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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

4APT-AEB MAR 19 1990

RECEIVED
MAR 25 1991
DER-BAQM

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: IMC Fertilizer, Inc. (PSD-FL-170)

Dear Mr. Fancy:

This is to acknowledge receipt of an application for a Prevention of Significant Deterioration (PSD) permit for the above referenced facility by your letter dated February 8, 1991. As discussed between Mr. Barry Andrews of your staff and Mr. Gregg Worley of my staff on March 12, 1991, we have reviewed the application and have the following comments.

The proposed modification to the existing facility consists of increasing the production rate on each of five sulfuric acid plants. The BACT analysis submitted by the applicant supports the use of double absorption units. The applicant proposes to meet the NSPS limits for SO₂ and sulfuric acid mist from each of these units; however, the actual emissions data submitted by the applicant (Table 3-1 of the application) indicates that lower limits are achievable. The highest average SO₂ emission rate from any of these units was 3.63 lb/ton acid as compared to the NSPS limit of 4.0 lb/ton acid. Likewise, with sulfuric acid mist, the highest average emission rate was 0.080 lb/ton acid as compared to the NSPS limit of 0.15 lb/ton acid.

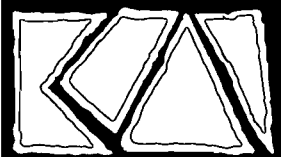
Based on this information, it would seem reasonable to establish allowable permit limits which more closely reflect the actual capabilities of the units.

Thank you for the opportunity to review and comment on this application. If you have any questions or comments, please contact Mr. Gregg Worley of my staff at (404) 347-2904.

Sincerely yours,

Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division

John Reynolds
BAICAF
Cleve Holladay
Bill Thomas, SW Dist. } 3-28-91. RM



KOOGLER & ASSOCIATES

ENVIRONMENTAL SERVICES

4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
904/377-5822 • FAX 377-7158

RECEIVED

MAR 18 1991

DER-BAQM

KA 124-90-01

March 15, 1991

Mr. Clair H. Fancy
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: IMC Fertilizer, Inc.
Application for Sulfuric Acid Rate Increase
Permit File No. AC53-192221, PSD-FL-170

Dear Mr. Fancy:

This is in response to your letter dated March 6, 1991, requesting additional information on the above-referenced project.

1. The air quality modeling accompanying this application demonstrated that the impact of the sulfur dioxide increases would be less than significant. However, this demonstration was based on modeling the proposed emissions increases for each sulfuric acid plant minus the existing allowable emissions for each plant. For the purposes of comparing the predicted maximum concentration increase for the annual averaging time to the significant impact level, the demonstration of less than significant impact should be based on the proposed emissions increase minus the actual emissions for each sulfuric acid plant. The actual emissions should equal the average rate at which each plant actually emitted SO_2 during the last two years. Please model again using the appropriate emission rates in order to determine whether or not the predicted maximum annual average concentration is less than significant. If the increase is greater than the significant impact level you will be required to perform a full impact analysis for SO_2 .

Mr. C.H. Fancy
Re: IMC Fertilizer, Inc.

March 15, 1991
Page 2

When the above issue was discussed with Mr. Cleve Holladay of your staff, he mentioned that although 1989 EPA guideline memorandums allowed the use of permitted emissions in modeling analyses, EPA has recently proposed the use of actual emissions for annual impact analyses. Therefore, in accordance with the proposed guidelines, revised modeling was conducted (see Attachment 1) using actual sulfur dioxide (SO₂) emissions for the five acid plants. The emissions for Sulfuric Acid (H₂SO₄) Plants No. 1, 2, and 3 were based on 1990 continuous emission monitoring (CEM) data. The emissions for H₂SO₄ Plants No. 4 and 5 were based on the allowable emission rates in accordance with Rule 17-2.100(3), Florida Administrative Code. The actual SO₂ emissions are listed in Table 1.

TABLE 1

ACTUAL EMISSIONS USED IN REVISED MODELING
FOR SULFUR DIOXIDE ANNUAL IMPACT ANALYSIS

IMC FERTILIZER, INC.
POLK COUNTY, FLORIDA

SULFURIC ACID PLANT NO.	ACTUAL EMISSION RATES	
	lbs/hr	g/sec
1	425.0	53.60
2	414.0	52.21
3	422.0	53.22
4	458.3	57.80
5	458.3	57.80

The results of the revised modeling, summarized in Table 2, demonstrate that the annual impacts of SO₂ emission increases associated with the proposed project are less than significant. Therefore, no further air quality modeling is required.



TABLE 2
SUMMARY OF SO2 ANNUAL IMPACT ANALYSIS
IMC FERTILIZER, INC.
POLK COUNTY, FLORIDA

METEOROLOGICAL DATA	SO2 ANNUAL IMPACTS		
	ug/m ³	(Location)	Note*
1982	0.73	(1500, 70)	1
1983	0.60	(1500, 70)	1
1984	0.73	(1500, 90)	1
1985	0.93	(1500, 70)	1
1986	1.09	(1500, 90)	1
	0.90	(1750, 80)	2
Significant Impact (17-2.700(171)(a),FAC	1.00		

* NOTE: 1. Impact occurs on IMC property.
2. Impact occurs near IMC property boundary.

2. The explanation on page 49 about how the sulfuric acid mist impact values found in Table 5-3 are generated is unclear. The Department's own modeling shows sulfuric acid mist impacts greater than 5 ug/m³. Please explain the generation of these values more clearly or model the sulfuric acid mist emissions directly.

The impacts of sulfuric acid mist emissions were evaluated by using the ratio of acid mist emissions to the sulfur dioxide emissions modeled, as shown below:

Net SO₂ emissions increase modeled = 18.90 g/s
Total acid mist emissions = 11.45 g/s
Ratio of acid mist to SO₂ = 11.45/18.90
= 0.6058

Mr. C.H. Fancy
Re: IMC Fertilizer, Inc.

March 15, 1991
Page 4

The ratio of 0.6058 was applied to the modeled highest, second highest 24-hour average SO₂ concentration encountered off IMC plant property. Attachment 2 contains identification of these concentrations. An example calculation demonstrates the acid mist impacts using the 1982 meteorological data SO₂ impacts from Attachment 2.

Max. SO₂ Value = 4.41 μg/m³ @ 1750 m, 360°.
(This occurs on IMC plant property)

The max. SO₂ value off plant property = 3.28 μg/m³

The acid mist impact = 3.28 x 0.6058
= 1.99 μg/m³

The calculated acid mist impact values are listed in Table 3. The results indicate that the acid mist impacts from IMC sources off IMC property are below the Acceptable Ambient Level (AAL) of 2.4 μg/m³. As explained in the PSD application, the AAL was calculated based on FDER guidelines as follows:

AAL = TLV/420 for 24-hr average
= 1000 μg/m³/420
= 2.4 μg/m³

It should be noted that while the impacts presented in the PSD application were based on interpolation based on property boundary, the impacts presented above utilize the highest impact at or outside property boundaries without interpolation.

As explained in the PSD application submitted to FDER, the ratio method in determining the acid mist emissions is possible because the emission rate ratios and stack parameters for both pollutants are the same. It should be noted that even if the IMC acid mist impacts were a little above the AAL the area impacted off plant property is a large clay settling area, not accessible to the public and thereby posing no threat to the general public. Also, the control of acid mist emissions by mist eliminators (used by IMC) is recognized as the Best Available Control Technology (BACT). Furthermore, the current approach to evaluating acid mist impacts is based on EPA/FDER guidelines. These guidelines have not been promulgated into rules for permitting.



TABLE 3
SUMMARY OF ACID MIST IMPACT ANALYSIS
IMC FERTILIZER, INC.
POLK COUNTY, FLORIDA

METEOROLOGICAL DATA	SO2 IMPACT ug/m ³	ACID MIST IMPACTS		
		ug/m ³	(Location)	Note*
1982	4.41	-	(1750, 360)	1
	3.28	2.0	(2000, 40)	2
1983	3.58	-	(2000, 250)	1
	3.17	1.9	(1750, 50)	2
1984	4.36	-	(1750, 90)	1
	3.69	2.2	(1750, 70)	3
1985	3.83	-	(1500, 80)	1
	3.52	2.1	(1750, 80)	2
1986	4.84	-	(1500, 90)	1
	3.82	2.3	(1750, 70)	3

* NOTE: 1. Impact occurs on IMC property.
2. Impact occurs near IMC property boundary.
3. Impact occurs outside IMC property boundary.

3. In order to use property boundaries as limiting factors in the air quality modeling analysis, access to the property must be precluded by a fence or other physical barriers. Please explain how IMC prevents access to their property.

The Site Location Map, Figure 2-2, presented in the PSD permit application submitted to FDER, shows the extent of the IMC property boundary. Rather than discussing the physical barriers all the way around the IMC boundary (in excess of 17 kilometers, at times), the discussion presented below will be limited to a two-kilometer radius around the location of the sulfuric acid plants. The two kilometer distance includes all the larger impacts, even though these impacts are less than significant.



Mr. C.H. Fancy
Re: IMC Fertilizer, Inc.

March 15, 1991
Page 6

Figure 1 consists of an enlarged copy of an aerial photograph showing the physical barriers preventing public access onto IMC property within two kilometers of the sulfuric acid plants. These barriers are listed below with the corresponding direction from the H₂SO₄ plants.

Location	Physical Barrier
North	Fencing and raised (~10') berms
North/East	Fencing and elevated (~10') rail line
East	Gypsum stack
South/East	Cooling pond and clay settling areas
South	Clay settling area
South/West	Clay settling area
West	Low creek area and more fencing due west
North/West	Fencing

In addition to the above listed overlapping physical barriers preventing access, IMC security personnel patrol the area, as necessary, and prevent entry of unauthorized people onto IMC property. Based on conversations with IMC staff, the measures described above have proven effective in preventing public access in the past and the same is expected in the future.

If you have any questions, please do not hesitate to give me a call.

Very truly yours,

KOUGLER & ASSOCIATES

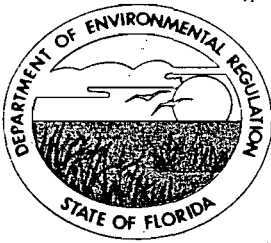


Pradeep A. Raval

PAR:wa
Enc.

cc: Mr. J. Baretincic, IMC
J. Reynolds
C. Holladay
B. Andrews
D. Thomas, SW Dist
A. Harper, EPA





Florida Department of Environmental Regulation

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

Lawton Chiles, Governor

Carol M. Browner, Secretary

March 6, 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:

Re: Permit No. AC 53-192221, PSD-FL-170

The Department has reviewed your application for a permit to increase the rates of the existing five sulfuric acid plants at your facility. We need more information in order to process this application. Please complete the application by supplying the information requested below:

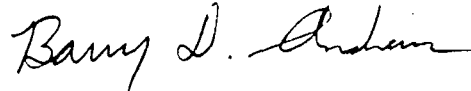
1. The air quality modeling accompanying this application demonstrated that the impact of the sulfur dioxide increases would be less than significant. However, this demonstration was based on modeling the proposed emissions increases for each sulfuric acid plant minus the existing allowable emissions for each plant. For the purposes of comparing the predicted maximum concentration increase for the annual averaging time to the significant impact level, the demonstration of less than significant impact should be based on the proposed emissions increase minus the actual emissions for each sulfuric acid plant. The actual emissions should equal the average rate at which each plant actually emitted SO₂ during the last two years. Please model again using the appropriate emission rates in order to determine whether or not the predicted maximum annual average concentration is less than significant. If the increase is greater than the significant impact level you will be required to perform a full impact analysis for SO₂.
2. The explanation on page 49 about how the sulfuric acid mist impact values found in Table 5-3 are generated is unclear. The Department's own modeling shows sulfuric acid mist impacts greater than 5 ug/m³. Please explain the generation of these values more clearly or model the sulfuric acid mist emissions directly.
3. In order to use property boundaries as limiting factors in the air quality modeling analysis, access to the property must be precluded by a fence or other physical barriers. Please explain how IMC prevents access to their property.

Mr. John A. Brafford
Page 2 of 2

We will resume processing your application as soon as the above information is received.

If you have any questions, please call Cleve Holladay at 904-488-1344 or write to me at the above address.

Sincerely,



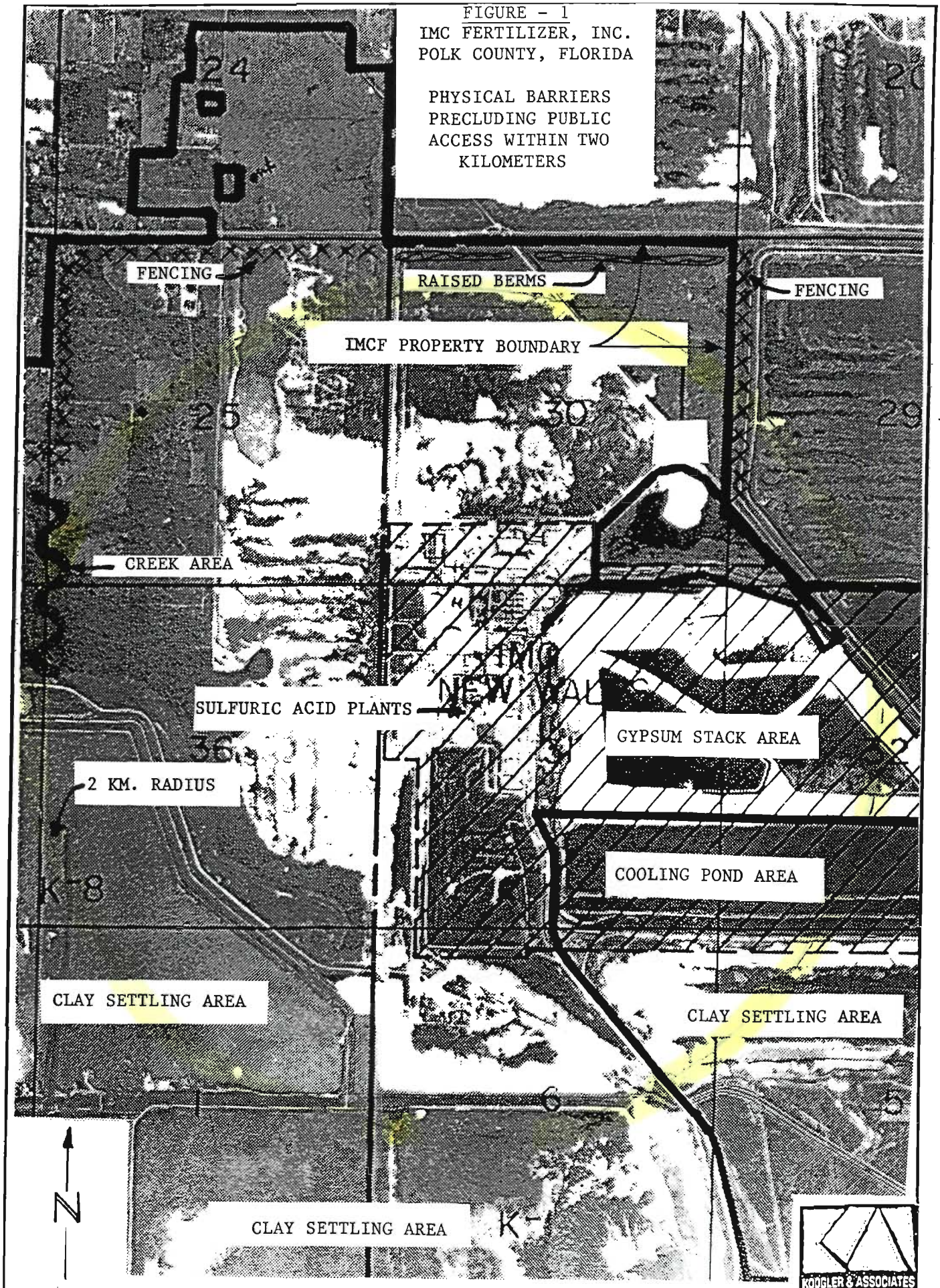
for C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/CH/plm

c: J. Koogler
J. M. Baretincic
Jewell Harper
Bill Thomas

FIGURE - 1
IMC FERTILIZER, INC.
POLK COUNTY, FLORIDA

PHYSICAL BARRIERS
PRECLUDING PUBLIC
ACCESS WITHIN TWO
KILOMETERS





Florida Department of Environmental Regulation

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

Lawton Chiles, Governor

Carol M. Browner, Secretary

February 8, 1991

Ms. Jewell A. Harper, Chief
Air Enforcement Branch
U.S. EPA, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Ms. Harper:

RE: IMC Fertilizer
Polk County
PSD-FL-170

Enclosed for your review and comment is the above referenced PSD permit application. If you have any comments or questions, please contact John Reynolds, Barry Andrews, or Cleve Holladay at the above address or at (904)488-1344.

Sincerely,

Patricia G. Adams

Patricia G. Adams
Planner
Bureau of Air Regulation

/pa

Enclosure

P 407 853 178

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

U.S.G.P.O. 1989-234-555

PS Form 3800, June 1985

Sent to Mr. John A. Brafford, IMC	
Street and No. P. O. Box 1035	
P.O., State and ZIP Code Mulberry, FL 33860	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$
Postmark or Date Mailed: 3-6-91 Permit: AC 53-192221 PSD-FL-170	

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. Show to whom delivered, date, and addressee's address. (Extra charge) 2. Restricted Delivery (Extra charge)

3. Article Addressed to:
Mr. John A. Brafford TA
Vice President and Gen. Mgr.
IMC Fertilizer, Inc.
P. O. Box 1035
Mulberry, FL 33860 AD

4. Article Number
P 407 853 178

Type of Service:
 Registered Insured
 Certified COD
 Express Mail Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature - Addressee
X *Anda Hutchinson*

6. Signature - Agent
X

7. Date of Delivery
3-8-91

8. Addressee's Address (ONLY if requested and fee paid)

PS Form 3811, Apr. 1989

*U.S.G.P.O. 1989-238-815

DOMESTIC RETURN RECEIPT

P 710 058 496



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

Sent to	John Brafford
Street & No.	INC Fertilizer
P.O. State & ZIP Code	Mulberry, FL
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	6-29-92
	AC 53-192221
	PSD-FI-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:
 John A. Brafford
 INC Fertilizer, Inc.
 PO BOX 1035
 Mulberry, FL 33860

4a. Article Number
P 710 058 496

4b. Service Type
 Registered Insured
 Certified COD
 Express Mail Return Receipt for Merchandise

7. Date of Delivery
7/1/92

5. Signature (Addressee)

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

P 407 853 178

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

U.S.G.P.O. 1985-234-555

Sent to Mr. John A. Brafford, IMC	
Street and No. P. O. Box 1035	
P.O., State and ZIP Code Mulberry, FL 33860	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$
Postmark or Date Mailed: 3-6-91 Permit: AC 53-192221 PSD-FL-170	

PS Form 3800, June 1985

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. Show to whom delivered, date, and addressee's address. (Extra charge) 2. Restricted Delivery (Extra charge)

3. Article Addressed to: Mr. John A. Brafford <i>TA</i> Vice President and Gen. Mgr. IMC Fertilizer, Inc. P. O. Box 1035 Mulberry, FL 33860 <i>AS</i>	4. Article Number P 407 853 178
5. Signature - Addressee <i>Linda Hutchinson</i>	Type of Service: <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise
6. Signature - Agent <i>X</i>	Always obtain signature of addressee or agent and DATE DELIVERED.
7. Date of Delivery <i>3-8-91</i>	8. Addressee's Address (ONLY if requested and fee paid)

P 407 852 706

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

U.S.G.P.O. 1989-234-555

PS Form 3800, June 1985

Sent to	John Brafford
Street and No.	IMC
P.O., State and ZIP Code	Mulberry, FL
Postage	
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$
Postmark or Date	5-22-91 AC 53-192221 PSD-FI-170

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. Show to whom delivered, date, and addressee's address. (Extra charge) 2. Restricted Delivery (Extra charge)

3. Article Addressed to: Mr. John A. Brafford Vice President & Gen. Mgr. IMC Fertilizer, Inc P.O. Box 1035 Mulberry, FL 33860	4. Article Number P 407 852 706
5. Signature - Addressee X	Type of Service: <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise
6. Signature - Agent X <i>J. Perkins</i>	Always obtain signature of addressee or agent and DATE DELIVERED.
7. Date of Delivery 5-28-91	8. Addressee's Address (ONLY if requested and fee paid)