KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
352/377-5822 ▪ FAX/377-7158

KA 124-97-03

April 23, 1998

RECEIVED
APR 27 1998
BUREAU OF
AIR REGULATION

Mr. John Reynolds
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. Reynolds:

This is a follow up to your telephone conversation today with Pradeep Raval regarding a revision of the emissions estimates for nitrogen oxides (NOx) from the proposed Multifos kiln.

IMC-Agrico has no NOx emissions data for the existing Multifos kilns. However, there is information on a similar, natural gas fired, kiln at Coronet which calcines phosphate rock into animal feed supplement.

No. 2 fuel oil is requested as a secondary/emergency fuel. As there is no available test data for fuel oil fired conditions for this type of kiln, an AP-42 NOx emission factor for a lightweight aggregate kiln has been used to estimate NOx emissions during fuel oil firing. The updated NOx emissions estimates are presented in Attachment 1.

If you have any further questions, please do not hesitate to call Pradeep Raval or me.

Very truly yours,

KOOGLER & ASSOCIATES

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

cc: File
Polk Co.
SWD
EPA
NPS

JBK:par
encl.

c: C. Dave Turley, IMC-Agrico

ATTACHMENT 1

UPDATED EMISSIONS ESTIMATES FOR NITROGEN OXIDES

NOx emissions during natural gas fired conditions are estimated based on information from a similar process kiln at Coronet:

NOx Emissions = 2.17 lb/hr, at 28 MMBtu/hr and 8.5 tph feed.

Emiss. Factor = 2.17 lb/hr / 8.5 tph feed = 0.255 lb NOx/ton feed

Based on this emissions factor, the proposed Multifos kiln emissions can be estimated as follows:

Feed Rate = 6.5 tph P2O5 or 17.1 tph feed

NOx Emissions = 17.1 tph feed x 0.255 lb NOx/ton feed
= 4.4 lb/hr
X 8760 hrs/yr x ton/2000 lbs
= 19.1 tpy on natural gas

NOx emissions from No. 2 fuel oil firing can be back calculated to avoid PSD applicability for NOx, using NOx emission factor of 1.9 pound per ton feed for lightweight aggregate kiln with scrubber (AP-42, Table 11.20-4). This factor is used as a conservative estimate for the purpose of initial permitting. It is requested that the allowable operating hours on No. 2 fuel oil be refined based on compliance test results.

NOx Emiss. Cap = 39 tpy - 19.1 tpy = 19.9 tpy on No. 2 fuel oil

NOx Emissions = 1.9 lb/ton feed x 17.1 tph feed
= 32.5 lb/hr

Operating Hrs. = 19.9 tpy x 2000 lbs/ton / 32.5 lb/hr
= 1225 hrs/yr on No. 2 fuel oil

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

Dear Mr. Reynolds:

This is a follow up to our letter dated April 15, 1998, regarding the updated scrubber performance guarantee from the manufacturer for sulfur dioxide emissions control. Please find enclosed a letter from the manufacturer with a scrubber control efficiency of 97 percent for sulfur dioxide. Also enclosed is the summary of the sulfur dioxide emissions measurements recently conducted.

If you have any questions, please call me.

Very truly yours,

KOOGLER & ASSOCIATES

Pradeep Raval

par
encl.

c: C. Dave Turley, IMC-Agrico

CC: File
Polk Co.
SWD
EPA
NPS

D.R. TECHNOLOGY, INCORPORATED
POLLUTION CONTROL & ENERGY CONSERVATION
CONSULTING • DESIGN • ENGINEERING
78 SOUTH STREET, FREEHOLD, NEW JERSEY 07728

TELEPHONE (908) 780-4664

April 20, 1998

IMC-Agrico, Inc.
P. O. Box 2000
Mulberry, Florida 33800-1100

Attn: Mr. Richard Harrison (P:941-428-2500 x6570/F:7191)

Subject: Final Data For SO_2 Absorber On Your Phosphate Rock Defluorinator
D. R. Technology Reference: 771 (formerly B723)

Dear Mr. Harrison:

This letter is intended to summarize all the changes and items we discussed.

A summary is as follows:

1) Gas flow is still 25,000 ACFM at 100°F with 200 lbs./hr. SO_2 maximum.

2) Vessel design pressure to drop to minus 45 inch water gage.

3) SO_2 removal efficiency goes to 97% from 96%. We will increase packed bed depth to 12'-0" fro 10'-0" to achieve this.

4) Gas inlet nozzle changes from 1'-6" high x 4'-6" wide to 3'-9" high by 1'-8" wide, thereby increasing tower height by 2'-3".

5) Metering pump motor control to change from SCR-DC to VFD-AC.

6) Fresh water addition to be done via automatic flow control (flow meter, flow control valve, controller). Moore products supply. Controller to be installed in IMC panel. Pricing breakout provided.

7) A Rosemount 2" magflow meter tube and transmitter will be installed on the recycle flow (0-250 GPM), 4-20 mA signal to customer panel.

8) The level switches will be removed in favor of a Rosemount diaphragm level transmitter generating a 4-20mA signal. Level set points can be done off this.

9) Blowdown, valve will switch to a CPVC 1" ball valve with pneumatic actuator.

10) Motors to be GE, Reliance, or USA equal.

Attn: Mr. Richard Harrison (P:941-428-2500 x6570/F:7191)

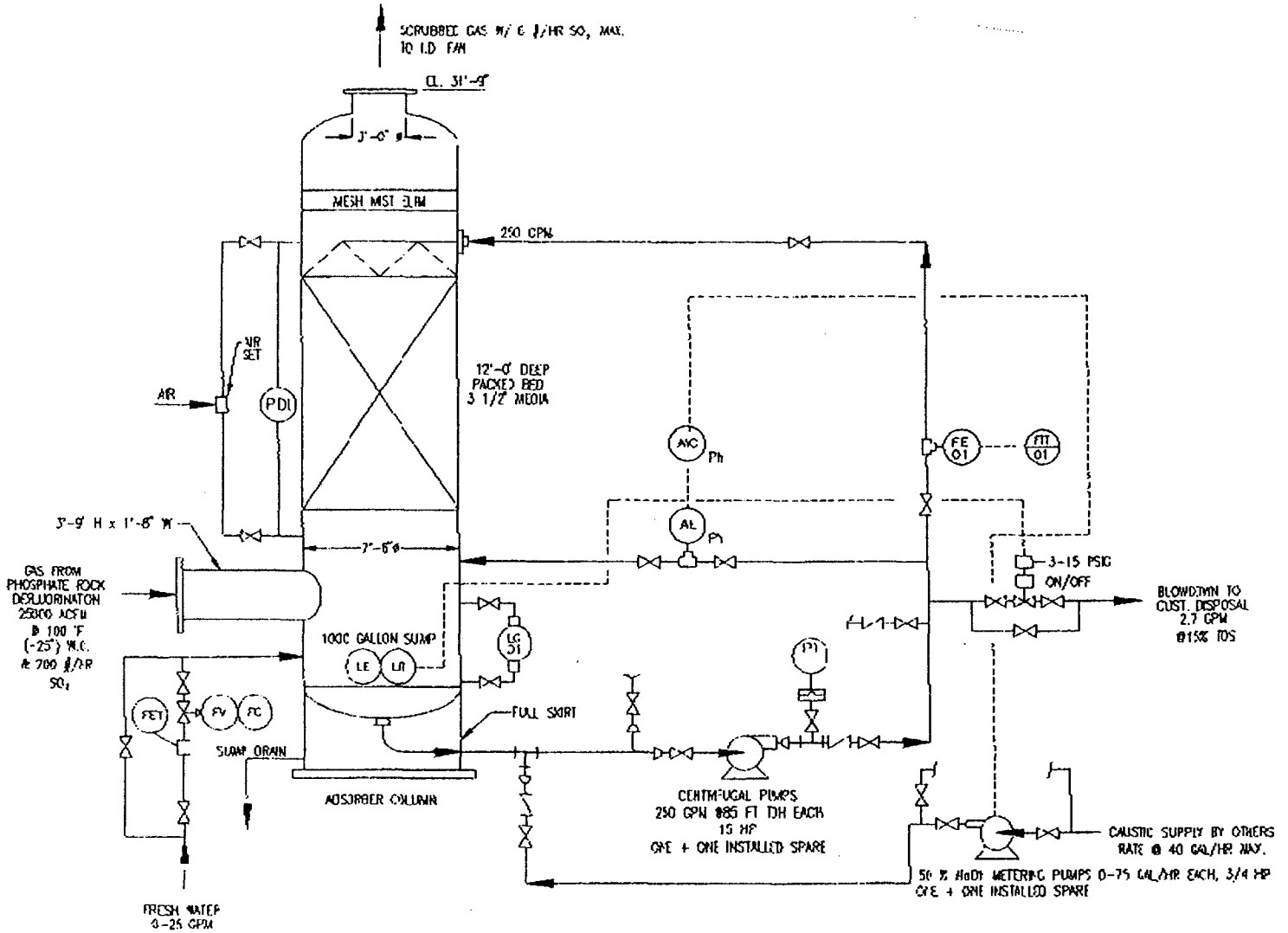
Please feel free to call the undersigned, or Mr. Hernandez with questions you may have.

Very truly yours,
D. R. TECHNOLOGY, INC.

Richard A. Schwartz,
President

RAS:dk
cc: H & B Industrial Equipment Co.
P. O. Box 6246
4406 S. Florida Ave.
Lakeland, Florida 33807-6246
Attn: Luis Hernandez
P:941-647-5943/F:0018

B:771P4208



NOTES:

1. ALL PIPE & FITTINGS ARE 2PVC, SCH-80 SOLVENT WELD ENDS, EXCEPT CAUSTIC PIPE IS C.S.
2. SYSTEM BASIS: 97 % SO2 REDUCTION.
3. NO PANEL IS PROVIDED. ALL INDICATORS TO BE INSTALLED IN IMC PANEL

REV.	DATE	BY	DESCRIPTION	CHECK	APPR.
1	11/6/91	LD	FOR APPROVAL		

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

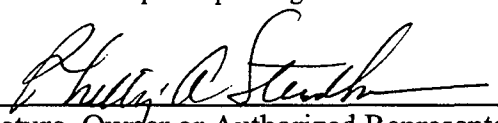
PFD/P&ID	PROJECT NO. 91110	REV. NO. 1
DWG. NO. 100	LOCATION HOLOPAW, FLORIDA	
	DRAWING NO. 77-21	REV. 0

Report of Emissions Sampling

IMC-Agrico Company

Project: Multifos Production Plant
Facility: New Wales Operations
Point ID: 36
AIRS: 1050059
Permit Number: AO53-206083B
Test Date:April 9, 1998

To the best of my knowledge, all applicable field and analytical procedures comply with Florida Department of Environmental Protection requirements and all test data and plant operating data are true and correct.



Signature, Owner or Authorized Representative
P. A. Steadham, Chief Environmental Services - Concentrates

IMC-Agrico Company
P.O. Box 2000
Mulberry, FL 33860

(941) 428-2500

Company ID #: 1100

Introduction:

This report details the preformance testing results for the following source:

Project: Multifos Production Plant
Facility: New Wales Operations
Point ID: 36
AIRS: 1050059
Permit Number: AO53-206083B
Test Date:April 9, 1998

Summary of Results

The process data and emissions testing results are summarized below:

Process Data:

Kilns P2O5 Feed Rate	8.24 TPH
Wet Rock Dryer Feed Rate	28.3 TPH

Fuel Firing Information

Fuel: Natural Gas

Oil Firing since Last Test: NO

Dryer Fuel Rate	3.67 MMBtu/hr
A Kiln Fuel Rate	47.7 MMBtu/hr
B Kiln Fuel Rate	48.3 MMBtu/hr

Emissions:

Sulfur Dioxide:	lb/hr	376

Emissions Testing Methods:

Sulfur Dioxide: Method 6 using Method 8 analysis and solutions.

Test Participants

Conducted the Field Testing

1 M. Lennard

2 R. Sellers

Performed the Laboratory Analysis

1 D. Averitt

Provided the Process Data

1 P. Green

Prepared the Test Report

1 M. Lennard

Source Sampling Summary Sheet

Facility:	New Wales
Plant:	Multifos Plant
Company ID:	1100
FDEP AIRS & Pt. ID:	1050059 & 36
Test Team:	ML / RS

Parameter	Unit	Run 1	Run 2	Run 3	Average
Date:		4/9/98	4/9/98	4/9/98	
Time Start:		820	1015	1140	
Time End:		940	1115	1245	
Barometric Pressure:	Inch Hg	30.05	30.05	30.05	
Static Pressure:	Inch H2O	0.69	0.69	0.69	
Stack Pressure:	Inch Hg	30.101	30.101	30.101	
Average Sqrt Delta P:	Inch HOH 1/2	1.069	1.071	1.079	
Average Delta H:	Inch HOH	1.150	1.158	1.167	1.158
Maximum Run Vacuum:	Inch Hg	3.0	4.0	4.0	4.0
Meter Box Number:	Unity	3188	3188	3188	
Average Meter Temp:	Degrees F	79.1	82.6	80.4	
Average Stack Temp:	Degrees F	98.2	100.8	100.9	100.0
Metered Sample Volume:	Cubic Feet	37.92	37.76	38.02	
Standard Meter Volume:	Cubic Feet	38.04	37.64	38.05	
Moisture Measured:	%	0.0508	0.0604	0.0549	
Moisture Saturation:	%	0.0608	0.0659	0.0660	
Moisture Used for Calculations:	%	0.0508	0.0604	0.0549	0.0554
Pitot Coefficient:	Unity	0.84	0.84	0.84	
Nozzle Diameter:	Inch	0.186	0.186	0.186	
Stack Area:	Square Feet	15.90	15.90	15.90	
Traverse Points:	Unity	12	12	12	
Sampling Time:	Minutes	60	60	60	
Stack Gas Molecular Weight:	lb/lb-mol	28.412	28.306	28.367	
Actual Stack Velocity:	Feet/sec	62.046	62.385	62.787	62.406
Actual Stack Gas Flow:	ACFM	59178	59501	59885	59521
Dry Standard Stack Gas Flow:	DSCFM	53456	52949	53598	53335
Isokinetic Rate:	%	100.01	99.90	99.76	
SO2 Emission:	lb/day	8842	8888	9360	9030
SO2 Emission:	lb/hr	368	370	390	376