Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

September 15, 2000

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Debra R. Waters
Environmental Superintendent
Cargill Fertilizer, Inc.
P.O. Box 9002
Bartow, Florida 33830

Re: DEP File No. 1050046-013-AC (PSD-FL-295)
No. 4 Phosphoric Acid Plant Filter Modification - Bartow

Dear Ms. Waters:

Enclosed is one copy of the draft air construction permit (PSD permit) to replace the phosphoric acid filter for the No. 4 Phosphoric Acid Plant located at 3200 Highway 60 West, Bartow, Polk County. The Technical Evaluation and Preliminary Determination, 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 one time only, as soon as possible, in the legal advertisement section of a newspaper of general circulation in the area affected, pursuant to the requirements Chapter 50, Florida Statutes. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within seven days of publication. Failure to publish the notice and provide proof of publication may result in the denial of the permit.

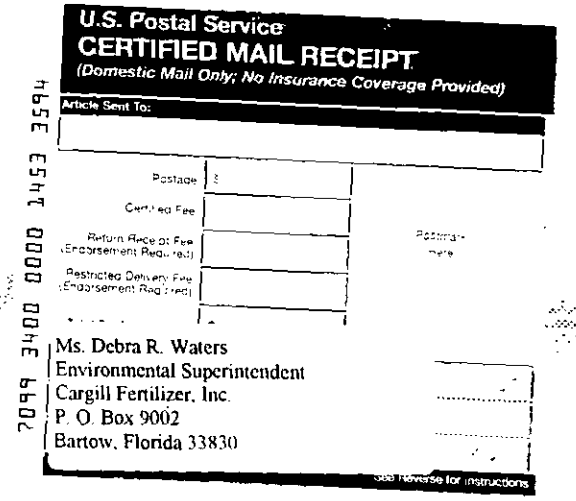
Please submit any written comments you wish to have considered concerning the Department's proposed action to A. A. Linero, P.E., Administrator, New Source Review Section at the above letterhead address. If you have any other questions, please contact J. M. Reynolds at 850/921-9536 or A. A. Linero at 850/921-9523.

Sincerely,

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

CHF/JR

Enclosures



U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

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Restricted Delivery Fee (Endorsement Required)

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Ms. Debra R. Waters
Environmental Superintendent
Cargill Fertilizer, Inc.
P. O. Box 9002
Bartow, Florida 33830

See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1 Article Addressed to:

Ms. Debra R. Waters
Environmental Superintendent
Cargill Fertilizer, Inc.
P. O. Box 9002
Bartow, Florida 33830

COMPLETE THIS SECTION ON DELIVERY

A Received by *(Please Print Clearly)* RPICKARD — B. Date of Delivery 9-21-00

C. Signature — X [signature] — ☒ Agent ☐ Addressee

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PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

In the Matter of an
Application for Permit by:

Ms. Debra R. Waters, Environmental Superintendent
Cargill Fertilizer, Inc.
P. O. Box 9002
Bartow, Florida 33830

DEP File No. 1050046-013-AC, PSD-FL-295
Replace No. 4 Phosphoric Acid Filter
Polk County

/

INTENT TO ISSUE AIR CONSTRUCTION PERMIT

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit (PSD permit, copy of draft permit attached) for the proposed project, detailed in the application specified above and the enclosed Technical Evaluation and Preliminary Determination, for the reasons stated below.

The applicant, Cargill Fertilizer, Inc., applied on June 22, 2000, to the Department for an air construction permit to install a larger capacity filter for the No. 4 Phosphoric Acid Plant located at 3200 Highway 60 West, Bartow, Polk 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 is required to construct the project.

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. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. 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. 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). 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. 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 written comments and requests for public meetings concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of Public Notice of Intent to Issue Air Permit. Written comments and requests for public meetings 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.

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, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

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.

Mediation is not available in this proceeding.

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 of Intent to Issue Air Construction Permit, Technical Evaluation and Preliminary Determination, and the Draft Permit) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 9/18/02 to the person(s) listed:

Debra R. Waters*
Dave Buff, P.E., Golder Associates
Bill Thomas, SWD
Jeff Spence, Polk Co.
Gregg Worley, EPA
John Bunyak, NPS

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.

Charlotte J. Hayes 9/18/02
(Clerk) (Date)

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 1050046-013-AC (PSD-FL-295)

Cargill Fertilizer, Inc.
Replacement of No. 4 Phosphoric Acid Plant Filter
Polk County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit (PSD permit) to Cargill Fertilizer, Inc., for replacement of the No. 4 Phosphoric Acid Plant (PAP) gypsum filter with a larger capacity unit at its facility located at 3200 Highway 60 West, Bartow, Polk County. A Best Available Control Technology (BACT) determination was required for emissions of fluorides including hydrogen fluoride (HF) pursuant to Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD). The applicant's mailing address is: Cargill Fertilizer, Inc., 3200 Highway 60 West, Bartow, Florida 33830.

The gypsum filter replacement will not cause in increase in materials processed in the No. 4 PAP. It will improve the recovery of phosphoric acid product, which will result in somewhat higher production from downstream fertilizer plants. Permitted emissions will decrease from the No. 4 PAP and there will be no changes in permitted emissions or permitted production downstream. There will still be facility-wide PSD-significant increases for fluorides, sulfur dioxide and particulate matter (PM_{10}) based on a comparison of future potential emissions to past actual emissions.

The Department proposes a BACT limit for total fluoride emissions from the No. 4 PAP of 0.012 pounds per ton of P_2O_5 input and 8.94 tons per year. The downstream plants have all undergone PSD review and BACT determinations in recent years. The Department is not requiring BACT on the downstream plants that are not undergoing physical or operational changes.

An air quality impact analysis was conducted. The maximum predicted PM_{10} Class II increments consumed are 22 micrograms per cubic meter, 24-hour average, and 3 micrograms per cubic meter, annual average. These values are 73 and 18 percent of the allowable 24-hour and annual increments of 30 and 17 micrograms per cubic meter, respectively. The maximum predicted SO_2 impacts are below significant impact levels; therefore no further increment evaluation was required. Emissions from the facility will not significantly contribute to or cause a violation of any state or federal ambient air quality standards or PSD increments.

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 written comments and requests for public meetings concerning the proposed permit issuance action for a period of thirty (30) days from the date of publication of this Public Notice of Intent to Issue Air Construction Permit. Written comments and requests for public meetings 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, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

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 Suite 4, 111 S. Magnolia Drive Tallahassee, FL 32301 Telephone: 850/488-0114 Fax: 850/922-6979	Polk County Environmental Services Department 4177 Ben Durrance Road Bartow, FL 33830 Telephone: 863/534-7377 Fax: 863/534-7374	Dept. of Environmental Protection Southwest District 3804 Coconut Palm Drive Tampa, FL 33619-8218 Telephone: 813/744-6100 Fax: 813/744-6084

The complete project file includes the application, technical evaluations, draft permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, New Source Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, FL 32301 or call 850/488-0114 for additional information.

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

TECHNICAL EVALUATION
AND
PRELIMINARY DETERMINATION

Cargill Fertilizer, Inc.
No. 4 Phosphoric Acid Plant Filter Replacement
Polk County
Bartow, Florida

Permit Number
PSD-FL-295
1050046-013-AC

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

September 15, 2000

I. Application Information

A. Name and Address of Applicant

Ms. Debra R. Waters, Environmental Superintendent
Cargill Fertilizer, Inc.
P.O. Box 9002
Bartow, Florida 33830

B. Reviewing and Process Schedule

Date of Receipt of Application: June 22, 2000
First Request for Additional Information: July 14, 2000
Application Complete: August 14, 2000

C. Facility Location:

The facility is located at 3200 Highway 60 West, Bartow, Polk County, Florida. Latitude and longitude are 27/54/22 and 81/54/59 respectively. UTM coordinates of the site are: Zone 17, 409.9 km E and 3,086.8 km N.

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

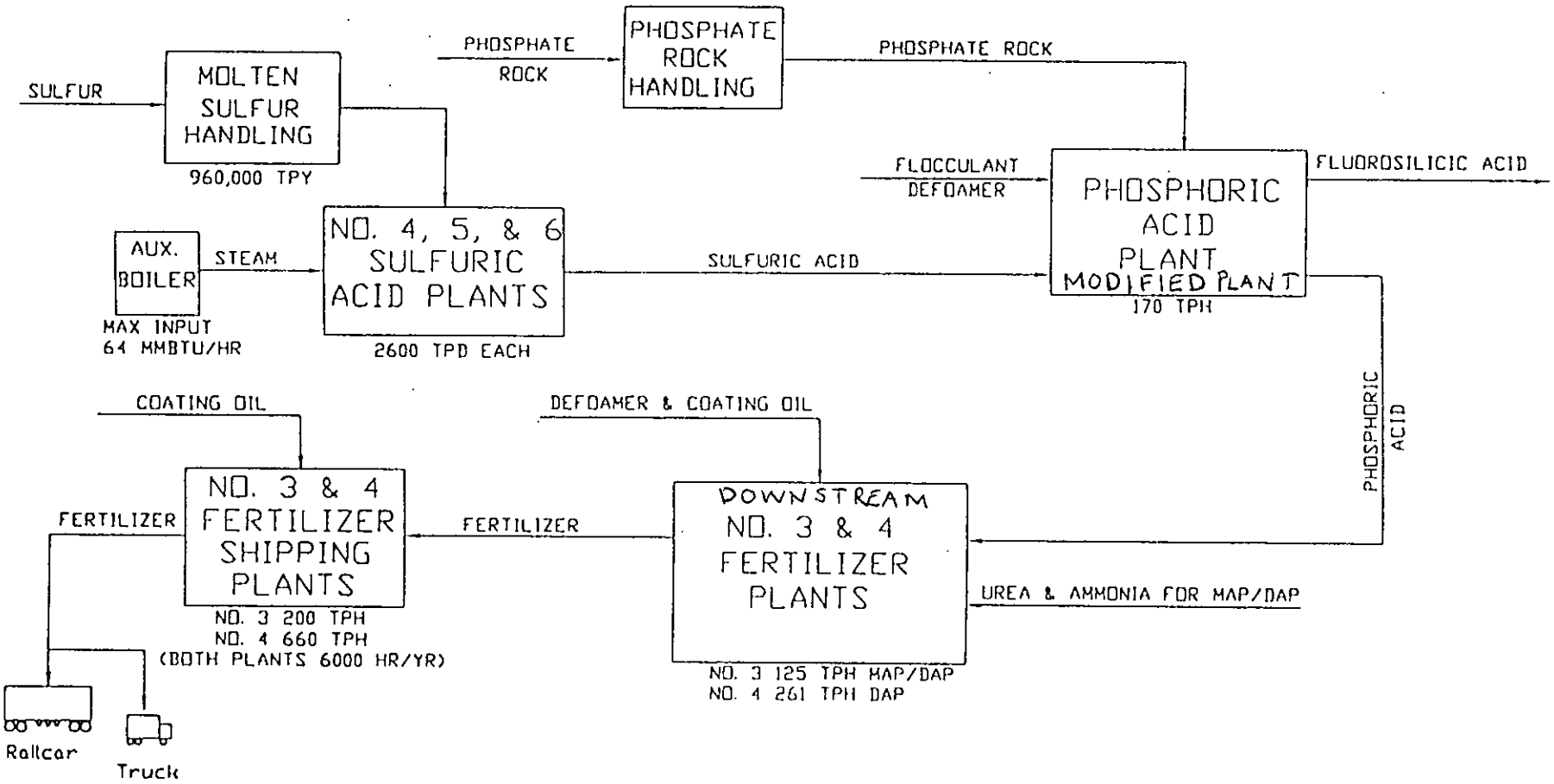
II. Project Description/Emissions

The applicant proposes to replace the No.4 Filter within the existing phosphoric acid plant (PAP) with a larger filter. The larger filter will allow greater recovery of P_2O_5 currently lost to the phosphogypsum management system. Cargill is not requesting to change the currently permitted process capacity of the PAP of 170 tons per hour (TPH) of P_2O_5 **input** (from phosphate rock) to the system. To accomplish this, no additional fluoride scrubbing capacity will be required. Cargill estimates an additional 140 tons per hour TPH of P_2O_5 **output** (phosphoric acid) will be recovered for downstream processing in the Nos. 3 and 4 Fertilizer and Shipping Plants. Refer to attached process flow diagram CB-FI-C3.

Emissions of primary concern from the PAP are gaseous fluorides (SiF_4 and HF) from the reactors, filters, and tanks. Actual emissions of SiF_4 and HF are not expected to increase as a result of this project except as defined by a comparison of future potential to past actual emissions. However, emissions of PM/PM_{10} and SO_2 will increase in downstream emission units due to processing the additional phosphoric acid made available by this project. These increases are discussed in the Rule Applicability section of this determination.

The following table compares the current actual emissions to the applicant's proposed maximum emissions in tons/year:

OVERALL PROCESS OF FERTILIZER MANUFACTURING



CARGILL FERTILIZER, INC.

FERTILIZER PRODUCTION PROCESS DIAGRAM

KEN WOOTEN

Attachment CB-FI-C3

Source Description	Pollutant Emission Rate (TPY)						
	SO_2	NOx	CO	PM_{10}	VOC	F	H_2SO_4 Mist
Potential Emissions From Modified/New/Affected Sources							
A. Modification to the Phosphoric Acid Plant	--	--	--	--	--	10.0	--
B. No. 4 Fertilizer Plant[a]	37.8	27.2	6.0	96.9	0.60	23.4	--
C. No. 4 Shipping Plant[a]	--	--	--	31.6	--	--	--
Total Potential Emission Rates	37.8	27.2	6.0	128.5	0.60	33.4	0.0
Actual Emissions from Current Operations							
A. Existing Phosphoric Acid Plant	--	--	--	--	--	5.1	--
B. No. 4 Fertilizer Plant	0.034	5.9	4.6	21.3	0.03	9.2	--
C. No. 4 Shipping Plant	--	--	--	0 .41	--	--	--
Total Actual Emission Rates	0.034	5.9	4.6	21.7	0.03	14.3	0.0
TOTAL CHANGE DUE TO THE PROPOSED PROJECT	37.8	21.3	1.4	106.8	0.57	19.1	0.0
Contemporaneous Emission Changes							
A. Phosphoric Acid Plant Production Rate Increase (August 1995)	--	--	--	--	--	c	--
B. Sulfuric Acid Plant Production Rate Increase (November 1995)	c	c	--	--	--	--	c
C. No. 3 Fertilizer Plant Expansion (April 1999)	39.6	17.8	3.6	c	0.29	c	--
D. Phosphoric Acid Reactor Modification (April 1999)[d]	--	--	--	--	--	--	--
Total Contemporaneous Emission Changes	39.6	17.8	3.6	0.00	0.29	0.00	0.0
TOTAL NET CHANGE	77.4	39.1	5.0	106.8	0.86	19.1	0.0
PSD SIGNIFICANT EMISSION RATE	40	40	100	15	40	3	7
PSD REVIEW TRIGGERED?	Yes	No	No	Yes	No	Yes	No

Footnotes:

[a]Debottlenecking analysis revealed that actual emissions from these sources could potentially increase as part o the proposed project.

[b]Average annual actual emissions based on Annual Operating Reports for 1998 and 1999.

[c]Denotes that PSD review was triggered for this pollutant.

[d]Project was determined to not result in an increase in emissions of any pollutant.

III. Rule Applicability

The construction permit application is subject to review under Chapter 403, Florida Statutes (F.S.), and Chapters 62-209 through 62-297 and 62-4, F.A.C. The facility is located in an area designated as attainment for all criteria pollutants (Rule 62-275.400, F.A.C.)

The proposed project is subject to the preconstruction review requirements of Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD), since the proposed increases in fluoride, PM/PM_{10}, and SO_2 emissions exceed the respective significant levels for these pollutants set forth in Table 212.400-2 of Chapter 62-212, F.A.C. The federal new source performance standards under 40 CFR 60, Subpart T, apply except that a top down BACT analysis is required which supersedes the new source standards.

According to Rule 62-212.400(5)(c), "The proposed facility or modification shall apply Best Available Control Technology (BACT) for each pollutant subject to preconstruction review requirements as set forth in Rule 62-212.400(2)(f), F.A.C."

The project will improve efficiency in phosphoric acid production. More product will be made even though the raw material input will not increase. Because a production increase at the No. 4 PAP will stimulate increased production at the downstream fertilizer plants (ammonium and di-ammonium phosphate plants), additional PSD review was necessary for the latter plants.

The downstream plants they already have permitted production or raw material input limits that are high enough to handle the product from No. 4 PAP with or without the proposed project. Also these downstream plants were previously reviewed for PSD and BACT in 1994 and 1999 when their present permitted production and emission limits were established.

The Department has determined that a BACT review is necessary only for the No. 4 PAP. However the additional 140-ton per day phosphoric acid input to downstream units requires review for possible increment consumption.

IV. AIR QUALITY IMPACT ANALYSIS

A. Introduction

According to the application, the proposed project will increase emissions of three pollutants in excess of PSD significant amounts: SO_2, PM_{10} and F. SO_2 and PM_{10} are criteria pollutants and have national and state ambient air quality standards (AAQS) and PSD increments defined for them. 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 SO_2 and PM_{10}
- Analysis of existing air quality for SO_2 and PM_{10}
- PSD increment analysis for PM_{10}
- Ambient Air Quality Standards (AAQS) analysis for PM_{10}
- 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 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 PM_{10} 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. PM_{10} background concentrations of 50 and 22 ug/m^3 for the 24-hour and annual averaging times, respectively, were established from these previously existing air quality data for use in the AAQS analysis required for PM_{10}. As shown in the table SO_2 emissions are predicted to be less than the de minimis level; therefore, preconstruction monitoring is not required for SO_2.

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

Pollutant	Averaging Time	Max Predicted Impact (ug/m3)	De Minimus Level (ug/m3)	Impact Greater Than De Minimus?
PM_{10}	24-hour	12	10	YES
SO_2	24-hour	4	13	NO

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 in the PSD Class II area in the vicinity of the 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, both the highest short-term predicted concentrations and the highest predicted yearly averages were compared to their respective significant impact levels.

For predicting maximum impacts at the Chassahowitzka National Wilderness Area (CNWA), a PSD Class I area, the California Puff (CALPUFF) model was used. CALPUFF is a Lagrangian puff model that is recommended by EPA and the National Park Service for predicting the pollutant impacts at receptor distances beyond 50 km. For this project, CALPUFF was used in a refined mode using the FDEP's CALMET-developed wind field.

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 324 regular and 141 discrete polar grid receptors located in a radial grid centered on the No. 4 Fertilizer Plant stack. This modeling origin has been used in previous PSD applications for the Cargill Bartow facility. Receptors were located in rings with 36 receptors per ring, spaced at 10° intervals and at distances of 4, 6, 8, 10, 12, 14, 16, 18 and 20 km from the No. 4 Fertilizer Plant stack location, which is located in a PSD Class II area. In addition receptors were located 100 m apart along the facility's fenceline. Thirteen discrete receptors were set in the CNWA which is a PSD Class I area located approximately 118 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 PM_{10} averaging times. Therefore, further PM_{10} AAQS and PSD increment analyses in the vicinity of the project were required for this project. However, there were no significant PM_{10} impacts predicted in the CNWA Class I area; therefore, no further PM_{10} analyses were required in the Class I area. The table shows no significant SO_2 impacts either in the Class II area in the vicinity of the project or the CNWA Class I area. Therefore, no further analyses were required for SO_2.

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

Pollutant	Averaging Time	Maximum Predicted Impact (ug/m3)	Significant Impact Level (ug/m3)	Significant Impact?	Radius of Significant Impact (km)
SO_2	Annual	0.4	1	NO	0
	24-hour	4	5	NO	0
	3-hour	13	25	NO	0
PM_{10}	Annual	1.3	1	YES	4
	24-hour	12	5	YES	4

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

Pollutant	Averaging Time	Maximum Predicted Impact (ug/m3)	Significant Impact Level (ug/m3)	Significant Impact?
SO_2	Annual	0.0005	0.1	NO
	24-hour	0.009	0.2	NO
	3-hour	0.03	1.0	NO
PM_{10}	Annual	0.002	0.1	NO
	24-hour	0.03	0.3	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 PM_{10}) for PM_{10}. 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 PM_{10} increments consumed by this project and all other increment-consuming sources in the vicinity of the facility are shown below.

PM_{10} PSD Class II Increment Analysis

Averaging Time	Maximum Predicted Impact (ug/m^3)	Allowable Increment (ug/m^3)	Impact Greater Than Allowable Increment
Annual	3	17	NO
24-hour	22	30	NO

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 PM_{10} 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.

PM_{10} Ambient Air Quality Impacts

Averaging Time	Modeled Sources Impact (ug/m^3)	Background Concentration (ug/m^3)	Total Impact (ug/m^3)	Florida AAQS (ug/m^3)	Total Impact Greater Than AAQS
Annual	11	22	33	50	NO
24-hour	45	50	95	150	NO

G. Additional Impacts Analysis

Impact Analysis Impacts On Soils, Vegetation, And Wildlife

The maximum ground-level concentrations predicted to occur from PM_{10} 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 Federal Land Manager. 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 premit.

Permit Engineer: *John Reynolds*
Meteorologist: *Cleve Holladay*
Reviewed and Approved: *A. A. Linero, P.E.*

PERMITTEE:

Cargill Fertilizer, Inc.
3200 Highway 60 West
Bartow, Florida 33830

File No.	1050046-013-AC
Permit No.	PSD-FL-295
SIC No.	2874
Project:	No. 4 Phosphoric Acid Plant Filter Replacement
Expires:	March 31, 2002

Authorized Representative:

Debra R. Waters
Environmental Superintendent

PROJECT AND LOCATION:

Permit for the replacement of the gypsum filter for the No. 4 Phosphoric Acid Plant. The project does not involve an increase the P_2O_5 feed rate for the phosphoric acid plant but will result in additional P_2O_5 recovered for processing in the downstream fertilizer plants. The project is located at the Cargill Fertilizer facility, 3200 Highway 60 West, Bartow, Polk County. UTM coordinates are Zone 17; 409.8 km E; 3086.7 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

AIR CONSTRUCTION PERMIT PSD-FL-295 (1050046-013-AC)

SECTION I – FACILITY INFORMATION

FACILITY DESCRIPTION

Cargill Fertilizer, Inc. operates a phosphate fertilizer manufacturing facility near Bartow, Polk County, Florida, producing sulfuric acid, wet-process phosphoric acid, and ammoniated phosphate fertilizers. The company has applied to replace the phosphoric acid filter at its No. 4 Phosphoric Acid Plant. As a result of this replacement, increases in the actual emissions of particulate matter (PM), PM with an aerodynamic diameter of 10 microns or less (PM_{10}), sulfur dioxide (SO_2), fluorides (F) and other pollutant emissions will occur as described in the Department's Technical Evaluation and Preliminary Determination issued September 15, 2000 and the determination of Best Available Control Technology that is attached to this permit.

REGULATORY CLASSIFICATION

The applicant's facility is classified as a "Major or Title V Source" per Rule 62-210.200, F.A.C., because the facility has the potential to emit at least 100 tons per year of a regulated air pollutant and/or 10 tons per year or more of a hazardous air pollutant.

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:

- 06-22-00: Original Application Received
- 07-14-00: Revised Application Received
- 08-14-00: 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:

- Original Application
- Department's incompleteness letters
- Applicant's incompleteness responses
- Technical Evaluation and Preliminary Determination
- Best Available Control Technology determination (issued concurrently with permit)

AIR CONSTRUCTION PERMIT PSD-FL-295 (1050046-013-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 Southwest District office.

AIR CONSTRUCTION PERMIT PSD-FL-295 (1050046-013-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
010	No. 4 and 5 Phosphoric Acid Plants

1. Unless otherwise indicated, the modification and operation of Emission Unit 010 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 subject emissions unit shall comply with all applicable provisions of the 40 CFR 60 New Source Performance Standards for Wet-Process Phosphoric Acid Plants, Subpart T. **[Rule 62-204.800 F.A.C.]**

3. The processing rate of Emissions Unit 010 shall not exceed 170 tons P_2O_5 input per hour and may operate 8760 hours per year. **[Rule 62-210.200, F.A.C.]**

4. Total fluoride emissions from the No. 4 and 5 phosphoric acid plants shall not exceed 0.012 pounds per ton of P_2O_5 or 2.04 pounds per hour. **[Rule 62-212.400, F.A.C.]**

5. Before this construction permit expires and as required by the applicable New Source Performance Standards under 40CFR60, testing for fluorides shall be conducted simultaneously on the three scrubber stacks with the emission unit 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 capacity (i.e..less than 90 percent of 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 30 consecutive days for the purposes of scheduling and conducting additional compliance testing to regain the permitted capacity in the permit. **[Rule 62-297.340, F.A.C.]**

6. The Department's Southwest District office shall be notified in writing at least 15 days prior to source testing. Pursuant to Rule 17-297.570(l) and (2), written reports of the test results shall be submitted to that office within 45 days of test completion. **[Rule 62-297.340, F.A.C.]**

7. Test procedures for total fluorides, shall be in accordance with EPA Reference Methods 1, 2, 3, and 13A or 13B, respectively, as published in 40 CFR 60, Appendix A. **[Rules 62-296.800 and 62-297.401, F.A.C.]**

8. 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(2), F.A.C.]**

9. 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.]**

10. Pursuant to **Rule 62-210.700, F.A.C.**, Excess Emissions, Emissions Unit 010 is subject to the following:

    a **Rule 62-210.700(l)**: 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.

    b **Rule 62-210.700(4)**: 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.

c **Rule 62-210.700(5):** 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.

d **Rule 62-210.700(6):** 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.

11. 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. **[Rules 62-210.370(2) (a) and (b) , F.A.C]**

12. For good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit. **[Rule 62-4.090, F.A.C.]**

13. An application for an operation permit shall be submitted to the Southwest District office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit. **[Rules 62-4.055 and 62-4.220, F.A.C.]**

CARGILL FERTILIZER, INC.
No. 4 Phosphoric Acid Plant Filter Replacement
PSD-FL-295 and 1050046-013-AC
Polk County

INTRODUCTION:

Cargill Fertilizer, Inc. applied to the Department on June 22, 2000 for a PSD construction permit to replace the phosphoric acid filter for the No. 4 Phosphoric Acid Plant (PAP) at its existing fertilizer manufacturing facility in Bartow, Polk County, Florida. The plant was permitted in 1995 under air construction permit AC53-262532 (PSD-FL-224) to produce a total of 170 tons per **hour** (TPH) of P_2O_5 by operating two existing phosphoric acid plants in tandem as a hybrid unit while adding an additional phosphoric acid filter and fluoride scrubbing capacity. In 1996 the applicant began making process changes to the plant by adding a vacuum cooler for the reactor as well as installing additional product storage capacity and an additional phosphoric acid evaporator, all of which was done while claiming there would be no increase in production or emissions.

In 1999, additional reactor capacity was added along with process changes to remove bottlenecks in the reactor cooling and product clarification sections. The plant modernization project begun in 1999 was recently completed and now the company is pursuing further modernization through the replacement of the tilting pan filter for the No. 4 phosphoric acid plant.

Cargill's earlier modifications mentioned above were done without requesting any increase in allowable production rates or allowable emissions limits for the phosphoric acid plant or the downstream processing units. Likewise, for this permit Cargill is not requesting any increase in P_2O_5 **input**. However the increased phosphoric acid recovery due to the filter replacement will result in an additional 140 tons per **day** (TPD) of P_2O_5 **output** that will be processed by downstream units.

Cargill has agreed to lower its proposed BACT fluoride limit from 0.0135 lb per ton P_2O_5 to the current BACT limit of 0.012 lb per ton of P_2O_5 for new phosphoric acid plants. Fluoride emissions from the phosphoric acid plant are controlled by a packed crossflow scrubber using pond water.

The main downstream units consist of fertilizer plants that make mono-ammonium and di-ammonium phosphate (MAP and DAP). The currently permitted rates of Fertilizer Plants Nos. 3 and 4, will not be exceeded by the additional phosphoric acid (140 TPD as of P_2O_5) recovered and processed as a result of the filter replacement at the upstream plant.

The two fertilizer plants were evaluated for PSD and BACT at their present (and projected) process rates in 1994 (No. 4 DAP Plant) and 1999 (No. 3 MAP/DAP Plant). The Department has determined that only the No. 4 PAP requires a BACT determination as a result of the proposed project.

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

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". Pollutants exceeding significant rates are particulate matter (PM/PM_{10}), SO_2 and fluoride (F).

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., SO_2, 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.

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, SO_2, H_2SO_4, 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 DETERMINATION PROPOSED BY APPLICANT:

POLLUTANT	EMISSION LIMIT	LIMIT BASIS	CONTROL TECHNOLOGY
F	2.04 lb/hr	0.012 lb/ton P_2O_5 input	Packed scrubbers using pond water

BACT ANALYSIS

Fluoride-containing gases including hydrogen fluoride (HF) and silicon tetrafluoride (SiF4) are evolved during production of phosphoric acid. These gases are evolved primarily from the reactors, filters and tanks, with the reactors accounting for the largest percentage. Fluoride contained in the phosphate rock feed is released as a result of the reaction of the rock with sulfuric acid. Fluoride emissions from the phosphoric acid plant are currently controlled by three scrubbers using pond water. A description of these scrubbers is presented in the following table:

Scrubber Manufacturer	Sources Controlled	Scrubber Type
Wellman-Lord	No. 4 Reactor/Hotwell No. 4 Filter No. 4 Filtrate Tank Nos. 1- 4 Evaporator Seal Tanks	Cross-Flow Packed Scrubber
Wellman-Lord	No. 5 Reactor/Hotwell No. 5 Filter No. 5 Filtrate Tank 30% Evaporator Feed Tank 40% Evaporator Product Tanks Lamella Settlers 40% Evaporator Feed Tank	Cross-Flow Packed Scrubber
VESCOR Replica	No. 3 Filter Gypsum Slurry Tank No. 3 Filtrate Tank	Venturi/Demister

Currently, the existing scrubber system is achieving lower fluoride emission rate than required by the existing Operation Permit (1050046-300-AV) which limits fluoride emissions from the phosphoric acid plant to 0.0135 lb/ton of P_2O_5 or 2.29 lb/hr. A summary of the results of the four most recent stack tests is presented below:

Summary of Fluoride Stack Test Data for the Phosphoric Acid Plants

	Total Phosphoric Acid Plant			
	Production Rate	Run No.	Fluoride Emission Rate	
Test Date	(tons P_2O_5 /hr)		(lb F/ hr)	(lb F/ton P_2O_5)
08/30/96	121	1	0.587	0.005
		2	0.759	0.006
		3	0.962	0.008
03/13/97	147	1	1.294	0.009
		2	1.301	0.009
		3	0.779	0.005
07/10/98	148	1	0.363	0.002
		2	0.583	0.004
		3	0.516	0.003
06/03/99	146	1	0.39	0.003
		2	0.35	0.002
		3	0.35	0.002
Average	**140.5**		**0.686**	**0.005**
Maximum			**1.301**	**0.009**

The existing emissions limit is based on the Department's determination in 1996 that a fluoride emission limit of 0.012 lb/ton P_2O_5 was BACT for a new phosphoric acid plant, and that BACT for a combination of new and existing equipment would be 0.0135 lb/ton P_2O_5. However, since the existing scrubber system consistently controls F emissions to levels below those determined to be BACT by the Department for new equipment, Cargill is proposing a fluoride emissions limit of 0.012 lb/ton of P_2O_5 for the entire scrubbing system.

BACT DETERMINATION BY THE DEPARTMENT:

Based on the information provided by the applicant and other information available to the Department, the BACT Determination proposed by the applicant is established as BACT for this project. The use of packed scrubbers has long been established as the **physical** BACT for the control of HF. The proposed limit of 0.012 lb/ton P_2O_5 represents the lowest **numerical** BACT value to-date. It is lower than the previous overall plant emission limit of 0.0135 lb/ton that was set for this specific plant under a previous PSD/BACT review.

The proposed BACT is lower than the limit set by EPA in its recent determination of maximum achievable control technology (MACT). For reference, the MACT set by EPA was based on the Department's earlier BACT determination for this plant.

The proposed BACT represents the Top control in a Top/Down analysis. No alternatives were considered for this project.

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.

DETAILS OF THE BACT ANALYSIS MAY BE OBTAINED BY CONTACTING:

John Reynolds, Permit Engineer
A. A. Linero, P.E. Administrator
Department of Environmental Protection
Bureau of Air Regulation
2600 Blair Stone Road, MS 5505
Tallahassee, Florida 32399-2400

Recommended By:

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

Date:

Approved By:

Howard L. Rhodes, Director
Division of Air Resources Management

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 any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver 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.

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 extend 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 (X).

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

FROM: A. A. Linero 9/15

DATE: September 15, 2000

SUBJECT: Cargill, Bartow. No. 4 Phosphoric Acid Plant
DEP File No. 1050046-013-AC (PSD-FL-295)

Attached for your review is the Intent to Issue for the modification of the No. 4 Phosphoric Acid Plant (PAP) at Cargill Fertilizer in Bartow.

The project involves no increase in raw material (P_2O_5 from phosphate rock and sulfuric acid). There will be increased production (P_2O_5 in phosphoric acid) by more efficient filtering of gypsum. The additional P_2O_5 available to the mono and di-ammonium plants downstream will stimulate additional fertilizer production.

The two downstream plants were reviewed in 1994 and 1999 for PSD and BACT in relation to applications that resulted in their present process and emission limits. We determined that PSD review was required for the No. 4 PAP and the downstream plants. We determined that BACT was required only for the No. 4 PAP..

The BACT limit of 0.012 pounds per ton of P_2O_5 applies to the emissions from the No. 4 and 5 PAPs. This is lower than the previous combined emission limit of 0.0135 set for those plants. Note that EPA relied on the 0.0135 in setting the identical MACT value for new PAPs.

Today is Day 31 $\pm$ a day. I recommend your approval and signature.

AAL/

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

P.E. Certification Statement

Permittee:

Cargill Fertilizer, Inc.
Bartow, Polk County

DEP File No. 1050046-013-AC (PSD-FL-295)

Project type:

This is a project to improve the efficiency of the No. 4 Phosphoric Acid Plant (PAP) by installing a new gypsum filter. The project will not result in more raw material utilization in the No. 4 PAP, but will increase the amount of product acid available to downstream fertilizer plants. Best Available Control Technology (BACT) for the No. 4 PAP is 0.012 pounds of fluoride per ton of P_2O_5. The limit will be achieved by cross flow packed scrubbing with cool pond water. Downstream mono and di-ammonium phosphate plants have been reviewed for PSD and BACT under previous permitting action in 1994 and 1999, which set their present emission and process limits.

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. Date
Registration Number: 26032

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