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Resources Management

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April 10, 1992

Mr. John Bunyak
National Park Service
12745 W. Alameda Parkway
Lakewood, CO 80228

Subject: Response to Comments on FDER's Technical Evaluation
Agrico Chemical Company
Permit Files AC53-201152, AC53-199112, PSD-FL-179

Dear Mr. Bunyak:

This is in response to our telephone conversation yesterday on the above subject. Your verbal comments on the method of emission calculations and the determination of 4.0 pounds per ton of 100 percent sulfuric acid as BACT for the double absorption sulfuric acid plant are addressed below.

RESPONSE 1: EMISSION CALCULATIONS

The actual emissions of sulfur dioxide from the sulfuric acid plant Nos. 10 and 11 were calculated based on results of annual compliance tests. A representative test was used as a basis for calculating annual emissions as follows (e.g. No. 10 plant):

Compliance test results: 306.8 lbs/hr (333 lbs/hr permitted)
3.21 lb/ton (4.0 lb/ton permitted)

Initial calculations (submitted 6/91), based on operating hours:

Annual SO2 = 306.8 lb/hr X 8760 hrs/yr X ton/2000 lbs
= 1343.8 tpy

Revised calculations (submitted 3/92), in response to FDER's request to base the actual emissions on actual 1989 and 1990 production:

Annual SO2 = 3.21 lb/ton X (638,230 + 728,999)/2 tons/yr
X ton/2000 lbs
= 1097.2 tpy

The difference in actual annual emissions calculated using the two methods described above results from variation in the production rate over time. Therefore, the lb/hr and lb/ton values correlate for a given test run where the production rate used in the compliance test emission calculation is a constant. However, this relationship does not hold for an annual period where the hourly production rates are not constant.

RESPONSE 2: BACT DETERMINATION

FDER and EPA concur with the applicant's BACT review for the double absorption sulfuric acid plants. A sulfur dioxide emission limit of 4.0 lb/ton of 100 percent acid is appropriate for the Nos. 10 and 11 sulfuric acid plants despite a compliance test result of 3.21 lb/ton for the following reasons:

The emission rates vary with time and cannot be guaranteed at 3.21 lb/ton because:

- The emission rates vary with variations over time in the process temperature, pressure, SO2 concentrations, conversion efficiency, absorption efficiency, etc.
- The catalyst efficiency varies from the time it is replaced until it is next replaced during a plant turnaround.

It would be impractical to impose an emission limit so close to a level corresponding to normal operations that any variation would result in excess emissions. This could bring about a situation where while operating under normal conditions, a plant would be in compliance with an emission limit 50 percent of the time and out of compliance 50 percent of the time.

Attached is a typical emission scenario based on actual CEM data for sulfuric acid plant No. 10 during March, 1992.

If you have any questions, please do not hesitate to give me a call.

Very truly yours,

KOOGLER & ASSOCIATES

Pradeep A. Raval

PAR:mab

cc: Mr. Selwyn Presnell, Agrico
Mr. Phil Steadham, Agrico
Mr. Willard Hanks, FDER, Tallahassee
Mr. Gregg Worley, EPA Region IV

CEM DATA SUMMARY
SULFUR DIOXIDE EMISSIONS - NO. 10 SULFURIC ACID PLANT

AGRICO CHEMICAL COMPANY
POLK COUNTY, FLORIDA