Best Available Control Technology (BACT)
PSD-FL-235/1050055-010-AC

IMC-Agrico Company
South Pierce Facility
PSD-FL-235 and 1050055-010-AC
Polk County

The applicant proposes to increase the acid production rate of its two existing double absorption sulfuric acid plants (Nos. 10 and 11) at its South Pierce facility from 2,700 to 3,000 tons per day (TPD) of 100 percent sulfuric acid (H_2SO_4), each. The overall increase in H_2SO_4 production from the facility will be from 5,400 to 6,000 TPD. The South Pierce molten sulfur throughput will increase proportionately from 650,000 to 725,000 tons per year (TPY) through its sulfur handling system. The plants and sulfur handling system are located at IMC-Agrico's South Pierce phosphate chemical fertilizer manufacturing facility approximately eight miles west of Ft. Meade and twelve miles southwest of Bartow on State Road 630 in Polk County, Florida.

The proposed project will increase emissions of sulfur dioxide (SO_2), nitrogen oxides (NO_X) and sulfuric acid mist (SAM) by more than the applicable Prevention of Significant (PSD) significant emission rates. The project is therefore subject to PSD review in accordance with Rule 62-212.400, Florida Administrative Code (F.A.C.). The BACT review is part of the PSD review requirements in accordance with Rule 62-212.410, F.A.C.

Date of Receipt of a BACT Application: November 20, 1996.

Date Application Complete: April 10, 1997.

The BACT determination requested by the applicant:

Control Technology: Double Absorption/Fiber Mist Eliminators

Pollutant	Emission Limits
SO_2	4 lbs/ton of 100% H_2SO_4 produced
Sulfuric Acid Mist	0.15 lb/ton of 100% H_2SO_4 produced
Visible Emissions	10% opacity
NO_X	0.12 lbs/ton of 100% H_2SO_4 produced

BACT Determination Procedure:

In accordance with Rule 62-212.410, F.A.C., Best Available Control Technology, this 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.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine for the emission source in question 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 unfeasible 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 the Department:

Control Technology:	Double Absorption/Fiber Mist Eliminators
Pollutant:	**Emission Limits**
SO_2	500 lbs/hr (4.0 lbs/ton of 100% H_2SO_4 produced)
Sulfuric Acid Mist	18.8 lbs/hr (0.15 lbs/ton of 100% H_2SO_4 produced)
Visible Emissions	10% opacity
NO_X	15 lbs/hr (0.12 lbs/ton of 100% H_2SO_4 produced)

BACT Determination Rationale

The Department's BACT determination is the same as that proposed by the applicant. It is the same as the most recent determinations made for modifications of existing sulfuric acid plants. This level of technology is in accordance with the Standards of Performance for Sulfuric Acid Plants, 40 CFR 60 Subpart H.

The process of making sulfuric acid requires conversion of sulfur dioxide (SO_2) to sulfur trioxide (SO_3) followed by absorption into a stream of sulfuric acid (H_2SO_4). The catalytic oxidation and subsequent double absorption operation is characterized by a conversion efficiency of approximately 99.7 percent. This is considered BACT for SO_2 control and is equivalent to approximately 4 lbs per ton of sulfuric acid produced.

Recovery of sulfuric acid mist is an economic necessity as well as an environmental requirement. High efficiency mist eliminators are considered BACT for sulfuric acid mist. The NSPS of 0.15 lbs per ton of sulfuric acid is considered to represent BACT for existing plants.

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The low NO_X emissions from IMC-Agrico's sulfuric acid plants are the result of the low combustion temperatures in the sulfur burning system. The Department agrees with the applicant that the low-NO_X emitting combustion system inherent for sulfuric acid plants is BACT for NO_X emissions, and that it would not be economically feasible to add retrofit NO_X control technologies. The Department believes that the facility can meet the NO_X emission limit of 0.12 lb/ton of 100% H_2SO_4 produced, as similar facilities in the past have met this emission limit

Conclusion

This BACT determination is consistent with those given in the EPA BACT/LAER Clearinghouse. This level of control insures that emissions will be minimized and there will be no significant deterioration of ambient air quality as discussed in the Technical Evaluation and Preliminary Determination.

Details of the Analysis May be Obtained by Contacting:

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9/15/97
Date:

Approved By:

Howard L. Rhodes

Howard L. Rhodes, Director
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Sept 15, 1997
Date: