STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION NOTICE OF PERMIT

In the matter of an Application for Permit by:

DEP File No. AC 53-271436 PSD-FL-229 Polk County

Mr. David B. Jellerson Cargill Fertilizer, Inc. P. O. Box 9002 Bartow, Florida 33830

Enclosed is Permit Number AC 53-271436 (PSD-FL-229) for modifications to the sulfuric acid plants at Cargill Fertilizer's facility located in Bartow, Polk County, Florida, issued pursuant to Section (s) 403, Florida Statutes.

Any party to this Order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 11-16-95 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED,

on this date, pursuant to §120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby

acknowledged.

(Clerk)

(Date)

Copies furnished to: Bill Thomas, SWD Jewell Harper, EPA

John Bunyak, NPS David A. Buff, KBN

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Final Determination

Cargill Fertilizer, Inc. Bartow, Polk County, Florida

SULFURIC ACID PRODUCTION INCREASE SAP Nos. 4, 5 and 6

Molten Sulfur Storage and Handling Facility

File No.: AC 53-271436 (PSD-FL-229)

Department of Environmental Protection
Division of Air Resources Management
Bureau of Air Regulation

Final Determination Cargill Fertilizer, Inc. AC53-271436 PSD-FL-229

The Technical Evaluation and Preliminary Determination for the permit to increase production of the sulfuric acid plants at Cargill Fertilizer in Riverview, Hillsborough County, Florida was distributed on October 25, 1995. The Notice of Intent to Issue was published in the Lakeland Ledger on November 1, 1995. Copies of the evaluation were available for public inspection at the Department offices in Tampa and Tallahassee.

There were no requests filed for an administrative hearing within the two week period provided by the Notice of Intent to Issue.

No comments were submitted by the applicant, National Park Service, and the U.S. Environmental Protection Agency as of November 17, 1995.

The applicant requested that the permit be issued prior the expiration of the 30 day comment period in order to facilitate response to a sulfuric acid shortage. Cargill has agreed that the Department can amend the permit in consideration of comments received by November 30.

The final action of the Department will be to issue the PSD permit (PSD-FL-229) as proposed and to make any revision pursuant to comments reviewed or public hearings requested by November 30, 1995.



Department of Environmental Protection

Lawton Chiles Governor Twin Towers Office Building 2600 Blair Stone Road Tallahassee. Florida 32399-2400

Virginia B. Wetherell Secretary

PERMITTEE: Cargill Fertilizer, Inc. Post Office Box 9002 Bartow, Florida 33831 Permit Number: AC 53-271436

PSD-FL-229

Expiration Date: Oct. 31, 1998

County: Polk

UTM Coordinates: 17-409.8 km E

17-3087.0 km N

Project: Sulfuric Acid Plant and

Molten Sulfur Storage and Handling System

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters and 62-4, 62-210, 62-212, 62-272, 62-275, 62-296 and 62-297, Florida Administrative Code (F.A.C.). The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and specifically described as follows:

For the modifications to increase the production rate of the Nos. 4, 5 and 6 sulfuric acid plants from 6,840 TPD to 7,800 TPD of 100% sulfuric acid and sulfur feed rate to a maximum of 2,630 TPD and 960,000 TPY for the sulfuric acid plants. The sulfur facility consists of a rail and truck unloading systems; one 3000 short ton (ST) molten sulfur storage tank; one 7500 ST molten sulfur storage tank; one 200 ST pit; one 300 ST rail pit; and the associated transfer pumps and piping. The modifications involve physical change to these plants. The sources are located at the Cargill Fertilizer, Inc. phosphate fertilizer manufacturing plant at 3200 Highway 60 West, Bartow, Polk County, Florida.

This permit is void if construction does not commence within 18 months of its issuance, if construction is discontinued for more than 18 months, or if construction is not completed and the modified plant placed in operation within a reasonable time.

The source shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:

- 1. Application received May 24, 1995.
- DEP's letter dated June 19 and 29, 1995.
- 3. KBN's letter dated July 27, 1995.
- 4. Memorandum of Understanding Regarding Best Operational Start-up Practices for Sulfuric Acid Plants, 1989.

Page 1 of 8

Permit Number: AC53-271436 PSD-FL-229

Expiration Date: October 31, 1998

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

- 2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
- 3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
- 4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
- 5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
- 6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or

Permit Number: AC53-271436 PSD-FL-229

Expiration Date: October 31, 1998

GENERAL CONDITIONS:

auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

- 7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
 - a. Have access to and copy any records that must be kept under the conditions of the permit;
 - b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
 - c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

- 8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
 - a. a description of and cause of non-compliance; and
 - b. the period of noncompliance, including dates and times; or if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source

Permit Number: AC53-271436 PSD-FL-229

Expiration Date: October 31, 1998

GENERAL CONDITIONS:

arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

- 10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
- 11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
- 12. This permit or a copy thereof shall be kept at the work site of the permitted activity.
- 13. This permit also constitutes:

 - (x) Determination of Prevention of Significant Deterioration (PSD)
 - (x) Compliance with New Source Performance Standards (NSPS)
- 14. The permittee shall comply with the following:
 - a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
 - b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application

Permit Number: AC53-271436 PSD-FL-229

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Expiration Date: October 31, 1998

GENERAL CONDITIONS:

for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

- c. Records of monitoring information shall include:
 - the date, exact place, and time of sampling or measurements;
 - the person responsible for performing the sampling or measurements;
 - the dates analyses were performed;
 - the person responsible for performing the analyses;
 - the analytical techniques or methods used; and the results of such analyses.
- When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

- 1. Unless otherwise indicated, the subject modification shall be in accordance with the capacities and specifications stated in the application.
- 2. The maximum production rates for each of the Nos. 4, 5 and 6 sulfuric acid plants shall not exceed 2,600 tons per day based on 100% sulfuric acid (H₂SO₄). [Rule 62-212.200(56), F.A.C.]
- Sulfur dioxide (SO₂) emissions from each of the Nos. 4, 5 and 6 plants shall not exceed 4 lbs/ton of 100% H₂SO₄, 433.3 lbs/hr, and 1898 tons/yr. [Rule 62-296.800, F.A.C., 40 CFR 60.83(a)]
- H₂SO₄ mist emissions from each of the Nos. 4, 5 and 6 plants shall not exceed 0.15 lb/ton of 100% H₂SO₄ produced, 16.25 lbs/hr, and 71.2 tons/yr. [Rule 62-296.800, F.A.C.; 40 CFR 60.83(a)(1)]
- 5. Visible emissions (VE) from the H₂SO₄ plants shall not exceed 10% opacity. VE shall not exceed 20% opacity from any source in the molten sulfur system. [Rule 62-296.800, F.A.C.; 40 CFR 60.83(a)(2)]
- Nitrogen oxides (NOx) emissions from each of the Nos. 4, 5 and 6 plants shall not exceed 0.12 lb/ton of 100% H₂SO₄ produced, 13 lbs/hr, and 57 tons/yr. [Rule 62-212.410, F.A.C.]

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Expiration Date: October 31, 1998

SPECIFIC CONDITIONS:

7. A continuous emission monitor shall be used to monitor SO₂ emissions from the H₂SO₄ plant in accordance with 40 CFR 60, Subpart H (July 1, 1993), Standards of Performance for Sulfuric Acid Plants. Initial compliance tests shall be conducted using: EPA Method 7E for NOx, EPA Method 8 for SO₂ and acid mist, and EPA Method 9 for visible emissions as described in 40 CFR 60, Appendix A (July 1, 1993). [Rule 62-296.800, F.A.C.; 40 CFR 60.84(a)]

- 8. Testing of emissions from each plant shall be conducted while operating at capacity. Capacity is defined as 90-100% of permitted capacity (2340 2600 TPD sulfuric acid production). If it is impracticable to test at capacity, then sources may be tested at less than capacity. In this case subsequent source operation is limited to 110% of the test load until a new test is conducted. Once the unit is so limited, then operation at higher capacities is allowed for no more than fifteen days for purposes of additional compliance testing to regain the rated capacity in the permit, with prior notification to the Department. The Department's Southwest District office shall be notified in writing 15 days prior to source testing. Written reports of the tests shall be submitted to that office within 45 days of test completion.

 [Rule 62-297.340(1)(a), F.A.C.]
- 9. Sulfuric acid plants Nos. 4, 5 and 6 and the molten sulfur storage and handling facility shall be allowed to operate continuously (i.e., 8760 hours/year). [Rule 62-212.200(56), F.A.C.]
- 10. The combined molten sulfur feed rate to the Nos. 4, 5 and 6 sulfuric acid plants shall exceed neither 2,630 tons per day (TPD), nor 960,000 tons per year (TPY). [Rule 62-212.200(56), F.A.C.]
 - 11. The permittee shall employ proper operation and maintenance procedures to minimize emissions from the molten sulfur system pursuant to the applicable requirements of F.A.C. Rule 62-296.411 [Molten Sulfur Storage and Handling Facilities]. The permittee shall also comply with other applicable provisions of F.A.C. Chapters 62-210, 212, 272, 275, 296, 297; and 62-4.
 - 12. No objectionable odors shall be allowed, in accordance with Rule 62-296.320(2), F.A.C. [Objectionable Odor Prohibited].

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Expiration Date: October 31, 1998

SPECIFIC CONDITIONS:

13. Initial compliance tests for the molten sulfur system shall be conducted in accordance with the July 1, 1993, version of 40 CFR 60, Appendix A, using EPA Method 9, for visible emissions. Test run duration shall not be less than 30 minutes. The tests for the vents of the storage tanks and sulfur pits shall be conducted while the tanks and pits are being filled (filling does not have to be continuous during the entire test). Routine VE tests shall be at the frequency specified in the operating permit to be issued by the Southwest District.

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- 14. Any change in the method of operation, equipment or operating hours which would reasonably be expected to result in an increase in emissions shall be submitted to DEP's Southwest District office for approval.
- 15. For emission inventory and PSD purposes, the estimated total emissions from the sources in the molten sulfur storage and handling facility are:

| Pollutant | Total Emissions (TPY) | Max. Emissions (lb/hr) |
|-------------------------------------|-----------------------|------------------------|
| Sulfur particles emissions | 5.35 | 1.28 |
| TRS (as H ₂ S) emissions | 6.56 | 1.56 |
| SO ₂ emissions | 13.68 | 3.26 |
| VOC emissions | 9.75 | 2.32 |

- 16. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit. [Rule 62-4.090, F.A.C.].
- 17. An application for an operation permit must be submitted to the Southwest District office at least 90 days prior to the expiration date of this construction permit or within 45 days after completion of compliance testing, whichever occurs first. The operation permit application shall include a set of conditions acceptable to the Department for startup/shutdown of the permittee's sulfuric

PERMITTEE:

Cargill Fertilizer, Inc.

Permit Number: AC53-271436

PSD-FL-229

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SPECIFIC CONDITIONS:

acid plant. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit. [Rules 62-4.055 and 62-4.220, F.A.C.].

18. This permit is subject to amendment or modification by the Department based on any comments received or public hearing held pursuant to the Notice of Intent to Issue published on November 1, 1995 in the Lakeland Ledger.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Howard L. Rhodes, Director Division of Air Resources

Management

Best Available Control Technology (BACT) Determination Cargill Fertilizer, Inc. Polk County Permit Number AC 53-271436 PSD-FL-229

The applicant proposes to increase sulfuric acid production from 2280 tons per day (TPD) to 2600 TPD for each of the Nos. 4, 5 and 6 sulfuric acid plants. Associated sulfur feed rates to these plants will increase proportionately. The facility is located at 3200 Highway 60 West phosphate fertilizer manufacturing facility near Bartow, Polk County, Florida.

The proposed project will result in a significant increase in emissions of sulfur dioxide (SO_2), sulfuric acid mist and NO_X . The project is therefore subject to Prevention of Significant Deterioration (PSD) review in accordance with F.A.C. Rule 62-212.400.

The BACT review is part of the PSD review requirements in accordance with F.A.C. Rule 62-212.410.

Date of Receipt of a BACT Application: May 24, 1995.

The BACT determination requested by the applicant is presented below:

| Control Technology | Double Absorption/Fiber Mist Eliminators |
|--|--|
| Pollutant | Emission Limits |
| SO ₂ Sulfuric Acid Mist Visible Emissions NOx | 4 lb/ton of 100% H ₂ SO ₄ produced 0.15 lb/ton of 100% H ₂ SO ₄ produced 10% opacity 0.15 lb/ton of 100% H ₂ SO 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 62-212, 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:

BACT-Cargill Fertilizer, Inc. Page 2

- (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 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 DEP:

| Control Technology | Double Absorption/Fiber Mist Eliminators |
|---|---|
| <u>Pollutant</u> | Emission Limits |
| SO ₂ Sulfuric Acid Mist Visible Emissions NOx | 4.0 lb/ton of 100% $\rm H_2SO_4$ produced 0.15 lb/ton of 100% $\rm H_2SO_4$ produced 10% opacity 0.12 lb/ton of 100% $\rm H_2SO_4$ produced |

BACT Determination Rationale

DEP's BACT determination is the same as that proposed by the applicant, determination completed by other states, and Standards of Performance for Sulfuric Acid Plants, 40 CFR 60 Subpart H, (double absorption process). The process itself is the control technology for SO₂. The emission limits reflect conversion efficiency of around 99.7% of SO₂ to H₂SO₄. High efficiency mist eliminators are considered BACT for sulfuric 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. The low NO_x

BACT-Cargill Fertilizer, Inc. Page 3

emissions from Cargill Bartow'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 $_{\rm X}$ emitting combustion system inherent for sulfuric plants are BACT for NO $_{\rm X}$ emissions, and that it would not be economically feasible for add-on retrofit NO $_{\rm X}$ control technologies. The Department believes that the facility can meet the NO $_{\rm X}$ emission limit of 0.12 lb/ton of 100% H2SO4 produced, as similar facilities in the past have met this emission limit.

Environmental Impact Analysis

The impact analysis for the BACT determination is based on 8,760 hours/year operation. The increment impact analysis and the ambient air quality analysis resulted in the following for SO_2 emissions:

| | Increment Impact | Increment | Predicted Ambient Air Quality Impact | Fla. AAQS |
|-----------------|----------------------|----------------------|---|----------------------|
| <u>Avg Time</u> | (ug/m ³) | (ug/m ³) | (ug/m³) | (ug/m ³) |
| 24-hr 3-hr | 41.76 257.45 | 91 512 | 186 557 | 260 1300 |

Conclusion

The incremental impact and the ambient air quality impact from SO₂ emissions due to the proposed modification is in compliance with all air pollution regulations. The impacts associated with the proposed increase in production support the Department's determination that the emission limits established herein represent BACT.

Details of the Analysis May be Obtained by Contacting:

Mr. Syed Arif, Review Engineer or Mr. A. A. Linero, P.E., Administrator New Source Review Section Department of Environmental Protection Bureau of Air Regulation 2600 Blair Stone Road Tallahassee, Florida 32399-2400

| Recommended by: | Approved by: |
|---|--------------------------------------|
| CH Jonin | Howal & Chodles |
| C. H. Fancy, P.E., Chief | Howard L. Rhodes, Director |
| C. H. Fancy, P.E., Chief Bureau of Air, Regulation | Division of Air Resources Management |
| 11/16/9, 1995 | _// //61995 |
| Date | Date |

TO: Howard L. Rhodes-

THRU: Clair Fancy

FROM: A. A. Linerolla In "/"

DATE: November 16, 1995

SUBJ: Cargill Fertilizer, Bartow

Sulfuric Acid Plants 4, 5, and 6

Attached for your approval is a permit allowing Cargill to increase production from three existing sulfuric acid plants at it's fertilizer facility in Bartow.

The project will result in a production increase of about 15 percent from each plant. The method of air pollution control consists of sulfur dioxide recovery by double absorption units followed by a mist eliminator.

We received no requests for an administrative hearing or request for an extension of the time period to file. To date, we have received no comments or requests for a public hearing.

Cargill has requested that we issue the permit prior to the end of the 30 day comment period so they can respond to a sulfuric acid shortage.

I have added a condition allowing us to modify the permit based on any comments received or public hearing requested as of November 30.

I recommend approval of their request.

AAL/kt