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		4b. Service Type <input type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified <input type="checkbox"/> Express Mail <input type="checkbox"/> Insured <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> COD	
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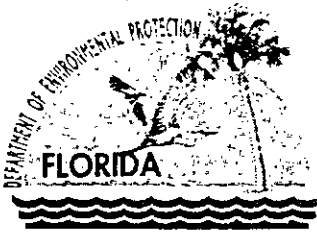
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 0570008-026-AC 4-15-99
 PSD-FI-251 #344 MP



Jeb Bush
Governor

Department of Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

April 15, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. David Jellerson
Environmental Superintendent
Cargill Fertilizer, Inc.
8813 Highway 41 South
Riverview, Florida 33569

Re: DEP File No. 0570008-026-AC (PSD-FL-251)
Nos. 3 & 4 MAP Plant

Dear Mr. Jellerson:

Enclosed is one copy of the Draft Air Construction Permit for the MAP Plant located at Cargill Fertilizer, 8813 Highway 41 South near Riverview in Hillsborough County. The Department's Intent to Issue Air Construction Permit and the "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT" are also included.

The "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT" must be published as soon as possible in a newspaper of general circulation in the area affected (Hillsborough County). Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within 7 (seven) days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

Please submit any written comments you wish to have considered concerning the Department's proposed action to A. A. Linero, P.E., Administrator, New Source Review Section at the above letterhead address. If you have any questions, please call John Reynolds or A. A. Linero at 850/921-9536.

Sincerely,

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

CHF/aal

Enclosures

In the Matter of an
Application for Permit by:

Mr. David Jellerson
Cargill Fertilizer, Inc.
8813 Highway 41 South
Riverview, Florida 33569

DEP File No. 0570008-026-AC
Draft Permit No. PSD-FL-251
Nos. 3 & 4 MAP Plant
Hillsborough County

INTENT TO ISSUE AIR CONSTRUCTION PERMIT

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit (copy of DRAFT Permit attached) for the proposed project, as detailed in the application specified above and attached Technical Review and Preliminary determination, for the reasons stated below.

The applicant, Cargill Fertilizer, Inc. submitted a request on June 8, 1998 to the Department to increase the production rate of its Nos. 3 & 4 MAP Plant from 1,656 to 2,016 tons per day at its phosphate fertilizer facility located at 8813 Highway 41 South, Riverview, Hillsborough County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. The Department has determined that an air construction permit, including a review for the Prevention of Significant Deterioration and a determination of Best Available Control Technology for the control of particulate matter, visible emissions and fluorides, is required to conduct the work.

The Department intends to issue this air construction permit based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed "Public Notice of Intent to Issue Air Construction Permit." The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. Where there is more than one newspaper of general circulation in the county, the newspaper used must be one with significant circulation in the area that may be affected by the permit. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/ 922-6979). The Department suggests that you publish the notice within thirty days of receipt of this letter. You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit or other authorization. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

The Department will issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept requests for a public hearing (meeting) for a period of 14 (fourteen) days and written comments concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available for this action.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station # 35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; and (f) A demand for relief.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by rule 28-106.301

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above

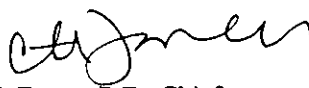
In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542 F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2) F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.



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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this INTENT TO ISSUE AIR CONSTRUCTION PERMIT (including the PUBLIC NOTICE, and DRAFT permit) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 4-15-99 to the person(s) listed:

David Jellerson, Cargill*
Gregg Worley, EPA
John Bunyak, NPS
Bill Thomas, DEP SWD
Rick Kirby, Hillsborough County
David Buff, P.E., Golder Associates

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Kend Jaker
(Clerk)

4-15-99
(Date)

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 0570008-026-AC (PSD-FL-251)

Cargill Riverview Nos. 3 & 4 MAP Plant
Hillsborough County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit pursuant to the requirements for the Prevention of Significant Deterioration (PSD) to Cargill Fertilizer, Inc. to increase production from the Nos. 3 & 4 MAP Plant at its facility located at 8813 Highway 41 South near Riverview in Hillsborough County. A Best Available Control Technology (BACT) determination was required for particulate matter (PM/PM₁₀), fluorides, and visible emissions pursuant to Rule 62-212.400, F.A.C. The applicant's name and address are: Cargill Fertilizer, Inc., 8813 Highway 41 South, Riverview, Florida 33569.

The Nos. 3 & 4 MAP Plant manufactures granulated monoammonium phosphate (MAP). Production capacity will be increased from 1,656 to 2,016 tons per day. The project will consist of physical modifications to the process as well as installing a new packed scrubber for removal of particulate matter and gaseous fluoride emissions. Particulate emissions will be controlled to 0.08 pounds per ton (lb/ton) of MAP product by medium energy scrubbers. Fluoride emissions will be controlled to 0.041 lb/ton P₂O₅ input by a packed scrubber using pond water. Visible emissions will be limited to 10 percent.

An air quality impact analysis was conducted. Emissions from the facility will not contribute to or cause a violation of any state or federal ambient air quality standards. The maximum predicted PM₁₀ PSD Class II increments consumed by all sources in the area, including this project, will be as follows:

Averaging Time	Allowable Increment ($\mu\text{g}/\text{m}^3$)	Increment Consumed ($\mu\text{g}/\text{m}^3$)	Percent Consumed
24-hour	30	10.7	36
Annual	17	0.4	2

The project by itself has no significant impact on the PSD Class I Chassahowitzka National Wilderness Area.

The Department will issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept requests for a public hearing (meeting) for a period of 14 (fourteen) days and written comments concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station # 35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under Section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; and (f) A demand for relief.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Protection Bureau of Air Regulation 111 S. Magnolia Drive, Suite 4 Tallahassee, Florida 32301 Telephone: 850/488-0114 Fax: 850/922-6979	Dept. of Environmental Protection Southwest District Office 3804 Coconut Palm Drive Tampa, Florida 33619-8218 Telephone: 813/744-6100 Fax: 813/744-6084	EPC of Hillsborough County Air Management Division 1410 North 21 Street Tampa, Florida 33605 Telephone: 813/272-5530 Fax: 813/2725605
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The complete project file includes the Draft Permit, the application, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the New Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

Technical Evaluation
and
Preliminary Determination

Cargill Fertilizer, Inc.
Riverview Facility
Hillsborough County, Florida

Nos. 3 and 4 MAP Plant Expansion

Construction Permit No. 0570008-026-AC
PSD-FL-251

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

April 15, 1999

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

I. GENERAL INFORMATION

A. Name and Address of Applicant

Cargill Fertilizer, Inc.
8813 US Highway 41 South
Riverview, Florida 33569

B. Reviewing and Process Schedule

Date of Receipt of Application:	June 8, 1998
First Request for Additional Information:	July 7, 1998
Application Completeness Date:	February 1, 1999

C. Facility Location

This facility is located at 8813 Highway 41 South, Riverview, Hillsborough County, Florida. The UTM coordinates are Zone 17, 362.9 km east and 3082.5 km north.

Facility Identification Code (SIC): Major Group No. 28 Industry Group No. 2874

II. TECHNICAL EVALUATION

A. Project Description

Cargill is proposing to expand the maximum production capacity of the existing MAP plant at its phosphate fertilizer manufacturing plant located in Riverview, Florida, from 1,656 to 2,016 TPD of 100% MAP product. The plant is located south of Tampa on Hillsborough Bay. Cargill operates one MAP plant consisting of two process units (Nos. 3 & 4 MAP plants and the South Cooler) at the facility. The plant is currently operating under Permit No. AO29-256726, issued Feb. 21, 1995.

Each MAP plant uses two scrubbers to remove emissions from the reactor/granulating, screening, and milling steps, followed by a common packed scrubber. The first scrubber is a Chemco cyclonic scrubber that removes ammonia and PM/PM₁₀ using phosphoric acid solution that is fed to the reactor. The second scrubber is an Arco cyclonic spray scrubber that removes F and PM/PM₁₀ using pond water. Emissions from the common MAP cooler are controlled by a venturi scrubber using pond water. Emissions from the six wet scrubbers exit to the atmosphere through a common stack. Physical modifications of the MAP plant include upgrading the screens, mills, elevators, conveyor belts, granulators and cooler, and installing the new packed scrubber.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

B. Process Description

The plant manufactures MAP by reacting phosphoric acid with anhydrous ammonia on a bed of recycled reaction material. The reaction is carried out in a rotating cylindrical reactor-granulator. Material exiting the reactor is screened for product size and then cooled in a counter-current flow pan cooler. The over-sized and under-sized material is recycled back to the granulator. Fluoride emissions are evolved as a result of the chemical reaction. PM and PM₁₀ emissions result from the contact between the MAP material and the air passed through the granulator, cooler, screens, and bucket elevators. MAP from the reactors is sent through a series of lump breakers, mills, and screens where the oversized and undersized granules are separated. These granules are then recycled to the reactors. Dust from the screening operation is vented to the cooler scrubber.

C. Project Emissions

Fluoride-containing gases including hydrogen fluoride (HF) and silicon tetrafluoride (SiF₄) are evolved during the exothermic reaction between ammonia and phosphoric acid that occurs in the reactor/granulator. Since the vent gases from the reactor/granulator contain ammonia in high concentrations, the first scrubbing stage uses a phosphoric acid stream as the scrubbing medium for recovery of ammonia so that it is recycled back to the process. A second and third stage of pond water scrubbing removes most of the fluoride evolved from the process as well as that which is stripped out of the phosphoric acid in the first stage scrubber. Gaseous fluoride and ammonia emissions from the cooler are relatively low and therefore do not require special controls.

Emission limits proposed by the Department in the BACT determination are presented below:

POLLUTANT	EMISSION LIMIT	LIMIT BASIS
F	1.72 lb/hr	0.041 lb/ton P ₂ O ₅ input
PM/PM ₁₀	7.0 lb/hr	0.08 lb/ton MAP (1996 stack test)
VE	10% opacity	Recent BACT Determinations

D. Issues Raised about the Application

The Air Quality Branch of the U.S. Fish and Wildlife Service requested that BACT be applied to associated emissions increases for separate process units that are upstream or downstream of the MAP plant according to the provisions of 40 CFR 52.21(j)(3) which states:

A major modification shall apply best available control technology for each pollutant subject to regulation under the Act for which it would result in a significant net emissions increase at the source. This requirement applies to each proposed emissions unit at which a net emissions increase in the pollutant would

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

occur as a result of a physical change or change in the method of operation in the unit.

BAR consulted with the EPA and received the following interpretation of 40 CFR 52.21(j)(3) on how BACT should be applied to other emission units that may be affected:

If a modification in one emissions unit triggers BACT and causes any increase in emissions of a regulated air pollutant from a separate but contiguous upstream and/or downstream emissions unit, BACT is also triggered for those associated emissions increases even though they are not significant, as long as those associated emissions increases are the result of an associated physical change or a change in the method of operation of the upstream/downstream emissions unit.

This interpretation hinges on the second sentence of 40 CFR 52.21(j)(3) and how it relates to the preceding sentence. The use of "proposed" before "emissions unit" implies that BACT applicability for any net increase in the emissions of the affected pollutant does not extend to pre-existing units that are not a part of the "proposed" modification (unless the "proposed" modification results in any net increase in emissions from an associated physical change or change in the method of operation of the unit). Rule 62-210.200(187), F.A.C., defines "modification" as not including an increase in the hours of operation or in the production rate (of an upstream/ downstream emissions unit), unless such change would be prohibited under any federally enforceable permit condition:

For any pollutant that is specifically regulated by the EPA under the Clean Air Act, a change in the method of operation shall not include an increase in the hours of operation or in the production rate, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975. [Rule 62-210.200(187)(a)]

If its permit was issued before that date, the operation of an upstream/downstream unit can be increased up to the maximum production rate and/or operating hours allowed by its current permit without being a "change in the method of operation" (i.e. a modification). If there is no associated concurrent physical change or change in the method of operation of an upstream/downstream emissions unit resulting from the primary modification, then, according to the Department's rules and the above interpretation of 40 CFR 52.21, no modification of the upstream/downstream emissions units has occurred and BACT would apply to the primary modification only. Of course, if the associated upstream/downstream unit undergoes a concurrent modification resulting in a significant increase in emissions (potential vs. actual) of an affected air pollutant, BACT would be applied to that modification along with the primary modification (unless potentials are capped so as to make the change insignificant).

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

III. RULE APPLICABILITY

The proposed project is subject to preconstruction review under the applicable provisions of Chapter 403, Florida Statutes, Chapters 62-212 and 62-4, Florida Administrative Code (F.A.C.), and 40 CFR 60. This facility is located in an area designated attainment for all criteria pollutants in accordance with F.A.C. Rule 62-275.400.

The proposed project was reviewed under Rule 62-212.400(5), F.A.C., New Source Review (NSR) for Prevention of Significant Deterioration (PSD), because it will be a modification to a major stationary source resulting in a significant increase in particulate matter and fluoride emissions. This review consisted of a determination of Best Available Control Technology (BACT) and an analysis of the air quality impact of the increased emissions. The review also includes an analysis of the project's impacts on soils, vegetation and visibility, along with air quality impacts resulting from associated commercial, residential and industrial growth.

The emission units affected by this PSD permit shall comply with all applicable provisions of the Florida Administrative Code and, specifically, the following Chapters and Rules:

Chapter 62-4	Permits
Rule 62-204.220	Ambient Air Quality Protection
Rule 62-204.240	Ambient Air Quality Standards
Rule 62-204.260	Prevention of Significant Deterioration Increments
Rule 62-204.360	Designation of Prevention of Significant Deterioration Areas
Rule 62-204.800	Federal Regulations Adopted By Reference
Rule 62-210.200	Definitions
Rule 62-210.300	Permits Required
Rule 62-210.350	Public Notice and Comments
Rule 62-210.370	Reports
Rule 62-210.550	Stack Height Policy
Rule 62-210.650	Circumvention
Rule 62-210.700	Excess Emissions
Rule 62-210.900	Forms and Instructions
Rule 62-212.300	General Preconstruction Review Requirements
Rule 62-212.400	Prevention of Significant Deterioration
Chapter 62-213	Operation Permits for Major Sources of Air Pollution
Rule 62-296.320	General Pollutant Emission Limiting Standards
Rule 62-297.310	General Test Requirements
Rule 62-297.400	Compliance Test Methods

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

IV. AIR QUALITY IMPACT ANALYSIS

A. Introduction

According to the application, the proposed project will increase emissions of two pollutants in excess of PSD significant amounts: PM₁₀ and F. PM₁₀ is a criteria pollutant and has national and state ambient air quality standards (AAQS) and PSD increments defined for it. F is a non-criteria pollutant and has no AAQS or PSD increments defined for it; therefore, no air quality impact analysis was required for F. Instead, the BACT requirement will establish the F emission limit for this project. The PSD regulations require the following air quality analyses for this project:

- Significant impact analysis for PM₁₀
- Analysis of existing air quality for PM₁₀
- PSD increment analysis for PM₁₀
- Ambient Air Quality Standards (AAQS) analysis for PM₁₀
- Analysis of impacts on soils, vegetation, wildlife, visibility and growth-related air quality impacts.

Based on the required analyses, the Department has reasonable assurance that the proposed project, as described in this report and subject to the conditions of approval proposed herein, will not cause or significantly contribute to a violation of any AAQS or PSD increment. However, the following EPA-directed stack height language is included: "In approving this permit, the Department has determined that the application complies with the applicable provisions of the stack height regulations as revised by EPA on July 8, 1985 (50 FR 27892). Portions of the regulations have been remanded by a panel of the U.S. Court of Appeals for the D.C. Circuit in *NRDC v. Thomas*, 838 F. 2d 1224 (D.C. Cir. 1988). Consequently, this permit may be subject to modification if and when EPA revises the regulation in response to the court decision. This may result in revised emission limitations or may affect other actions taken by the source owners or operators." A discussion of the required analyses follows.

B. Analysis of Existing Air Quality and Determination of Background Concentrations

Preconstruction ambient air quality monitoring is required for all pollutants subject to PSD review unless otherwise exempted or satisfied. The monitoring requirement may be satisfied by using existing representative monitoring data, if available. An exemption to the monitoring requirement may be obtained if the maximum air quality impact resulting from the projected emissions increase, as determined by air quality modeling, is less than a pollutant-specific de minimus concentration. In addition, if EPA has not established an acceptable monitoring method for the specific pollutant, monitoring may not be required.

If preconstruction ambient monitoring is exempted, determination of background concentrations for PSD significant pollutants with established AAQS may still be necessary for use in any required AAQS analysis. These concentrations may be established from the required preconstruction ambient air quality monitoring analysis or from existing representative

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

monitoring data. These background ambient air quality concentrations are added to pollutant impacts predicted by modeling and represent the air quality impacts of sources not included in the modeling.

The table below shows that predicted PM₁₀ impacts from the project are predicted to be above the de minimus level; therefore, preconstruction ambient air quality monitoring is required for this pollutant. However, since there are existing monitoring data in the vicinity of the plant, the monitoring requirement can be satisfied by using these data. A PM₁₀ background concentration of 21 ug/m³ for both the 24-hour and annual averaging times was established from these previously existing air quality data for use in the AAQS analysis required for PM₁₀.

**Maximum Project Air Quality Impacts for Comparison
to De Minimus Ambient Levels**

Avg. Time	Max Predicted Impact (ug/m ³)	De Minimus Level (ug/m ³)	Impact Above/ Below De Minimus
24-hour	10.3	10	Above

C. Models and Meteorological Data Used in the Air Quality Impact Analysis

The applicant and the Department used the EPA-approved Industrial Source Complex Short-Term (ISCST3) dispersion model to evaluate the pollutant emissions from the proposed project. The model determines ground-level concentrations of inert gases or small particles emitted into the atmosphere by point, area, and volume sources. The model incorporates elements for plume rise, transport by the mean wind, Gaussian dispersion, and pollutant removal mechanisms such as deposition. The ISCST3 model allows for the separation of sources, building wake downwash, and various other input and output features. A series of specific model features, recommended by the EPA, are referred to as the regulatory options. The applicant used the EPA recommended regulatory options. Direction-specific downwash parameters were used for all sources for which downwash was considered. The stacks associated with this project all satisfy the good engineering practice (GEP) stack height criteria.

Meteorological data used in the ISCST3 model consisted of a consecutive 5-year period of hourly surface weather observations and twice-daily upper air soundings from the National Weather Service (NWS) stations at Tampa International Airport, Florida (surface data) and Ruskin, Florida (upper air data). The 5-year period of meteorological data was from 1987 through 1991. These NWS stations were selected for use in the study because they are the closest primary weather stations to the study area and are most representative of the project site. The surface observations included wind direction, wind speed, temperature, cloud cover, and cloud ceiling.

Since five years of data were used in ISCST3, the highest-second-high (HSH) short-term predicted concentrations were compared with the appropriate AAQS or PSD increments. For the annual averages, the highest predicted yearly average was compared with the standards. For determining the project's significant impact area in the vicinity of the facility and if there are significant impacts

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

from the project on any PSD Class I area, both the highest short-term predicted concentrations and the highest predicted yearly averages were compared to their respective significant impact levels.

D. Significant Impact Analysis

Initially, the applicant conducts modeling using only the proposed project's emissions changes. If this modeling shows significant impacts, further modeling is required to determine the project's impacts on the AAQS or PSD increments. Concentrations were predicted for 216 regular and 119 discrete polar grid receptors located in a radial grid centered on the No. 9 Sulfuric Acid Plant stack. This modeling origin has been used in previous PSD applications for the Cargill Riverside facility. Receptors were located in rings with 36 receptors per ring, spaced at 10° intervals and at distances along the fence line 2, 2.5, 3, 5, 7, and 10 km from the No. 9 Sulfuric Acid Plant stack location, which is located in a PSD Class II area. In addition receptors were located along the facility's property boundary at 10 degree intervals, plus 83 additional off-property receptors at distances of 0.5, 0.8, 1.1 and 1.5 km from the No.9 stack to cover the area between the property boundary and the closest regular receptor grid distance of 2 km. Cargill will take measures to ensure that all property boundaries are properly fenced or have other physical barriers (equivalent to a fence), and are properly posted and patrolled.

Thirteen discrete receptors were set in the Chassahowitzka National Wilderness Area (CNWA) which is a PSD Class I area located approximately 107 km to the northwest of the project at its closest point. For each pollutant subject to PSD and also subject to PSD increment and/or AAQS analyses, this modeling compares maximum predicted impacts due to the project with PSD significant impact levels to determine whether significant impacts due to the project are predicted in the vicinity of the facility or in the CNWA. The tables below show the results of this modeling. A significant impact was predicted in the Class II area in the vicinity of the project for both PM₁₀ averaging times. Therefore, further PM₁₀ AAQS and PSD increment analyses in the vicinity of the project were required for this project. However, there were no significant impacts predicted in the CNWA Class I area; therefore, no further analyses were required in the Class I area.

**Maximum Project Air Quality Impacts for Comparison
to PSD Class II Significant Impact Levels in the Vicinity of the Facility**

Averaging Time	Maximum Predicted Impact (ug/m ³)	Significant Impact Level (ug/m ³)	Significant Impact
Annual	0.87	1	No
24-hour	10.3	5	Yes

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Maximum Project Air Quality Impacts in the CNWA for Comparison to PSD Class I Significant Impact Levels

Averaging Time	Maximum Predicted Impact (ug/m ³)	Significant Impact Level (ug/m ³)	Significant Impact
Annual	0.004	0.1	No
24-hour	0.05	0.5	No

E. PSD Class II Increment Analysis

The PSD increment represents the amount that new sources in an area may increase ambient ground level concentrations of a pollutant from a baseline concentration which was established in 1977 (the baseline year was 1975 for existing major sources of PM₁₀) for PM₁₀. The emissions values that are input into the model for predicting increment consumption are based on actual emissions from increment-consuming facility sources and all other increment-consuming sources in the vicinity of the facility. The maximum predicted PSD Class II area PM₁₀ increments consumed by this project and all other increment-consuming sources in the vicinity of the facility are shown below.

PSD Class II Increment Analysis

Averaging Time	Maximum Predicted Impact (ug/m ³)	Impact Greater Than Allowable Increment	Allowable Increment (ug/m ³)
Annual	0.4	No	17
24-hour	10.7	No	30

F. AAQS Analysis

For pollutants subject to an AAQS review, the total impact on ambient air quality is obtained by adding "background" concentrations to the maximum modeled concentrations for each pollutant and averaging time. The maximum modeled concentrations are based on the maximum allowable emissions from facility sources and all other sources in the vicinity of the facility. These "background" concentrations take into account all sources of a particular pollutant that are not explicitly modeled. The results of the AAQS analysis for PM₁₀ are summarized in the table below. As shown in this table, emissions from the proposed facility are not expected to cause or contribute to a violation of any AAQS.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Ambient Air Quality Impacts

Averaging Time	Modelled Sources Impact (ug/m ³)	Background Conc. (ug/m ³)	Total Impact (ug/m ³)	Florida AAQS (ug/m ³)	Total Impact Greater Than AAQS
Annual	23	21	44	50	No
24-hour	91	21	112	150	No

G. Additional Impacts Analysis

Impact Analysis Impacts On Soils, Vegetation, And Wildlife

The maximum ground-level concentrations predicted to occur from PM₁₀ emissions as a result of the proposed project, including background concentrations and all other nearby sources, will be below the associated AAQS. The AAQS are designed to protect both the public health and welfare. As such, this project is not expected to have a harmful impact on soils and vegetation in the PSD Class II area. An air quality related values (AQRV) analysis was done by the applicant for the Class I area. No significant impacts on this area are expected.

Impact On Visibility

A regional haze analysis was used to assess the potential for a significant increase in regional haze in the Class I CNWA due to this source's projected increase in emissions. A regional haze analysis to determine visibility impacts in the Class I area was required by the National Park Service. The results indicate that the impact of this project on visibility in the Class I area is insignificant.

Growth-Related Air Quality Impacts

The proposed modification will not significantly change employment, population, housing or commercial/industrial development in the area to the extent that a significant air quality impact will result.

V. CONCLUSION

Based on the foregoing technical evaluation of the application and additional information submitted by Cargill Fertilizer, Inc., the Department has made a preliminary determination that the proposed project will comply with all applicable state air pollution regulations provided that the Department's Best Available Control Technology Determination is implemented and certain conditions are met. The General and Specific Conditions are listed in the attached draft conditions of approval.

Permit Engineer: John Reynolds
Meteorologist: Cleve Holladay



Jeb Bush
Governor

Department of Environmental Protection

DRAFT

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

PERMITTEE:

Cargill Fertilizer, Inc.
8813 US Highway 41 South
Riverview, Florida 33569

Authorized Representative:

David Jellerson
Environmental Superintendent

File No.	0570008-026-AC
Permit No.	PSD-FL-251
SIC No.	2874
Project:	MAP Plant Expansion
Expires:	December 31, 2000

PROJECT AND LOCATION:

Permit for the construction/modification of the Nos. 3 & 4 MAP Plant that produces monoammonium phosphate. The project involves the installation of air pollution control equipment and process modifications necessary to increase the production rate from 1,656 to 2,016 tons MAP per day (TPD). The project is located at the Cargill Fertilizer facility, 8813 US Highway 41 South, Riverview, Hillsborough County. UTM coordinates are Zone 17; 362.9 km E; 3082.5 km N.

STATEMENT OF BASIS:

This construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and the Florida Administrative Code (F.A.C.) Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297. The above named permittee is authorized to modify the facility in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department of Environmental Protection (Department).

ATTACHED APPENDICES ARE MADE A PART OF THIS PERMIT:

Appendix BD BACT Determination
Appendix GC Construction Permit General Conditions

Howard L. Rhodes, Director
Division of Air Resources
Management

SECTION II - ADMINISTRATIVE REQUIREMENTS

FACILITY DESCRIPTION

Cargill Fertilizer, Inc. operates a phosphate fertilizer manufacturing facility near Riverview, Hillsborough County, Florida, producing sulfuric acid, wet-process phosphoric acid, ammoniated phosphate fertilizers and related products. The company has applied to increase the production rate from 1,656 TPD to 2,016 TPD at its Nos. 3 & 4 MAP Plant. As a result of this production rate increase, increases in the actual particulate matter (PM), PM with an aerodynamic diameter of 10 microns or less (PM₁₀), sulfur dioxide (SO₂), fluoride (F) and other pollutant emissions including ammonia (NH₃) will occur.

REGULATORY CLASSIFICATION

The MAP Plant is classified as a "Major or Title V Source" per Rule 62-210.200, F.A.C., because it has the potential to emit at least 100 tons per year of particulate matter when potential fugitive emissions are included with potential controlled emissions.

Phosphate rock processing plants are listed as a Major Facility Category in Table 62-212.400-1, F.A.C., "Major Facility Categories." Therefore, stack and fugitive emissions of over 100 TPY of a regulated pollutant are sufficient to classify the installation as a "Major Facility" per the definitions in Rule 62-210.200, F.A.C., subject to the Significant Emission Rates given in Table 62-212.400-2, F.A.C. and the requirements of Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD) and Best Available Control Technology (BACT).

PERMIT SCHEDULE:

- 06-08-98: Original Application Received
- 02-01-99: Revised Application Complete
- 04-15-99: Issued Intent to Issue Permit

RELEVANT DOCUMENTS:

The documents listed below are specifically related to this permitting action and form the basis of the permit. They are on file with the Department:

- Application received 06-08-98
- Department's incompleteness letter dated 07-07-98
- Applicant's submittal received 02-01-99
- National Park Service's letter received 07-13-98
- Hillsborough County's letter received 03-03-99
- Technical Evaluation and Preliminary Determination dated 04-15-99
- Best Available Control Technology determination (issued concurrently with permit)

AIR CONSTRUCTION PERMIT PSD-FL-251 (0570008-026-AC)

SECTION II – ADMINISTRATIVE REQUIREMENTS

1. **Regulating Agencies:** All documents related to applications for permits to operate, reports, tests, minor modifications and notifications shall be submitted to the Department's Southwest District Office, 3804 Coconut Palm Drive, Tampa, Florida 33619-8218. All applications for permits to construct or modify an emissions unit(s) *subject to the Prevention of Significant Deterioration or Nonattainment (NA) review requirements* should be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (FDEP), 2600 Blair Stone Road, MS 5505, Tallahassee, Florida 32399-2400 (phone number 850/488-0114).
2. **General Conditions:** The owner and operator is subject to and shall operate under the attached General Permit Conditions G.1 through G.15 listed in Appendix GC of this permit. General Permit Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
3. **Terminology:** The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.
4. **Forms and Application Procedures:** The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. [Rule 62-210.900, F.A.C.]
5. **Expiration:** This air construction permit shall expire on March 31, 2001 [Rule 62-210.300(1), F.A.C.]. The permittee may, for good cause, 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. However, the permittee shall promptly notify the Department's Southwest District Office of any delays in completion of the project which would affect the startup day by more than 90 days. [Rule 62-4.090, F.A.C.]
6. **Application for Title V Permit:** An application for a Title V operating permit, pursuant to Chapter 62-213, F.A.C., must be submitted to the Department's Southwest District Office. [Chapter 62-213, F.A.C.]
7. **Permit Approval:** Approval to construct shall become invalid if construction is not commenced within 18 months after receipt of such approval, or if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. The Department may extend the 18-month period upon a satisfactory showing that an extension is justified. [40 CFR 52.21(r)(2)].
8. **BACT Determination:** In conjunction with extension of the 18 month periods to commence or continue construction, or extension of the permit expiration date, the permittee may be required to demonstrate the adequacy of any previous determination of best available control technology for the source. [40 CFR 52.21(j)(4)]
9. **Annual Reports:** Pursuant to Rule 62-210.370(2), F.A.C., Annual Operation Reports, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. Annual operating reports using DEP Form 62-210.900(4) shall be sent to the DEP's Southwest District office by March 1st of each year.
10. **Stack Testing Facilities:** Stack sampling facilities shall be installed in accordance with Rule 62-297.310(6), F.A.C.
11. **Quarterly Reports:** Quarterly excess emission reports, in accordance with 40 CFR 60.7 (a)(7) (c) (1997 version), shall be submitted to the DEP's Northwest District office.

The Specific Conditions listed in this section apply to the following emission units:

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
022	No. 3 MAP Plant
023	No. 4 MAP Plant
024	South Cooler

AIR CONSTRUCTION PERMIT PSD-FL-251 (0570008-026-AC)
SECTION III – EMISSIONS UNIT(S) SPECIFIC CONDITIONS

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1. Unless otherwise indicated, the modification and operation of the subject MAP Plant shall be in accordance with the capacities and specifications stated in the application or in updated submittals. [Rule 62-210.300, F.A.C.]
2. The MAP Plant shall not produce more than 2,016 tons per day (84 tons per hour) of 100 percent MAP product. [Rule 62-210.200, F.A.C.]
3. The subject emission units are allowed to operate continuously (8760 hours/year). [Rule 62-210.200, F.A.C.]
4. Total fluoride emissions shall not exceed 1.72 lb/hr and 7.53 TPY based on 0.041 lb F/ton of P2O5 input. [Rule 62-212.400, F.A.C.]
5. Particulate matter emissions shall not exceed 7.0 lb/hr and 30.66 TPY based on 0.08 lb/ton MAP product. [Rule 62-212.400, F.A.C.]
6. Visible emissions from the stack shall not exceed 10% opacity. [Rule 62-212.400, F.A.C.]
7. Since natural gas is fired as the primary fuel, sulfur dioxide emissions from the stack shall be presumed as minimal and a sulfur dioxide compliance test shall be waived. Distillate oil with a maximum sulfur content of 0.5% sulfur by weight may be fired for up to 400 hours per year up to a maximum of 17,143 gallons per year. The firing rate of either fuel shall not exceed a total of 6 million BTU per hour for both plants. The permittee shall maintain records of the fuel oil supplier's sulfur content analysis. [Rule 62-210.200(227), F.A.C.]
8. The total pressure drops across the combined primary and secondary scrubber control systems for the two reactor/granulator units shall be maintained at all times during normal operation at a minimum pressure drop of 18 inches H₂O. The total pressure drop across the venturi/cyclonic cooler scrubber shall be maintained at all times during normal operation at a minimum pressure drop of 13.5 inches H₂O. Instances may occur at other times such as low operating rates during which the total pressure drops may be less than the normal rate minimums. The permittee shall install, calibrate, operate and maintain monitoring devices that continuously measure and record the total pressure drop across each scrubber. Accuracy of the monitoring devices shall be $\pm 5\%$ over the operating range. [Rules 62-297.310, 62-296.800; 40 CFR 60.223(c), F.A.C.]
9. Before this construction permit expires, and annually, the subject emissions units shall be tested for compliance with the above emission limits. For the duration of all tests the emission units shall be operating at permitted capacity. Permitted capacity is defined as 90-100 percent of the maximum operating rate allowed by the permit. If it is impracticable to test at permitted capacity, then the emission unit may be tested at less than permitted capacity (i.e., 90% of the maximum operating rate allowed by the permit); in this case, subsequent emission unit operation is limited to 110 percent of the test load until a new test is conducted. Once the emission unit is so limited, then operation at higher capacities is allowed for no more than 15 consecutive days for the purposes of additional compliance testing to regain the permitted capacity in the permit. [Rule 62-297.310, F.A.C.]
10. The Department's Southwest District office in Tampa shall be notified in writing at least 15 days prior to the compliance tests. Written reports of the test results shall be submitted to that office within 45 days of test completion. [Rule 62-297.310, F.A.C.]
11. The compliance test procedures shall be in accordance with EPA Reference Methods 1, 2, 3, 4, 5, 7E, 9 and 13A or 13B, as appropriate, as published in 40 CFR 60, Appendix A. 60, Appendix A. [Rules 62-204.800 and 62-297.310(7)(c), F.A.C.]

AIR CONSTRUCTION PERMIT PSD-FL-251 (0570008-026-AC)
SECTION III – EMISSIONS UNIT(S) SPECIFIC CONDITIONS

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12. All measurements, records, and other data required to be maintained by this facility shall be retained for at least five (5) years following the date on which such measurements, records, or data are recorded. These data shall be made available to the Department upon request. [Rule 62-4.070(3), F.A.C.]
13. The permittee shall install, calibrate, maintain, and operate a monitoring device which can be used to determine the mass flow of phosphorus-bearing feed material to the process. The monitoring device shall have an accuracy of ± 5 percent over its operating range. The permittee shall maintain a daily record of equivalent P_2O_5 feed by first determining the total mass rate in metric tons/hour of phosphorus bearing feed using a flow monitoring device equivalent to the requirements of 40 CFR 60.223(a) and 40 CFR 60.224(b)(3). [Rule 62-296.800, F.A.C.]
14. No person shall cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to an objectionable odor. [Rule 62-296.320, F.A.C.]
15. No person shall circumvent any air pollution control device, or allow the emission of air pollutants without the applicable air pollution control device operating properly. [Rule 62-210.650, F.A.C.]
16. The subject emissions units shall be subject to the following:
 - Excess emissions resulting from startup, shutdown or malfunction of any source shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700, F.A.C.]
 - Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited. [Rule 62-210.700, F.A.C.]
 - Considering operational variations in types of industrial equipment operations affected by this rule, the Department may adjust maximum and minimum factors to provide reasonable and practical regulatory controls consistent with the public interest. [Rule 62-210.700, F.A.C.]
 - In case of excess emissions resulting from malfunctions, each source shall notify the Department or the appropriate Local Program in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700, F.A.C.]
17. The permittee shall submit an Annual Operating Report using DEP Form 62-210.900(4) to the Department's Southwest District office by March 1 of the following year for the previous year's operation. [Rule 62-210.370, F.A.C.]

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

Cargill Fertilizer, Inc.
 Nos. 3 & 4 MAP Plant Expansion
 PSD-FL-251 / 0570008-026-AC
 Riverview, Hillsborough County

Cargill Fertilizer, Inc., is proposing to modify the existing Nos. 3 & 4 Monoammonium Phosphate (MAP) plants at its phosphate fertilizer manufacturing facility located in Riverview, Florida. The MAP plant consists of two process units, the No. 3 MAP plant and the No. 4 MAP plant, and the South Cooler. The modifications will allow the MAP plant to increase the maximum production rate from 1,656 tons per day (TPD) [69 tons per hour (TPH)] of MAP to 2,016 TPD of MAP (84 TPH). As a result of this production rate increase, an increase in the actual emissions of particulate matter (PM), PM with an aerodynamic diameter of 10 microns or less (PM₁₀), fluorides (F), sulfur dioxide (SO₂), nitrogen oxides (NO_x) and other pollutant emissions including ammonia (NH₃) will occur. Typically, NH₃ emissions from this process are not significant enough to be regulated since an acid scrubbing step is used to recover the NH₃ and return it to the process. NH₃ emissions are of concern primarily when accidental leaks occur during its storage or transport. NH₃ is not a listed hazardous air pollutant.

The increases for PM/PM₁₀ and F emissions will exceed the significant levels listed in Table 212.400-2 of Rule 62-212.400, Florida Administrative Code (F.A.C.). The project is therefore subject to Prevention of Significant Deterioration (PSD) review for PM/PM₁₀ and F in accordance with Rule 62-212.400, F.A.C. A Best Available Control Technology (BACT) determination is part of the review required by Rules 62-212.400 and 62-296, F.A.C. Air pollution control equipment will consist of wet scrubbers for PM/PM₁₀ and F emissions.

PROCESS EMISSIONS

Compared below are the current actual emissions to the applicant's proposed maximum emissions in tons/year:

	<u>PM</u>	<u>PM₁₀</u>	<u>F</u>	<u>SO₂</u>	<u>VOC</u>	<u>NO_x</u>	<u>CO</u>
<u>Current Actual Emissions (a)</u>							
MAP Plant/Cooler	8.35	8.35	0.86	0.006	0.029	1.45	0.36
Phosphoric Acid Plant	-	-	3.55	-	-	-	-
Material Handling System	15.29	15.29	-	-	-	-	-
Subtotal	23.64	23.64	4.41	0.006	0.029	1.45	0.36
<u>Proposed Maximum Emissions (b)</u>							
MAP Plant/Cooler @ 2,016 TPD	73.6	73.6	7.73	0.62	0.07	3.68	0.92
Phosphoric Acid Plant	-	-	10.03	-	-	-	-
Material Handling System	41.3	41.3	-	-	-	-	-
Subtotal	114.9	114.9	17.76	0.62	0.07	3.68	0.92
PSD Significant Emission Rate	25	15	3	40	40	40	100

Notes:

(a) PM/PM₁₀ and F emissions based on average MAP hours of operation during 1996 and 1997 of 8,305 and 8,294 hours, respectively, and annual stack test results as follows:

1996: PM-2.81 lb/hr; F-0.23 lb/hr (Nos. 3 and 4 MAP Plants and South Cooler combined)

1997: PM-1.21 lb/hr; F-0.18 lb/hr (" " " " " " " ")

Combustion related emissions based on average MAP Plant natural gas usage during 1996 and 1997 of 20.0 MMSCF and 21.3, respectively, and AP-42.

(b) Proposed emission rates are 16.8 lb/hr for PM; and 1.76 lb/hr for fluoride.

Cargill Fertilizer, Inc.
 MAP Plant Expansion

DEP File No. 0570008-026-AC
 PSD-FL-251

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

DATE OF RECEIPT OF COMPLETE BACT APPLICATION:

The original application received on June 8, 1998 was complete on February 1, 1999.

BACT DETERMINATION PROCEDURE:

In accordance with Chapter 62-212.400, F.A.C., this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department of Environmental Protection (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:

- Any Environmental Protection Agency determination of BACT 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.
- All scientific, engineering, and technical material and other information available to the Department.
- The emission limiting standards or BACT determination of any other state.
- 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 unit in question, the most stringent control available for a similar or identical emission unit or emission unit category. If it is shown that this level of control is technically or economically unfeasible for the emission unit 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.

The air pollutant emissions from this facility can be grouped into categories based upon the control equipment and techniques that are available to control emissions from these emission units. Using this approach, the emissions can be classified as indicated below:

- *Fluorides* (HF and SiF₄). Controlled generally by scrubbing with pond water.
- *Particulate Matter* (PM, PM₁₀). Controlled generally by wet scrubbing or filtration.
- *Combustion Products* (SO₂, NO_x). NO_x controlled generally by good combustion of clean fuels. SO₂ controlled generally by scrubbing when quantities are substantial.
- *Products of Incomplete Combustion* (CO, VOC). Controlled generally by proper combustion.

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

Grouping the pollutants in this manner facilitates the BACT analysis because it enables the pollutant control equipment and the corresponding energy, economic, and environmental impacts to be examined on a common basis. Although all of the pollutants addressed in the BACT analysis may be subject to a specific emission limiting standard as a result of PSD review, the control of "non-regulated" air pollutants is considered in imposing a more stringent BACT limit on a "regulated" pollutant (i.e., PM, SO₂, H₂SO₄, fluorides, etc.), if a reduction in "non-regulated" air pollutants can be directly attributed to the control device selected as BACT for the abatement of the "regulated" pollutants.

BACT EMISSION LIMITS PROPOSED BY APPLICANT:

POLLUTANT	EMISSION LIMIT	LIMIT BASIS	CONTROL TECHNOLOGY
F	1.76 lb/hr	0.042 lb/ton P ₂ O ₅ input	Packed scrubbers using pond water
PM	16.8 lb/hr	0.20 lb/ton product	Venturi Scrubbers
VE	20% opacity	Permit AO29-256726	Same as PM

BACT ANALYSIS

GASEOUS FLUORIDES (F)

Fluoride-containing gases including hydrogen fluoride (HF) and silicon tetrafluoride (SiF₄) are evolved during the exothermic reaction between ammonia and phosphoric acid that occurs in the reactor and to a lesser extent in the granulator. Since the vent gases from the reactor/granulator contain ammonia in high concentrations, the first scrubbing stage uses a phosphoric acid stream as the scrubbing medium for recovery of ammonia so that it is recycled back to the process. A final stage of pond water scrubbing removes most of the fluoride evolved from the process as well as that which is stripped out of the phosphoric acid in the first stage scrubber. Gaseous fluoride and ammonia emissions from the cooler are relatively low and therefore do not require special controls. The Nos. 3 and 4 MAP Plants will be equipped with six scrubbers following the proposed modification. One will be a new packed tail gas scrubber while the other five are existing cyclonic scrubbers. The new tail gas scrubber design will be submitted to the Department for approval prior to installation. Two of the existing cyclonic scrubbers will use pond water as the first stage of fluoride scrubbing, followed by the new packed scrubber as the combined second stage fluoride scrubber for the two plants.

The top-down BACT determination for fluorides identified the control technologies listed below starting with the most stringent:

1. Packed scrubber using once-through fresh water.
2. Packed scrubber using neutralized water from a dedicated pond (fresh water makeup).
3. Packed scrubber using process cooling pond water.

Use of once-through fresh water would achieve the highest level of fluoride removal but this option is not practical for operations where water conservation is required and plant water balance problems would be created.

Option 2 is possible, the main considerations being the cost of installing the pond and equipment and the cost of operating a lime treatment unit. Lime treatment to a pH level of 3.5 to 4.0 causes fluorides to precipitate

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out of solution, primarily as calcium fluoride. At this point the water would contain as low as 30-60 ppm fluoride. With second-stage lime treatment to a pH of 6.0 or more, the calcium compounds (mainly dicalcium phosphate) precipitate out along with additional calcium fluoride. Upon settling at a pH in the range of 6.5 to 8.8, the fluoride content of the clear neutralized water may be as low as 15 ppm, depending on the quality of the neutralization facility and the mixing efficiency.

Costs for Option 2 are based on data submitted by the applicant and information from other sources. These include Phosphates and Phosphoric Acid, by Pierre Becker, 2nd ed., 1989, and Development Document for Interim Final Effluent Limitations Guidelines and Proposed New Source Performance Standards, USEPA, 1975:

Scrubber Pond with Liner (2 acres - spray cooling)	\$ 75,000
Tanks, Pumps and Equipment	210,000
Other Costs	<u>40,000</u>
Total Installed Cost (T.I.C.)	\$ 325,000
Raw Materials	\$ 8,000
Solid Waste Disposal	10,000
Operation & Maintenance (@ 8.4% of T.I.C.)	27,000
Depreciation & Financial Charges (@ 16.9% of T.I.C.)	<u>55,000</u>
Annual Cost	\$ 100,000

Assuming that treatment of the scrubber water will result in a decrease in fluoride concentration from 5,500 ppm to below 50 ppm, the driving force for absorption will increase by an additional 1.0 to 2.0 mass transfer units (NTU) which should result in an additional 1.5 lb/hr of fluoride removed. This results in the following cost effectiveness:

$$\begin{aligned} F \text{ Removed} &= (1.5)(8760)/2000 = 6.6 \text{ tons/yr} \\ \text{Cost Effectiveness} &= \$100,000/6.6 = \$15,150/\text{ton} \end{aligned}$$

This figure is sufficiently high to rule out Option 2. However, it should be noted that the low magnitude of fluoride emissions relative to their potential environmental impact justifies the consideration of higher fluoride cost effectiveness figures relative to the high tonnage pollutants such as sulfur dioxide and nitrogen oxides. Option 3, therefore, is determined by the top-down approach as the basis for the fluoride BACT emission limit. The BACT limit will be the same as set recently on a similar Cargill permit (PSD-FL 255); 0.041 lb F/ton P₂O₅ input = 1.72 lb/hr. This limit allows a margin for compliance above the highest 1995 test run of 0.027 lb F/ton P₂O₅.

PARTICULATE MATTER (PM/PM₁₀) AND VISIBLE EMISSIONS (VE)

The sources of PM and VE, consisting primarily of MAP dust along with relatively small amounts of ammonium fluoride and other related compounds, are the reactor/granulator, cooler, screens and mills. These emissions are controlled by cyclones which remove most of the larger particles with the remainder controlled by wet scrubbers. The top-down approach for control of PM/PM₁₀ and VE identified the following BACT options:

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1. High-energy (>30 in. w.c.) venturi scrubber or ionizing wet scrubber.
2. Medium-energy (15-30 in.w.c.) venturi scrubber.

Characteristic of this process is that the first stage of scrubbing (acid scrubber) is primarily for ammonia recovery while the primary function of the second stage scrubber is fluoride removal, leaving PM/PM₁₀ control with a secondary priority from a design standpoint. Since recovery of ammonia takes place by chemical reaction with the acid scrubbing medium, the required removal can be effected using a medium energy scrubber which also removes up to 85% of the product dust escaping the cyclones. The tail gas scrubber is a low pressure drop device that removes fluorides by absorption. For these reasons, employment of a high energy, high efficiency device for PM/PM₁₀ removal has not been a design consideration for these plants.

If maximum PM/PM₁₀ removal is considered to be a design parameter, the cost effectiveness of adding high energy scrubbing to the existing system (Option 1) would likely be in the range of \$50,000 - \$75,000 per incremental ton of PM/PM₁₀ removed based on recent analyses for other projects. On a non-incremental basis, however, assuming replacement of the existing acid scrubbers with high energy ones, the cost effectiveness would drop to about \$7,000 to \$9,000 per ton for PM/PM₁₀ removal in the 98+% efficiency range. Due to the high costs of installing new ducts, pumps, fans, and instrumentation for retrofitting an existing system, and the high energy costs, Option 1 is not feasible for this project.

Option 2 is the feasible choice, and the BACT requirement will be satisfied by specifying that the pressure drop of the cyclonic scrubbers combined be maintained at a minimum of 18 in. H₂O during normal operation (which, although it is three inches higher than our typical BACT requirement for PM scrubbers, has been accepted by the applicant). Since test data indicate that the combined pressure drop of the cyclonic scrubbers is typically well above the usual BACT requirement of 15 in. H₂O, in this case the cooler scrubber will be allowed to operate below the 15 in. H₂O; i.e., at 13.5 in. H₂O. Analysis of recent test data for these scrubbers confirms that there is an inordinate safety margin between actual and allowable PM emissions; average actuals being considerably less than 20 percent of the allowables. Therefore, it is appropriate to reduce the allowables to a level consistent with typical margins for BACT limits. A margin of 100% above the average from the August 1996 stack test (0.04 x 2 = 0.08 lb/ton MAP = 6.72 lb/hr), say 7.0 lb/hr, appears reasonable for the reactor/granulators and cooler. Higher data appear for the years 1993-94, however, for the last five years results have been at or below 0.04 lb/ton MAP.

BACT DETERMINATION BY THE DEPARTMENT:

Based on the information provided by the applicant and other information available to the Department, the following emission limits are established employing the top-down BACT approach.

POLLUTANT	EMISSION LIMIT	LIMIT BASIS
F	1.72 lb/hr	0.041 lb/ton P ₂ O ₅ input
PM/PM ₁₀	7.0 lb/hr	0.08 lb/ton MAP (1996 stack test)
VE	10% opacity	Recent BACT Determinations

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COMPLIANCE

Compliance with the fluoride limit shall be in accordance with the EPA Reference Method 13A or 13B as contained in 40 CFR 60, Appendix A.

Compliance with the PM/PM₁₀ limit shall be in accordance with the EPA Reference Method 5 as contained in 40 CFR 60, Appendix A.

Compliance with the visible emission limit shall be in accordance with the EPA Reference Method 9 as contained in 40 CFR 60, Appendix A.

DETAILS OF THE ANALYSIS MAY BE OBTAINED BY CONTACTING:

John Reynolds, Permit Engineer
Department of Environmental Protection
Bureau of Air Regulation
2600 Blair Stone Road, MS 5505
Tallahassee, Florida 32399-2400

Recommended By:

Approved By:

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

Howard L. Rhodes, Director
Division of Air Resources Management

Date:

Date:

REFERENCES

Pierre Becker. 1989. Phosphates and Phosphoric Acid. Marcel Dekker, Inc. New York.

Robert E. Treybal. 1980. Mass Transfer Operations. McGraw-Hill, Inc. New York.

Aaron J. Teller. Control of Gaseous Fluoride Emissions. Chemical Engineering Progress. March 1967. (Vol. 63 # 3)

Cargill Fertilizer, Inc.
MAP Plant Expansion

DEP File No. 0570008-026-AC
PSD-FL-251

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

- U.S. Environmental Protection Agency. 1987. Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD).
- U.S. Environmental Protection Agency. 1985. BACT/LAER Clearinghouse - A Compilation of Control Technology Determinations.
- U.S. Environmental Protection Agency. 1980. Workbook for Estimating Visibility Impairment. Office of Air, Noise and Radiation, Office of Air Quality Planning and Standards.
- U.S. Environmental Protection Agency. 1978. Diagnosing Vegetation Injury Caused by Air Pollution. Prepared by Applied Sciences Associates, Inc. EPA-450/3-78-005. Research Triangle Park, NC.
- U.S. Fish and Wildlife Service (USFWS). 1995. Air Quality Branch, Technical Review of Cargill Fertilizer PSD Application June 26, 1995.
- U.S. Environmental Protection Agency. 1985. BACT/LAER Clearinghouse - A Compilation of Control Technology Determinations.
- U.S. Environmental Protection Agency. 1980. Workbook for Estimating Visibility Impairment. Office of Air, Noise and Radiation, Office of Air Quality Planning and Standards.
- U.S. Environmental Protection Agency. 1978. Diagnosing Vegetation Injury Caused by Air Pollution. Prepared by Applied Sciences Associates, Inc. EPA-450/3-78-005. Research Triangle Park, NC.
- U.S. Fish and Wildlife Service (USFWS). 1995. Air Quality Branch, Technical Review of Cargill Fertilizer PSD Application June 26, 1995.

APPENDIX GC
GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]

- G.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.
- G.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 or exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
- G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and 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 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.
- G.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.
- G.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.
- G.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 auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
- G.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 and 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.
- G.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.

APPENDIX GC
GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]

- G.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 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.
- G.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.
- G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, 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.
- G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.
- G.13 This permit also constitutes:
- (a) Determination of Best Available Control Technology (X);
 - (b) Determination of Prevention of Significant Deterioration (X); and
 - (c) Compliance with New Source Performance Standards ()
- G.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 or 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:
 - 1. The date, exact place, and time of sampling or measurements;
 - 2. The person responsible for performing the sampling or measurements;
 - 3. The dates analyses were performed;
 - 4. The person responsible for performing the analyses;
 - 5. The analytical techniques or methods used; and
 - 6. The results of such analyses.
- G.15 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.

Florida Department of
Environmental Protection

Memorandum

TO: Clair Fancy
THRU: A. A. Linero
FROM: John Reynolds *JR*
DATE: April 13, 1999
SUBJECT: Cargill Fertilizer, MAP Plant
DEP File No. 0570008-026-AC (PSD-FL-251)

Attached for your review is the Intent to Issue for the modification of the MAP Plant at Cargill Fertilizer in Riverview.

The permit involves an increase in production rate from 1,656 to 2,016 tons of MAP product per day. The Best Available Control Technology Determination consists of a packed scrubber using cooling pond water to control fluorides and medium energy venturi scrubbers to control particulate matter. The BACT limits and permit conditions we proposed are anticipated by Cargill, except for the change to 10% opacity, which is justified as BACT based on test results for similar installations.

I recommend your approval and signature.

AAL/jr