



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

DEC 1 1982

REF: 4AW-AM

Mr. James H. Carroll, P.E.
Environmental Engineer
U.S.S. Agri-Chemicals
Division of United States Steel Corporation
P. O. Box 150
Bartow, Florida 33830

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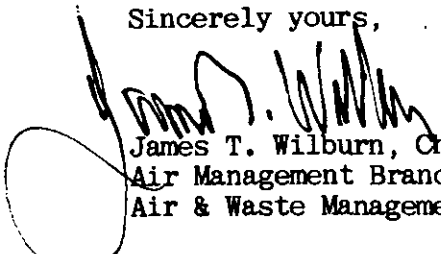
Dear Mr. Carroll:

This letter is in reference to a phone conversation with you and Jim Littell of my staff on November 1, 1982, discussing your intention to do future testing of the Unit #2 sulfuric acid plant located at your Fort Meade chemical facility in December 1982. The Florida State Department of Environmental Regulation (DER) has recently been delegated the responsibilities involved in the testing for compliance and continuous emissions monitor certification. We have advised Mr. Steve Smallwood, Chief, Bureau of Air Quality Management, of your recent startup of Unit #2 and advise you to contact your regional representative of the Florida State Department of Environmental Regulation to advise them of your intentions to test this unit as required under PSD Permit #FL 064.

We have also advised Mr. Smallwood that compliance testing reports previously submitted to this office are not acceptable as proof of compliance because of the lack of an official observer present and the use of a modified Method 8 testing procedure that was not previously approved.

If we may be of any further assistance to you, please feel free to call me or my staff at 404/881-4298 at any time.

Sincerely yours,



James T. Wilburn, Chief
Air Management Branch
Air & Waste Management Division

cc: Mr. Steve Smallwood, Chief
Bureau of Air Quality Control
Florida Department of Environmental Regulation

5.0 REGULATORY CONSIDERATIONS

5.1 PREVENTION OF SIGNIFICANT DETERIORATION REGULATIONS

Existing PSD regulations require that when a major facility (one with allowable emissions of a regulated pollutant greater than 50 ton/yr and potential emissions greater than 100 ton/yr) is added to or reconstructed at an emission source, whether the addition is to replace previous production capacity or for increased capacity, a PSD permit is needed and the facility must undergo a Best Available Control Technology (BACT) review. At the same time, so long as there is no net increase for the source as a whole in emissions of pollutants subject to national ambient air quality standards and no adverse air quality impact would occur, then an exemption from a formal impact analysis can be obtained (40 CFR 52.21(k)(1)(iv)). Under such an exemption, an applicant need not (1) perform a detailed analysis to show compliance with ambient air quality standards and PSD increments, (2) conduct pre-construction or post-construction ambient air quality monitoring, or (3) provide an additional impact analysis of the impairment to visibility, soils, or vegetation, or an analysis of the air quality impact projected for the area as a result of general commercial, residential, industrial, and other growth associated with the applicant's project. If potential emissions (emissions in the absence of control equipment) are greater than 100 ton/yr but allowable emissions are less than 50 ton/yr, it is necessary to demonstrate that the applicant will meet all emission limitations which are part of an applicable State Implementation Plan and all applicable Federal emission standards and standards of performance.

Based on these regulatory considerations and on the nature of the emission source changes described in Section 4.0, it is USSAC's understanding that a PSD permit will be required for the Fort Meade Phosphate Chemical Complex project, that a BACT analysis for the new sulfuric acid plant is needed as is a discussion to show that other process facilities will meet applicable emission standards, but that a detailed impact analysis is not necessary. The remainder of this

application is organized accordingly. Section 6.0 presents a BACT analysis for the new sulfuric acid plant and an emissions control analysis for the new phosphoric acid plant, the new GTSP plant, and the modified GTSP storage building. Information is also provided on the proposed cooling pond expansion. Section 7.0 contains a brief ambient impact analysis to show that emission source changes should not result in an adverse air quality impact offsetting the effect of decreased emissions, and to show that nearest PSD Class I and nonattainment areas will not be significantly affected by the project.

5.2 FLORIDA PERMIT APPLICATIONS

In addition to PSD permitting requirements, USSAC must also satisfy Florida permitting requirements. Applications for construction permits will be submitted to the Florida Department of Environmental Regulation. Four separate permit applications will be filed - one each for the new sulfuric acid plant, the new phosphoric acid plant, the new GTSP plant, and the modified GTSP storage building.

5.3 OTHER PERMITTING ACTIONS

Because of the need to obtain a National Pollutant Discharge Elimination System permit from EPA, USSAC has submitted an Environmental Information Document to Region IV's Environmental Impact Statement Branch. This document should be reviewed if additional information on the project is needed.

6.0 BEST AVAILABLE CONTROL TECHNOLOGY ANALYSIS

As discussed in Section 5.0, it is USSAC's understanding that the only new facility technically requiring a BACT analysis is the new sulfuric acid plant. However, for information purposes, a description of fluoride emission controls for the new phosphoric acid plant, the new GTSP plant, and the modified GTSP storage area is also presented below. Comments on cooling pond design are given as well.

6.1 SULFURIC ACID PLANT

USSAC proposes to construct a ~~two-unit~~, contact-type double absorption process, Monsanto design sulfuric acid plant with a nominal production capacity of 4000 short tons per day (100 percent H₂SO₄ basis). Control of sulfur dioxide emissions will be achieved as an integral feature of the double absorption process, contrasted with the existing sulfuric acid plant which requires an add-on scrubber to achieve desired emission levels. Sulfuric acid mist control will be achieved through the use of mist eliminators to reduce mist levels in gases leaving the interpass and final absorption tower. A description of the sulfuric acid production process, a copy of the contractor performance guarantee, a process material flow diagram, and a plot plan are attached in Appendix A.

The maximum emission rates which USSAC intends to achieve in satisfaction of BACT requirements are 4 lb SO₂ and 0.15 lb H₂SO₄ mist per ton of 100 percent H₂SO₄ produced. USSAC considers these limits to be representative of BACT for the following reasons:

1. The emission rates proposed are in compliance with Federal NSPS for new sulfuric acid plants (40 CFR 60.82 and 60.83) and with Florida emission limiting standards for new sulfuric acid plants (Florida Administrative Code 17-2.05(6)).
2. Compliance with Federal NSPS and use of the contact-type double absorption system with mist eliminator has previously been judged by EPA to constitute BACT for at least one other phosphate chemical plant in Florida (EPA, 1979).

3. By complying with new source emission standards, operation of the new plant will result in a decrease in allowable SO₂ emissions. Coincident with the decrease in allowable emissions there will be "no adverse air quality impact" (using the language of PSD regulations) - as discussed in Section 7.0. Acid mist emissions will increase slightly, but there is no ambient standard or PSD increment for sulfuric acid mist and no adverse impact is expected to result.

It is theoretically conceivable that additional control of SO₂ emissions could be achieved using some sort of add-on stack flue gas desulfurization (FGD) system. However, USSAC is not aware of any other installations where the double-absorption process has had to be supplemented by FGD equipment, and such an approach certainly does not seem necessary in this case for the reasons cited above.

6.2 PHOSPHORIC ACID PLANT

The new phosphoric acid plant will use wet rock, thereby eliminating incidental dust emissions connected with dry rock handling. Fluoride emissions will be controlled through the use of two fume scrubbers. A venturi cyclonic fume scrubber with a design fluoride collection efficiency of 99 percent will be used to control emissions from the reaction and filtration area, and an ejector venturi fume scrubber with a design fluoride collection efficiency of 95 percent will be used to control emissions from the storage tank area. A description of the phosphoric acid production process (including fluocilic acid production), a copy of the contractor performance guarantee, and a process flow diagram are attached in Appendix B.

The proposed maximum fluoride emission rate from the new phosphoric acid plant is 0.02 lb per ton of equivalent P₂O₅ feed. This rate conforms with the Federal NSPS for new wet-process phosphoric acid plants (40 CFR 60.202) and with the Florida emission limiting standard for new wet-process phosphoric acid plants (Florida Administrative Code 17-2.05(6)). Compliance with this standard will result in a decrease