

KOUGLER & ASSOCIATES  
ENVIRONMENTAL SERVICES

4014 NW THIRTEENTH STREET  
GAINESVILLE, FLORIDA 32609  
352/377-5822 ■ FAX/377-7158

KA 124-97-03

March 5, 1998

**RECEIVED**

MAR 09 1998

**BUREAU OF  
AIR REGULATION**

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

Subject: IMC-Agrico Company (New Wales)  
Multifos Plant Production Increase  
DEP File No. 1050059-024-AC, PSD-FL-244

Dear Mr. Linero:

This is in response to your letter dated December 16, 1997, requesting additional information on the above referenced project. The responses are in the order of the questions raised by FDEP and the U.S. Fish & Wildlife Service (FWS).

1. A detailed description of the proposed emission control system is needed including control system flow rates (gas and liquid streams), pond water fluoride concentrations and temperatures, and the proposed SO<sub>2</sub> removal efficiency and cost effectiveness calculations. The additional information should be sufficiently detailed to allow a determination of achievable emission levels through mass transfer calculations. A thorough assessment of the cost effectiveness of the various SO<sub>2</sub> control options including a separate countercurrent scrubber vs. the proposed crossflow add-on should be done.

RESPONSE:

The proposed scrubber system arrangement has been revised after further discussions with the equipment manufacturer. IMC-Agrico proposes to include a counter-current scrubber, with a manufacturer guaranteed SO<sub>2</sub> control efficiency of 95 percent. Based on this level of control, the net SO<sub>2</sub> emissions increase from the proposed project will be less than significant. Therefore, the proposed project is no longer subject to PSD applicability for SO<sub>2</sub> (see attached calculations). Accordingly, please disregard the previously submitted information on BACT and air impact analysis for SO<sub>2</sub>. The available information on the proposed scrubber system is presented in Attachment 1.

2. Please explain why the SO<sub>2</sub> scrubbing system performance was not specified. SO<sub>2</sub> scrubbing is sufficiently advanced that the reagent and its performance can be specified prior to construction. Also explain the sulfurous acid/stripper system indicated on Drawing L5.

RESPONSE:

Details of the SO<sub>2</sub> scrubber are provided in Attachment 1. The scrubber performance information from the manufacturer is also included. Please note that the proposed project no longer includes a stripper. A revised drawing is included in Attachment 1.

3. Along with the Appendix D information to be submitted, please provide all SO<sub>2</sub> emission test results that have been obtained for this plant to date.

RESPONSE:

Only a single test has been conducted to determine the SO<sub>2</sub> emissions from the existing plant. Results of that test are presented in Attachment 2. Appendix D information is presented in Attachment 1.

4. NO<sub>x</sub> emissions based on AP-42 factors exceed the PSD significance level when No. 6 oil is used for 400 hours (Kiln: 4.1 TPY for No. 6; 33.4 TPY for No. 2; Dryer: 0.3 TPY for No. 6; 2.5 TPY for No. 2 = 40.3 TPY total). To resolve PSD-applicability concerns, EPA Method 7E emission tests should be performed while burning each of the fuels used and the results submitted along with Appendix D.

RESPONSE:

In response to FDEP's concerns regarding NO<sub>x</sub>, IMC-Agrico will maintain an annual usage cap on No. 6 fuel oil (back-up fuel), in order to avoid NO<sub>x</sub> PSD applicability. The emissions estimates are based on AP-42 factors which have been similarly relied upon by FDEP for numerous projects. Updated NO<sub>x</sub> emissions estimates are presented in Attachment 3. Although not typically required by FDEP for other synthetically limited sources, IMC-Agrico can conduct initial performance tests for NO<sub>x</sub> to provide reasonable assurance on the reliance on AP-42 factors for synthetic limitation.

5. FWS question on the net emissions increases from the facility: For example, will there be a net increase in the phosphoric acid production, or other plants, as a result of the proposed project?

RESPONSE:

As addressed in the application, no increase in phosphoric acid production is required for the proposed project. Some of the excess phosphoric acid normally shipped offsite will be supplied to the third kiln. As a result, the other chemical plants will be unaffected by the proposed project.

**6. FWS comparison of fluoride control efficiencies between the proposed project and Farmland's fertilizer plant.**

RESPONSE:

The FWS is suggesting that IMC-Agrico's scrubber for the proposed project meet the level of fluoride control that was proposed by Farmland for the fertilizer plant in 1992. Several dissimilarities between the plants, which affect the evaluation of control technology, should be noted.

The two plants being compared manufacture totally different products. Farmland's unit produces fertilizer while IMC-Agrico's unit produces animal feed ingredients. The control of potential emissions, in the case of the Farmland project, is based on the use of a series of scrubbers to recover process materials. Farmland proposed a 99 percent "system removal efficiency" based on fluorides going in to the plant and the fluorides going out of the stack. Also, it should be noted that the regulatory requirements pertaining to allowable fluoride emissions are dramatically different for the two plants. Under FDEP rules, the respective applicable fluorides emissions limits for a DAP plant and the proposed project are 0.06 lb/ton P205 and 0.37 lb/ton P205.

**7. FWS statement that the proposed project will not significantly affect the air quality or the air quality related values at Chassahowitzka Wilderness.**

RESPONSE:

We concur with the above FWS conclusion regarding the proposed project.

ADDITIONAL ISSUES

- A. IMC-Agrico proposes caustic as an alternate raw material to soda ash. This would allow flexibility in the operation of the plant to adjust to prevailing materials market and availability. It is expected that the use of liquid caustic will result in a decrease in particulate matter emissions over the current handling of soda ash (powder).
- B. Based on past visible emissions data for the Multifos plant stack, IMC-Agrico requests FDEP to include a permit limit for PM emissions without a limit on visible emissions. Please see the correspondence presented in Attachment 4. If necessary, IMC-Agrico is willing to conduct additional concurrent PM and VE testing upon completion of construction. A test protocol can be worked out to the satisfaction of FDEP.

Mr. A. A. Linero  
Florida Department of  
Environmental Protection

March 5, 1998  
Page 4

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

Very truly yours,

KOGLER & ASSOCIATES



Steven C. Cullen, P.E.

SCC:par  
encl.

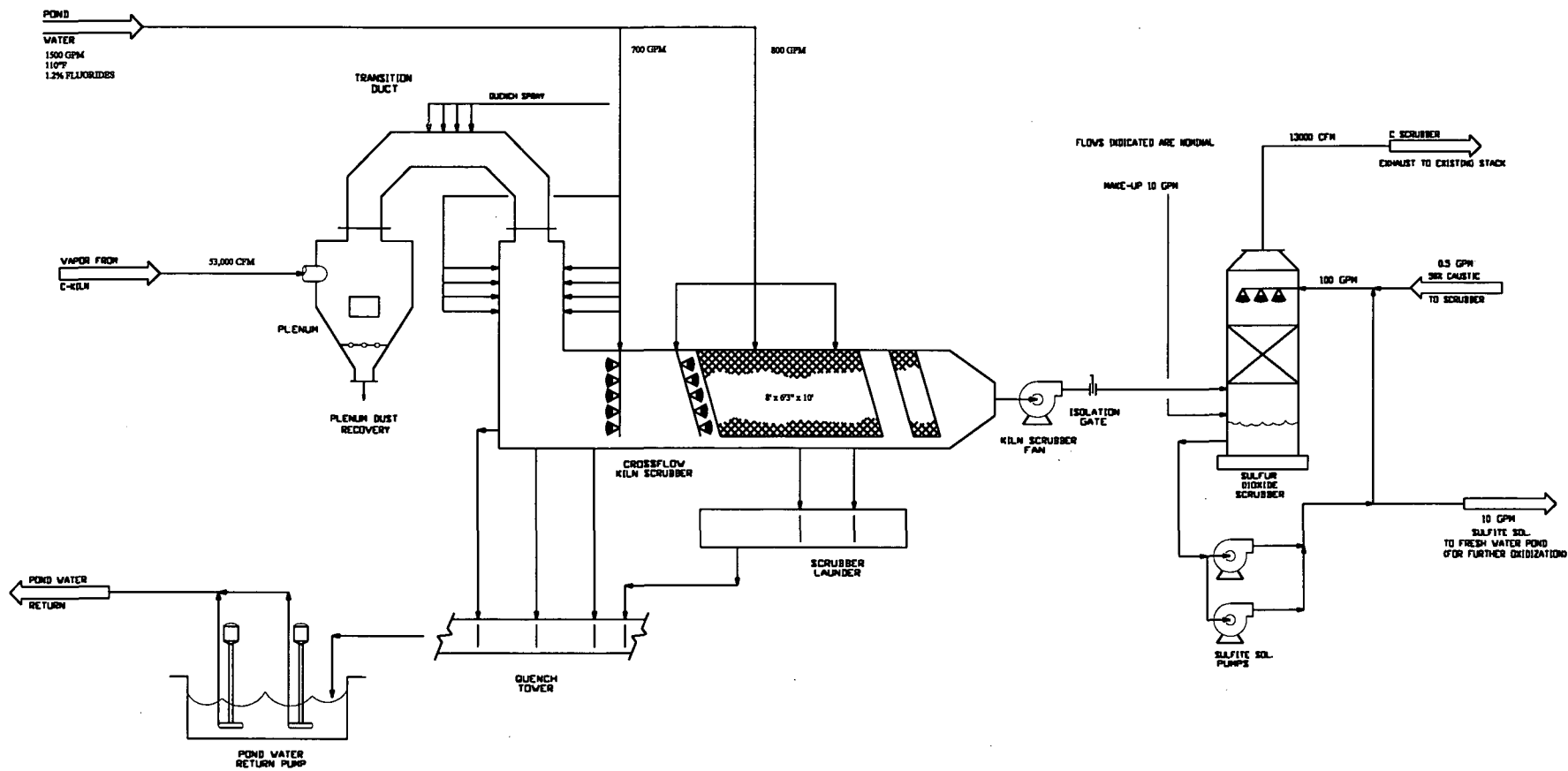
c: C. Dave Turley, IMC-Agrico

cc: J. Reynolds, BAR  
Polk CO  
SWD  
Cleve Holladay, BAR  
EPA  
NPS

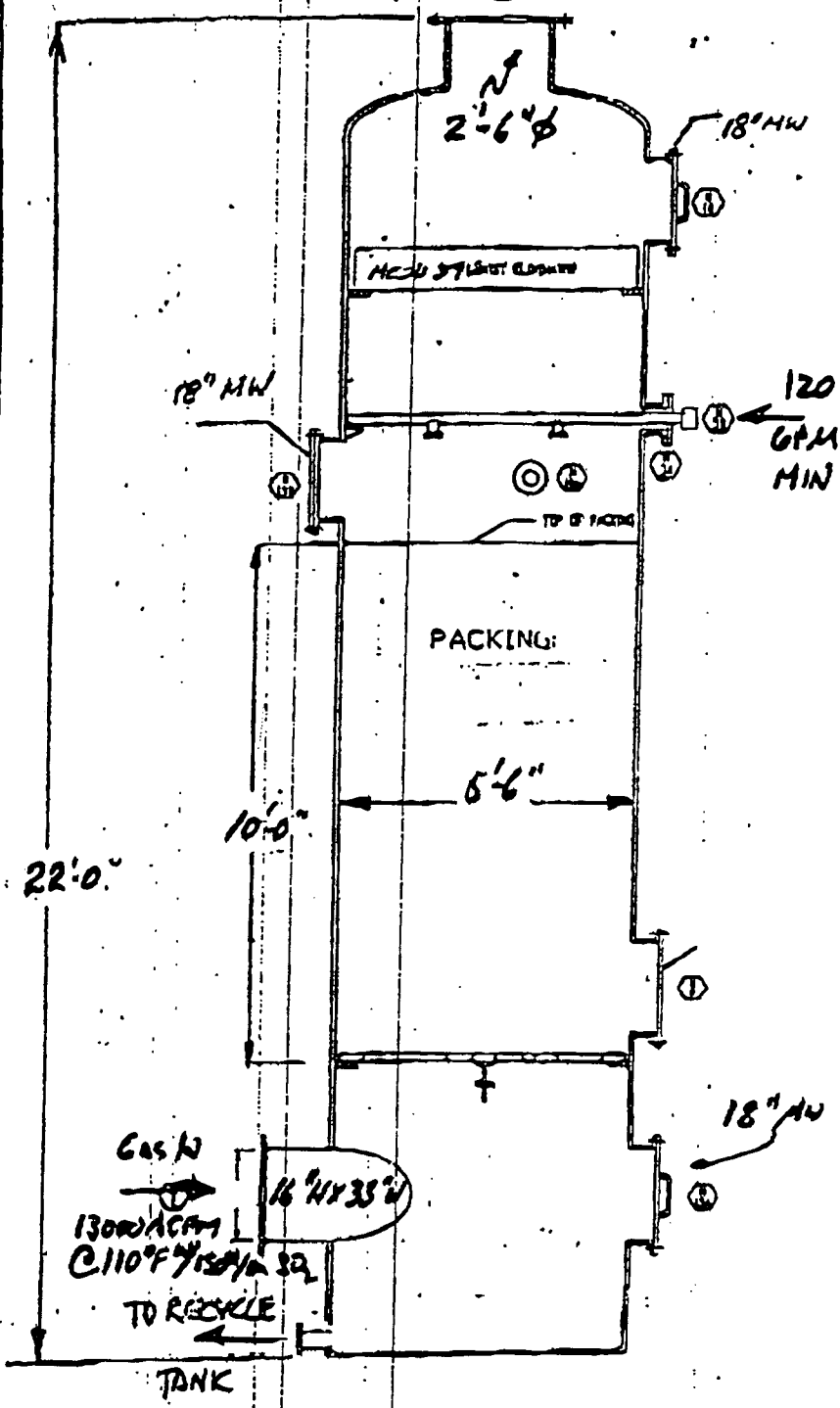
**ATTACHMENT 1**

**SCRUBBER INFORMATION**

PREPARED: CDT	TITLE: PROPOSED MULTIFIDS KILN C	IMC-AGRIGD CO.
DATE: 11/13/97	SCRUBBER FLOW DIAGRAM	LOCATION: NEW WALES
REVISED: 3/4/98		FILE: KILN02
		SCALE: NONE
		DRAWING NO: L5



MARK	QUANTITY	SIZE	DESCRIPTION
1			1/2" DIA. 1/2" THICK
2			1/2" DIA. 1/2" THICK
3			1/2" DIA. 1/2" THICK
4			1/2" DIA. 1/2" THICK
5			1/2" DIA. 1/2" THICK
6			1/2" DIA. 1/2" THICK
7			1/2" DIA. 1/2" THICK
8			1/2" DIA. 1/2" THICK
9			1/2" DIA. 1/2" THICK
10			1/2" DIA. 1/2" THICK
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12			1/2" DIA. 1/2" THICK
13			1/2" DIA. 1/2" THICK
14			1/2" DIA. 1/2" THICK
15			1/2" DIA. 1/2" THICK
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29			1/2" DIA. 1/2" THICK
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31			1/2" DIA. 1/2" THICK
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34			1/2" DIA. 1/2" THICK
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46			1/2" DIA. 1/2" THICK
47			1/2" DIA. 1/2" THICK
48			1/2" DIA. 1/2" THICK
49			1/2" DIA. 1/2" THICK
50			1/2" DIA. 1/2" THICK



MARK	QUANTITY	SIZE	DESCRIPTION
1			1/2" DIA. 1/2" THICK
2			1/2" DIA. 1/2" THICK
3			1/2" DIA. 1/2" THICK
4			1/2" DIA. 1/2" THICK
5			1/2" DIA. 1/2" THICK
6			1/2" DIA. 1/2" THICK

- NOTES
1. This drawing is not to scale.
  2. This drawing is for sales purposes only. No mechanical design is shown.
  3. Refer to Proposal for flow, materials of construction, etc.
  4. Not shown Pump and fan. Refer to Proposal for details.
  5. All nozzles are Flanged 150# rating, except where noted.
  6. Pipe hangers are included in scope of supply, but are not shown.

OPTION NO: SB 060000

REV.	DATE	BY	DESCRIPTION	CHECK	APP'D.

**D.R. TECHNOLOGY INC.**  
73 SOUTH STREET FRESHFIELD, N.J. 07728

**PACKED COLUMN**  
INC 001  
872352 RD

This drawing is the property of D.R. Technology Inc. and is not to be used for any other purpose without the written consent of D.R. Technology Inc. All rights reserved.

BEST AVAILABLE COPY

IMC/SO2 Absorber  
Mulberry, Florida

February 19, 1998  
Reference: B723 Rev. 1

EQUIPMENT TO BE SUPPLIED BY D. R. TECHNOLOGY, INC.  
(Please Refer To Drawing B723-S2-R0 Attached)

ITEM 1  
ONE (1)

D. R. Technology packed bed absorber column rated to treat 13,000 ACFM of SO<sub>2</sub> laden air with dilute caustic soda solution and remove 95 percent of 150 Lbs./Hr. entering. Vessel will be constructed completely of fiberglass reinforced vinyl ester. Unit includes a polypropylene mesh style mist eliminator mounted at its top. Unit contains a 10'-0" deep bed of 3 1/2 inch high efficiency polypropylene packing media over mounted by a spray style liquid distributor.

PROCESS CONDITIONS

Gas Flow Into Unit, ACFM	-	13,000
Temperature OF	-	110
SO <sub>2</sub> In Gas, Lb./Hr.	-	150
Required Caustic Solution Gal./Hr. Addition As 50 % Sol.	-	30
Once Through Flow Over Packing, GPM	-	120 @ 3 PSIG
Gas Side Pressure Drop, In. W. C.	-	5



ATTACHMENT 2

RESULTS OF SULFUR DIOXIDE EMISSIONS TEST

**Run 1      Calculations and Results**

Facility: New Wales  
Plant: Multifos  
Company ID: 1100  
FDEP AIRS & Pt. ID: 1050059 & 036  
Test Team: DC,RS

Date: 9/19/97 mm/dd/yy  
Start Time: 1320      End Time: 1351

Standard Meter Volume Vms: 14.99 dscf

Average Stack Velocity: 49.69 fps

Stack Gas Volume: 47397 ACFM

Stack Gas Dry Volume: 41826 DSCFM

Isokinetic Variation: 103.70 %

Isokinetics Adjusted For Bws>Saturation: 100.76 %

Vlc calculated for Saturated Conditions: 22.83 ml H2O

**Emission Calculations**

Sulfur Dioxide      Total mg: 804.00 mg  
296.40 lb/hr  
7113.52 lb/day

## Run 1 Data

Facility: New Wales  
 Plant: Multifos  
 Company ID: 1100  
 FDEP AIRS & Pt. ID: 1050059 & 036  
 Test Team: DC,RS

Date: 9/19/97 mm/dd/yy  
 Start Time: 1320 End Time: 1351

Number of Traverse Points: 6  
 Dwell Time/Point: 5 min.  
 Total Test Time: 30 min.

Stack Diameter: 54 inches  
 Stack Area: 15.90 sq. ft.

Molecular Weight Dry Md: 28.969  
 Volume of Water Vapor Condensed: 28 ml  
 Weight of Water Collected in Silica Gel: 4.8 gram  
 Moisture Volume Fraction Bwo: 0.0934  
 Moisture Volume Saturated Bwo: 0.0669  
 Moisture Percent Saturation: 140  
 Moisture Used for Calculations: 0.0669  
 Stack Molecular Weight Ms: 28.235

Barometric Pressure Pb: 30.05 in Hg  
 Stack Static Pressure Pv: 0.45 in H2O  
 Stack Pressure Ps: 30.083 in Hg  
 Average Meter Delta H: 0.790 in H2O  
 Meter Pressure Pm: 30.108 in Hg  
 Console Number: 3187  
 Meter Delta Ha: 1.752  
 Meter Correction Factor: 0.9979

Average Meter Temperature: 90.2 deg. F  
 Average Stack Temperature: 101.3 deg. F 38.5 deg C

Average Square Root Delta P: 0.851  
 Meter Volume Vm: 15.57 cu. ft.  
 Probe Length/Liner: 5' glass  
 Cp: 0.84  
 Nozzle Ident.: 0.186  
 Nozzle Diameter Dn: 0.186 in.  
 Impinger Set Number: S-P3  
 Average Computer K: 1.0924

Run 1 Data Sheet

Facility: New Wales  
 Plant: Multifos  
 Team (CB/PR): DC,RS

Company ID: 1100  
 FDEP AIRS & Pt. ID: 1050059 & 036

Date: 9/19/97  
 Dwell Time: 5 min.  
 Traverse Points: 6  
 Stack Diameter: 54 inches  
 Est % Saturation: 100 %  
 Stack Static Pressure: 0.45 in H2O  
 Barometric Pressure: 30.05 in Hg  
 Dry Molecular Weight: 28.969

Meter Box Number: 3187  
 Meter Delta Ha (in. H2O): 1.752  
 Meter Correction Factor: 0.9979  
 Nozzle Ident.: 0.186  
 Nozzle Diameter Dn: 0.186  
 Impinger Set Number: S-P3  
 Probe length/Liner: 5' glass  
 Filter Set Number: 1

Pitot Check  
 pos: 5.2 in H2O  
 neg: 4.6 in H2O  
 Leak Check  
 cfm: 0.000 cfm  
 vac: 15 in Hg

Time Start: 1320

Point	Time	Meter Volume	Delta P	Calc'd Delta H	Actual Delta H	Stack Temp	Meter In Temp	Meter Out Temp	Impinger Temp	Pump Vac
1	0.0	180.759	0.77	0.842	0.84	101	89	89	65	4
2	5.0	183.4	0.73	0.798	0.8	101	89	88	55	4
3	10.0	186.01	0.7	0.764	0.76	101	91	88	55	4
4	15.0	188.58	0.67	0.733	0.73	102	93	88	58	4
5	20.0	191.07	0.73	0.796	0.8	102	95	88	59	4
6	25.0	193.7	0.75	0.819	0.81	101	96	88	62	4
End	30.0	196.324								
Average						101.3	90.2		59.0	
0.77 Max									65	4
Min									55	
Range									32-68	

Time End: 1351

Pitot Check Min Value  
 pos: 0.77 in H2O  
 neg: 0.77 in H2O  
 Leak Check  
 cfm: 0.000 <0.020 cfm  
 vac: 15 4 in Hg

**IMC-Agrico Company****Moisture Data Sheet**Facility New Wales

Date : 9/19/97

Plant Multifos

Run 1

---

Impinger Set Number:	S-P3			
Impinger Number:	1	2	3	4
Final (grams/mls):	219	205	104	319.4
Initial (grams/mls):	200	200	100	314.6
Difference (grams/mls):	19	5	4	4.8
Total Moisture Collected:			28 mls	4.8 gram

---

**Sulfur Dioxide**

Laboratory mg 804.00

Field Data Sheet

Run Number: 1

Facility: New Wales  
 Plant: M-Pias  
 Test Team: DC, RS

Company ID: 1100  
 FDEP AIRS & Pt. ID: 1050059-026

Date: 9/19/97  
 Traverse Points: 6  
 Stack Diameter: 54 inches  
 Dwell Time: 5 min.  
 Est % Saturation: 100 %  
 Stack Static Pressure: .45 in H2O  
 Barometric Pressure: 30.05 in Hg  
 Dry Molecular Weight: 28.969

Meter Box Number: 3127  
 Meter Delta Ha (in. H2O): 1.752  
 Meter Correction Factor: 1.9979  
 Nozzle Identification: .126  
 Nozzle Diameter Dn: .186  
 Impinger Set Number: 5-3  
 Probe length/Liner: 5'6  
 Filter Set Number: 1

Pitot Check  
 pos: 5.2 in H2O  
 neg: 4.6 in H2O  
 Leak Check  
 cfm: .000  
 vac: 15 in Hg

Time Start: 1320

Point	Time	Meter Volume	Delta P	Actual Delta H	Stack Temp	Probe Temp	Hot Box Temp.	Meter In Temp	Meter Out Temp	Impinger Temp	Pump Vac
1	0	180.759	.77	.84	101	NA	NA	89	89	65	4
2	5	183.40	.73	.80	101			89	88	55	4
3	10	186.01	.70	.76	101			91	88	55	4
4	15	188.58	.67	.73	102			93	88	58	4
5	20	191.07	.73	.80	102			95	88	59	4
6	25	193.70	.75	.81	101			96	88	62	4
7	30	196.324									
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
End											

Time End: 1351

Pitot Check  
 pos:      in H2O  
 neg:      in H2O

Leak Check  
 cfm: .000  
 vac: 15 in Hg

### ATTACHMENT 3

#### UPDATED SO<sub>2</sub> AND NO<sub>x</sub> EMISSIONS ESTIMATES

##### SULFUR DIOXIDE EMISSIONS

SO <sub>2</sub> into scrubber	=	150 lbs/hr (based on stack test)
SO <sub>2</sub> control	=	95 percent (based on manufacturer guarantee)
SO <sub>2</sub> emitted	=	150 lbs/hr x (1-0.95)
	=	7.5 lbs/hr
	=	x 8760 hrs/yr x ton/2000 lbs
	=	32.9 tpy

The estimated SO<sub>2</sub> emission rate is less than the PSD significant level of 40 tpy.

##### NITROGEN OXIDES EMISSIONS

###### KILN:

#6 Fuel Oil	=	56 MMBtu/hr x gal/150,000 Btu
	=	373 gal/hr, or 0.373 E3 gph
#6 Oil/yr	=	110,000 gal/yr, or 110 E3 gpy
Hrs/yr, at max. rate	=	110,000 gpy / 373 gph
	=	295 hrs/yr
NO <sub>x</sub> / yr	=	110 E3 gpy x 55 lb/E3 gal x ton/2000 lbs
	=	3.0 tpy
#2 Fuel Oil NO <sub>x</sub>	=	0.4 E3 gph x 20 lb/E3 gal
	=	8.0 lbs/hr
	=	x (8760 - 295) hrs/yr x ton/2000 lbs
	=	33.9 tpy

As previously submitted for the dryer, with No. 6 fuel oil used for 400 hours per year,

###### DRYER:

#6 Fuel Oil NO <sub>x</sub>	=	11.2 E3 gpy x 55 lb/E3 gal x ton/2000 lbs
	=	0.3 tpy
#2 Fuel Oil NO <sub>x</sub>	=	0.03 E3 gph x 20 lb/E3 gal
	=	0.6 lb/hr
	=	x (8760 - 400) hrs/yr
	=	2.5 tpy

The combined total NOx emissions can be estimated as follows:

$$\begin{array}{rcl} \text{Total NOx} & = & 3.0 \text{ TPY (Kiln, No. 6 fuel oil)} \\ & & + 33.9 \text{ TPY (Kiln, No. 2 fuel oil)} \\ & & + 0.3 \text{ TPY (Dryer, No. 6 fuel oil)} \\ & & + \underline{2.5} \text{ TPY (Dryer, No. 2 fuel oil)} \\ & = & 39.7 \text{ TPY total} \end{array}$$

The estimated NOx emission rate is less than the PSD significant level of 40 tpy.



**ATTACHMENT 4**

**CORRESPONDENCE REGARDING VISIBLE EMISSIONS**



FERTILIZER, INC.

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

RECEIVED BY

C. D. TURLEY

JAN 21 1992

COPIES \_\_\_\_\_  
ROUTE TO \_\_\_\_\_  
\_\_\_\_\_

January 21, 1992

Mr. J. Harry Kerns, P.E.  
District Air Engineer  
Florida Department of Environmental  
Regulation  
4520 Oak Fair Boulevard  
Tampa, Florida 33610-7347

RE: DER File No. AO53-206083  
(Renewal of AO53-127484)  
Multifos Production

Dear Mr. Kerns:

In response to your letter of January 14, 1992, IMC Fertilizer, Inc., New Wales Operations still wishes to have the Department establish a higher opacity standard based on 17-2.610(2)(a)3.

The semiannual compliance tests clearly demonstrate our ability to meet the particulate limits stipulated in the Operations permit. It is also evident from our corresponding VE data, that the original request for an alternate 45% opacity would be inadequate. New Wales has no logical answer as to why this particular facility appears to have a unique light scattering capability that varies without direct correlation to particulate loading. Although we have given 15 days advance notice to the Department prior to compliance testing, we have been remiss in requesting their presence to verify testing as stipulated in Mr. Fancy's letter of November 14, 1986 (copy attached). However, the New Wales personnel are certified VE readers.

The following is a tabulation of all the compliance tests since the Department's letter of November 14, 1986. Additionally, a qualitative attempt to correlate the opacity and mass emissions of this source is included as a graph and a table. This should be considered as a representation of the trend in this stack. This correlation has been previously submitted by IMC Fertilizer. Based on the graph, we believe that an alternative opacity standard of 60% is indicated.

Mr. J. Harry Kerns, P.E.  
January 21, 1992  
Page Two

<u>Test Date</u>	<u>Plant Rate TPH</u>	<u>Particulate Lbs./Hour</u>	<u>% VE</u>
02/87	17.4	12.78	15
10/87	21.8	12.63	14
03/88	16.5	17.63	45
10/88	25.0	12.13	35
02/89	25.0	18.02	56
08/89	19.5	14.42	58
03/90	24.5	20.16	42
10/90	20.0	17.85	73
04/91	21.0	22.61	47
08/91	22.0	5.37	31

It is apparent from the data that VE relief is required or should be waived.  
Please advise us how to proceed if this data or request is insufficient.

Sincerely,



J. M. Baretincic  
Director  
Environmental Services

JMB:lmr  
063/#9  
Attachments

cc: J. A. Brafford  
E. M. Newberg  
W. C. Thomas, P.E. - DER

# MultiFos

04/11/91

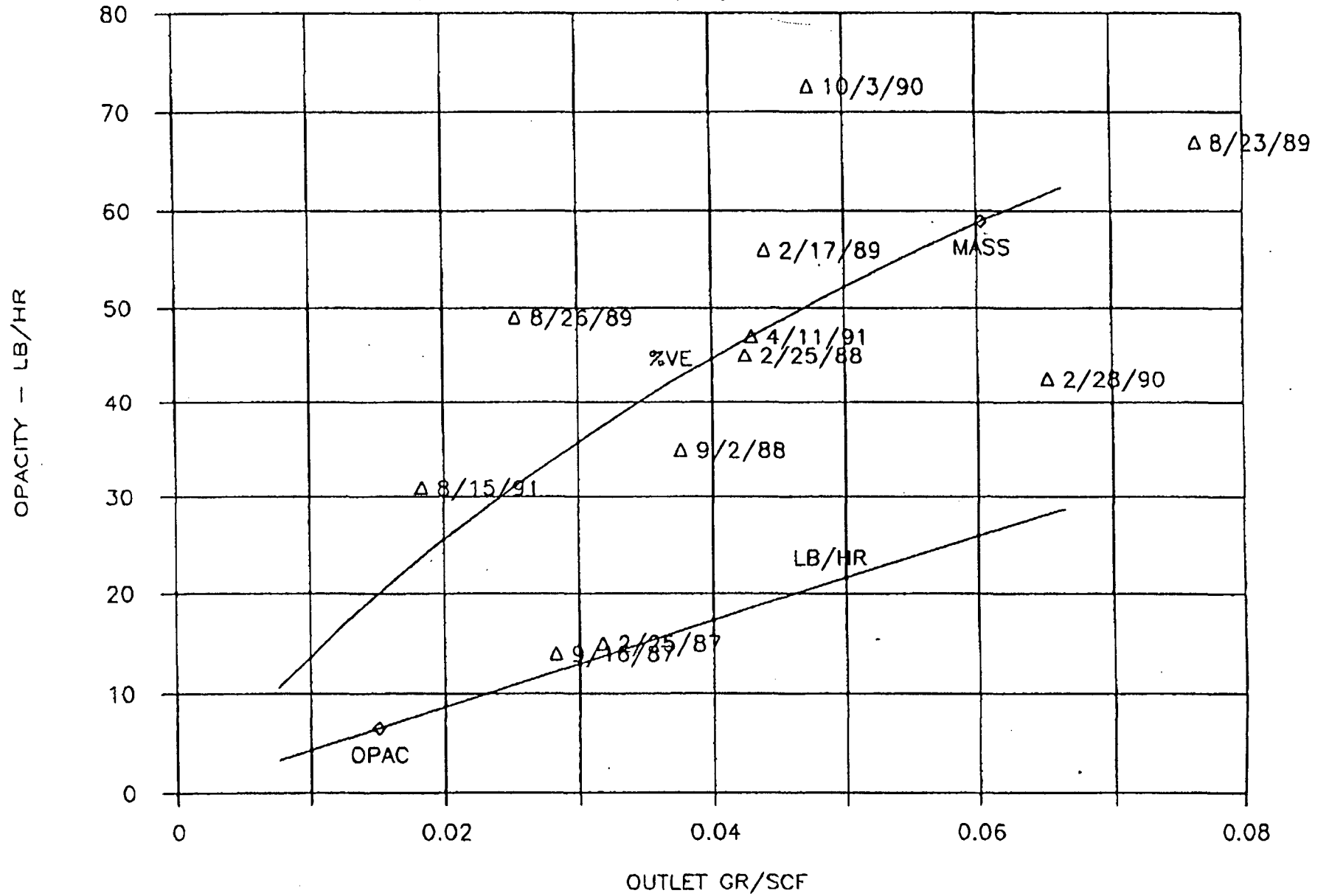


TABLE  
OPACITY &  
EFFICIENCY  
ESTIMATES  
MultiFos  
04/11/91

TEST: 50449 scfm  
0.0430 gr/scf  
18.58 lb/hr  
47.0 %VE

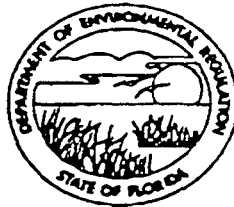
54 dia L  
Estimated Inlet  
0.2855 gr/scf  
1.3 Density

Resulting EFF  
CALC 84.9%  
MIN: OPAC 94.7%  
MASS 78.9%

SIZE RANGE	mean dia	POLYC D	RAYM wt dist	INLET lb/hr	0.46446 gr/scf	=Kf CALC	3.780 EXTN COEF	=Sfi CUM	FINAL lb/hr	8.777 gr/scf	=Sfo CUM
Dl-Du	D	EFF	V%	PMRi	Gin	POP RN	Q	OPAC in	PMRo	Gout	out
0.00-0.10	0.0794	0.0100	0.0015	0.19	0.00043	0.262	1.058	1.0	0.183	0.00042	0.95
0.10-0.13	0.1169	0.0300	0.0025	0.31	0.00071	0.137	1.559	2.5	0.299	0.00069	2.47
0.13-0.16	0.1465	0.0800	0.0040	0.49	0.00114	0.111	1.954	5.0	0.454	0.00105	4.74
0.16-0.20	0.1822	0.1200	0.0080	0.99	0.00228	0.116	2.429	9.7	0.869	0.00201	8.94
0.20-0.25	0.2277	0.2000	0.0140	1.73	0.00400	0.104	3.037	17.5	1.382	0.00320	15.24
0.25-0.32	0.2892	0.3100	0.0240	2.96	0.00685	0.087	3.856	29.2	2.044	0.00473	23.77
0.32-0.40	0.3644	0.4200	0.0360	4.44	0.01028	0.065	4.000	41.5	2.577	0.00596	31.71
0.40-0.50	0.4555	0.5600	0.0500	6.17	0.01427	0.046	4.000	52.6	2.716	0.00628	37.76
0.50-0.64	0.5785	0.6800	0.0700	8.64	0.01998	0.032	4.000	62.4	2.765	0.00639	42.22
0.64-0.79	0.7228	0.8000	0.0800	9.87	0.02284	0.019	4.000	69.6	1.975	0.00457	44.63
0.79-1.00	0.9072	0.8700	0.0900	11.11	0.02569	0.011	4.000	74.9	1.444	0.00334	45.98
1.00-1.26	1.1448	0.9250	0.1100	13.58	0.03140	0.006	3.710	78.8	1.018	0.00236	46.67
1.26-1.59	1.4439	0.9620	0.1050	12.96	0.02997	0.003	3.112	81.0	0.493	0.00114	46.89
1.59-2.00	1.8181	0.9820	0.1194	14.74	0.03408	0.002	2.364	82.4	0.265	0.00061	46.96
2.00-2.52	2.2895	0.9940	0.0887	10.95	0.02532	0.001	2.000	83.0	0.066	0.00015	46.98
2.52-3.17	2.8817	0.9968	0.0615	7.59	0.01756	0.000	2.000	83.4	0.024	0.00006	46.98
3.17-4.00	3.6324	0.9988	0.0417	5.15	0.01190	0.000	2.000	83.6	0.006	0.00001	46.98
4.00-5.04	4.5790	0.9996	0.0249	3.07	0.00711	0.000	2.000	83.6	0.001	0.00000	46.98
5.04-6.35	5.7694	0.9999	0.0122	1.51	0.00348	0.000	2.000	83.7	0.000	0.00000	46.98
6.35-8.00	7.2686	1.0000	0.0065	0.80	0.00186	0.000	2.000	83.7	0.000	0.00000	46.98
8.00-10.08	9.1581	1.0000	0.0052	0.64	0.00148	0.000	2.000	83.7	0.000	0.00000	46.98
10.08-12.70	11.5387	1.0000	0.0040	0.49	0.00114	0.000	2.000	83.7	0.000	0.00000	46.98
12.70-16.00	14.5373	1.0000	0.0065	0.80	0.00186	0.000	2.000	83.7	0.000	0.00000	46.98
16.00-20.16	18.3162	1.0000	0.0028	0.35	0.00080	0.000	2.000	83.7	0.000	0.00000	46.98
20.16-25.40	23.0774	1.0000	0.0019	0.23	0.00054	0.000	2.000	83.7	0.000	0.00000	46.98
25.40-32.00	29.0745	1.0000	0.0037	0.46	0.00106	0.000	2.000	83.7	0.000	0.00000	46.98
32.00-40.30	36.6203	1.0000	0.0037	0.46	0.00106	0.000	2.000	83.7	0.000	0.00000	46.98
40.30-50.80	46.1472	1.0000	0.0075	0.93	0.00214	0.000	2.000	83.7	0.000	0.00000	46.98
50.80-64.00	58.1491	1.0000	0.0148	1.83	0.00422	0.000	2.000	83.7	0.000	0.00000	46.98

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION

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



808 GRAHAM  
GOVERNOR

RECEIVED BY  
J. M. BARETINCIC  
SECRETARY

November 14, 1986

NOV 20 1986

Mr. J. M. Baretincic, Manager  
Environmental Services and Quality Control  
International Minerals & Chemical Corporation  
New Wales Operations  
P. O. Box 1035  
Mulberry, Florida 33860

Dear Mr. Baretincic:

Mr. W. C. Thomas has forwarded your September 15, 1986, letter to the Bureau of Air Quality Management. We understand that two of your existing plants, Multifos and AFI, are unable to consistently comply with the visible emissions standard while the plants and control equipment are being properly operated. You are requesting relief from the general visible emissions standard pursuant to Rule 17-2.610(2)(a)1., FAC. Relief from the visible emissions standard is available if the plants comply with the particulate matter standards, the plants and control equipment are operated and maintained properly, and neither the plants nor controls are capable of being adjusted to meet the visible emissions standard.

We also acknowledge receipt of the test results on these plants that show excess visible emissions when the plants were being operated in compliance with the particulate matter standards. The department will need to study the plants and control equipment operations along with the emissions data before we can make a decision on your request. Historical data that may help the department resolve this matter are all test results of simultaneous particulate matter and visible emissions tests (including those that complied with both standards) along with the plant and control equipment parameters that existed during these tests. Also, several simultaneous tests that are observed by department personnel will be needed before your request can be evaluated. These tests need to be coordinated with Mr. Thomas. We recommend you contact Mr. Thomas and agree on a procedure to coordinate the tests and establish what data is needed to evaluate your request.

All data on these plants should be submitted to Mr. Thomas and a copy sent to the Bureau. He will evaluate the data, with

Mr. J. M. Baretincic  
Page Two  
November 14, 1986

the Bureau's assistance, and render a decision on your request. If relief is approved, the permits for these sources will be revised.

If you have any questions on this matter, please call Mr. Thomas or write to me at the letterhead address.

Sincerely,



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

CHF/WH/ks

cc: Mr. W.C. Thomas



IN REPLY REFER TO:

# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

1875 Century Boulevard  
Atlanta, Georgia 30345

January 7, 1998

Mr. C. H. Fancy  
Chief, Bureau of Air Regulation  
Department of Environmental Regulation  
Twin Towers Office Building  
2600 Blair Stone Road, MS 48  
Tallahassee, Florida 32399-2400

Dear Mr. Fancy:

Our Air Quality Branch has reviewed the Prevention of Significant Deterioration Application for the new kiln at IMC-Agrico Company's Multifos Plant in Polk County. The plant is located 102 km southeast of Chassahowitzka Wilderness, a Class I air quality area, administered by the Fish and Wildlife Service. The technical review comments from our Air Quality Branch are enclosed. In addition, we are enclosing the "Interim Visibility Modeling Guidance for Sources Locating or Expanding Near Chassahowitzka Wilderness, Florida." Please provide this document to future PSD applicants. Our Air Quality Branch is compiling a more detailed and comprehensive document addressing visibility analyses that will be available in early 1998.

Thank you for giving us the opportunity to comment on this permit application. We appreciate your cooperation in notifying us of proposed projects with the potential to impact the air quality and related resources of our Class I air quality areas. If you have any questions, please contact Ms. Ellen Porter of our Air Quality Branch in Denver at 303/969-2617.

Sincerely yours,

*for* Sam D. Hamilton  
Regional Director

Enclosures

cc: J. Reynolds, BAR  
Koogler & Assoc  
Polk Co.  
JWD  
Cleve Holladay, BAR

**RECEIVED**

JAN 12 1998

**BUREAU OF  
AIR REGULATION**



**Technical Review of Prevention of Significant Deterioration Permit Application  
for a Rotary Kiln at IMC-Agrico Company's Multifos Plant  
Polk County, Florida**

by

**Air Quality Branch, Fish and Wildlife Service – Denver  
December 29, 1997**

IMC-Agrico Company is proposing to install an additional rotary kiln at its New Wales phosphate chemical fertilizer manufacturing facility near Mulberry, Florida (Polk County). The kiln will calcine phosphate rock, soda ash, and phosphoric acid at high temperatures to produce an animal feed supplement. There are two existing kilns at the facility and the addition of the new kiln will significantly increase the production of the Multifos Plant (from a 30 ton per hour (tph) raw material feed rate to 55 tph raw material feed rate). The plant is located 102 km southeast of Chassahowitzka Wilderness, a Class I air quality area administered by the U.S. Fish and Wildlife Service. The project will result in significant increases in emissions of fluoride (F), fine particulate matter (PM-10), and sulfur dioxide (SO<sub>2</sub>). Emissions (in tons per year – TPY) are summarized below.

<b>POLLUTANT</b>	<b>EMISSIONS INCREASE (TPY)</b>
SO <sub>2</sub>	185
PM-10	124
F	15.3

We do not expect this project to significantly affect air quality or air quality related values at Chassahowitzka Wilderness. However, we have the following questions and concerns regarding the project.

**Net Emissions Increases Calculations**

IMC has included in its calculations the increases in emissions that would occur from the existing dryer due to its increased utilization to feed the new kiln. However, IMC has not considered the effect of the proposed project upon other existing emission units at the IMC facility. For example, the new kiln would require the increased production of phosphoric acid, resulting in increased fluoride emissions. In addition, production of phosphoric acid typically requires sulfuric acid and phosphate rock. Therefore, the SO<sub>2</sub> and PM-10 emissions that result from production and use of these substances at IMC should be included. For example, the additional 83,220 tons per year (TPY) of phosphoric acid required for the new kiln would also require the production of almost 100,000 TPY of sulfuric acid. If SO<sub>2</sub> emissions are limited to 4.0 lb/ton (New Source Performance Standard), the resulting SO<sub>2</sub> emissions would approach 200 TPY.

### **Best Available Control Technology (BACT) Analysis**

IMC proposes to use a packed bed scrubber, using process water and alkaline slurry, to control fluoride emissions from the kiln. Although this technology represents BACT for this type of process, no control efficiency is proposed. Instead, IMC proposes to meet the State's limit of 0.37 lb fluoride per ton of phosphoric acid input for existing sources. We suggest that FDEP include a limit requiring that the scrubber demonstrate 99.9% fluoride control efficiency. This level of control is reflective of that required by the permit issued by Florida to Farmland Hydro in 1992 for a phosphate fertilizer process, and would insure that the scrubber is operated to its capabilities.

### **Air Quality Analysis**

The results of the air quality analysis indicate that the project will not contribute significantly to consumption of the Class I increments for SO<sub>2</sub> and PM-10. This analysis would, of course, be incorrect if FDEP determines that the net emissions increases should be adjusted (see above).

### **Air Quality Related Values (AQRV) Analysis**

IMC analyzed potential impacts to vegetation, soils, and wildlife in Chassahowitzka Wilderness. We agree that the potential for impacts to these AQRVs is low because of the distance of the project and the types and amounts of emissions

IMC conducted both a VISCREEN analysis, to assess potential visible plume impacts, and a regional haze analysis. Both analyses predicted that this project would have a low potential to affect visibility at Chassahowitzka. However, we would like to clarify several points regarding these analyses. Please note that we have also provided this clarification in recent letters to your department (re: Piney Point Phosphates and Farmland Hydro).

First, only sources located less than 50 km from a Class I area should perform a plume impact analysis (VISCREEN). Plumes do not remain coherent beyond 50 km. Sources 50 km or more from a Class I area should perform a regional haze analysis. The attached guidance document, "Interim Visibility Modeling Guidance for Sources Locating or Expanding Near Chassahowitzka Wilderness, Florida," discusses visibility analyses in more detail.

Please note in the attached visibility guidance document that all sources should compare their contribution to regional haze to the screening level of 0.5 deciview. If their predicted impacts are less than or equal to 0.5 deciview, the impact is considered insignificant and no further analysis is needed. If predicted impacts are greater than 0.5 deciview, the applicant should conduct a cumulative modeling analysis including proposed emissions and all other increment-consuming sources. If the cumulative analysis predicts impacts less than or equal to 1.0 deciview, the impact is considered insignificant and no further analysis is needed. If cumulative impacts are greater than 1.0 deciview, significant haze impacts are possible and FWS will make a case-by-case adverse impact determination regarding the proposed project, considering the frequency, magnitude, and duration of impacts. Because IMC's maximum

predicted regional haze impact (0.2 deciview) was less than the screening level of 0.5 deciview, no further analysis is required.

In addition to the attached visibility guidance document, our office is compiling a more detailed and comprehensive document addressing visibility analyses that will be available in early 1998.

Contact: Ellen Porter, Air Quality Branch  
303/969-2617

**Interim Visibility Modeling Guidance  
For Sources Locating or Expanding Near  
Chassahowitzka Wilderness, Florida  
December 1997**

This Interim Visibility Modeling Guidance Document has been developed for use by PSD permit applicants seeking to locate or expand near Chassahowitzka Wilderness, a Class I area administered by the U.S. Fish and Wildlife Service (FWS). A more detailed, comprehensive guidance document will be available in early 1998.

Applicants should assume a background visual range of 65 km for Chassahowitzka Wilderness.

**Sources less than 50 km from a Class I area:**

Sources *less than 50 km* from a Class I area should perform an analysis to assess the potential for visible plumes from their emissions at the Class I area. The recommended models are VISCREEN (Levels 1 and 2) as the screening model and PLUVUE II as the more refined model. If the screening or refined modeling predicts an impact less than a delta E of 2.0 and a contrast of 0.05, no plume impact is expected and no further analysis is required. If the modeling predicts an impact equal to or greater than the 2.0 or 0.05 values, the potential for plume impacts is significant and the FLM will determine on a case-by-case basis whether or not those impacts would be adverse, considering predicted frequency, magnitude, duration, and other factors.

**Sources greater than or equal to 50 km from a Class I area:**

Sources *greater than or equal to 50 km* from a model receptor in a Class I area should perform an analysis to assess the potential for a significant increase in uniform (i.e., regional) haze in the Class I area due to the source's emissions. The source may choose to use a screening model (e.g., ISC) or a more refined model (e.g., Mesopuff or Calpuff). If the predicted impact is less than or equal to 0.5 deciview, the impact is considered insignificant and no further analysis is needed. If the predicted impact is greater than 0.5 deciview, the applicant should conduct a cumulative modeling analysis including the new source's proposed emissions and all other increment-consuming emissions. If the cumulative analysis predicts an impact less than or equal to 1.0 deciview, the impact is considered insignificant and no further analysis is needed. If the cumulative impact is greater than 1.0 deciview, a significant increase in haze is possible and FWS will make a case-by-case adverse impact determination regarding the proposed project, considering the predicted frequency, magnitude, and duration of impacts.

Contact: Bud Rolofson, FWS Air Quality Branch (303) 969-2804