

KA 124-01-03

April 26, 2002

RECEIVED

APR 30 2002

BUREAU OF AIR REGULATION

Mr. Syed Arif, P.E. Florida Department of Environmental Protection Twin Towers Office Building 2600 Blair Stone Road Tallahassee, FL 32399-2400

Subject:

IMC Phosphates MP, Inc. (New Wales)

Additional Information - Sulfuric Acid Production Increase

DEP File No. 1050059-036-AC, PSD-FL-325

Dear Mr. Arif:

The following additional information is a follow up to the information previously submitted to FDEP on January 25 and March 19, 2002. The items are addressed in the order of the issues raised previously by FDEP.

- 1. The results of the revised modeling, based on discussions with Mr. Cleve Holladay, are presented in Attachment 1.
- 2. An evaluation of the growth-related ambient air impacts is presented in Attachment 2.
- 3. The US Fish and Wildlife Service issues are addressed in Attachment 3.

If you have any questions, please call me.

Very truly yours,

KOOGLER & ASSOCIATES

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

JBK:par. Encl.

c: C. D. Turley, IMC M. Daigle, IMC

ATTACHMENT 1

SUMMARY OF SULFUR DIOXIDE AND NITROGEN OXIDES

REVISED SIGNIFICANT IMPACT ANALYSES

MET	CLAS	MPACTS (1)		
DATA	SO2			NOX
	ANNUAL	3-HR	24-HR	<u>ANNUAL</u>
ISC3 Model				•
1987	0.23	3.51	0.46	0.10
1988	0.25	3.46	0.59	0.08
1989	0.37	3.77	0.62	0.11
1990	0.34	6.44	0.92	0.11
1991	0.30	5.10	1.19	0.10
Sig. Impact Level	1	25	5	1
CALPUFF Model	·			
1990 Class I Impact	0.01	0.45	0.04	0.002
Sig. Impact Level	0.1	1.0	0.2	0.1

#### NOTE:

<sup>(1)</sup> The impacts represent the highest-high impact.

<sup>(2)</sup> The impacts are based on the difference between the existing and proposed SO2 emissions from the Nos.1, 2 and 3 Sulfuric acid plants, as previously submitted. The annual SO2 emission rates for the Nos. 1, 2 and 3 plants were revised as requested by FDEP, to 56.45, 57.08 and 51.91 g/s (448, 453 and 412 lbs/hr), respectively.

#### EVALUATION OF GROWTH RELATED AMBIENT AIR IMPACTS

The growth-related (general commercial, residential, industrial and other growth) ambient air impacts are difficult to address accurately, as the air emission inventory of such growth since 1977 is not readily available from the FDEP database.

A conservative approach can be used to assess these ambient air impacts, by evaluating FDEP's ambient air monitoring data. For the area impacted by the proposed project, the information from the ambient air monitors closest to the facility can be reviewed.

By evaluating the annual concentration levels, the wind-direction bias for industrial sources can be minimized. It can be assumed that the differences in the ambient concentration levels result from changes in pollutant emission levels in the area. It can be further assumed that the growth-related impacts are a component of the measured levels.

The following information on the annual arithmetic average concentration is noted for the pollutants subject to PSD review for the proposed project:

- (1) 1984 Annual SO2 at Anderson Road, Polk County = 14 ug/m3, or 0.005 ppm
- (2) 2000 Annual SO2 at Anderson Road, Polk County = 0.005 ppm

The difference in measured SO2 concentrations is virtually zero.

- (3) 1984 Annual NOX at Brandon, Hillsborough County = 27 ug/m3, or 0.014 ppm
- (4) 1984 Annual NOX at Causeway Blvd, Hillsborough County = 35 ug/m3, or 0.018 ppm
- (5) 2000 Annual NOX at Gandy Blvd, Hillsborough County = 0.011 ppm

The difference in measured NOX concentrations is negative.

#### Notes:

- (1) Represents earliest year of data on FDEP website.
- (2) Represents most recent year of data on FDEP website.
- (3) Represents earliest year of data on FDEP website nearest to source.
- (4) Represents earliest year of data on FDEP website nearest to current monitor.
- (5) Represents most recent year of data on FDEP website for commercial area monitor.

It can be assumed, given the above data that any growth-related pollutant emission increases for SO2 and NOX have been negated by emission decreases through pollution reduction.

#### ISSUES RAISED BY FISH AND WILDLIFE SERVICE

The deposition analysis for nitrogen oxides emissions from the proposed project resulted in a deposition of zero.

As requested by the US Fish and Wildlife Service, the visibility analysis has been revised herein using the updated protocol.

The first approach, using the maximum predicted 24-hr SO2 impact based on CALPUFF modeling results and an average annual relative humidity, results in a change in extinction of 5.9% as compared to the screening analysis threshold of 5%.

However, based on an analysis of day-specific impacts and relative humidity data, the maximum change in extinction is 4.99%, or 5.0% (see attached tables). As this impact does not exceed the screening analysis threshold of 5%, a cumulative analysis was not conducted.

The modeling output is provided on disk.

		Summary of Top 3 SO2 24-hour Imapets Change of Visibility				
				Table 1 Daily Avg	Db	
Rank		ug/m^3	On Day	f_RH	%	
	1	0.0417	08/12/90	4.3	5.0	Table 2
	2	0.0338	02/01/90	5.5	4.9	Table 3
	3	0.0297	03/17/90	5.1	4.1	Table 4

Table 1

	Daily Aver	age RH Fa	ctors		···
08/12/90	·	02/01/90		03/17/9	0
Rh	f_RH	Rh	f_RH	Rh	f_RH
79	2.6	87	3.8	79	2.6
82	3	84	3.2	79	2.6
90	4.7	90	4.7	84	3.2
94	8.4	93	7	87	3.8
94	8.4	93	7	90	4.7
94	8.4	93	. 7	87	3.8
94	8.4	100	18.1	90	4.7
90.	4.7	97	15.1	90	4.7
77	2.4	100	18.1	90	4.7
70	1.9	93	7	79	2.6
70	1.9	90	4.7	72	2
65	1.7	82	3	67	1.7
58	1.4	74	2.1	63	1.5
56	1.3	63	1.5	65	1.7
54	1.3	59	1.4	72	2
49	1.2	53	1.3	90	4.7
49	1.2	55	1.3	90	4.7
52	1.3	63	1.5	97	15.1
63	1.5	72	2	93	7
94	8.4	90	4.7	97	15.1
94	8.4	85	3.4	97	15.1
90	4.7	90	4.7	93	7
94	8.4	90	4.7	90	4.7
94	8.4	90	4.7	87	3.8
Daily Avg f_RH	4.3		5.5		5.1

Table 2		Table 3		Table 4
First High 08/12/90	Second High	02/01/90	Third High	03/17/90
Viz Ref Level	Viz Ref Level		Viz Ref Le	vel
Eq-6 P38	Eq-6 P38		Eq-6 P38	
b_ext = b_hydro*f(RH)+b_nonhydro+b_ray	b_ext = b_hydro*f(R	H)+b nonhydro+b·r	b ext = b	_hydro*f(RH)+b_nonhydro
b_ref = 22.4 Mm-1	b_ref = 23.5	Mm-1		23.1 Mm-1
For chassahowitzka	For Chassahowitzka		For Chass	ahowitzka
b_hydro = 0.9	b_hydro 0.9		b hydro	0.9
b_nonhydro 8.5	b_nonhyd 8.5		b_nonhyd	8.5
b_ray = 10	b_ray = 10		b_ray =	10
f(RH) = 4.3	f(RH) = 5.5		f(RH) =	
Source Contribution	Source Contribution	***************************************	Source Co	ontribution
SO2 = 0.042	SO2 = 0.034		SO2 =	***
$SO4 = 0.063 \text{ ug/m}^3$	SO4 = 1.5*SO2		SO4 = 1.5	5*SO2
· ·	SO4 = 0.051	ug/m ^ 3	SO4 =	**** ug/m ^ 3
(NH4)2SO4 0.1 ug/m^3	Soot = 0	ug/m^3	Soot =	0 ug/m^3
Dry Scattering Efficiency Eq-3 P35	(NH4)2SO 0.1		(NH4)2SO	0.1
b SO4 DRY 3	Dry Scattering Efficie Eq-3 P35	ency	Dry Scatte Eq-3 P35	ering Efficiency
b_ext = 3 * (NH4)2SO4	$b_{ext} = 3 * (NH4)2$	2SO4	b ext =	3 * (NH4)2SO4
0.3 Mm-1	0.2	Mm-1	_	0.2 Mm-1
b_Source = b_(NH4)2SO4 * fRH + b_EC 1.1 Mm-1	b_Source b_(NH4)29	SO4 * fRH + b_EC Mm-1	b_Source	b_(NH4)2SO4 * fRH + b_E 0.9 Mm-1
Change in Extinction	Change in Extinction		Change in	Extinction
Db = (b_Source/b_ref)*100	Db = (b_Source/b_re		_	Source/b ref)*100
Db = 5.0 %	Db = 4.9	•	Db = (b_0	

#### 4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein\*, that:

- (1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and
- (2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [ ], if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [X], if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [ ], if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Signature

(seal)

4/26/02

\* Attach any exception to certification statement.

Effective: 2/11/99



KA 124-01-03

March 19, 2002

# RECEIVED

MAR 20 2002

BUREAU OF AIR REGULATION

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

Subject:

IMC Phosphates MP, Inc. (New Wales)

Additional Information - Sulfuric Acid Production Increase

DEP File No. 1050059-036-AC, PSD-FL-325

#### Dear Mr. Linero:

The following additional information is in response to Mr. Syed Arif's telephone conversation with Pradeep Raval last month regarding information previously submitted to FDEP on January 25, 2002. The items are addressed in the order of the issues raised by FDEP.

1. The sulfuric acid plant production rates at the time of the sulfuric acid mist emission testing are summarized below.

Plant #	Year	Production (tpd)	SAM (lbs/hr)	SAM (lb/ton)
01	1999	2782	6	0.05
01	2000	2800	4	0.03
02	1999	2776	6	0.05
02	2000	2789	8	0.07
03	1999	2900	7	0.06
03	2001	2745	8	0.07

2. The modeling issues will be addressed after the ongoing discussions with Mr. Cleve Holladay are completed.

If you have any questions, please call me.

Very truly yours,

**KOOGLER & ASSOCIATES** 

John B. Køgler, Ph.D., P.E.

JBK:par.

c: T. Heron, FDEP

C. D. Turley, IMC

M. Daigle, IMC

#### 4. Professional Engineer Statement:

- I, the undersigned, hereby certify, except as particularly noted herein\*, that:
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- (2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [ ], if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

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Signature

(seal)

3(18/07 Date

\* Attach any exception to certification statement.

Effective: 2/11/99



KA 124-01-03

March 12, 2002

### RECEIVED

MAR 1 4 2002

**BUREAU OF AIR REGULATION** 

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

Subject:

IMC Phosphates MP, Inc. (New Wales)

Additional Information - Sulfuric Acid Production Increase

DEP File No. 1050059-036-AC, PSD-FL-325

Dear Mr. Linero:

This letter is to provide an update of the review status of the above referenced project. We are in the process of preparing additional information to submit to FDEP, mostly regarding the modeling issues associated with the above referenced project.

If you have any questions, please call me.

Very truly yours,

**KOOGLER & ASSOCIATES** 

Pradeep Raval

Par.

c: P. Adams, FDEP

C. D. Turley, IMC

M. Daigle, IMC



**₹352** 377 7158

Project No.	124-01-03
•••,	

# Fax

To: Patty Adams	Al Cinero
FOUR - Tallah	evolt
Fax No.:	
From: Kadeeg Raval	Fax No.: 352-377-7158
Date: 3-12-02	Time: 5.05 p
Sent By:	name(s) PLUS this cover sheet.
This message consists of	page(s) PLUS this cover sheet. s transmission, please call 352-377-5822.
. This message consists of/ If you experience difficulties with this	page(s) PLUS this cover sheet. s transmission, please call 352-377-5822.
This message consists of	page(s) PLUS this cover sheet. s transmission, please call 352-377-5822.
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ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
352/377-5822 - FAX/377-7158

KA 124-01-03

March 12, 2002

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

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If you have any questions, please call me.

Very truly yours,

**KOOGLER & ASSOCIATES** 

Pradeep Raval

Par.

c:

P. Adams, FDEP

C. D. Turley, IMC

M. Daigle, IMC



352/377-5822 • FAX/377-7158

IRONMENTAL SERVICES January 25, 2002

RECEIVED

JAN 29 2002

BUREAU OF AIR REGULATION

Mr. Syed Arif, P.E. Florida Department of Environmental Protection Twin Towers Office Building 2600 Blair Stone Road Tallahassee, FL 32399-2400

Subject:

IMC Phosphates MP, Inc. (New Wales)

Additional Information - Sulfuric Acid Production Increase

DEP File No. 1050059-036-AC, PSD-FL-325

Dear Mr. Arif:

This is in response to FDEP's letter dated December 26, 2001, requesting additional information on the above referenced project.

KA 124-01-03

The scope of the application is herein revised, based on discussions with IMC, FDEP and EPA staff. The proposed project now includes Sulfuric Acid Plant Nos. 1, 2 and 3. Sulfuric Acid Plant Nos. 4 and 5 are hereby withdrawn from the proposed project.

The issues raised in your letter are addressed in line with the change in scope of the application. The issues are addressed in the order they were raised in your letter.

- 1. The revised annual impact modeling using actual sulfur dioxide emissions data, will be submitted under separate cover, as discussed with Mr. Cleve Holladay.
- 2. The growth-related ambient air impacts will be submitted along with information on Item 1.
- 3. The US Fish and Wildlife Service issues will be addressed along with information on Item 1.
- 4. The historical information on sulfur dioxide emission rates in lb/ton acid, and sulfuric acid production rates, is presented in Attachment 1, in the requested format. Please note that the turnaround cycles are apparent from the production charts.
- 5. As turnaround activities were discussed in great detail during the January 16, 2002 meeting between IMC, K&A, FDEP and EPA staff, the issue is discussed in general terms herein.

There have been no modifications done to any of the subject plants during turnarounds. A typical turnaround on a sulfuric acid plant consists of the following maintenance activities:

- Conduct a detailed maintenance inspection after the plant is shutdown.
- Screen and replenish catalyst beds, as necessary.
- Repair and/or replace corroded/deteriorated pipes, valves, pumps, ducting, tanks, etc.
- Repair and/or replace corroded/deteriorated heat exchange components.
- For moving components, apply oil and grease, etc., as necessary.

Specific maintenance activity during a turnaround can vary depending on the physical condition and maintenance requirements of a given plant. It should be noted that while most maintenance items can be anticipated, some items may only become apparent after a detailed maintenance inspection which is conducted after a plant is shutdown for maintenance.

It is our understanding that detailed information on this issue is no longer required for the technical review based on the change in the scope of the proposed project, as discussed with FDEP and EPA staff, and addressed in Item 16.

- 6. The available information on the requested acid mist emissions is presented in the report submitted in support of the PSD application in Table 3-1 and Appendix A.
- 7. The additional sulfuric acid produced as a result of the proposed project will offset current purchases. Consequently, it will not affect the independently operating production units downstream. An accounting summary of past and proposed sulfuric acid utilization for the facility, is presented in Attachment 2.
- 8. The actual production rate identified on Table 3-1 in the application should have been under the reference of "allowable". The historical actual production rates are presented in Attachment 1, in the format requested by FDEP.
- 9. The proposed production rate, of each sulfuric acid plant addressed in this application, is 3400 tpd. This rate will be achieved after completion of construction, which includes modification of the converter of each plant.
- 10. The apparent discrepancy is likely due to a typographical error. For the purposes of this technical evaluation, corrected information is presented in Attachment 1. Revised PSD applicability calculations are presented in Attachment 4. Copies of AORs are not enclosed in order to avoid redundancy of data already provided herein, especially in light of the specific sulfur dioxide emissions presentation format requested by FDEP in Attachment 1.
- 11. The entire interpass tower will be pre-fabricated during the months leading up to the turnaround. During the actual turnaround, which will be no longer than a typical turnaround, the tower will simply be replaced. The replacement tower will be similar in size. The foregoing response is unlikely to affect the technical review of the proposed project given the

change in the scope of the application based on the outcome of the January 16 meeting. It is our understanding that FDEP considers the proposed interpass tower replacement as a modification. While not necessarily agreeing with the Department's opinion on this matter, IMC does not intend to challenge FDEP's position. IMC will diligently pursue completing the technical review of the proposed project in order to obtain the necessary construction permit in a timely manner.

- 12. The discussion in the permit application regarding historical concentration levels of sulfur dioxide in the gas stream were meant to reflect changes in the overall industry over the years. As discussed in the meeting with FDEP and EPA staff, IMC operates its plants in the sulfur dioxide concentration range of 11.5-12 percent based on available records since the time of the previous PSD project.
- 13. The catalyst changes were included as part of the previous PSD project for the sulfuric acid plants. The effect of only the catalyst change on the plant production is difficult to assess as several items were involved in that project. In any case, it is our understanding that this issue will not affect the technical review of this project given the change in the scope of the proposed project.
- 14. The cost analysis for ammonia scrubbing is presented in Attachment 3. Based on the projected costs and the potential environmental and worker safety liabilities associated with ammonia scrubbing, it is rejected as BACT.
- 15. The dates of commencement of construction for the proposed maintenance activities associated with the plants included in this application are presented under separate cover.
- 16. Based on the outcome of the January 16 meeting with FDEP and EPA staff, the scope of the proposed project has been revised. Consequently, it is our understanding that a response to this issue, to help distinguish between routine and non-routine maintenance, is no longer required for the technical evaluation of the proposed project.

The scope of the application is revised as follows:

- The proposed project now includes Sulfuric Acid Plant Nos. 1, 2 and 3. Sulfuric Acid Plant Nos. 4 and 5 are hereby withdrawn from the proposed project. It is our understanding that FDEP and EPA staff are in agreement with this approach given the independent nature of the plants and the unique maintenance schedules identified under separate cover.
- The technical determination for the revised scope of the proposed project has been simplified as IMC will voluntarily accept the imposition of BACT-based emission limits upon modification of a given plant at the first scheduled turnaround identified under separate cover.

Mr. Syed Arif, P.E. Florida Department of **Environmental Protection** 

- IMC is aware of, and will comply with, the state and federal rule provisions associated with BACT review for phased construction projects.
- It is our understanding from discussions with FDEP staff that the entire application need not be revised and re-submitted as the above changes result in simply removing sections of the application addressing Sulfuric Acid Plant Nos. 4 and 5.
- The revised net emissions increases for the proposed project are presented in Attachment 4.

If you have any questions, please call Pradeep Raval or me.

Very truly yours,

KOOGLER & ASSOCIATES

Koogler, Ph.D., P.E.

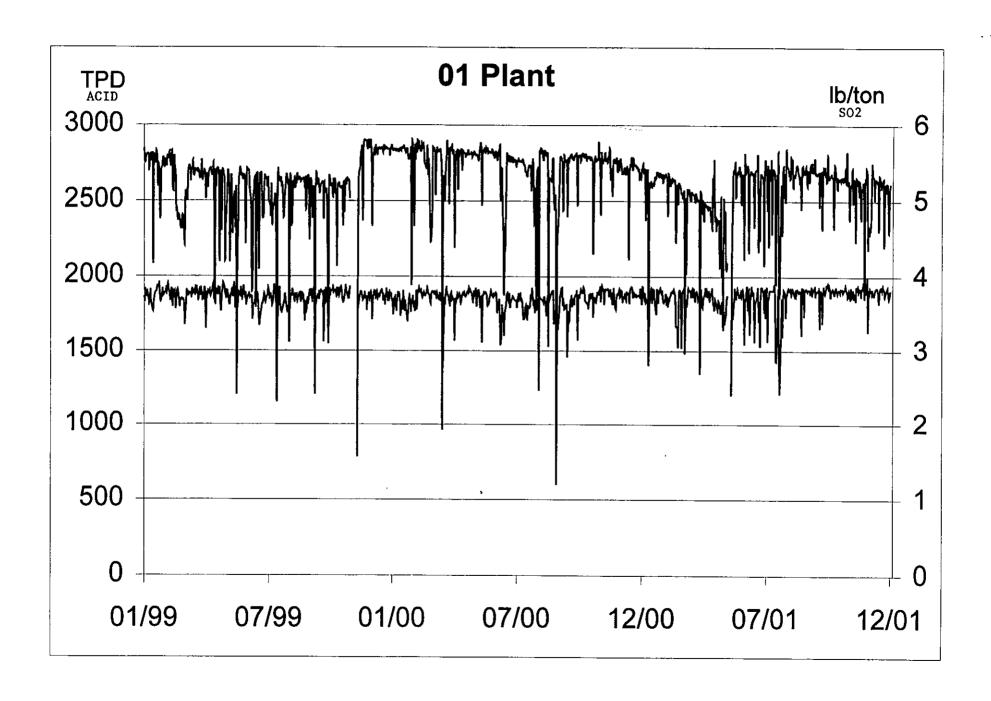
JBK:par. encl.

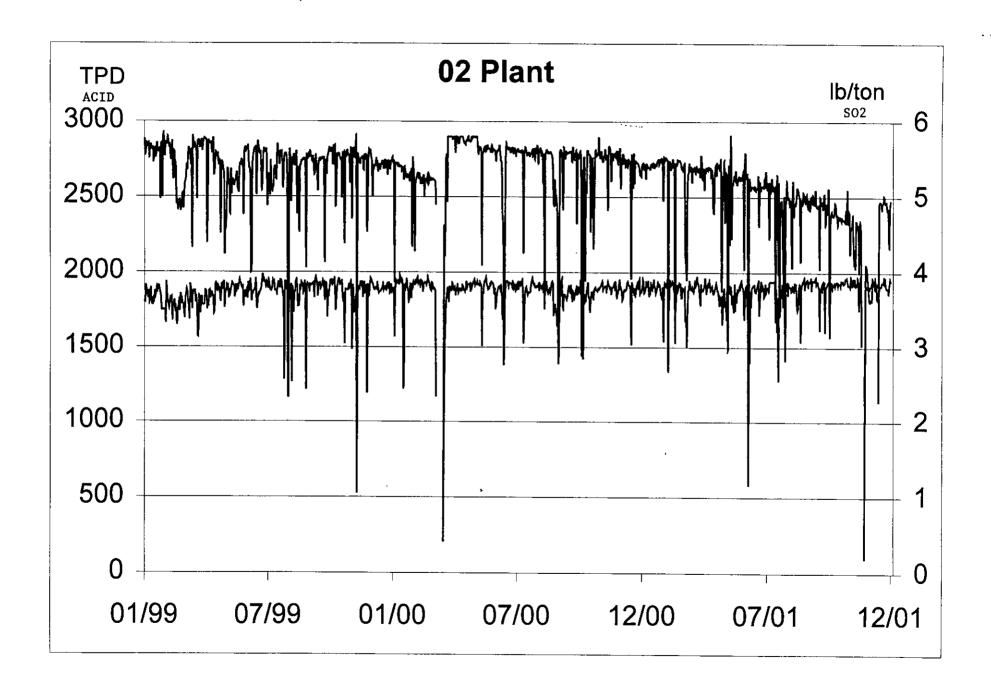
C. Dave Turley, IMC c:

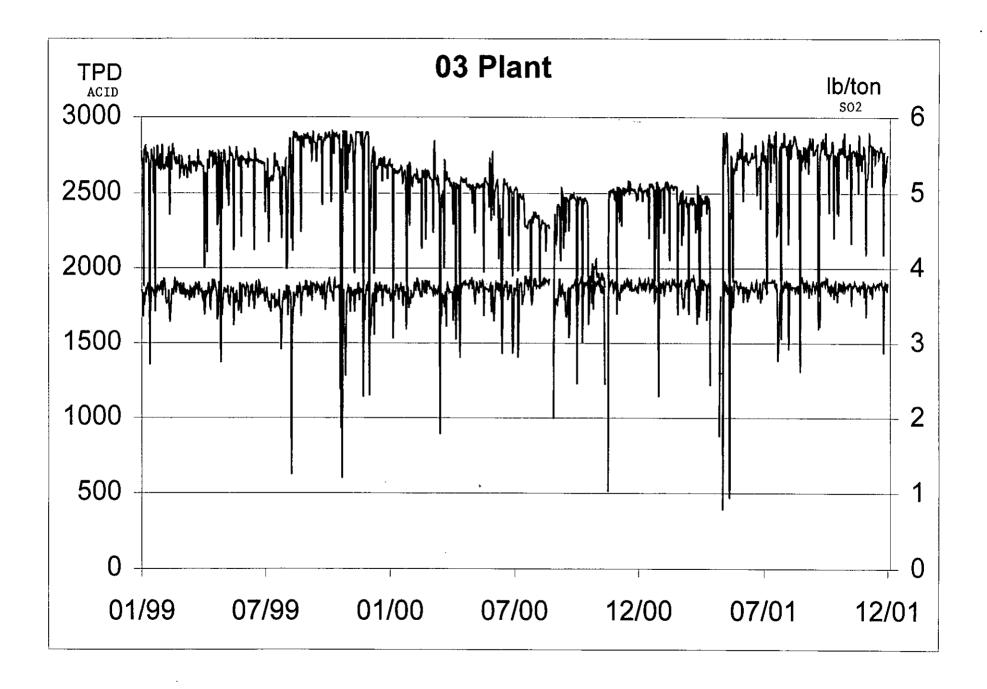
M. Daigle, IMC

C. Holladam B. Shomas, Sw D B. Wolley, EPA Q. Bunyah, NPS

HISTORICAL SULFUR DIOXIDE EMISSIONS AND SULFURIC ACID PRODUCTION DATA







#### SULFURIC ACID BALANCE AT NEW WALES

The following sulfuric acid balance for the New Wales facility is based on 2001 records just recently compiled:

Permitted Production = 5,292,500 tons

Actual Production = 4,564,927 tons

Operation Factor = 4,564,927 / 5,292,500

= 0.86

Acid Purchased = 377,105 tons

Additional Production Capacity = (3400 - 2900) tpd x 3 plants x 365 days/yr

= 547,500tons

Projected Additional Production =  $547,500 \text{ tons } \times 0.86 \text{ (operation factor)}$ 

=470,850 tons

This reflects a conservative eventual sulfuric acid balance as the three plants will not increase production at once and loss of production from the proposed plant turnaround is not accounted for.

For the purposes of this application, it should be noted that IMC will purchase or sell acid, as necessary, to correspond to phosphate product market trends. Consequently, the proposed project will not affect any downstream sources.

#### AMMONIA SCRUBBING COSTS

The following analysis represents a simplified update of a similar analysis conducted for a double absorption sulfuric acid plant rated at 2700 tpd production. All costs have been scaled linearly for the purpose of this preliminary analysis for one plant.

Total Installed Cost:		= \$ 7,300,000
Direct Annual Cost	Labor Maintenance Optg. Costs Total DC	= \$ 918,000 = \$ 272,000 = \$ 3,650,000 = \$ 4,840,000
Indirect Annual Cost	(0.1715 TCI, EPA combined factor) (includes capital recovery at 15 year life, 109)	= \$ 1,252,000 % int.)
Total Annual Cost	(DC + IC)	= \$ 6,092,000

Based on the above annual cost, the cost of sulfur dioxide control can be estimated based on the assumption that a stack emission rate of 2.5 lb SO2/ton acid can be achieved.

A refined cost analysis was not conducted as the ammonia scrubbing technology was primarily rejected as BACT based on the following disadvantages (compared to double absorption process) that, in our opinion, outweigh the economic reasons:

- A waste by-product is generated for which disposal issues must be considered.
- Plant operators have to deal with additional operating parameters in an already complex chemical process.
- As the scrubbing system is a high maintenance item, it would require additional manpower for operation.
- The control process does not result in capture of product.
- The environmental liabilities of introducing an additional toxic air pollutant release point in the plant.

Acid mist control using ammonia is not addressed as mist eliminators were selected based on a top-down approach, with mist eliminators on top.

#### **REVISED NET EMISSIONS CHANGES**

#### **ACTUAL EMISSION RATE CALCULATIONS**

Based on past two-year compliance test and annual operating hours information, the actual emissions for the five existing plants can be estimated as follows:

#### 1.1 SULFURIC ACID PLANT 1

#### 1.2 SULFURIC ACID PLANT 2

= 34 TPY

#### 1.3 SULFURIC ACID PLANT 3

#### 2.0 PROPOSED EMISSION RATE CALCULATIONS

#### SULFURIC ACID PLANT Nos. 1-3, each

SO2 =  $496.0 \text{ lb/hr} \times 8760 \text{ hrs/yr} \times \text{ton/}2000 \text{ lbs}$ 

= 2172.5 TPY

SAM =  $17.0 \text{ lb/hr} \times 8760 \text{ hrs/yr} \times \text{ton/}2000 \text{ lbs}$ 

= 74.5 TPY

NOX =  $17.0 \text{ lb/hr} \times 8760 \text{ hrs/yr} \times \text{ton/}2000 \text{ lbs}$ 

= 74.5 TPY

#### 3.0 NET ANNUAL EMISSION CHANGES

Net Emissions = Proposed - Actual

Total Proposed SO2 = 2172.5 tpy x 3 = 6517.5 tpy

Total Proposed SAM = 74.5 tpy x 3 = 223.5 tpy

Total Proposed NOX = 74.5 tpy x 3 = 223.5 tpy

Total Actual SO2 = (1694+1808+1640) tpy = 5142 tpy

Total Actual SAM = (21+30+32) tpy = 83 tpy

Total Actual NOX = (34+47+30) tpy = 111 tpy

NET SO2 = (6517.5 - 5142) tpy = 1375.5 tpy

NET SAM = (223.5 - 83) tpy = 140.5 tpy

NET NOX = (223.5 - 111) tpy = 112.5 tpy

#### 4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein\*, that:

- (1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and
- (2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [ ], if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [X], if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [ ], if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Signature

Date

(seal)

Effective: 2/11/99

<sup>\*</sup> Attach any exception to certification statement.



Jeb Bush Governor Twin Towers Office Building 2600 Blair Stone Road Tallahassee, Florida 32399-2400

David B. Struhs Secretary

December 26, 2001

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Mike Daigle, General Manager IMC Phosphates MP Inc. Post Office Box 2000 Mulberry, Florida 33860

Re: DEP File No. 1050059-036-AC; PSD-FL-325 Sulfuric Acid Production Increase New Wales Plant

#### Dear Mr. Daigle:

The Department has received the above referenced application on November 27, 2001, for the New Wales Plant in Polk County. Based on our initial review of the proposed project, we have determined that additional information is needed in order to continue processing this application package. Please submit the information requested below to the Department's Bureau of Air Regulation:

- 1. The annual SO<sub>2</sub> significant impact modeling submitted with this application used the higher short-term allowable 3 and 24-hour emission rates given in Table 3-1 as current rates (input as negatives) instead of the lower actual annual hourly emission rates. These lower rates should be compared with the proposed maximum emission rates in an annual significant impact analysis. For example the annual hourly emission rate of 398 lb/hr for SAD1 should be used as the current input value instead of 483.3 lb/hr. Please redo the annual significant impact modeling using the corrected inputs.
- 2. Rule 62-212.400(5)(h) 5, F.A.C. requires the applicant to provide information relating to the air quality impact of, and the nature and extent of, all general commercial, residential, industrial and other growth which has occurred since August 7, 1977, in the area the facility or modification would affect. Please provide this information.
- 3. In addition to the modeling questions above, the USFWS sent the attached correspondence. Please address their concerns.
- 4. Please provide emissions data for SO<sub>2</sub> in lb/ton of 100% H<sub>2</sub>SO<sub>4</sub> for the last two years (monthly CEM averages) of operation for all the five Sulfuric Acid Plants (SAP's). In providing this data, please present it in a graphical representation against time. On the same graph, indicate the

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Mr. Mike Daigle December 26, 2001 Page 2 of 4

production rate for the plant (monthly averages) and indicate the turn-around date for all five SAP's on the time axis.

- 5. Indicate what modifications were done to each plant during the turn-around. If catalysts were screened or replaced, indicate which conversion passes were selected for catalyst screening and/or replacement. Indicate the amount of catalyst replaced, if any.
- 6. Please provide emissions data for acid mist in lb/ton of 100% H<sub>2</sub>SO<sub>4</sub> for the last two years of operation for all the five SAP's.
- 7. Please indicate the use for the additional sulfuric acid. Is the acid is being used to increase the actual production in the Phosphoric Acid plants or other downstream units? Please provide an accounting summary of the past and future sulfuric acid utilization for the facility.
- 8. Table 3-1 of the application states that the actual operating rate for all five SAP was 120.8 tons per hour. Please provide documentation to show that the actual operating rate for all five plants was in fact 120.8 tph.
- 9. Table 3-1 does not list the proposed operating rate in tph for each of the five plants. Please verify if the production increase for each plant is from 2900 tpd to 3400 tpd.
- 10. In corroborating the actual sulfur dioxide emissions from SAP 1, 2 and 3 as listed in Table 3-2 with the Department's ARMs database, their exists a discrepancy. Please submit the AOR's for the three plants for 1999 and 2000.
- 11. Please indicate the extent of work required in replacing the interpass absorber. Will there be a like-kind replacement. How long will it take to replace the interpass absorber?
- 12. The application alludes to the SO<sub>2</sub> concentration in the gas stream leaving the sulfur burner was in the range of 9.0-9.5 percent at the time the NSPS was adopted, but in recent years, the SO<sub>2</sub> concentration has been increased to 11.5-11.7 percent to optimize a plant capacity. Please indicate when the SO<sub>2</sub> concentration was increased to 11.5-11.7 percent for the five SAP's. What effect in terms of production of sulfuric acid and actual emissions of SO<sub>2</sub> did it have on the five SAP's when compared to the 9.0-9.5 percent SO<sub>2</sub> concentration.
- 13. The application alludes to the changes in the composition of the vanadium/sodium/potassium catalyst and in the physical shape of the catalyst; from a pellet (4 and 6 mm in diameter by 8-15 mm long) to a ring-type structure. Please indicate when these changes took place in the five SAP's. What effect in terms of production of sulfuric acid and actual emissions of SO<sub>2</sub> did it have on the five SAP's with this change.
- 14. Please provide cost analyses in \$/ton of SO<sub>2</sub> and acid mist removed by using ammonia scrubbing with double absorption plants.
- 15. Please provide the actual starting date (month) of the maintenance activities for each of the five SAP's. Also, indicate which tower replacements will be with the addition of heat recovery systems. The response to this can be submitted under a separate cover.
- 16. In making an evaluation as to whether a change can be considered "routine" maintenance, repair or replacement under the PSD program, EPA considers the factors of nature, extent, purpose, frequency, and cost, as well as any other relevant facts. Please provide the following

Mr. Mike Daigle
 December 26, 2001
 Page 3 of 4

information concerning the proposed schedule for equipment maintenance, upgrade and/or replacement:

#### <u>Nature</u>

- Whether major components of a facility are being modified or replaced; specifically, whether the units are of considerable size, function, or importance to the operation of the facility, considering the type of industry involved
- Whether the source itself has characterized the change as non-routine in any of its own documents
- Whether the change could be performed during full functioning of the facility or while it was in full working order
- Whether the materials, equipment and resources necessary to carry out the planned activity are already on site

#### Extent

- Whether an entire emissions unit will be replaced
- Whether the change will take a significant time to perform
- Whether the collection of activities, taken as a whole, constitute a non-routine effort, notwithstanding that individual elements could be routine
- Whether the change requires the addition of parts to existing equipment

#### Purpose

- Whether the purpose of the effort is to extend the useful life of the unit; similarly, whether the source proposes to replace the unit at the end of its useful life
- Whether the modification will keep the unit operating in its present condition, or whether it will allow enhanced operation (e.g., will it permit increased capacity, operating rate, utilization, or fuel adaptability)

#### Frequency

• Whether the change is performed frequently in a typical unit's life

#### Cost

- Whether the change will be costly, both in absolute terms and relative to the cost of replacing the unit
- Whether a significant amount of the cost of the change is included in the source's capital expenses, or whether the change can be paid for out of the operating budget (i.e., whether the costs are reasonably reflective of the costs originally projected during the source's or unit's design phase as necessary to maintain day-to-day operation of the source)

Any additional comments from EPA and the U.S. Fish and Wildlife Service will be forwarded to you after we receive them.

Mr. Mike Daigle December 26, 2001 Page 4 of 4

The Department will resume processing this application after receipt of the requested information. Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. A new certification statement by the authorized representative or responsible official must accompany any material changes to the application. Rule 62-4.055(1), F.A.C. now requires applicants to respond to requests for information within 90 days.

Please note that in accordance with Rule 62-4.055(1), "The applicant shall have **ninety days** after the Department mails a timely request for additional information to submit that information to the Department........ Failure of an applicant to provide the timely requested information by the applicable date **shall** result in denial of the application."

We will be happy to meet and discuss the details with you and your staff. Mr. Syed Arif, P.E. is responsible for the technical review of the application. He may be contacted at 850/921-9528. You may discuss the modeling requirements with Mr. Cleve Holladay at 850/921-8689.

Sincerely,

A.A. Linero, P.E. Administrator New Source Review Section

AAL/sa Enclosure

cc: G. Worley, EPA

J. Little, EPA J. Bunyak, NPS

B. Thomas, DEP-SWD

J. Koogler, Ph.D., P.E. Koogler & Associates



### U.S.FISH&WILDLIFE SERVICE AIR QUALITY BRANCH

P.O. BOX 25287, Denver, CO 80225-0287

Date: December 21, 2001

Telephone: (303) 969-2617

Fax: (303) 969-2822

To: Cleve Holladay

From: Ellen Porter

Subject: IMC Phosphates (PSD-FL-325)

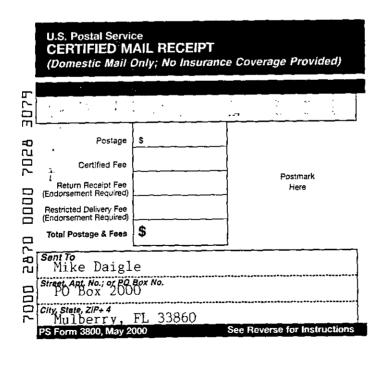
The Class I analyses for IMC Phosphates proposed modification of their sulfuric acid plants at the New Wales Plant are incomplete. IMC did not follow the Federal Land Managers AQRV Workgroup guidance (FLAG - in effect since spring 2001) or consult with the U.S. Fish and Wildlife Service on the project. IMC incorrectly used background visibility values that pre-date FLAG guidance and are no longer accepted. IMC should evaluate the project's contribution to haze at Breton according to the recommendations of FLAG, which can be found at:

#### http://www2.nature.nps.gov/ard/flagfree/index.htm

In addition, the U.S. Fish and Wildlife Service is now recommending that applicants, after consultation with FWS, perform a deposition analysis and compare predicted impacts to the deposition analysis thresholds. These thresholds are found on the FLAG website.

Thank you for giving us the opportunity to comment on this project.

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION O	N DELIVERY
Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.  Print your name and address on the reverse so that we can return the card to you.  Attach this card to the back of the mailpiece, or on the front if space permits.  1. Article Addressed to:  Mr. Mike Daigle General Manager	A. Received by (Please Print C.  C. Signature  D. Is delivery address different for the print of	Agent Addressee
IMC Phosphates MP Inc. P. O. Box 2000 Mulberry, FL 33860	3. Service Type  Certified Mail  Expri Registered  Retuing Insured Mail  C.O.I	rn Receipt for Merchandise D.
2. Article Number (Copy from service lebel) 7000 2870 0000 7028 3079	l	<del>-i</del>
PS Form 3811, July 1999 Domestic	urn Receipt	102595-99-M-1789





Marjory Stoneman Douglas Building 3900 Commonwealth Boulevard Tallahassee, Florida 32399-3000 December 3, 2001

David B. Struhs Secretary

Mr. Gregg Worley, Chief Air, Radiation Technology Branch Preconstruction/HAP Section U.S. EPA, Region 4 61 Forsyth Street Atlanta, Georgia 30303

RE: IMC Phosphates Company

New Wales Facility

DEP File No. 1050059-036-AC, PSD-FL-325

Dear Mr. Worley:

Enclosed for your review and comment is a PSD application submitted by IMC Phosphates Company for an increase in sulfuric acid production at their New Wales facility in Polk County, Florida.

Your comments may be forwarded to my attention at the letterhead address or faxed to the Bureau of Air Regulation at 850/922-6979. If you have any questions, please contact Syed Arif, review engineer, at 850/921-9528.

Sincerely,

Al Linero, P.E. Administrator

New Source Review Section

Pathy adams

AAL/pa

Enclosure

Cc: Syed Arif

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Marjory Stoneman Douglas Building 3900 Commonwealth Boulevard Tallahassee, Florida 32399-3000

David B. Struhs Secretary

December 3, 2001

Mr. John Bunyak, Chief Policy, Planning & Permit Review Branch NPS – Air Quality Division Post Office Box 25287 Denver, Colorado 80225

RE: IMC Phosphates Company

New Wales Facility

DEP File No. 1050059-036-AC, PSD-FL-325

Dear Mr. Bunyak:

Enclosed for your review and comment is a PSD application submitted by IMC Phosphates Company for an increase in sulfuric acid production at their New Wales facility in Polk County, Florida.

Your comments may be forwarded to my attention at the letterhead address or faxed to the Bureau of Air Regulation at 850/922-6979. If you have any questions, please contact Syed Arif, review engineer, at 850/921-9528.

Sincerely,

Fatty Adams

Al Linero, P.E.

Administrator

New Source Review Section

AAL/pa

Enclosure

Cc: Syed Arif

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Jeb Bush Governor Twin Towers Office Building 2600 Blair Stone Road Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

November 28, 2001

Mr. Gregg Worley, Chief Air Planning Branch U.S. EPA – Region IV 61 Forsyth Street Atlanta, Georgia 30303

Re: IMC Phosphates MP, Inc. - New Wales Plant

Sulfuric Acid Production Increase 1050059-036-AC, PSD-FL-325

Dear Mr. Worley:

Enclosed for your review and comments is a confidential letter submitted by Koogler & Associates on behalf of IMC Phosphates. IMC proposes to modify the five existing sulfuric acid plants over the next few years in order to increase the sulfuric acid production rates. The modifications are a combination of maintenance and replacement of some equipment along with upgrading of the converters. A schedule of equipment repairs/replacements is included in the enclosed confidential letter.

The Company has requested input from EPA in identifying the items that constitute routine repair and maintenance in order to distinguish them from items that constitute modification. The proposed project does not involve any changes to the manufacturing process.

The Company requests that the Department and EPA keep the integrity of the enclosed confidential letter and file the letter appropriately. The complete application for this project is being sent to you under a separate cover. We would appreciate your early review and determination. Your comments can be forwarded to my attention at the letterhead address or faxed to me at (850) 922-6979. If you have any questions, please contact Syed Arif at (850) 921-9528.

Sincerely,

A. A. Linero, P.E., Administrator

New Source Review Section

AAL/sa Enclosures

ec: S. Arif, BAR

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KA 124-01-03

November 26, 2001

RECEIVED

BUREAU OF AIR REGULATION

Mr. Syed Arif, P.E.
Florida Department of
Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject:

IMC Phosphates MP, Inc. (New Wales)

PSD Construction Permit Application Sulfuric Acid Production Increase

Dear Mr. Arif:

Enclosed is a disk containing the dispersion modeling output.

If you have any questions, please call me.

Very truly yours,

**KOOGLER & ASSOCIATES** 

Pradeep Raval

Par. encl.

c: C. Dave Turley, IMC



KA 124-01-03

November 20,2001

RECEIVED

NOV 21 2001

BUREAU OF AIR REGULATION

Mr. Syed Arif, P.E. Florida Department of Environmental Protection Twin Towers Office Building 2600 Blair Stone Road Tallahassee, FL 32399-2400

Subject:

IMC Phosphates MP, Inc (New Wales) PDS Construction Permit Application Sulphuric Acid Production Increase

Dear Mr. Arif;

With reference to our letter to you dated November 16, 2001, regarding the above captioned permit application, please find enclosed a check in the amount of \$7500.00 from the IMC Phosphates Company (the application fee) and the Responsible Official signature page (page 3) of the permit application.

The computer disc with the air quality model data referenced in our November 16, 2001 letter is being forwarded under separate cover.

If there are any questions regarding this matter, please call me at (352)377-5822.

Very truly yours,

KOOGLER & ASSOCIATES

ohn/B./Koogler, Ph.D., P.E.

JBK/eeh

cc: David Turley, IMC

**Enclosure** 

#### Owner/Authorized Representative or Responsible Official

1	Name and Title of Owner/Authorized Representative or Responsible Official: ke Daigle, General Manager				
2.	Owner/Authorized Representative or Responsible Official Mailing Address: Organization/Firm: IMC Phosphates MP Inc.				
	Street Address: P.O. Box 2000 City: Mulberry State: FL Zip Code: 33860				
3.	Owner/Authorized Representative or Responsible Official Telephone Numbers:				
	·				
4.					
	Telephone: (863) 428-2500 Fax: ( ) -  4. Owner/Authorized Representative or Responsible Official Statement:  I, the undersigned, am the owner or authorized representative*(check here [ ], if so) or the responsible official (check here [ X ], if so) of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.				
	Signature Date / /				
* /	ttach letter of authorization if not currently on file.				

#### **Professional Engineer Certification**

1.	Professional Engi Registration Num		B. Koogler, Ph.D., P 925	.E.		
2.	. Professional Engineer Mailing Address: Organization/Firm: Koogler & Associates					
	_	4014 NW 13th				
	City:	Gainesville	State: FL	Zip Code: <b>32609</b>		
3.	Professional Engineer Telephone Numbers:					
	Telephone: (352	2) 377 - 5822	Fax: (3	52) 377 - 7158		

DEP Form No. 62-210.900(1) - Form

Effective: 2/11/99 3