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March 12, 1997

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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: Mulberry Phosphates, Inc.
Sulfuric Acid Plant
Increase in Annual Hours of Operation
1050048-002-AC, PSD-FL-238

Dear Mr. Linero:

This is in response to your request for additional information dated February 28, 1997 on the above referenced project. The responses below are in the order of the issues raised by FDEP.

1. Why were the annual hours of operation limited at this sulfuric acid plant? Please provide a permitting history for this source.

RESPONSE:

The annual hours of operation were limited to correspond to a typical, facility-wide two week annual shut down. Over the years, on-line reliability of all chemical plants has improved from increased operator experience and technological improvements in process control. This is apparent in the hours of operation documented in recent Annual Operation Reports (AORs). Other plants at this site have previously been permitted for continuous operation (8760 hours per year). This request is similar in nature to other industry wide practices.

A brief permitting history of the sulfuric acid plant is presented below.

<u>Permit No.</u>	<u>Issued</u>	<u>Expired</u>	<u>Comments</u>
AC53-2584	12-16-74	9-16-75*	Initial construction
A053-6050	12-14-78	1-31-83	Initial operation permit
AC53-6458A	8-28-78	8-30-79	Convert to double absorption
A053-17115	3-01-79	2-01-84	Operation permit
A053-78016	1-31-84	1-15-89	Renewed operation permit
AC53-85261	7-02-85	7-01-86	Rate increase with cogeneration
A053-117930	9-11-86	8-28-91	Operation permit
A053-198769	8-30-91	8-28-96	Renewed operation permit

* Later extended by DER.

2. Will the proposed increase in annual hours affect the catalyst maintenance schedule?

RESPONSE:

The catalyst maintenance schedule, which is typically every 18 months, will not be affected by the request for an increase in the annual hours of operation.

3. We are in the process of making a BACT determination. Do plant historical operating data, literature, or equipment provider information suggest that BACT emission limits lower than 4 pounds of SO₂ and 0.15 pound SO₃ per ton of product can be achieved? If not, why not?

RESPONSE:

This issue has been discussed in great detail with the NPS, EPA, and FDEP staff over the last few years. The EPA has determined in the most recent review of the NSPS for sulfuric acid plants that a more stringent standard is not justified. There is a wide consensus on the part of the regulatory agencies and the industry on this issue. The reason for the consensus is that neither the process design (sulfur dioxide emission control) nor add on control equipment (sulfuric acid mist emission control) have changed significantly in the recent past.

It is generally recognized that the sulfur dioxide emissions can be expected to be low just after plant turnaround (a maintenance cycle which is typically every 18 months), and much higher closer to a turnaround. The gradual deterioration of the catalyst used in the process contributes to higher emissions. The high cost associated with turnarounds (catalyst cost, materials cost, labor cost and cost due to loss of production) makes it impractical to conduct frequent plant shut downs to replace the catalyst. This aspect of sulfuric acid production was considered by EPA in the review of the NSPS.

It should be noted that setting emission limits based on performance testing is not appropriate because that approach fails to address the variability in the emission rates over time. Also, a statistical determination of the emission limit based on a series of performance tests over time, to provide a 95th percentile confidence level, would likely yield an emission rate in excess of the NSPS.

Imposing progressively lower emission limits on facilities subject to BACT may be valid for industries where emissions are controlled by add-on equipment or manufacturing processes which are subject to rapid or evolutionary changes. However, that rationale is not valid for the



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sulfuric acid manufacturing process. In discussions with suppliers of sulfuric acid plant equipment (Monsanto) and regulatory agencies (FDEP and EPA), the BACT for a double absorption sulfuric acid plant is 4 pounds of sulfur dioxide per ton acid; and, 0.15 pound acid mist per ton of acid.

Based on the above discussion, it is appropriate for FDEP to set BACT limits at the emission levels proposed; an emission rate acceptable to both the regulatory agencies (FDEP, EPA and the NPS) and industry.

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

Very truly yours,

KOGLER & ASSOCIATES



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