CF Industries, Inc.
Plant City Phosphate Complex
Permit No. PSD-FL-339B
Plant City, Hillsborough County

Permit No. PSD-FL-339

For original Permit No. PSD-FL-339, the Department made the following BACT determinations for the "C" and "D" sulfuric acid plants.

- SO_2 Emissions: BACT is the current double-absorption system with the addition of 165,000 liters of Haldor Topsoe cesium catalyst in the 4th pass of the "C" SAP converter and equivalent cesium catalyst that guarantees equal or better performance than Topsoe's product for the "D" SAP. The SO_2 BACT limit for "C" and "D" SAP is 3.5 lb of SO_2 per ton of 100% H_2SO_4, 3-hour rolling CEMS average. This determination is applicable only to the present project and does not represent a BACT determination for a greenfield site or a new unit at a brownfield site. Such a new project would have to consider all process options and a thorough cost-effectiveness evaluation on the basis of cost per ton of SO_2 removed.
- SAM Emissions: BACT is the use of high-efficiency mist eliminators. The SAM BACT emission limit for the "C" and "D" SAP is 0.10 lb of SAM per ton of 100% H_2SO_4.
- NOx Emissions: BACT is the continued use of good combustion practices. The NOx BACT emission limit is 0.12 lbs of NOx per ton of 100% H_2SO_4.

Permit No. PSD-FL-339B

After installing catalyst and completing a portion of the construction authorized in Permit No. PSD-FL-339, the permittee realized that the changes resulted in the capability to produce more sulfuric acid than anticipated. Permit No. PSD-FL-339B authorized a sulfuric acid production increase from 2750 to 2962 tons per day. Based on the installed capabilities of the control systems, the original BACT determinations were revised in this project for the production increase as summarized in the following table.

Pollutant	BACT Standards		Control Technology
SO_2	401 lb/hour	3.25 lb/ton of 100% H_2SO_4, 3-hour rolling CEMS average	double absorption process with cesium-promoted vanadium catalyst in the entire 4th bed.
SAM	11 lb/hour	0.093 lb/ton of 100% H_2SO_4	fiber mist eliminators
NO_x	14 lb/hour	0.11 lb/ton of 100% H_2SO_4	good combustion practices

Compliance Methods

Compliance with the SO_2 emission limit (3.25 lb/ton, 3-hour rolling CEMS average) shall be demonstrated with a certified continuous emission monitor. Startup excess emissions shall be permitted for three hours for the sulfuric acid plants as endorsed in an agreement titled "Best Operational Startup Practices for Sulfuric Acid Plants", which is attached as Appendix A of the permit. In accordance with the following methods, annual testing is required to demonstrate compliance with the emissions limits for the sulfur dioxide, sulfuric acid mist and nitrogen oxides: EPA Methods 1, 2, 3, 4, 6C, 7E, and 8 contained in Appendix A of 40 CFR 60.