

Jeb Bush
Governor

Department of Environmental Protection

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

David B. Struhs
Secretary

March 19, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. David Jellerson
Environmental Superintendent
Cargill Fertilizer, Inc.
8813 Highway 40 South
Riverview, Florida 33569

Re: DEP File No. 0570008-028-AC (PSD-FL-234A)
AFI Plant

Dear Mr. Jellerson:

Enclosed is one copy of the Draft Air Construction Permit for the AFI 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.

We responded to your preliminary comments in a separate letter. Please submit any additional written comments you wish to have considered concerning the Department's proposed action to Mr. A. A. Linero, P.E., Administrator, New Source Review Section at the above letterhead address. If you have any questions, please call John Reynolds at 850/921-9536.

Sincerely,

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

CHF/jr

Enclosures

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

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. 0570008-028-AC
Draft Permit No. PSD-FL-234A
AFI 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 December 17, 1998 to the Department to increase the production rate of its AFI Plant from 580 to 770 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 revised 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.

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PS Form 3800, April 1995

0570008-020-AC
PSD-FI-234a

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 3-19-99 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.

Keri Jober
(Clerk)

3-19-99
(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. 0570008-028-AC (PSD-FL-234A)

Cargill Riverview Animal Feed Ingredients Plant
Hillsborough County

The Department of Environmental Protection (Department) gives notice of its intent to issue a revised air construction permit to Cargill Fertilizer, Inc. to modify the Animal Feed Ingredients (AFI) Plant at its facility located on Highway 41 South near Riverview in Hillsborough County. A Revised Best Available Control Technology (BACT) determination was required for particulate matter (PM/PM₁₀), fluorides (F), 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 AFI Plant manufactures granulated defluorinated phosphate products used in animal feeds. The production capacity of the existing plant will be increased from 580 to 770 tons per day (TPD) while the permitted capacity will be decreased from 1160 to 770 TPD. The modification will consist of installing additional scrubbing capacity for removal of fluoride emissions and particulate matter emissions. F will be controlled to 0.5 pounds per batch-hour by a crossflow scrubber using pond water. PM/PM₁₀ will be controlled to 6.0 pounds per hour using a venturi scrubber. Visible emissions will be limited to 10 percent.

An additional air quality impact analysis was not required because the impacts were evaluated when the plant was permitted to increase production from 580 to 1160 TPD in 1996. The final revised project will have less impacts than the project previously approved. Emissions from the facility will not contribute to or cause a violation of any state or federal ambient air quality standards.

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.

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

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

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	Dept. of Environmental Protection	Hillsborough County EPC
Bureau of Air Regulation	Southwest District Office	Air Management Division
111 S. Magnolia Drive, Suite 4	3304 Coconut Palm Drive	1410 North 21 st Street
Tallahassee, Florida 32301	Tampa, Florida 33619-8218	Tampa, Florida 33605
Telephone: 850/488-0114	Telephone: 813/744-6100	Telephone: 813/272-5690
Fax: 850/922-6979	Fax: 813/744-6084	

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, Hillsborough County, Florida

Air Permit Number 0570008-028-AC
PSD-FL-234A
Animal Feed Ingredient Plant

Department of Environmental Protection
New Source Review Section
Bureau of Air Regulation

March 19, 1999

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

1. APPLICATION INFORMATION

1.1 Applicant Name and Address

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

Authorized Representative:

David Jellerson, Environmental Superintendent

1.2 Reviewing and Process Schedule

12-17-98: Date of Receipt of Application
01-12-99: Application complete
03-19-99: Draft Permit Issued

2. FACILITY INFORMATION

2.1 Facility Location

Cargill Fertilizer, Inc.
Fertilizer Manufacturing Facility
UTM: Zone 17; 362.9 and 3082.5

2.2 Standard Industrial Classification Code

Major Group Number	28	<i>Chemicals & Allied Products</i>
Group Number	287	<i>Agricultural Chemicals</i>
Industry Number	2874	<i>Phosphatic Fertilizers</i>

2.3 Facility Category

This industry is on the list of the 28 Major Facility Categories per Chapter 62, Table 62-212.400-1, F.A.C. This installation is an existing fertilizer manufacturing facility consisting of phosphoric acid, sulfuric acid, monoammonium phosphate, diammonium phosphate, and related processing units. Air pollutant emissions from the facility are over a 100 tons per year (TPY) of particulate matter (PM/PM₁₀), sulfur dioxide (SO₂), nitrogen oxides (NO_x) and carbon monoxide (CO). This is a Major Facility per Rule 62-210.200(171), F.A.C. and a Major (Title V) Source of Air Pollution per Rule 62-210.200(173).

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

3. PROJECT DESCRIPTION

3.1 *This project involves the following emissions units:*

EMISSION UNIT No.	EMISSION UNIT DESCRIPTION
078	Animal Feed Ingredient Plant Stack
079	Diatomaceous Earth Silo
080	Limestone Silo
081	Animal Feed Phosphate Loadout System

Cargill Fertilizer, Inc. has applied to revise its construction permit PSD-FL-234 (0570008-013-AC) issued on June 12, 1997 to construct an animal feed ingredient (AFI) plant at its existing fertilizer manufacturing facility in Riverview, Florida. The plant was originally permitted under air construction permit AC29-242897, issued June 16, 1994. This permit was amended on January 12, 1996, with the issuance of air construction permit 05700008-002-AC to update the design data for the plant. The original plant capacity was 480 tons per day (TPD) and 150,000 tons per year (TPY) of AFI, based on two acid defluorination batch tanks and one granulation unit. The AFI plant began initial operations in January 1996. An application was submitted in 1996 to expand the AFI Plant by adding a third acid defluorination batch tank and a second granulation unit. This expansion, permitted under air construction permit no. 0570008-013-AC issued on June 12, 1997, increased the AFI production capacity to 1,160 TPD (580 TPD for each granulation unit) and 300,000 TPY.

Cargill later installed the third acid defluorination tank but did not construct the second granulation unit. The second granulation unit permitted under permit no. 0570008-013-AC will not be constructed. Instead, Cargill proposes that the capacity of the existing granulation unit be increased through implementing modifications to the system. The proposed actual increase in permitted rate capacity of the existing plant is from 580 TPD to 770 TPD of product. The current allowable permitted rate based on two granulation units is 1,160 TPD. The proposed modification includes installing additional screens and mills and upgrading the granulation venturi scrubber to handle the increased air evacuation rate.

4. PROJECT DESCRIPTION/EMISSIONS

4.1 *General Information*

There are two types of animal feed phosphate (AFP) that are produced at this facility, dicalcium phosphate (DCP) and monocalcium phosphate (MCP). The process involves defluorinating the phosphatic fertilizer solution (PFS) from the existing phosphate fertilizer plant, and reacting it with limestone to produce animal feed phosphates. The defluorination process is a batch operation which uses diatomaceous earth and PFS. After reaction with limestone, the products are discharged to a rotary dryer where they are

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

granulated. The solids are discharged from the dryer to the solids handling section of the granulation plant where the product is classified, cooled and de-dusted. Product material is then transferred to bulk storage where it is subsequently loaded into trucks or railcars. The new plant will only consist of a granulation area, and will be located adjacent to the existing plant. The existing acid defluorination area will be upgraded to support both AFI granulation plants. The new plant will share certain common equipment with the existing plant. The shared facilities will include the diatomaceous earth and limestone unloading systems, and the AFP loadout system.

The animal feed plant uses a combination of baghouses, cyclones and wet scrubbers to control PM/PM₁₀ emissions. Baghouses are used to control all raw material (diatomaceous earth and limestone) handling operations, as well as product loadout operations. PM/PM₁₀ emissions from the animal feed dryers and cooler/classifier systems are controlled by cyclones followed by a venturi scrubber. Fluoride emissions from the acid defluorination step are controlled by a packed crossflow scrubber using pond water.

4.2 Process Description

4.2.1 Emission Unit ID 079 - Diatomaceous Earth Unloading

Diatomaceous earth (DE) is pneumatically unloaded from trucks or railcars and conveyed to a storage silo. The silo is fitted with an efficient baghouse to control PM emissions from the transfer operation. The maximum DE unloading rate is currently 12 TPH. The DE is then transferred to a weigh bin before it is pneumatically transferred to the acid defluorination tanks. With the proposed plant expansion, the DE unloading operation will remain the same (12 TPH, maximum), but maximum operating hours will increase to 8,760 hr/yr. DE is pneumatically conveyed to the acid batch tanks in both the existing and the new animal feed plants.

4.2.2 Emission Unit ID 078 - Acid Defluorination

DE is metered from the weigh bin to the acid batch tanks where it is slurried with PFS and defluorinated in a batch stripping process. The AFI Plant has three batch tanks. Two batch tanks may be in use defluorinating acid at any one time. At the conclusion of the batch operation, defluorinated PFS is pumped to the storage tanks.

Fluoride emissions from the acid batch tanks are controlled by a single wet scrubber. The existing scrubber has been modified to handle two batch tanks defluorinating acid at the same time, however, additional scrubbing will be required to achieve BACT limits for fluoride emissions.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

4.2.3 Emission Unit ID 080 – Limestone for Granulation Process

The defluorinated PFS is reacted with limestone to produce calcium phosphate. Ground limestone is pneumatically unloaded from trucks into a bulk storage silo adjacent to the granulation plant area. The maximum limestone unloading rate is 25 TPH (instantaneous rates may be as high as 60 TPH). A baghouse controls PM emissions from the transfer operation. Limestone is periodically transferred from the storage silo by pneumatic conveyor to the limestone day bin in the granulation plant building. PM emissions from the day bin are controlled by a baghouse. The baghouse is vented back inside the building.

The limestone is metered from the limestone day bin into a hopper and then into a high speed mixer where it reacts with heated defluorinated PFS to form a mixture of MCP or DCP. The proportions of limestone and hot acid are adjusted to determine the grade of AFP. The acid and limestone slurry is combined in the mixer. A stream of dust and crushed oversize material from the recycle system are added to the acid/limestone slurry in the pug mill, which produces a granular material. The material then discharges into the rotary dryer.

The damp calcium phosphate solids discharge from the pug mill directly into the rotary dryer. Heated air is supplied from a separate combustion chamber which is normally fueled by natural gas. Provisions are made to use No. 2 fuel oil as a stand-by fuel for less than 400 hours per year. Dry solids discharge from the end of the dryer, through a grizzly, into the dryer elevator. The dryer exhaust gases pass through cyclones to capture product, and then through a venturi scrubber for PM control.

4.2.4 Emission Unit ID 081 - Solids Handling/Loadout

The solids handling section of the granulation plant takes the solids discharged from the dryer and classifies, cools and de-dusts the materials. The dryer elevator discharges material onto a double-deck screen which separates the material into oversize, product and fine streams. Provisions are made to bypass excess recycle material around the screen directly to the crushing mill, which also receives the oversize material from the screen.

Product size material from the screen discharges to a fluid bed classifier/cooler. This unit has a dual function; positive removal of dust and fines from the product stream by entrainment into the fluidizing air; and cooling of the product material to minimize storage and shipping problems. Cooled, onsize material is discharged from the fluid bed unit into the product storage silos. Particulate emissions from the mills and classifier/cooler are vented to the equipment vents cyclones and then to the dryer venturi scrubber.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Withdrawal of product from the product silos is metered to the loadout elevator and then to the loadout surge bin, loadout weigh bin, and finally to trucks or railcars. The maximum loading rate through the loadout system is 100 TPH (Instantaneous rates may be as high as 300 TPH). The silos and load-out systems are equipped with ventilation systems and a baghouse to control PM emissions. An 80-ton tank is used to store off-specification material for recycle. PM emissions from the tank are vented to the equipment vent cyclones.

4.3 Emissions

The BACT emission levels established by the Department are listed in Table 1:

TABLE 1

E.U. ID#	Description	Pollutant	Limit	TPY*	Basis	Regulation
078	AFI Stack	PM/PM ₁₀	6.0 lb/hr	35	Existing Limit	Rule 62-212.410, FAC
078	AFI Stack	F	0.5 lb/batch-hr	3.75	99.9% eff. (NTU= 8)	Rule 62-212.410, FAC
078	AFI Stack	VE	10% opacity	N/A	Max. Test = 5%	Rule 62-212.410, FAC
079	DE Silo	PM/PM ₁₀	5% opacity	0.16	0.012 gr/dscf	Rule 62-297.620(4), FAC
080	Limestone Silo	PM/PM ₁₀	5% opacity	0.21	0.012 gr/dscf	Rule 62-297.620(4), FAC
081	Loadout System	PM/PM ₁₀	5% opacity	1.56	0.012 gr/dscf	Rule 62-297.620(4), FAC

* Basis: 200,000 tons AFI/year, 500 batches/year @ 30 hours (max.)/batch = 15,000 batch-hours/year or 7,500 double-batch-hrs/yr

5. RULE APPLICABILITY

The proposed project is subject to preconstruction review under the applicable provisions of Chapter 403, Florida Statutes, and Chapters 62-204, 62-210, 62-212, 62-296 and 62-297 of the Florida Administrative Code (F.A.C.). This facility is located in Hillsborough County, an area designated as air quality maintenance area for PM. The proposed project is subject to review under Rule 62-212.400., F.A.C., Prevention of Significant Deterioration (PSD), because the emission increases for PM/PM₁₀, and F exceed the significance emission rates given in Chapter 62, Table 62-212.400-2. This review consists of a determination of Best Available Control Technology (BACT) and unless otherwise exempted, an analysis of the air quality impact of the proposed 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 modification shall comply with all applicable provisions of the Florida Administrative Code (including applicable portions of the Code of Federal Regulations) and, specifically, the following chapters and rules:

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

- Chapter 62-4
 - Rule 62-204.220
 - Rule 62-204.240
 - Rule 62-204.260
 - Rule 62-204.360
 - Rule 62-204.800
 - Rule 62-210.300
 - Rule 62-210.350
 - Rule 62-210.370
 - Rule 62-210.550
 - Rule 62-210.650
 - Rule 62-210.700
 - Rule 62-210.900
 - Rule 62-212.300
 - Rule 62-212.400
 - Rule 62-212.500
 - Rule 62-296.320
 - Rule 62-296.330
 - Rule 62-296.403
 - Rule 62-296.700
 - Rule 62-296.705
 - Rule 62-296.711
 - Rule 62-297.310
 - Rule 62-297.400
 - Rule 62-297.401
 - Rule 62-297.520
- Permits.
 - Ambient Air Quality Protection
 - Ambient Air Quality Standards
 - Prevention of Significant Deterioration Increments
 - Designation of Prevention of Significant Deterioration Areas
 - Federal Regulations Adopted by Reference
 - Permits Required
 - Public Notice and Comments
 - Reports
 - Stack Height Policy
 - Circumvention
 - Excess Emissions
 - Forms and Instructions
 - General Preconstruction Review Requirements
 - Prevention of Significant Deterioration
 - Preconstruction Review for Nonattainment Areas
 - General Pollutant Emission Limiting Standards
 - Best Available Control Technology (BACT)
 - Phosphate Processing
 - Reasonable Available Control Technology Particulate Matter
 - Phosphate Processing Operations
 - Materials Handling, Sizing, Screening, Crushing and Grinding Operations
 - General Test Requirements
 - EPA Methods Adopted by Reference
 - EPA Test Procedures
 - EPA Performance Specifications

The Animal Feed Ingredient plant is not subject to the NSPS requirements.

6. SOURCE IMPACT ANALYSIS

An ambient air quality analysis was not required since the emission limits established by the revised BACT are at least as stringent as the current limits and the total annual allowable emissions are not being increased significantly.

7. 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 and federal air pollution regulations provided 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.

PERMITTEE:

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

File No.	0570008-028-AC
Permit No.	PSD-FL-234A
SIC No.	2874
Project:	Animal Feed Plant
Expires:	December 31, 2000

Authorized Representative:

David Jellerson
Environmental Superintendent

PROJECT AND LOCATION:

Permit for the construction/modification of the Animal Feed Plant that produces defluorinated phosphate animal feed ingredients (AFI). The project involves the replacement of air pollution control equipment and process modifications necessary to increase the production rate from 580 to 770 tons per day (TPD) of AFI. The project is located at the Cargill Fertilizer facility, 8813 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 I – FACILITY INFORMATION

FACILITY DESCRIPTION

Cargill Fertilizer, Inc. operates a phosphate fertilizer manufacturing facility near Riverview, Hillsborough County, Florida, producing sulfuric acid, wet-process phosphoric acid, and ammoniated phosphate fertilizers and related products. The company has applied to increase the production rate from 580 TPD to 770 TPD at its AFI Plant. The modifications will improve emissions while increasing the maximum production rate. As a result of this production rate increase, actual increases in the emissions of particulate matter (PM), PM with an aerodynamic diameter of 10 microns or less (PM₁₀), sulfur dioxide (SO₂), fluoride (F) and other pollutants will occur but not in significant amounts.

REGULATORY CLASSIFICATION

The AFI 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 (includes plants that process phosphate rock-derived products) 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:

- 12-17-98: Application Received
- 01-12-99: Application Complete
- 03-19-99: Draft Permit Issued

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 12-17-98
- Department's incompleteness letter dated 12-21-98
- Applicant's submittal received 01-12-99
- Technical Evaluation and Preliminary Determination dated 03-18-99
- Best Available Control Technology determination (issued concurrently with permit)

AIR CONSTRUCTION PERMIT PSD-FL-255 (1050046-008-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.

AIR CONSTRUCTION PERMIT PSD-FL-234A (0570008-028-AC)

SECTION III - EMISSIONS UNIT(S) SPECIFIC CONDITIONS

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

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
078	Animal Feed Ingredient (AFI) Plant
079	Diatomaceous Earth Silo
080	Limestone Silo
081	Loadout System

1. Unless otherwise stated herein, the modification and operation of the subject AFI 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 AFI Plant shall not produce more than 770 tons of AFI product per day (32.1 tons per hour) or more than 200,000 tons of AFI product per year. [Rule 62-210.200, F.A.C.]
3. The subject emission unit is allowed to operate continuously (8760 hours/year). [Rule 62-210.200, F.A.C.]
4. Total fluoride emissions from the AFI Plant shall not exceed 0.50 lb./batch-hr and 3.75 TPY based on 200,000 tons AFI/year, 500 batches/year @ 30 hours (max.)/batch, 15,000 batch-hours/year or 7,500 double batch-hours/year. An initial fluoride scrubber performance requirement shall be that a minimum of 8.0 mass transfer units be demonstrated at all times during the initial performance tests described in Specific Condition No. 9 below. Compliance with the mass transfer requirement shall be determined by the Bureau of Air Regulation in Tallahassee. If, during the initial tests, the scrubber achieves a minimum of 8.0 mass transfer units using normal pond water, but at the same time emits greater than 0.5 lb. F/batch hour, the Department shall consider the tests as successful and shall adjust the fluoride emission limit upward as appropriate. [Rule 62-212.400, F.A.C.]
5. Particulate matter emissions from the AFI Plant stack shall not exceed 6.0 lb/hr and 35 TPY based on recent stack tests. [Rule 62-212.400, F.A.C.]
6. Visible emissions from the AFI Plant stack shall not exceed 10% opacity based on recent stack tests. Visible emissions from Emissions Units Nos. 079, 080 and 081 shall not exceed 5% opacity. [Rule 62-212.400, F.A.C.]
7. During periods of firing natural gas only, sulfur dioxide emissions from the stack shall be presumed as minimal and a sulfur dioxide compliance test shall be waived. No. 2 fuel oil with a maximum sulfur content of 0.5% sulfur by weight may be fired only during periods of natural gas curtailment or gas line/burner maintenance and shall not exceed 400 hours/year. The firing rate of either fuel shall not exceed 50 million BTU per hour. The permittee shall maintain records of the fuel oil supplier's sulfur content analysis. [Rule 62-210.200(227), F.A.C.]
8. All venturi scrubbers shall be operated at a minimum pressure drop of 15 inches H₂O. The permittee shall install, calibrate, operate and maintain monitoring devices that continuously measure and record the total pressure drop across each scrubbing system. Accuracy of the monitoring devices shall be ± 5% over the operating range. [Rules 62-297.310, 62-296.800, 62-212.410; 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. The initial performance tests for the fluoride scrubber shall consist of two sets of three-run inlet and outlet tests with each three-run set conducted simultaneously at the scrubber inlet and the stack. The first set shall be conducted at the beginning of a double-batch and the second set conducted at least eight hours after the double-batch has begun. Subsequent years' tests of the fluoride scrubber shall be for the stack only and shall be conducted with double-batches beginning simultaneously while a single three-run test is conducted at the beginning of the batches. 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.,

AIR CONSTRUCTION PERMIT PSD-FL-234A (0570008-028-AC)

SECTION III - EMISSIONS UNIT(S) SPECIFIC CONDITIONS

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 any compliance test. Written reports of the first year's performance test results shall be submitted to the Bureau of Air Regulation (BAR) in Tallahassee for a determination of compliance with the minimum requirement of 8.0 mass transfer units (NTU). Following BAR's approval of the scrubber performance, subsequent test reports shall be submitted to the Southwest District 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, 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.]
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.] The permittee shall install, calibrate, maintain, and operate a monitoring device which shall 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 the tons of equivalent P_2O_5 feed and the production tonnage of AFI product. [Rule 62-296.800, F.A.C.]
13. 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.]
14. 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.]
15. 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.]
16. 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
REVISED BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

CARGILL FERTILIZER, INC.
ANIMAL FEED INGREDIENT PLANT
PSD-FL-234A and 0570008-028-AC
Hillsborough County

Cargill Fertilizer, Inc. has applied to revise its construction permit PSD-FL-234 (0570008-013-AC) issued on June 12, 1997 to construct an animal feed ingredient (AFI) plant at its existing fertilizer manufacturing facility in Riverview, Florida. The plant was originally permitted under air construction permit AC29-242897, issued June 16, 1994. This permit was amended on January 12, 1996, with the issuance of air construction permit 05700008-002-AC to update the design data for the plant. The original plant capacity was 480 tons per day (TPD) and 150,000 tons per year (TPY) of AFI, based on two acid defluorination batch tanks and one granulation unit. The AFI plant began initial operations in January 1996. An application was submitted in 1996 to expand the AFI Plant by adding a third acid defluorination batch tank and a second granulation unit. This expansion, permitted under air construction permit no. 0570008-013-AC issued on June 12, 1997, increased the AFI production capacity to 1,160 TPD (580 TPD for each granulation unit) and 300,000 TPY.

Cargill later installed the third acid defluorination tank but did not construct the second granulation unit. The second granulation unit permitted under permit no. 0570008-013-AC will not be constructed. Instead, Cargill proposes that the capacity of the existing granulation unit be increased through implementing modifications to the system. The proposed actual increase in permitted rate capacity of the existing plant is from 580 TPD to 770 TPD of product. The current allowable permitted rate based on two granulation units is 1,160 TPD. The proposed modification includes installing additional screens and mills and upgrading the granulation venturi scrubber to handle the increased air evacuation rate.

The animal feed plant uses a combination of baghouses, cyclones and wet scrubbers to control PM/PM₁₀ emissions. Baghouses are used to control all raw material (diatomaceous earth and limestone) handling operations, as well as product loadout operations. PM/PM₁₀ emissions from the animal feed dryers and cooler/classifier systems are controlled by cyclones followed by a venturi scrubber. Fluoride emissions from the acid defluorination step are controlled by a packed crossflow scrubber using pond water.

As required for major facilities listed in Florida Administrative Code (F.A.C.) Chapter 62-212, Table 212.400-1, a BACT determination must be made for each pollutant exceeding the significant emission rates in Table 212.400-2, "Regulated Air Pollutants Significant Emissions Rates," which in this case are particulate matter (PM/PM₁₀) and fluoride (F). Nitrogen oxides (NO_x) had been included in the original BACT determination but have been excluded in this revision since test results showed that these emissions are less than significant.

Since the existing granulator scrubber will be handling a higher flow rate and particle loading than originally planned, and since the performance test on the fluoride scrubber shows that it did not meet the requirements of the original permit and BACT determination, the BACT determination is being revised accordingly.

APPENDIX BD
REVISED BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

BACT Determination Procedure

In accordance with Chapter 62-212, 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:

- (a) 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.
- (b) All scientific, engineering, and technical material and other information available to the Department.
- (c) The emission limiting standards or BACT determination 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 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 infeasible 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 follows:

- Combustion Products (e.g., SO₂, NO_x). These are controlled generally by gaseous control devices and fuel quality.
- Products of Incomplete Combustion (e.g., CO, VOC). Control is largely achieved by proper combustion techniques.
- Emissions from materials handling, conveyance, and storage (primarily PM). These are controlled generally by fabric filters and reasonable precautions.

APPENDIX BD
REVISED BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

Grouping the pollutants in this manner facilitates the BACT analysis by enabling the examination of equipment available to control the type or group of pollutants emitted and the corresponding energy, economic, and environmental impacts 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 POLLUTANT ANALYSIS

Particulate Matter (PM, PM₁₀)

Particulate matter is generated by the material handling sources and process equipment from this facility. Fabric filters (baghouses) are used to control all raw material (diatomaceous earth and limestone) handling operations, as well as product loadout operations. Baghouse technology represents the state of the art in control of PM/PM₁₀ emissions for material handling sources. Baghouses are highly efficient and allow collected PM to be recovered as product.

PM emissions from the animal feed dryers and cooler/classifier systems are controlled by cyclones followed by a venturi scrubber. This combination provides for a high overall PM collection efficiency. The cyclones allow for recovery of product in a dry form, with subsequent recycling back to the process. The venturi scrubber control is an efficient control device and is the most appropriate technology for gas streams that contain a significant amount of moisture.

Other common PM control devices include settling chambers, inertial separators, impingement separators, wet scrubbers, fabric filters, and electrostatic precipitators. Baghouses and electrostatic precipitators (ESPs) are generally considered equivalent for particulate control. Both types of devices can achieve removal efficiencies of over 99%. Both types of control equipment provide for the recovery/recycling of collected dust back into the process stream.

Common controls to limit particulate emissions from fugitive sources (such as roadways, stockpiles, and material processing and conveying equipment) include wet suppression, sweeping, application of surfactants, paving of roads and covering of stockpiles to reduce wind erosion. Wet suppression of fugitive particulate emissions is considered as BACT for most material handling operations and unpaved roads. Dust from stockpiles can be minimized by relatively high material moisture content with additional water spraying as necessary.

Fluorides (F)

AFI Plant No. 1, when originally permitted in 1994, was subject to Rule 62-296.403(1)(I), which requires BACT for fluorides. Consequently, AFI Plant No. 1 underwent a BACT determination. The resulting BACT was determined to be a wet cross-flow scrubber/demister utilizing pond water as the scrubbing medium and discharging to a common stack. The BACT emission limit from the defluorination systems, reactor/granulation system and the dryer was 0.04 lb/ton of P₂O₅ input (0.53 lb/hr or 1.63 TPY). Since that time a third acid batch tank was added and the crossflow scrubber modified to accommodate two batch tanks defluorinating acid at any one time.

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REVISED BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

BACT DETERMINATION REQUESTED BY THE APPLICANT:

<u>POLLUTANT</u>	<u>EMISSION LIMIT</u>
PM/PM ₁₀ (Material Handling Sources)	0.02 gr/dscf by baghouses
PM/PM ₁₀ (Process Equipment)	6.0 lb/hr by wet scrubber
F	0.04 lb/ton P ₂ O ₅ input
NO _x	Low nitrogen fuels/Good combustion

BACT DETERMINATION BY THE DEPARTMENT:

For PM/PM₁₀ emissions, the Department's original acceptance of the applicant's proposed standard of 0.02 gr/dscf for material handling sources utilizing baghouses has been revised to more closely reflect BACT determinations for similar applications. For years the Department has required a more stringent BACT limit than 0.02 gr/dscf for this type of application. The 0.02 standard for baghouses dates back probably twenty years or more. More recently, the Department's BACT determinations for baghouses in this industry have been around 0.012 gr/dscf. Since compliance for baghouses is demonstrated by opacity readings rather than mass emission tests, lowering the baghouse mass emission limits should not have any adverse impact for the permittee. Test results show that even the venturi scrubber was able to average about 0.012 gr/dscf. On this basis, the mass emission limits for the baghouses are revised in the Table 1.

The performance test results for the AFI Plant stack reflect the efficiency of the venturi scrubber in removing PM/PM₁₀ from the pug mill/dryer and screens/mills exhaust streams. While the average for three test runs was barely within the BACT limit (5.85 vs. 6.0 lb/hr), wide variation occurred with the first and third runs being above the limit (the third run was 8.49 lb/hr). Pressure drop measurements show that the scrubber was not operating as efficiently (13 in. vs. 14 in. H₂O) during the third run. In any event, the minimum pressure drop has been 15 in H₂O in recent BACT determinations by the Department for similar applications. By including a requirement that the venturi scrubber pressure drop be maintained at a minimum of 15 in. H₂O, the Department will have reasonable assurance that the BACT limit of 6.0 lb/hr will be achieved consistently. Therefore, the venturi scrubber mass emission limit will remain the same while adding the minimum pressure drop requirement. However, the visible emission measurements were sufficiently low (none higher than 5% opacity) that the BACT limit can be lowered to 10% opacity which provides a 100% margin for compliance. This opacity standard has been established as BACT in several recent permits.

Performance test results for fluorides show that compliance with the original BACT limit of 7.70 lb F/batch was not achieved. Averaged over the total batch time of 15.5 hours, fluoride emissions were 1.15 lb/hr totaling 17.9 lb for the two batches, thus exceeding the two-batch limit of 15.4 lb F. Test results also showed that the fluoride emissions did not drop off after the first five hours as had been reported. Emissions actually increased during the last half of the batch processing time.

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As indicated below, analysis of the fluoride scrubber performance raises reasonable doubts that it can consistently meet the design requirement of 8.0 mass transfer units:

Assumptions: 9,000 ppm F in pond H₂O @ 90° F ~ 2.0 mg F/M³ @ equilibrium

For two batches: ~800 tons Phosphoric Acid => 16,000 lb F @ 1.0% F

Average Scrubber Inlet Conc.: ~16,000 lb F/66.4(10%) SCF = 109 mg F/SCF

Average Scrubber Outlet Conc.: 0.002 gr/SCF => 0.13 mg F/SCF

Equilibrium Conc.: 2.0 mg F/M³ => 0.057 mg F/SCF

$$NTU = \ln(109 - 0.057/0.13 - 0.057) = 7.3 < 8.0$$

To achieve the additional 0.7 NTU, the quotient must be doubled.

If the Equilibrium Conc. is reduced to about 1.0 mg F/M³ => 0.029 mg/SCF, the outlet concentration is lowered to about 0.065 mg/SCF, thus

$$NTU = \ln(109 - 0.029/0.065 - 0.029) = \sim 8.0$$

With NTU = 8.0 and the Equilibrium Concentration at 1.0 mg F/M³, the fluoride emission rate would be about 0.6 lb/hr for two batches, or 0.3 lb/batch-hour.

To achieve 8.0 NTU at an Equilibrium Concentration of 2.0 mg F/M³, an additional scrubber would be required giving an outlet of $[8.0 = \ln(109 - 0.057)/(x - 0.057)]$ where $x = 0.0935$ mg/SCF and the emission rate is 0.9 lb/hr or 0.45 lb F/batch-hour.

The fluoride control options include the use of fresh water in the back section of the scrubber, reducing the fluoride concentration of the scrubber water through neutralization and settling, or adding additional contact area by way of an additional scrubber. The applicant indicated recently that the option of adding another scrubber section will be preferred over the other options. For reasonable assurance that the minimum of 8.0 NTU is achieved, the performance tests shall consist of two sets of three-run inlet and outlet tests with each three-run set conducted simultaneously at the scrubber inlet and the stack. The first set should be conducted at the beginning of a batch and the second beginning at least eight hours after the batch has begun.

Cost-benefit evaluations performed for recent permits indicate that the incremental cost effectiveness of pond water neutralization can vary considerably depending on the circumstances at each facility. If neutralization combined with a dedicated scrubber pond is chosen, costs per ton removed can range upward from \$4,000 depending on the circumstances. Adding an additional scrubber to achieve a greater approach to equilibrium with the pond water may be accomplished at a lower incremental cost for Cargill. Test results indicate that the new limit of 0.5 lb F/batch-hour can be met consistently through installation of any of the BACT options. Four of the nine test runs conducted in October 1998 were below this limit, and with the additional scrubber capacity that Cargill has agreed to install, the 0.5 limit can be met consistently. However, if BAR's analysis of representative performance test results shows that the 0.5 lb F/batch-hour is exceeded while achieving at least 8.0 NTU using normal pond water, the fluoride limit will be revised upward to reflect the appropriate figure.

The BACT emission levels established by the Department are listed in Table 1:

APPENDIX BD
REVISED BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

TABLE 1

E.U. ID #	Description	Pollutant	Limit	TPY*	Basis	Regulation
078	AFI Stack	PM/PM ₁₀	6.0 lb/hr	35	Existing Limit	Rule 62-212.410, FAC
078	AFI Stack	F	0.5 lb/batch-hr	3.75	99.9% eff. (NTU= 8)	Rule 62-212.410, FAC
078	AFI Stack	VE	10% opacity	N/A	Max. Test = 5%	Rule 62-212.410, FAC
079	DE Silo	PM/PM ₁₀	5% opacity	0.16	0.012 gr/dscf	Rule 62-297.620(4), FAC
080	Limestone Silo	PM/PM ₁₀	5% opacity	0.21	0.012 gr/dscf	Rule 62-297.620(4), FAC
081	Loadout System	PM/PM ₁₀	5% opacity	1.56	0.012 gr/dscf	Rule 62-297.620(4), FAC

* Basis: 200,000 tons AFI/year, 500 batches/year @ 30 hours (max.)/batch = 15,000 batch-hours/year or 7,500 double-batch-hrs/yr

COMPLIANCE

Compliance with the particulate emission limitations shall be in accordance with the EPA Reference Method 5 as contained in Appendix A, 40 CFR 60.

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

Compliance with visible emission standards shall be determined by conducting observations in accordance with 40 CFR 60, Appendix A, Method 9.

DETAILS OF THE ANALYSIS MAY BE OBTAINED BY CONTACTING:

John Reynolds, Permit Engineer
A. A. Linero, 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:

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

Howard L. Rhodes, Director
Division of Air Resources Management

Date:

Date:

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.

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- 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.

Memorandum

Florida Department of Environmental Protection

TO: Clair Fancy
THRU: A. A. Linero *AAL*
FROM: John Reynolds *JR*
DATE: March 18, 1999
SUBJECT: Cargill Fertilizer, AFI Plant
DEP File No. 0570008-028-AC (PSD-FL-234A)

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

The permit involves an increase in production rate from 580 to 770 tons of AFI product per day. The Best Available Control Technology Determination consists of a packed scrubber using cooling pond water to control fluorides and a medium energy venturi scrubber to control particulate matter. The BACT limits and permit conditions we proposed have been agreed to by Cargill, except for the change to 10% opacity which is justified as BACT based on test results.

I recommend your approval and signature.

AAL/jr



Jeb Bush
Governor

Department of Environmental Protection

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

David B. Struhs
Secretary

P.E. Certification Statement

Permittee:

DEP File No. 0570008-028-AC (PSD-FL-234A)

Cargill Fertilizer, Inc.
8813 Highway 41 South
Riverview, Hillsborough County

Project type:

Project to increase animal feed ingredient (AFI) production from 580 to 770 TPD by making the following physical modifications to the existing AFI plant: install additional screens and mills and upgrading of the granulation venturi scrubber. The project is a modification of a partially completed project to increase production from 580 TPD to 1160 TPD.

Particulate emissions from processes will be controlled to 6 pounds per hour by wet scrubbing. Particulate emissions from materials handling will be controlled to 0.02 grains per dry standard cubic foot by baghouses. Fluoride emissions will be controlled to 0.04 lb/ton P_2O_5 by packed scrubbers. Visible emissions will be limited to 10 percent. However at this time the applicant has not agreed to this limit and will need to provide additional information to support a request for a higher limit.

The project will not cause or contribute to violations of any ambient air quality standard or PSD increment.

I HEREBY CERTIFY that the engineering features described in the above referenced application and subject to the proposed permit conditions provide reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4 and 62-204 through 62-297. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including but not limited to the electrical, mechanical, structural, hydrological, and geological features).

A. A. Linero, P.E.
Registration Number: 26032

3/19/99
Date

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