

Final Determination

IMC Fertilizer, Inc.
Polk County
Mulberry, Florida

Sulfuric Acid Plants (Nos. 1-5)
Production Increases to 2,900 TPD

Permit No. AC 53-192221
PSD-FL-170

Department of Environmental Regulation
Division of Air Resources Management
Bureau of Air Regulation

July 30, 1991

Final Determination

The Technical Evaluation and Preliminary Determination for the permit to increase the production rates of sulfuric acid plants Nos. 1-5 at IMC Fertilizer, Inc. in Mulberry, Polk County, Florida, was distributed on May 22, 1991. The Notice of Intent to Issue was published in The Ledger on June 3, 1991. Copies of the evaluation were available for public inspection at the Department's offices in Tallahassee and Tampa.

The only comments received were from the United States Department of the Interior's Fish and Wildlife Service (FWS). The FWS comments are summarized below. The Department's response to each comment immediately follows. The final action of the Department will be to issue construction permit AC 53-192221/PSD-FL-170 as proposed in the Technical Evaluation and Preliminary Determination.

FWS Comment No. 1:

The FWS commented that neither IMC nor the Department modeled the impact of this proposed project on the Chassahowitzka Class I area because the facility is located more than 100km away. The FWS indicated that guidance provided by EPA indicates that sources located more than 100km away from a Class I area may still impact that area. Therefore, the analysis of increment consumption should not be limited to 100km, but should include all increment-consuming sources that could impact the Class I airshed regardless of their distance from the area.

Furthermore, the FWS did a limited modeling analysis to predict the SO₂ Class I increment consumption at the Chassahowitzka Class I area due to the projected IMC emissions increase. Their analysis, which included partial results from the Department's CF Industries Class I analysis and used only one year (1986) of meteorological data, did not show any violations of an SO₂ Class I increment. But it indicated that a violation of the 24-hour SO₂ increment could be predicted if the complete results of the CF analysis were merged with their IMC impact analysis for 1986. Since the FWS did not do an analysis of any Class I impacts for the year 1982-1985, they were also uncertain whether there would be no further predicted violations of the SO₂ increments during these four years. Therefore, they requested further analysis to resolve this uncertainty.

Response:

The Department maintains that there are no currently available EPA-approved modeling techniques for analyzing PSD increment consumption at distances greater than 50 kilometers. These models are sometimes extended for use out to 100 kilometers for screening purposes.

Discussions with EPA Region IV concur with our position that the ISC model is not suitable for modeling sources located more than 100 km away.

Nevertheless, we did use the ISC model as a rough indicator of IMC's impact on the cumulative SO₂ increment in the Class I area and included the additional sources of concern to the FWS (CF Industries, etc.) Five years of Tampa surface and upper air data were used in the model (1982-1987); thus, highest-second high (HSH) short-term predicted concentrations are compared with appropriate short-term increments and are considered maximum concentrations. Maximum cumulative increment concentrations were well below the annual and 3 hour SO₂ increments (26% and 67% respectively). The maximum predicted 24-hour concentration was 5.08 ug/m³ which is marginally above the increment of 5.0 ug/m³. There were only four other concentrations in the five year period above the increment. Since the predicted ambient impact of the project was insignificant in the Class II area near the plant and since the ISC model is considered to be a conservative indicator (i.e. overpredicts) at the distance the plant is located from Class I area, we have reasonable assurance that the proposed modification at the IMC facility will not cause or contribute to a violation of the Class I increment.

FWS Comment No. 2:

The FWS is concerned about the cumulative impact that emissions near the Class I area may have on resources in the Class I area.

Response:

We are not requiring IMC to perform a total ambient concentration analysis at the Class I area in order to obtain this permit. IMC is greater than 100 km away from the Class I area and appropriate modeling techniques are not available for completing this analysis.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMIT

In the matter of an
Application for Permit by:

DER File No. AC 53-192221
PSD-FL-170
Polk County

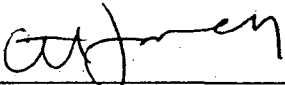
IMC Fertilizer, Inc.
P. O. Box 1035
Mulberry, Florida 33860

Enclosed is Permit Number AC 53-192221/PSD-FL-170 to increase the production rates of sulfuric acid plants Nos. 1-5 at IMC's facility near Mulberry, Florida, issued pursuant to Section(s) 403, Florida Statutes.

Any party to this Order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION


C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 8-1-91 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to
§120.52(11), Florida Statutes,
with the designated Department
Clerk, receipt of which is hereby
acknowledged.


(Clerk) 8-1-91
(Date)

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



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.

PERMITTEE:
IMC Fertilizer, Inc.

Permit Number: AC 53-192221

PSD-FL-170

Expiration Date: December 31, 1991

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or

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IMC Fertilizer, Inc.

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GENERAL CONDITIONS:

auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

- a. Have access to and copy any records that must be kept under the conditions of the permit;
- b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

- a. a description of and cause of non-compliance; and
- b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source

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IMC Fertilizer, Inc.

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GENERAL CONDITIONS:

arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

- (x) Determination of Best Available Control Technology (BACT)
- (x) Determination of Prevention of Significant Deterioration (PSD)
- (x) Compliance with New Source Performance Standards (NSPS)

14. The permittee shall comply with the following:

- a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
- b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for

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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% H₂SO₄.
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.

PERMITTEE:
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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.

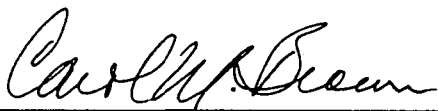
7. The compliance tests shall be conducted within 30 days after operation begins. The Department's Southwest District office shall be notified in writing 15 days prior to source testing. Written reports of the tests shall be submitted to that office within 45 days of test completion.

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 16 day
of July, 1991

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION



Carol M. Browner, Secretary

Best Available Control Technology (BACT) Determination
IMC Fertilizer, Inc.
Polk County

The applicant proposes to increase sulfuric acid production to 2,900 tons per day for each of their five existing sulfuric acid plants in Polk County.

The proposed project will result in a significant increase in emissions of sulfur dioxide (SO₂), sulfuric acid mist and nitrogen oxides (NOx). The project is therefore, subject to Prevention of Significant Deterioration (PSD) review in accordance with F.A.C. Rule 17-2.500(5).

The BACT review is part of the PSD review requirements in accordance with F.A.C. Rule 17-2.500(5)(c).

Date of Receipt of a BACT Application:

The BACT determination requested by the applicant is presented below:

<u>Control Technology</u>	Double Absorption/Fiber Mist Eliminators
<u>Pollutant</u>	<u>Emission Limits</u>
SO ₂	4 lb/ton of 100% H ₂ SO ₄ produced
Sulfuric Acid Mist	0.15 lb/ton of 100% H ₂ SO ₄ produced
Visible Emissions	10% opacity

Basis of Review:

This determination was based upon input from the applicant, EPA Region IV, and the Bureau of Air Regulation.

BACT Determination Procedure:

In accordance with Florida Administrative Code Chapter 17-2, Air Pollution, this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that in making the BACT determination the Department shall give consideration to:

- (a) Any Environmental Protection Agency determination of Best Available Control Technology pursuant to Section 169, and any emission limitation contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources) or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants).

BACT
IMC Fertilizer, Inc.
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- (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:

<u>Control Technology</u>	Double Absorption/Fiber Mist Eliminators
<u>Pollutant</u>	<u>Emission Limits</u>
SO ₂	4.0 lb/ton of 100% H ₂ SO ₄ produced
Sulfuric Acid Mist	0.15 lb/ton of 100% H ₂ SO 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 SO₂ and acid mist. The emission limits reflect conversion efficiency of around 99.7% of SO₂ to H₂SO₄. 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.

BACT
IMC Fertilizer, Inc.
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A review of the BACT/LAER Clearinghouse does not indicate any control technologies or emission limits for nitrogen oxides emissions from sulfuric and plants. An emission level equivalent to 0.12 pound per ton acid is the BACT level typically established for such sources emitting nitrogen oxides and is hence deemed BACT for this facility.

Environmental Impact Analysis

The impact analysis for the BACT determination is based on 8,760 hours/year operation. The ambient air quality impact analysis resulted in the following for SO₂ emissions:

<u>Averaging Time</u>	<u>Predicted Impact (ug/m³)</u>	<u>Deminimus (ug/m³)</u>	<u>Fla. AAQS (ug/m³)</u>
<u>SO₂</u>			
Annual	0.93	N/A	60
24-hr	4.84	13.0	260
3 hr	18.83	N/A	1300

Conclusion

The incremental impact from SO₂ due to the proposed modification is insignificant. The impacts associated with the proposed increase in production support the Department's determination that the emission limits established herein represent BACT.

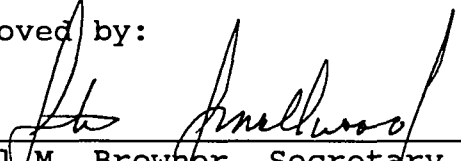
Details of the Analysis May be Obtained by Contacting:

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

Recommended by:

Approved by:


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


Carol M. Browner, Secretary
Dept. of Environmental Regulation

Date

July 10, 1991

Date

July 16, 1991

P 832 538 667



Certified Mail Receipt

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to	
Mr. John A. Brafford, IMC	
Street & No.	Fertilizer
P. O. Box 1035	
P.O., State & ZIP Code	
Mulberry, FL 33860	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	\$
Postmark or Date	
Mailed: 8-1-91	
Permit: AC 53-192221	
PSD-FL-170	

PS Form 3800, June 1990

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece next to the article number.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

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

4a. Article Number

832 538 667

4b. Service Type

- Registered Insured
 Certified Mail Return Receipt for Merchandise
 Express Mail

7. Date of Disposition of All Resources

AUG 12 1991
Management

5. Signature (Addressee)

6. Signature (Agent)

PS Form 3841, October 1990

★U.S. GPO: 1990-273-861

DOMESTIC RETURN RECEIPT

RECEIVED

AUG 12 1991

Department of Environmental Regulation
Routing and Transmittal Slip

To: (Name, Office, Location)

1.	Steve
2.	
3.	
4.	

Remarks:

Secretary signed this and we received comments from Fish's wildlife before mailed out, so we addressed the comments. Thought you should read them before we mail out.

OK
[Signature]
7-31-91

From:

Claw

Date

7/30

Phone