



**KOOGLER & ASSOCIATES**  
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KA 124-00-05

August 22, 2001

**RECEIVED**

AUG 24 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)  
Multifos Plant - Kiln C Permit Revision  
No. 1050059-024-AC, PSD-FL-244A  
033

Dear Mr. Arif:

This is in response to your request for information, on installation of Kimre packing as an alternative for Kiln C scrubbing system, with regards to the above referenced project.

A cost proposal on the Kimre packing alternative is enclosed. The attached cost-benefit analysis indicates that this alternative is cost prohibitive, based on FDEP BACT criteria.

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

Very truly yours,

KOOGLER & ASSOCIATES

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

Par.  
encl.

c: C. Dave Turley, IMC  
B. Thomas, SWD ✓  
D. Warden, EPA ✓  
D. Bennett, NPS ✓

KIMRE PACKING COST ANALYSIS  
IMC New Wales – Multifos Kiln C Scrubbing System

The estimated cost associated with installation of a scrubber equipped with three-stage Kimre packing, is summarized below.

Total Installed Cost:		= \$565,000
Direct Annual Cost	Labor	= \$ 28,800
	Maintenance	= \$ 54,000
	Incremental Optg. Costs	= \$100,000
	Total DC	= \$182,800
Indirect Annual Cost	(0.1715 TCI, EPA combined factor) (includes capital recovery at 15 year life, 10% int.)	= \$ 96,900
Total Annual Cost	(DC + IC)	= \$279,700

Based on the above annual cost, the cost of fluoride control can be estimated with a conservative assumption that all fluorides from the existing scrubber, of 4.4 tpy (requested allowable rate), are captured.

Annual Cost of fluoride control      (\$279,700 / 4.4 tpy)                      = \$ 63,600/ton

This alternative is rejected as BACT based on the above control cost which far exceeds \$10,000 per ton fluoride controlled. The estimated control costs would be much higher if the loss of plant production, due to plant downtime associated with equipment installation, was included in the above analysis.



# PENN PRO

CAD Design & Technical Services

Mr. George Bien  
IMC Phosphates  
P.O. Box 2000  
Mulberry, FL 33860-100

8/15/01

REF: PENN PRO estimate for "C" Kiln Fluorine Scrubber Replacement  
Revision 1

I have completed the revised order of magnitude cost estimate for "C" Kiln Fluorine Scrubber replacement with a Kimre Scrubber.

The Kimre Scrubber data was provided to PENN PRO by IMC.

In addition, the existing pond water supply has been deemed sufficient for the new scrubber conditions by IMC. PENN PRO has not checked this system.

I faxed the scrubber fan data for the new conditions, provided by you, to Robinson Fan Pete Beringer. His reply indicates that the fan will operate with the new conditions without any modifications and with the existing motor. I have attached the revised fan curve provided by Robinson Fan. This is just a preliminary review by Robinson Fan. If the project does become a reality; the local office will have the factory engineers run the calculations for official verification.

At your request I have revised the estimate to include a parallel set of stages to permit removal and replacement of panels "on the run". Kimre contacted me after your call to them and asked for additional clarification. Before IMC commits to this design, a meeting with Kimre is advisable. It is their preliminary opinion that each stage can be removed and replaced "on the run" without a parallel stage and still remain in compliance with emissions.

I have also revised the estimate to compress the Kiln downtime.

The estimate of Kiln downtime is 2 weeks on a premium time basis. The job will require 1-2 weeks before to prep and start electrical and piping additions and 1-2 weeks after to install the monorail system to pull the Kimre panels. This is field time only.

The estimated cost for this project is \$ 565,000.00