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

# 1050059
PSD-FL-179A



KA 124-96-03

February 3, 1997

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

Subject: Additional Information for
Sulfuric Acid Plants 10 & 11
IMC-Agrico Company - South Pierce Plant
Polk County, Florida

Dear Mr. Holladay:

This is a follow up to Pradeep Raval's telephone conversations with Mr. Al Linero and yourself regarding the Department's request for additional information dated December 18, 1996.

Some background information will provide a clearer perspective of the proposed project. Sulfuric acid plants Nos. 10 and 11 have been physically modified to increase the sulfuric acid production rate and to enhance heat recovery under permit No. PSD-FL-179. At the time of that FDEP review, the potential production rate of the modified plants was estimated to be 2700 tpd, each, based on information from the contractor. Having completed the modifications and operated the plants for some time now, IMC-Agrico recognizes that the potential acid production rate of the modified plants was underestimated.

IMC-Agrico is able to project, based on past operation and compliance test results (already submitted to FDEP), that the plants will be able to operate at the higher production rate without any major equipment changes. Minor changes may be required, e.g. piping, ducting, pumps, etc. Please note that equipment changes would not affect the rule applicability for this project under the PSD and NSPS regulations.

Given the above background information, it is anticipated that the following responses will adequately address the issues raised by FDEP.

1. **The application does not contain an updated flow diagram for the proposed modified facility. Although Figure 2-3 states that it is a flow diagram, it is in actuality a plant equipment layout diagram. Please submit an updated process flow diagram for the actual proposed modified facility.**

RESPONSE:

The diagram submitted to FDEP shows the actual process flow relative to the existing equipment. It does need to be clarified, however, that the resulting air emissions from the sulfuric acid plant are exhausted from the "stack" shown on the diagram. As the existing process and equipment remains unchanged, an updated process flow diagram is not necessary.

2. **The application indicates increases in production rates with no replacement or addition of major process equipment. If future projects are anticipated to reliably achieve or take advantage of the higher permitted rates, they should be scoped out and described at this time. Please provide a more detailed description of changes required to piping, pumps, ducts, fans, catalyst change schedules, etc. to handle the higher process rate. Alternatively, please provide reasonable assurance (eg. process or mechanical engineers certification) that the present plant can achieve the planned production rates without improvements.**

RESPONSE:

These issues are addressed in the introductory paragraphs on the previous page.

3. **What effects will the higher process rates have on actual emissions and actual emissions per unit of product? Will any improvements be made in the secondary absorbers and demisters to maintain or improve pollution control (whether or not emissions are within permitted limits)?**

RESPONSE:

As the proposed increases in process rates are not expected to affect actual emissions per unit of product, it can be projected that the proposed increases in process rates will result in corresponding, proportionate increases in actual emissions.

No changes to the secondary absorbers or the demisters are anticipated for the proposed project. This issue is addressed in the introductory paragraphs on the previous page.

4. **Do plant historical data, literature, or equipment provider information suggest that BACT emission limits lower than 4 pounds of SO2 and 0.15 pounds of SO3 per ton of product can be achieved? If not, why not?**

RESPONSE:

The dual absorption process is capable of reducing sulfur dioxide emission rates to less than 4.0 pounds per ton of acid. However, in an effort to maximize production, most plants in the fertilizer industry tend to run at emission levels close to the permitted rates. As the catalyst ages, the production level is gradually reduced to keep the emissions within permitted levels. Thus, an initial emission reduction could be accomplished, at the cost of acid production, and even then only during periods immediately following turnarounds. That strategy would be ineffective as the catalyst ages and emissions per ton of product correspondingly increase.

EPA and FDEP have taken into consideration this very issue in five recent BACT determinations for double absorption sulfuric acid plants and concluded in each case that the emission limits of 4.0 pounds of sulfur dioxide and 0.15 pounds of sulfuric acid mist per ton of 100 percent sulfuric acid are practical and appropriate.

5. **What facilities will use the additional sulfuric acid produced by the modified plants? Where are these facilities located?**

RESPONSE:

The additional sulfuric acid will be sold to Sulfuric Acid Trading Company (SATCO) and, at times, to other sulfuric acid customers located in north and central Florida. Other IMC-Agrico facilities consuming sulfuric acid include the New Wales Plant and the Nichols Plant, both located in Polk County.

6. **The Air Quality Related Values Analysis (AQRV) is incomplete. IMC did not estimate total (cumulative) pollutant concentrations and loadings at Chassahowitzka. Without this information, it is impossible to evaluate the potential AQRV impacts. To estimate cumulative pollutant concentrations, IMC should add its modeled pollutant impact to background pollutant concentrations, including predicted impacts from sources permitted but not yet operating.**

RESPONSE:

The cumulative pollutant concentration levels at Chassahowitzka are estimated, presented below, as suggested by FDEP. However, such an analysis is not meaningful for the proposed project given the predicted insignificant ambient air impacts and given a distance in excess of 100 kilometers from the Class I area.

guidelines. It should be noted that the predicted source impacts are below the Class I significant impact levels proposed by EPA. Not only are the predicted impacts insignificant, but they are projected from a source over a 100 kilometers from the Class I Area using a model which provides a very conservative estimate of impacts beyond 50 kilometers (ISC-ST). Taking all these factors into consideration, it is anticipated, based on conversations with the NPS, EPA and FDEP, that additional Class I area analyses are not warranted for the proposed project.

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

Very truly yours,

KOOGLER & ASSOCIATES

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

JBK:par

c: C. Dave Turley, IMC-Agrico

CC: Holladay