5

Permit No. : AC53-192221, PSD-FL-170

Amendment Request

The above referenced permit contains an emission limitation for nitrogen oxides. To our knowledge, the NOx limit in the permit is not based on a regulatory standard, nor does it reflect a limitation requested by IMC-Agrico to avoid a specific rule applicability (e.g. PSD, etc.). Due to lack of actual NOx test data, conservative estimated were made in projecting potential emissions. FDEP projected, using these conservative emission assumptions, that the potential emissions in the permit application could trigger a PSD review. BACT for NOx would be represented by the projected emissions (uncontrolled). As the attached emissions data indicate, the plants are not capable of emitting NOx at levels that would require PSD review.

Therefore, it is requested that the construction permit be amended as follows:

Page 5, Specific Condition No. 4:

Delete this specific condition which contains emission limits for NOx.

Page 6, Specific Condition No. 6:

Delete the NOx testing requirement from this specific condition and the corresponding reference to EPA Method 7E.

SUMMARY OF NITROGEN OXIDES EMISSIONS

SULFURIC ACID PLANTS 1-5 TEST DATA

IMC-AGRICO NEW WALES PLANT

PLANT No.	TEST DATE	NOx EMISSION RATE (lb/hr)	NOx EMISSION RATE (lb/ton acid)
1	9/94	7.22	0.067
2	9/94	8.52	0.079
3	10/94	7.74	0.070
4	10/94	8.31	0.070
5	10/94	8.36	0.072
PERMIT LIMITATION		14.50	0.12

KOOGLER & ASSOCIATES

Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

May 22, 1991

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. John A. Brafford
Vice President & General Manager
IMC Fertilizer, Inc.
P. O. Box 1035
Mulberry, Florida 33860

Dear Mr. Brafford:

Attached is one copy of the Technical Evaluation and Preliminary Determination and proposed permit for IMC Fertilizer, Inc. to increase the production rates of sulfuric acid plants Nos. 1-5 at their facility near Mulberry, Florida.

Please submit any written comments you wish to have considered concerning the Department's proposed action to Mr. Barry Andrews of the Bureau of Air Regulation.

Sincerely,

Barry D. Andrews

for C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/JR/plm

Attachments

c: B. Thomas, SW Dist.
J. Harper, EPA
C. Shaver, NPS
J. Koogler, P.E.

I. Application Information

A. Applicant

IMC Fertilizer, Inc.
P. O. Box 1035
Mulberry, Florida 33860

B. Request

The Department received an application on February 4, 1991, for a permit to increase the production rate of the five sulfuric acid plants at the applicant's phosphate complex near Mulberry, Florida. After receiving additional information on March 18, the application was deemed complete.

C. Classification/Location

The applicant's facility (SIC Code 2819) is located off State Road 640 and County Line Road near Mulberry, Florida, with latitude of 27°49'56"N and longitude of 82°02'60"W. The UTM coordinates of the site are: Zone 17, 396.6 km E and 3078.9 km N.

II. Project Description/Emissions

It is proposed to increase the allowable annual production rate of the applicant's five sulfuric acid plants from 4,881,500 to 5,292,500 TPY. The proposed project will increase each plant's daily sulfuric acid capacity to 2900 TPD as shown below:

Plant	Present Capacity (TPD)	Present Hours	New Capacity (TPD)	New Hours
1	2700	8760	2900	8760
2	2700	8760	2900	8760
3	2700	8760	2900	8760
4	2750	8400	2900	8760
5	2750	8400	2900	8760

Annual emission changes resulting from the increased production rate are summarized in the following table:

	Emissions (tons/yr)			
Pollutant	Present	Proposed	Net Increase	Significant Increase
SO_2	7530	10,585	3055	40
Acid Mist	93	397	304	7
NOx	?*	214	Over 40	40

*The applicant states that their NOx emission factor of $1.15(10)^{-6}$ lbs/dscf is based on testing of the No. 5 plant. However, the

application contains no raw data nor is there any indication of the number of tests done. Without sufficient results to show otherwise, the Department believes that the prior generic emission factor of $2.1(10)^{-6}$ lbs/dscf, being based on several tests, would indicate that this production increase will probably cause a greater than significant increase in NOx emissions. Also, if a BACT-based NOx emission limit of 0.12 lb/ton is applied to the actual vs. proposed allowable tonnage increase, it is clear that the NOx emissions increase will be significant: (0.12 lb NOx/ton) (721,909 tons/yr) (ton/2000 lbs) = 43.3 tons NOx/yr. Therefore, for this production increase, the Department will not require a NOx air quality analysis but will impose a BACT-based limit for NOx emissions.

721,909 x 0.08 /2000 = 28.9 tpy

III. Rule Applicability

The construction permit application is subject to review under Chapter 403, Florida Statutes, and Florida Administrative Code (F.A.C.) Chapters 17-2 and 17-4. The facility is located in an area classified as attainment for each of the regulated air pollutants. The proposed project is subject to the preconstruction review requirements of F.A.C. Rule 17-2.500, Prevention of Significant Deterioration (PSD). The proposed increases in SO_2, acid mist, and NOx emissions exceed significant levels set forth in Table 500-2 of F.A.C. Rule 17-2.500. Preconstruction review must include a determination of Best Available Control Technology (BACT), good-engineering practice stack height, ambient impact analysis, impact on soils, vegetation, and visibility. F.A.C. Rules 17-2.660, Table 660-1, Section 60.80, and 17-2.700, Table 700-1, apply to this production increase. Emissions will be limited by the federal new source performance standards for sulfur dioxide, acid mist, and visible emissions, and a BACT determination for NOx.

IV. Air Quality Analysis

a. Introduction

The production rate increases at the five existing sulfuric acid plants will result in emissions increases which are projected to be greater than the PSD significant rate. Therefore, the project is subject to the PSD review requirements contained in F.A.C. Rule 17-2.500. Part of these requirements is an air quality impact analysis for the pollutant, which includes:

- An analysis of existing air quality.
- A PSD increment analysis for SO_2.
- An Ambient Air Quality Standards (AAQS) analysis.
- An analysis of impacts on soils, vegetation, visibility, and growth-related air quality impacts.
- A Good Engineering Practice (GEP) stack height determination

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

PERMITTEE:

IMC Fertilizer, Inc.
P. O. Box 1035
Mulberry, Florida 33860

Permit Number: AC 53-192221
PSD-FL-170
Expiration Date: Dec. 31, 1991
County: Polk
Latitude/Longitude: 27°40'56"N
82°02'60"W
Project: Sulfuric Acid Plants (Nos. 1-5) - Production Increases to 2900 TPD

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the increase in production to 2900 TPD of sulfuric acid in plants No. 1-5. These sources are located at the permittee's existing facility near Mulberry, Polk County, Florida. The UTM coordinates are Zone 17, 396.6 km East and 3078.9 km North.

The source shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:

1. Application received on February 4, 1991.

GENERAL CONDITIONS:

this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

1. The maximum production rate of each of the No. 1-5 sulfuric acid plants shall not exceed 2900 tons per day based on 100% H_2SO_4.

2. Sulfur dioxide emissions from each plant shall not exceed 4 lbs/ton of 100% sulfuric acid produced, 483.3 lbs/hr, 2117 tons/yr.

3. Sulfuric acid mist emissions from each plant shall not exceed 0.15 lb/ton of 100% sulfuric acid produced, 18.1 lbs/hr, 79.4 tons/yr.

4. Nitrogen oxides emissions from each plant shall not exceed 0.12 lb/ton of 100% sulfuric acid produced, 14.5 lbs/hr, 63.5 tons/yr.

The nitrogen oxides limits, based on a general emission factor of 18 ppm, are subject to revision if sufficient test data indicate that the emission factor is improper.

5. Visible emissions from each plant shall not exceed 10% opacity.

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SPECIFIC CONDITIONS:

6. A continuous emission monitor shall be used to monitor sulfur dioxide in accordance with F.A.C. Rule 17-2.710. Initial and annual compliance tests shall be conducted using: EPA Method 7E for nitrogen oxides, EPA Method 8 for sulfur dioxide and acid mist, DER Method 9 for visible emissions.

7. The compliance tests shall be conducted within 30 days after operation begins. The Department's Southwest District office shall be notified in writing 15 days prior to source testing. Written reports of the tests shall be submitted to that office within 45 days of test completion.

8. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

9. An application for an operation permit must be submitted to the Southwest District office at least 90 days prior to the expiration date of this construction permit or within 45 days after completion of compliance testing, whichever occurs first. The operation permit application shall include a set of conditions acceptable to the Department for sequential startup/shutdown of the permittee's five sulfuric acid plants. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

Issued this _____ day
of _____, 1991

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

_____
Carol M. Browner, Secretary

(b) All scientific, engineering, and technical material and other information available to the Department.

(c) The emission limiting standards or BACT determinations of any other state.

(d) The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine for the emission source in question the most stringent control available for a similar or identical source or source category. If it is shown that this level of control is technically or economically infeasible for the source in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

BACT Determined by DER:

Control Technology	Double Absorption/Fiber Mist Eliminators
Pollutant	Emission Limits
SO_2	4.0 lb/ton of 100% H_2SO_4 produced
Sulfuric Acid Mist	0.15 lb/ton of 100% H_2SO_4 produced
Visible Emissions	10% opacity
NOx	0.12 lb/ton

BACT Determination Rationale

DER's BACT determination is the same as that proposed by the applicant (except for the addition of a NOx limit for reasons discussed in the Technical Evaluation), determinations completed by other states, and Standards of Performance for Sulfuric Acid Plants, 40 CFR 60 Subpart H, (double absorption process). The process in itself is the control technology for SO_2 and acid mist. The emission limits reflect conversion efficiency of around 99.7% of SO_2 to H_2SO_4. High efficiency mist eliminators are considered BACT for sulfuric acid mist. A review of BACT/LAER Clearinghouse indicates that the double absorption technology, and the use of high efficiency mist eliminators is representative of BACT using the top-down approach.