Best Available Control Technology (BACT) Determination
CF Industries, Inc.
Hillsborough County

The applicant proposes to increase sulfuric acid production from 2400 tons per day to 2600 tons 100% sulfuric acid per day per plant at existing plants "C" and "D" at the Plant City Phosphate Complex in Hillsborough County.

The proposed project will result in a significant increase in emissions of SO_2, acid mist, and NO_x. The project is therefore subject to Prevention of Significant Deterioration (PSD) review in accordance with F.A.C. Rule 17-2.500 (5).

The BACT review is part of the PSD review requirements in accordance with F.A.C. Rule 17-2.500(5)(c).

Date of Receipt of a BACT application:

September 26, 1990

BACT Determination Requested by the Applicant:

The BACT determination requested by the applicant is presented below:

Control Technology: Double Absorption/Fiber Mist Eliminators

Pollutant	Emission Limits
SO_2	4 lb/ton of 100% H_2SO_4 produced
Acid Mist	0.15 lb/ton of 100% H_2SO_4 produced
Visible Emissions	10% opacity
NO_x	0.14 lb/ton of 100% H_2SO_4 produced

Basis of Review:

This determination was based upon input from the applicant, EPA Region IV, and the Bureau of Air Regulation.

BACT Determination Procedure:

In accordance with Florida Administrative Code Chapter 17-2, Air Pollution, this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department, on a case-by-case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that in making the BACT determination the Department shall give consideration to:

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(a) Any Environmental Protection Agency determination of Best Available Control Technology pursuant to Section 169, and any emission limitation contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources) or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants.

(b) All scientific, engineering, and technical material and other information available to the Department.

(c) The emission limiting standards or BACT determinations of any other state.

(d) The social and economic impact of the application of such technology.

In addition to the criteria discussed above, the EPA requires that BACT should be determined using the "top-down" approach. The first step in this approach is to determine the most stringent control available for a similar or identical source or source category. If it is shown that this level of control is technically or economically infeasible for the source in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

BACT Determined by DER:

Control Technology: Double Absorption/Fiber Mist Eliminators

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BACT Determination Rationale

DER's Bact determination is the same as that proposed by the applicant, determinations completed by other states, and Standards of Performance for Sulfuric Acid Plants, 40 CFR 60 Subpart H, (double absorption process). The process in itself is the control technology for SO_2 and acid mist. The emission limits reflect conversion efficiency of around 99.7% of SO_2 to H_2SO_4. High efficiency mist eliminators are considered BACT for acid mist. A review of BACT/LAER Clearinghouse indicates that the double absorption technology, and the use of high efficiency mist eliminators is representative of BACT using the top down approach.

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A review of the BACT/LAER Clearinghouse does not indicate any control technologies or emission limits for nitrogen oxides emissions from sulfuric acid plants. The proposed emission level, equivalent to 0.03 pounds per million Btu, is well below the BACT levels that are typically established for sources emitting nitrogen oxides and is hence deemed BACT for this facility.

Environmental Impact Analysis:

The impact analysis for the BACT determination is based on 8760 hours/year operation. The ambient air quality impact analysis resulted in the following for SO_2 emissions:

Averaging Time	Predicted Impact (ug/m^3)	De minimus (ug/m^3)	Fla. AAQS (ug/m^3)
SO_2			
Annual	0.15	N/A	60
24-hr	1.8	13.0	260
3-hr	7.5	N/A	1300
NO_x (planned increase plus 1988 increases)			
Annual	0.009	14.0	100

Conclusion:

The incremental impact from SO_2 and NO_x due to the proposed modification is insignificant. Although the ambient air quality impact analysis ordinarily should not be considered part of the BACT evaluation, the minimal impacts associated with the proposed increase in production strengthen the Department's determination that the emission limits established herein represent BACT.

Details of the Analysis may be Obtained by Contacting:

Barry Andrews, P.E.
Department of Environmental Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended By:

C. H. Fancy, P.E., Chief
Bureau of Air Regulation

June 18 1991
Date

Approved By:

Carol M. Browner, Secretary
Dept. of Environmental Regulation

July 16 1991
Date