



Jeb Bush
Governor

Department of Environmental Protection

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

David B. Struhs
Secretary

October 2, 2001

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. E. O. Morris
Vice President of Environmental, Health and Safety
Cargill Fertilizer, Incorporated
8813 U.S. Highway 41 South
Riverview, Florida 33569

Re: DRAFT Permit No. 0570008-036-AC (PSD-FL-315)
Tampa Plant

Dear Mr. Morris:

Enclosed is one copy of the Draft Air Construction Permit for modification of the Tampa Plant, located at 8813 U.S. Highway 41 South, Riverview, Hillsborough County. The Technical Evaluation and Preliminary Determination, Best Available Control Technology, 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" 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 Syed Arif, P.E., at 850/921-9528 or Mr. Linero at 850/921-9523.

Sincerely,

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

CHF/sa

Enclosures

"More Protection, Less Process"

Printed on recycled paper.

In the Matter of an
Application for Permit by:

Mr. E. O. Morris, V.P. of Environment, Health & Safety
Cargill Fertilizer, Inc.
8813 U.S. Highway 41 South
Riverview, Florida 33569

DEP File No. 0570008-036-AC
Draft Permit No. PSD-FL-315
Tampa 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, detailed in the application specified above and the attached Technical Evaluation and Preliminary Determination, for the reasons stated below.

The applicant, Cargill Fertilizer, Inc., submitted a complete application on August 16, 2001 to the Department for an air construction permit to modify several existing emission units at its phosphate fertilizer manufacturing facility located in Riverview. The plant is located at 8813 U.S. 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 a review for the Prevention of Significant Deterioration (PSD), a determination of Best Available Control Technology (BACT) and an air construction permit are required for the proposed 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. 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 Air Construction Permit in accordance with the conditions of the attached Draft Air Construction permit 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 a public meeting 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 Draft Air Construction Permit, the permitting authority shall issue a Revised Draft Air Construction 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.


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

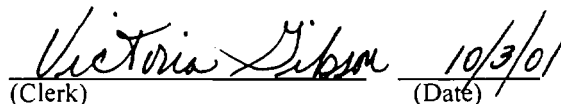
CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this INTENT TO ISSUE AIR CONSTRUCTION PERMIT (including the PUBLIC NOTICE, Technical Evaluation and Preliminary Determination, Draft BACT Determination, and the DRAFT permit) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 10/3/01 to the person(s) listed:

E. O. Morris, Cargill Fertilizer, Inc.*
Gregg Worley, EPA
John Bunyak, NPS
Bill Thomas, DEP-SWD
A. Harmon, HCEPC
David Buff, Golder Associates, Inc.

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.


(Clerk) 10/3/01
(Date)

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP File No. 0570008-036-AC (PSD-FL-315)
Tampa Plant
Cargill Fertilizer, Incorporated
Hillsborough County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Cargill fertilizer, Inc. to modify several existing emission units at its phosphate fertilizer manufacturing facility located in Riverview, Florida. A Best Available Control Technology (BACT) determination was required for sulfur dioxide (SO₂), sulfuric acid mist (SAM), nitrogen oxides (NO_x), fluorides (F), particulate matter (PM) and particulate matter less than or equal to 10 micrometers (PM₁₀) pursuant to Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD). The applicant's name and address (also facility address) are Cargill Fertilizer, Inc., 8813 U.S. Highway 41 South, Riverview, Florida 33569.

The proposed changes will include increased molten sulfur through the molten sulfur handling system, additional digestion capacity associated with the Dorrco Reactor at the Phosphoric Acid plant, modification of the Granular Triple Super Phosphate plant, modification of the Animal Feed Ingredient (AFI) plant, construction of a second AFI granulation train, and modification of the No. 5 Diammonium Phosphate plant. The applicant is also requesting removal of the existing allowable production rate cap for the Nos. 8 and 9 Sulfuric Acid plants, to allow these plants to simultaneously operate up to their maximum capacities, with a reduction in allowable emissions.

The Department proposes the following emission limits and technologies as BACT for this project:

Molten Sulfur Handling System: 10 percent opacity, 15% during ship unloading. Wet scrubbers on storage tanks and truck loading.

Sulfuric Acid Plants: 3.5 pounds of SO₂ and 0.10 pounds of sulfuric acid mist per ton of product. Double absorption technology and efficient mist eliminators.

Phosphoric acid plant: 0.012 pounds of fluoride per ton of P₂O₅ input. Packed scrubber, Vesco and Dorrco scrubbers.

Enhanced Phosphate Product Plant (GTSP or AP modes): 0.13 (or 0.08) pounds of particulate matter (PM/PM₁₀) per ton of product. 0.058 (or 0.041) pounds of fluoride per ton of P₂O₅ input. Natural gas or low sulfur backup fuel oil.

No. 5 Diammonium Phosphate Plant: 0.17 lb PM/PM₁₀/ton P₂O₅ input. 0.04 lb/ton P₂O₅ input. Venturi and tailgas scrubbers. Natural gas and low sulfur fuel backup oil.

Animal Feed Ingredient (AFI) Plant No. 1 and 2 Granulation System: Good combustion practices for SO₂ and NO_x, 8 lb PM/PM₁₀/hr. Venturi scrubber.

AFI Plant Defluorination System: 0.5 lb F/batch-hr. Venturi scrubber and packed cross-flow scrubber.

AFI Plant No. 1 and 2 Milling, Classification, and Cooling; DE Silo; Limestone Silo; Loadout System: 0.012 grains PM/PM₁₀/dscf. Baghouse.

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

An air quality impact analysis was conducted. Emissions from the facility will not significantly contribute to or cause a violation of any state or federal ambient air quality standards. The maximum predicted SO₂, PM₁₀ and NO_x PSD Class II increments in the vicinity of the project consumed by all sources in the area, including this project, will be as follows:

Averaging Time	Allowable Increment (µg/m³)	Increment Consumed (µg/m³)	Percent Consumed
SO₂			
3-hour	512	297	58
24-hour	91	50	55
Annual	20	0	0
PM₁₀			
24-hour	30	22	55
Annual	17	9	53
NO_x			
Annual	25	4	16

PSD Class I significant impact levels are exceeded for SO₂ in the PSD Class I Chassahowitzka National Wilderness Area located 86 km to the northwest, therefore a Class I PSD increment analysis for SO₂ was conducted. Based on the required analyses, the Department has reasonable assurance that the proposed project will not cause or significantly contribute to a violation of any or PSD increment in the Class I area.

The Department will issue the Final Air Construction Permit in accordance with the conditions of the Draft Air Construction Permit unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions. The permitting authority has determined that an Air Construction Permit is required.

The Department will accept written comments and requests for a public meeting 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 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

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

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, Florida, 32301 Telephone: 850/488-0114 Fax: 850/922-6979	Dept. of Environmental Protection Southwest District 3804 Coconut Palm Drive Tampa, Florida 33619-8218 Telephone: 813/744-6100 Fax: 813/744-6084	Hillsborough County Environmental Protection Commission 1900 Ninth Avenue Tampa, Florida 33605 Telephone: 813/272-5960 Fax: 813/272-5157
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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 Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information.

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

TECHNICAL EVALUATION
AND
PRELIMINARY DETERMINATION

CARGILL FERTILIZER, INC.

TAMPA PLANT
Hillsborough County, Florida

Facility Expansion

DEP File No. 0570008-036-AC
PSD-FL-315

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

October 2, 2001

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

I. APPLICATION INFORMATION

A. Applicant

Cargill Fertilizer, Inc.

8813 U.S. Highway 41 South

Riverview, Florida 33569

Authorized Representative: Mr. E. O. Morris, Vice President of Environment, Health and Safety

B. Request

The Department received a complete application on August 16, 2001, to modify several existing emission units at its phosphate fertilizer manufacturing facility located in Riverview, Florida. The proposed changes will include increased molten sulfur through the molten sulfur handling system, additional digestion capacity associated with the Dorrco Reactor at the Phosphoric Acid plant (PAP), modification of the Granular Triple Super Phosphate (GTSP) plant, modification of the Animal Feed Ingredient (AFI) plant, construction of a second AFI granulation train, and modification of the No. 5 Diammonium Phosphate (DAP) plant. The applicant is also requesting removal of the existing allowable production rate cap for the Nos. 8 and 9 Sulfuric Acid (H₂SO₄) plants, to allow these plants to simultaneously operate up to their maximum capacities, with a reduction in allowable emissions.

C. Facility Location

The applicant's facility is located at 8813 U.S. Highway 41 South, Riverview, Hillsborough County, Florida. Latitude and Longitude are 27/51/28 and 82/23/15 respectively. UTM coordinates of the site are: Zone 17, 362.9 km E and 3082.5 km N. This location is approximately 86 km from the nearest Class I area, the Chassahowitzka National Wilderness Area (CNWA).

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

D. Reviewing and Process Schedule

03-13-2001:	Date of receipt of Application
03-27-2001:	Date of receipt of additional Application information
04-11-2001:	DEP's 1 st Completeness Request
04-24-2001:	DEP's 2 nd Completeness Request
04-30-2001:	Applicant's response to DEP's 1 st Completeness Request
05-29-2001:	Applicant's response to DEP's 2 nd Completeness Request
06-28-2001:	DEP's 3 rd Completeness Request
08-16-2001:	Applicant's response to DEP's 3 rd Completeness Request. Application Complete
10-xx-2001:	Issue Intent

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

II. PROJECT DESCRIPTION/EMISSIONS

A. Molten Sulfur Handling System/Nos. 8 and 9 Sulfuric Acid Plants

The applicant proposes to remove the existing allowable production rate cap of 5,700 tons per day (TPD) of 100-percent H_2SO_4 for the Nos. 8 and 9 H_2SO_4 plants. The removal of this production rate cap will allow both plants to simultaneously operate up to their maximum individual capacities of 2,700 and 3,400 TPD, respectively, of 100-percent H_2SO_4 . The plants will also be modified to allow for a reduction in allowable SO_2 emissions. As a result of the increased H_2SO_4 production, the actual and potential maximum molten sulfur sent through the molten sulfur handling and storage system will increase. However, with the reduction in allowable SO_2 emissions from the H_2SO_4 plants, the overall potential SO_2 emissions for the facility will decrease as a result of the project.

B. Phosphoric Acid Plant

The proposed modifications to the PAP will add additional digestion volume to the Dorrco reactor system and, by allowing greater time for gypsum crystallization, will increase phosphoric acid production by up to 10,000 tons per year (TPY) as 100-percent phosphorous pentoxide (P_2O_5). Other downstream changes to the PAP will also be made. There will be no increase in the P_2O_5 input rate to the PAP.

C. Enhanced Phosphate Products Plant

The GTSP plant will be converted to allow for the production of enhanced phosphate fertilizers including GTSP, ammoniated phosphates [such as monoammonium phosphate (MAP) and DAP], and phosphate fertilizers with added nitrogen, sulfur and micronutrients. The modifications will also include work necessary to provide proper product granulation and improve overall plant evacuation and pollution control. Upon implementation of the modifications, the plant will be renamed the Enhanced Phosphate Products (EPP) plant.

D. AFI Plants No. 1 and 2

The applicant proposes to modify the existing AFI Plant No. 1 to produce up to 394,200 TPY (1,080 TPD) of granular animal feed ingredients product, utilizing the additional 10,000 TPY of P_2O_5 produced in the PAP. The existing AFI granulation train will continue to be used for all of the AFI Plant No. 1 production.

The applicant also proposes to construct a second AFI granulation train (dryer, pug mill, and cooler/classifier). The new granulation train will be located in an area west of the existing AFI plant. The second AFI granulation train will be designed to produce a total of 1,200 TPD and 438,000 TPY of granular animal feed phosphate product. With the new granulation train, both AFI plants will be designed to produce a combined total of 2,280

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

TPD and 832,200 TPY of granular animal feed phosphate product. The modified defluorination area within the AFI Plant No. 1 will be used to support the second granulation train.

E. No. 5 DAP Plant

The existing No. 5 DAP plant will be modified to improve the energy efficiency of the plant by utilizing waste heat to vaporize some or all of the ammonia fed to the DAP plant and to the adjacent Nos. 3 and 4 MAP plants. The project also seeks to enhance the chemical and physical characteristics of the DAP product by improving the granulation/reaction conditions.

F. Project Emissions

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

Source Description	Pollutant Emission Rate (TPY)								
	SO ₂	NO _x	CO	PM	PM ₁₀	VOC	TRS	SAM	Fluoride
<u>Potential Emissions From Modified/New/Affected Sources</u>									
A. Existing Molten Sulfur Storage/Handling Facility	9.0	--	--	2.1	2.1	6.4	4.3	--	--
B. Modified No. 8 Sulfuric Acid Plant	1,725	59.1	--	--	--	--	--	49.3	--
C. Modified No. 9 Sulfuric Acid Plant	2,172	74.5	--	--	--	--	--	62.1	--
D. Existing Nos. 5, 7, and 9 Rock Mills ^a	4.0	17.1	14.3	22.3	22.3	0.93	--	0.1	--
E. Modified Phosphoric Acid Plant	--	--	--	--	--	--	--	--	8.9
F. Modified EPP Plant	8.8	35.0	29.4	61.9	60.3	2.4	0.3	0.1	54.2
G. Modified AFI Plant No. 1 and Plant No. 2	12.9	56.3	46.0	126	126	3.0	--	0.2	9.3
H. Modified No. 5 DAP Plant	2.5	17.5	14.7	56.1	56.1	1.0	--	0.0	12.9
I. Existing Material Handling System ^a	--	--	--	19.8	19.6	--	--	--	--
<u>Total Potential Emission Rates</u>	3,933	259	104	288	286	13.7	4.6	112	85
<u>Actual Emissions from Current Operations^b</u>									
A. Molten Sulfur Storage/Handling Facility	1.7	--	--	2.0	2.0	1.2	0.82	--	--
B. No. 8 Sulfuric Acid Plant	1,349	44.1	--	--	--	--	--	14.1	--
C. No. 9 Sulfuric Acid Plant	1,211	51.2	--	--	--	--	--	10.8	--
D. Nos. 5, 7, and 9 Rock Mills	0.07	11.0	7.8	5.4	5.4	0.59	--	--	--
E. Phosphoric Acid Plant	--	--	--	--	--	--	--	--	3.6

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

F. GTSP Plant	0.11	18.1	15.2	15.4	14.4	0.99	--	--	31.5
G. AFI Plant No. 1	0.04	5.7	4.8	17.3	17.1	0.31	--	--	1.1
H. No. 5 DAP Plant	0.02	3.9	3.3	6.7	6.7	0.21	--	--	8.4
I. Material Handling System	--	--	--	3.6	3.6	--	--	--	--
<i>Total Actual Emission Rates</i>	2,562	134	31.0	50.3	49.2	3.3	0.82	24.8	44.5
TOTAL CHANGE DUE TO PROPOSED PROJECT	1,371	125	73.4	238	237	10.4	3.8	87.0	40.5
<hr/>									
Source Description	Pollutant Emission Rate (TPY)								
	SO ₂	NO _x	CO	PM	PM ₁₀	VOC	TRS	SAM	Fluoride
<u>Contemporaneous Emission Changes</u>									
A. Upgrade of Phosphate Rock Grinding System (June 1996)	2.70	--	3.99	--	--	0.31	0.00	0.00	--
B. AFI Plant Expansion (July 1996)	9.40	^e	14.20	--	--	1.10	0.00	0.00	--
C. MAP Plant Expansion (May 1998)	0.61	2.23	0.56	^e	^e	0.04	0.00	0.00	^e
D. DAP Plant Cooler Upgrade (August 1998) ^e	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E. Reconstruction of Molten Sulfur Tank No. 1 (February 1999)	2.82	0.00	0.00	3.40	3.40	2.01	1.35	0.00	0.00
F. Molten Sulfur Increase/Truck Loadout (pending)	0.32	0.00	0.00	1.25	1.25	0.23	0.15	0.00	0.00
<i>Total Contemporaneous Emission Changes</i>	15.85	2.23	18.75	4.65	4.65	3.69	1.50	0.00	0.00
TOTAL NET CHANGE	1,387	128	92.2	243	242	14.1	5.3	87.0	40.5
PSD SIGNIFICANT EMISSION RATE	40	40	100	25	15	40	10	7	3
PSD REVIEW TRIGGERED?	Yes	Yes	No	Yes	Yes	No	No	Yes	Yes

^a Debottlenecking analysis revealed that emissions from this sources could potentially increase as part of this project.

^b Based on actual emissions for 2000 and 1999.

^c Project was determined to not result in an increase in emissions of any pollutant.

^d Denotes that PSD review was triggered for this pollutant; therefore any previous contemporaneous increases/decreases are wiped clean.

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III. Rule Applicability

A. Prevention of Significant Deterioration

The proposed project was reviewed under Rule 62-212.400(5), F.A.C., New Source Review (NSR) for Prevention of Significant Deterioration (PSD), because it will be a modification to a major stationary source resulting in a significant increase in SO₂, NO_x, PM/PM₁₀, H₂SO₄ mist, and fluoride emissions. This review consisted of a determination of Best Available Control Technology (BACT) and an analysis of the air quality impact of the increased emissions. The review also includes an analysis of the project's impacts on soils, vegetation and visibility, along with air quality impacts resulting from associated commercial, residential and industrial growth.

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

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

B. Federal and State Emission Standards

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

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The Nos. 8 and 9 Sulfuric Acid Plants are subject to federal new source performance standards (NSPS) under 40 CFR 60, Subpart H. Subpart H regulates SO₂ and H₂SO₄ mist emissions. H₂SO₄ plants are also subject to the emission limitations of Rule 62-296.402(2), F.A.C. pertaining to SO₂, H₂SO₄ mist, and visible emissions from H₂SO₄ plants.

The Phosphoric Acid Plant (PAP) is subject to federal NSPS under 40 CFR 60, Subpart T. Specifically, Subpart T applies to wet-process PAPs and regulates F emissions from such plants. The PAP is also subject to the emission limitations of Rule 62-296.403(1)(a) F.A.C. pertaining to fluoride emissions from phosphate processing plants. The PAP is also subject to 40 CFR 63, Subpart AA, National Emission Standards for Hazardous Air Pollutants from Phosphoric Acid Manufacturing and Phosphate Fertilizers Production. Subpart AA regulates total F emissions from phosphoric acid plants.

The Enhanced Phosphate Products (EPP) plant is also subject to federal NSPS under 40 CFR 60, Subpart V and W. Subpart V regulates F emissions from DAP plants. Subpart W regulates F emissions from GTSP plants. The EPP plant is also subject to the emission limitations of Rule 62-296.403(1)(d)(2) F.A.C. and Rule 62-296.403(1)(f) pertaining to fluoride emissions from phosphate processing plants.

Since the provisions of Rule 62-296.403(1)(a) through (h) do not apply to the AFI plant, the provisions of paragraph (i) would apply. This provision states that a BACT determination applies to the source for fluoride emissions, as determined pursuant to Rule 62-212.400(6), F.A.C.

The No. 5 DAP plant is subject to federal NSPS under 40 CFR 60, Subpart V. Subpart V regulates F emissions from DAP plants. The No. 5 DAP plant is also subject to the emission limitations of Rule 62-296.403(1)(f) F.A.C. pertaining to fluoride emissions from phosphate processing plants.

IV. Air Quality Analysis

A. Introduction

According to the application, the proposed project will increase emissions of five pollutants in excess of PSD significant amounts: SO₂, NO_x, PM/PM₁₀, H₂SO₄ mist, and fluorides. PM₁₀, SO₂, and NO_x are criteria pollutants and have national and state ambient air quality standards (AAQS) and PSD increments defined for them. H₂SO₄ mist and fluorides are not criteria pollutants and have no AAQS or PSD increments defined for them. Therefore, no AAQS or PSD increment air quality impact analysis was required for H₂SO₄ mist and fluorides. Instead, the

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BACT requirement will establish the H₂SO₄ mist and fluoride emission limits for this project. The PSD regulations require the following air quality analyses for this project:

- Significant impact analysis for PM₁₀, SO₂, and NO_x
- Analysis of existing air quality for PM₁₀, SO₂, and NO_x
- PSD increment analysis for PM₁₀, SO₂, and NO_x
- Ambient Air Quality Standards (AAQS) Analysis for PM₁₀, SO₂, and NO_x
- Analysis of impacts on soils, vegetation, wildlife, visibility and growth-related air quality impacts for PM₁₀, SO₂, NO_x, H₂SO₄ mist, and fluorides.

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 minimis* 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 PM₁₀, SO₂, and F impacts from the project are predicted to be above the *de minimis* level. Preconstruction ambient air quality monitoring is therefore required for PM₁₀ and SO₂. However,

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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 39 and 25 $\mu\text{g}/\text{m}^3$ 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} . SO_2 background concentrations of 121, 31, and 8 $\mu\text{g}/\text{m}^3$ for the 3-hour, 24-hour, and annual averaging times, respectively, were established from these previously existing air quality data for use in the AAQS analysis required for SO_2 . A NO_x background concentration of 21 $\mu\text{g}/\text{m}^3$ for the annual averaging time was established from these previously existing air quality data for use in the AAQS analysis required for NO_x . No AAQS for fluorides has been promulgated. Therefore, pre-construction monitoring is not required for F.

Maximum Project Air Quality Impacts for Comparison to De Minimis Ambient Levels

Pollutant	Avg. Time	Max Predicted Impact ($\mu\text{g}/\text{m}^3$)	De Minimis Level ($\mu\text{g}/\text{m}^3$)	Impact Above De Minimis?
PM_{10}	24-hour	13	10	Yes
SO_2	24-hour	86	13	Yes
NO_x	Annual	2	14	No
F	24-hour	11	0.25	Yes

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

PSD Class II Area Model

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

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

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Tampa International Airport, Florida (surface data) and Ruskin, Florida (upper air data). The 5-year period of meteorological data was from 1991 through 1995. These NWS stations were selected for use in the study because they are the closest primary weather stations to the study area and are most representative of the project site. The surface observations included wind direction, wind speed, temperature, cloud cover, and cloud ceiling.

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

PSD Class I Area Model

Since the PSD Class I CNWA is greater than 50 km from the proposed facility, long-range transport modeling was required for the Class I impact assessment. The California Puff (CALPUFF) dispersion model was used to evaluate the potential impact of the proposed pollutant emissions on the PSD Class I increments and on one Air Quality Related Value (AQRV): regional haze. CALPUFF is a non-steady state, Lagrangian, long-range transport model that incorporates Gaussian puff dispersion algorithms. This model determines ground-level concentrations of inert gases or small particles emitted into the atmosphere by point, line, area, and volume sources. The CALPUFF model has the capability to treat time-varying sources. It is also suitable for modeling domains from tens of meters to hundreds of kilometers, and has mechanisms to handle rough or complex terrain situations. Finally, the CALPUFF model is applicable for inert pollutants as well as pollutants that are subject to linear removal and chemical conversion mechanisms.

The meteorological data used in the CALPUFF model was processed by the California Meteorological (CALMET) model. The CALMET model utilizes data from multiple meteorological stations and produces a three-dimensional modeling grid domain of hourly temperature and wind fields. The wind field is enhanced by the use of terrain data, which is also input into the model. Two-dimensional fields such as mixing heights, dispersion properties, and surface characteristics are produced by the CALMET model as well. For this project, the CALMET model produced a modeling domain extending 280 km in the north-south direction by 350 km in the east-west direction. The modeling domain was produced by using 1990 meteorological data from 3 upper air, 6 surface, and 27 precipitation stations located throughout the state of Florida.

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. To determine the PM₁₀, SO₂, and NO_x significant impact area for the proposed project, concentrations were predicted using polar grids. The receptor grids were comprised of 36 radials, spaced at 10-degree intervals and began at the plant property and extended out to 20 km for PM₁₀, and fluorides, out to 30 km for SO₂ and out to 50 km for NO_x. Additional receptors were located along certain radials at distances of 32, 34, and 36 km to identify the significant impact distance for the 3-hour, 24-hour, and annual average SO₂ concentrations. An additional 86 Cartesian grid receptors, spaced at 100 m, were used to predict impacts along the fence line areas. At the off-property areas between the fence line and the innermost ring distance of 2 km, 338 discrete polar receptors were used, spaced at 10-degree intervals and at distances of 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.1, 1.2, 1.4, 1.6, 1.8, and 2.0 km from the origin. All receptor locations are relative to the No. 9 Sulfuric Acid Plant stack location, an origin which has been used for this facility since the 1993 PSD report for the No. 9 Sulfuric Acid Plant. Cargill will take measures to ensure that all property boundaries are properly fenced or have other physical barriers (equivalent to a fence), and are properly posted and patrolled.

Thirteen discrete receptors were located in the Chassahowitzka National Wilderness Area (CNWA) which is a PSD Class I area located approximately 86 km to the northwest of the project at its closest point. For each pollutant subject to PSD and also subject to PSD increment and/or AAQS analyses, this modeling compares maximum predicted impacts due to the project with PSD significant impact levels to determine whether significant impacts due to the project are predicted in the vicinity of the facility or in the CNWA. The tables below show the results of this modeling. A significant impact was predicted in the Class II area in the vicinity of the project for both PM₁₀ averaging times, all three SO₂ averaging times, and NO_x for the annual averaging time. Therefore, further PM₁₀, SO₂, and NO_x AAQS and PSD increment analyses in the vicinity of the project were required for this project. Since SO₂ for the 24-hour and 3-hour averaging times exceeded the EPA Class I Significant Impact Levels further modeling in the Class I area is required.

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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 ($\mu\text{g}/\text{m}^3$)	Significant Impact Level ($\mu\text{g}/\text{m}^3$)	Significant Impact
PM ₁₀	Annual	11	1	Yes
	24-hour	13	5	Yes
SO ₂	Annual	3	1	Yes
	24-hour	86	5	Yes
	3-hour	262	25	Yes
NO _x	Annual	2	1	Yes

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

Pollutant	Averaging Time	Maximum Predicted Impact ($\mu\text{g}/\text{m}^3$)	Significant Impact Level ($\mu\text{g}/\text{m}^3$)	Significant Impact
PM ₁₀	Annual	0.01	0.2	No
	24-hour	0.08	0.3	No
SO ₂	Annual	0.01	0.1	No
	24-hour	0.22	0.2	Yes
	3-hour	1.21	1.0	Yes
NO ₂	Annual	0.001	0.1	No

E. AAQS Analysis

For pollutants subject to an AAQS review, the total impact on ambient air quality is obtained by adding "background" concentrations to the maximum modeled concentrations for each pollutant and averaging time. The maximum modeled concentrations are based on the maximum allowable emissions from facility sources and all other sources in the vicinity of the facility. These "background" concentrations take into account all sources of a particular pollutant that are not explicitly modeled. The results of the AAQS analysis for PM₁₀, SO₂, and

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NO_x are summarized in the table below. Even though violations of the AAQS are predicted, emissions from the facility are either zero (for predicted 24-hour violations of SO₂) or less than 0.3 µg/m³ (for predicted annual violations of PM₁₀) at the location and time of predicted violations of the AAQS. Therefore, the facility does not significantly contribute to or cause these predicted violations. The Department, however, has identified the sources that are predicted to significantly contribute to these violations and is taking measures to correct these predicted violations.

Ambient Air Quality Impacts

Pollutant	Averaging Time	Modeled Sources Impact (µg/m ³)	Background Conc. (µg/m ³)	Total Impact (µg/m ³)	Florida AAQS (µg/m ³)	Total Impact Greater Than AAQS
PM ₁₀	Annual	26	25	51 ^a	50	Yes ^a
	24-hour	108	39	147	150	No
SO ₂	Annual	50	8	58	60	No
	24-hour	233	31	264 ^b	260	Yes ^b
	3-hour	1,046	121	1,167	1,300	No
NO _x	Annual	25	21	46	100	No

^a Cargill Riverview sources contributed less than 0.3 µg/m³ to all exceedences of the AAQS standard.

^b Cargill Riverview sources contributed 0.0 µg/m³ to all exceedences of the AAQS standard.

F. PSD Class II 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 for PM₁₀ and SO₂ (the baseline year was 1975 for existing major sources of PM₁₀ and SO₂), and 1988 for NO₂ (the baseline year was 1988 for existing major sources of NO₂). The emission values that are input into the model for predicting increment consumption are based on maximum potential emissions from increment-consuming facility sources and all other increment-consuming sources in the vicinity of the facility. The maximum predicted PSD Class II area PM₁₀, SO₂, and NO_x increments consumed by this project and all other increment-consuming sources in the vicinity of the facility are shown below. As shown in the table, there are no predicted impacts greater than the allowable increments.

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PSD Class II Increment Analysis

Pollutant	Averaging Time	Maximum Predicted Impact ($\mu\text{g}/\text{m}^3$)	Allowable Increment ($\mu\text{g}/\text{m}^3$)	Impact Greater Than Allowable Increment
PM ₁₀	Annual	9	17	No
	24-hour	22	30	No
SO ₂	Annual	<0.0	20	No
	24-hour	50	91	No
	3-hour	297	512	No
NO _x	Annual	4	25	No

G. PSD Class I Analysis

The proposed project's impacts were predicted to exceed the EPA proposed 3- and 24-hour Class I significant impact levels for only SO₂ at the CNWA PSD Class I area. A multi-source PSD Class I increment consumption analysis was therefore performed for SO₂. The table below shows the results of the modeling. The table shows that there are predicted impacts greater than the allowable SO₂ Class I increments; however as stated in the footnote to the table, Cargill's predicted impacts at the location and time of these predicted violations is less than 0.01 $\mu\text{g}/\text{m}^3$ and is insignificant.

PSD Class I Increment Analysis (CNWA)

Pollutant	Averaging Time	Maximum Predicted Impact ($\mu\text{g}/\text{m}^3$)	Allowable Increment ($\mu\text{g}/\text{m}^3$)	Impact Greater Than Allowable Increment
SO ₂	24-hour	5.8 ^a	5	Yes ^a
	3-hour	39.7 ^a	25	Yes ^a

^a Cargill Riverview's contribution to all exceedances were less than 0.01 $\mu\text{g}/\text{m}^3$.

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H. Additional Impact Analysis

Impact Analysis Impacts On Soils, Vegetation, And Wildlife

Although the maximum ground-level concentrations predicted to occur from SO₂ and PM₁₀ emissions as a result of the proposed project, including background concentrations and all other nearby sources, were above the associated AAQS, Cargill Riverview was determined to not contribute significantly to these exceedances. The maximum ground-level concentrations of NO_x were determined to 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 performed by the applicant for the Class I area. Although maximum predicted impacts in the Class I area were predicted to be above the allowable PSD Class I increment, Cargill Riverview's contribution to all exceedances were less than 0.1 ug/m³. Therefore, no significant impacts on this area are expected due to the proposed project.

Impact On Visibility

A regional haze analysis using the CALPUFF model to determine visibility impacts in the CNWA Class I area was required by the U.S. Fish and Wildlife Service (FWS). Initial impacts were predicted to be greater than the FWS recommended criteria. However, Cargill has committed to reducing the sulfuric acid mist emissions from their Sulfuric Acid Plants 8 and 9 from 0.12 lbs/ton to 0.10 lbs/ton of product produced. With these reductions, the updated impacts on regional haze are predicted to be insignificant.

Growth-Related Air Quality Impacts

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

V. Conclusion

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

Permit Engineer: Syed Arif, P.E. II
Meteorologist: Cleve Holladay

PERMITTEE:

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

Authorized Representative:

Mr. E. O. Morris
Vice President of Environmental, Health and Safety

File No.	0570008-036-AC
Permit No.	PSD-FL-315
SIC No.	2874
Project:	Facility Expansion
Expires:	December 1, 2005

PROJECT AND LOCATION:

Permit for increased molten sulfur through the Molten Sulfur Handling System, removal of the existing allowable production rate cap for the Nos. 8 and 9 Sulfuric Acid Plants, additional digestion volume associated with the Dorrco Reactor at the Phosphoric Acid Plant, modification of the GTSP Plant, modification of the AFI Plant No. 1, construction of the AFI Plant No. 2, and modification of the No. 5 DAP Plant. The project is located at the Cargill Fertilizer facility, 8813 US Highway 41 South, Riverview, Hillsborough County. UTM coordinates are Zone 17; 362.9 km E; 3082.5 km N.

STATEMENT OF BASIS:

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

ATTACHED APPENDICES ARE MADE A PART OF THIS PERMIT:

- Appendix BD BACT Determination
- Appendix GC Construction Permit General Conditions

Howard L. Rhodes, Director
Division of Air Resources
Management

SECTION 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, ammoniated phosphate fertilizers and related products. The company has applied to increase molten sulfur through the Molten Sulfur Handling System, remove the existing allowable production rate cap for the Nos. 8 and 9 Sulfuric Acid Plants, increase the digestion volume associated with the Dorcco Reactor at the Phosphoric Acid Plant, modify the GTSP Plant, modify the AFI Plant No. 1, construct the AFI Plant No. 2, and modify the No. 5 DAP Plant. As a result of these changes, increases in the actual particulate matter (PM), PM with an aerodynamic diameter of 10 microns or less (PM₁₀), sulfur dioxide (SO₂), fluoride (F), nitrogen oxides (NO_x), sulfuric acid mist (SAM), carbon monoxide (CO), total reduced sulfur (TRS), and volatile organic compounds (VOC) emissions will occur.

REGULATORY CLASSIFICATION

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

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

PERMIT SCHEDULE:

- 03-13-2001: Original Application Received
- 08-16-2001: Revised Application Complete
- 10-xx-2001: Mailed Intent to Issue Permit
- 10-xx-2001: Notice published in _____

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 03-13-2001
- Department letters dated 04-11-2001, 04-24-2001 and 06-28-2001
- Applicant letters received 04-30-2001, 05-29-2001 and 08-16-2001
- National Park Service’s e-mail received 06-22-2001
- Hillsborough County’s letter received 04-20-2001
- Technical Evaluation and Preliminary Determination dated 10-2-2001
- Best Available Control Technology determination (issued concurrently with permit)

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. **Applicable Regulations, Forms and Application Procedures:** Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of Chapter 403, F.S. and Florida Administrative Code Chapters 62-4, 62-110, 62-204, 62-212, 62-213, 62-296, 62-297 and the Code of Federal Regulations Title 40, Part 60, adopted by reference in the Florida Administrative Code (F.A.C.) regulations. 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. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]
5. **Expiration:** This air construction permit shall expire on **December 1, 2005** [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.

SECTION II – ADMINISTRATIVE REQUIREMENTS

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.

13. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]

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SECTION III - EMISSION UNIT(S) SPECIFIC CONDITIONS

SUBSECTION A. COMMON CONDITIONS

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

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
063-068, 074, 107	Molten Sulfur Handling System
005	No. 8 Sulfuric Acid Plant
006	No. 9 Sulfuric Acid Plant
073	Phosphoric Acid Plant
007	EPP Plant
078-081, 103	AFI Plants No. 1 and 2
055	No. 5 DAP Plant

1. Unless otherwise indicated, the modification/construction and operation of the molten sulfur handling system, the Nos. 8 and Sulfuric Acid Plants, the Phosphoric Acid Plant, the EPP Plant, the AFI Plant Nos. 1 and 2, and the No. 5 DAP Plant shall be in accordance with the capacities and specifications stated in the application. [Rule 62-210.300, F.A.C.]
2. Before this construction permit expires, and annually, the subject emissions units shall be tested for compliance with the applicable emission limits. For the duration of all tests the emission units shall be operating at permitted capacity. Permitted capacity is defined as 90-100 percent of the maximum operating rate allowed by the permit. If it is impracticable to test at permitted capacity, then the emission unit may be tested at less than permitted capacity (i.e., 90% of the maximum operating rate allowed by the permit); in this case, subsequent emission unit operation is limited to 110 percent of the test load until a new test is conducted. Once the emission unit is so limited, then operation at higher capacities is allowed for no more than 15 consecutive days for the purposes of additional compliance testing to regain the permitted capacity in the permit. [Rule 62-297.310, F.A.C.]
3. The Department's Southwest District office shall be notified in writing at least 15 days prior to source testing. Written reports of the test results shall be submitted to that office within 45 days of test completion. [Rule 62-297.310, F.A.C.]
4. The compliance test procedures shall be in accordance with EPA Reference Methods 1, 2, 3, 4, 5, 7E, 9, and 13A or 13B, as appropriate, as published in 40 CFR 60, Appendix A, or as otherwise specifically authorized by the Department [Rules 62-204.800 and 62-297.310(7)(c), F.A.C.]
5. 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.]
6. 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.]
7. The subject emissions units shall be subject to the following:

SECTION III - EMISSION UNIT(S) SPECIFIC CONDITIONS

- 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.]

SECTION III - EMISSION UNIT(S) SPECIFIC CONDITIONS

SUBSECTION B. Molten Sulfur Handling System

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

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
063	Molten Sulfur Storage Tank No. 1
063	Molten Sulfur Storage Tank No. 2
063	Molten Sulfur Storage Tank No. 3
066	Molten Sulfur Storage Pit No. 7
067	Molten Sulfur Storage Pit No. 8
068	Molten Sulfur Storage Pit No. 9
074	Truck Loading Station
107	GTSP Molten Sulfur Storage Tank

1. a. The molten sulfur through the molten sulfur handling system shall not exceed 2,408,483 tons per year (TPY). [Rule 62-210.200, F.A.C.]
- b. The following molten sulfur throughput rates for the emission units listed below shall not be exceeded [Rule 62-210.200, F.A.C.]:

EMISSION UNIT/SOURCE	CAPACITY (METRIC TONS)	MAXIMUM THROUGHPUT (TPY)
063, Tank No. 1	18,000	802,828
064, Tank No. 2	18,000	802,828
065, Tank No. 3	18,000	802,828
066, Pit No. 7	115	492,361
067, Pit No. 8	115	492,361
068, Pit No. 9	145	492,361
074, Truck Loading	--	800,000
107, GTSP Sulfur Tank	340	131,400

2. The molten sulfur handling system may operate up to 8,760 hours per year. [Rule 62-210.200, F.A.C.]
3. Sulfur particulate matter emissions from each molten sulfur handling source shall not exceed 1 TPY. [Rule 62-296.411(5)(b), F.A.C.]

SECTION III - EMISSION UNIT(S) SPECIFIC CONDITIONS

4. For emission inventory and PSD purposes, the estimated maximum emissions from the sources in the molten sulfur storage and handling system are:

EU ID No.	Source	PM/PM ₁₀		SO ₂		TRS/H ₂ S		VOC	
		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
063	Tank No. 1	0.12	0.33	1.99	2.95	0.95	1.41	1.42	2.10
063	Tank No. 2	0.12	0.33	1.99	2.95	0.95	1.41	1.42	2.10
063	Tank No. 3	0.12	0.33	1.99	2.95	0.95	1.41	1.42	2.10
066	Pit No. 7	0.44	0.37	0.04	0.04	0.02	0.02	0.03	0.03
067	Pit No. 8	0.44	0.37	0.04	0.04	0.02	0.02	0.03	0.03
068	Pit No. 9	0.44	0.37	0.04	0.04	0.02	0.02	0.03	0.03
074	Truck Loading Station	0.02	0.02	0.03	0.04	0.01	0.02	0.02	0.03
107	GTSP Sulfur Tank	0.19	0.85	0.15	0.66	0.07	0.32	0.11	0.47

5. Visible emissions from any emission point in the molten sulfur facility shall not exceed 10% opacity (6-minute average), except, visible emissions from any emission point during ship unloading shall not exceed 15% opacity (6-minute average). [Rule 62-296.411(1)(g) and (i), F.A.C.]
6. The compliance test procedures for visible emissions shall be in accordance with EPA Reference Method 9 as published in 40 CFR 60, Appendix A. [Rule 62-297.401, F.A.C.]

SECTION III - EMISSION UNIT(S) SPECIFIC CONDITIONS

SUBSECTION C. Nos. 8 and 9 Sulfuric Acid Plants

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

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
005	No. 8 Sulfuric Acid Plant
006	No. 9 Sulfuric Acid Plant

1. The sulfuric acid (H₂SO₄) production rate of the No. 8 Sulfuric Acid Plant (SAP) system shall not exceed 2,700 tons per day of 100% H₂SO₄. [Rule 62-210.200, F.A.C.]
2. The sulfuric acid production rate of the No. 9 SAP system shall not exceed 3,400 tons per day of 100% H₂SO₄. [Rule 62-210.200, F.A.C.]
3. The Nos. 8 and 9 SAPs may operate up to 8,760 hours per year each. [Rule 62-210.200, F.A.C.]
4. Sulfur dioxide (SO₂) emissions shall not exceed the following for each SAP [Rule 62-210.200, F.A.C.]:

SAP No.	lb/ton of 100% H ₂ SO ₄	lb/hr	TPY
8	4, 3-hr block average	450.0	--
8	3.5, 24-hr block average	393.8	1,724.6
9	4, 3-hr block average	566.7	--
9	3.5, 24-hr block average	495.8	2,171.8

5. Sulfuric acid mist emissions shall not exceed the following for each plant [Rule 62-210.200, F.A.C.]:

SAP No.	lb/ton of 100% H ₂ SO ₄	lb/hr	TPY
8	0.10	11.3	49.3
9	0.10	14.2	62.1

6. Visible emissions from each SAP shall not exceed 10% opacity (except during start-up, shutdown, or malfunction [Rule 62-210.700, F.A.C.]). [Rules 62-296.402(2)(a), F.A.C., 62-204.800, F.A.C., and 40 CFR 60.83(a)(2)]
7. The compliance test procedures for SO₂ and sulfuric acid mist shall be in accordance with EPA Reference Method 8 as published in 40 CFR 60, Appendix A. [Rule 62-296.402(3), F.A.C.]
8. The compliance test procedures for visible emissions shall be in accordance with EPA Reference Method 9 as published in 40 CFR 60, Appendix A. [Rule 62-297.401, F.A.C.]

SECTION III - EMISSION UNIT(S) SPECIFIC CONDITIONS

9. A continuous emissions monitoring system (CEMS) shall be installed, calibrated, maintained, operated, and used to determine compliance with the 24-hour emissions limit for SO₂. The CEMS shall be installed and certified before the initial performance test and operated in compliance with 40 CFR 60, Appendix F, Quality Assurance Procedures (1997 version) or other Department-approved QA plan; 40 CFR 60, Appendix B, Performance Specification 2 (1997 version).

The CEMS shall calculate and record emission rates in units of pounds SO₂ per ton of 100 percent sulfuric acid produced. Each operating day, the average SO₂ emission rate for the previous 24 hours shall be calculated and recorded. Emissions shall be calculated in units of pounds of SO₂ per ton of 100 percent acid produced using one of the methods specified in 40 CFR 60.84. Averages are to be calculated as the arithmetic mean of each monitored operating hour in which sulfur is burned in the unit and at least two emission measurements are recorded at least 15 minutes apart. Data taken during periods of startup, or when sulfur is not burned in the unit, or when the CEMS is out of control as defined in 40 CFR 60, Appendix F, Section 5.2, shall be excluded from the 24-hour average. Data recorded during periods of shutdown, malfunction, load change, and continuous operating periods shall be included in the daily calculation of the 24-hour average.

To the extent the monitoring system is available to record emissions data, the CEMS shall be operated and shall record data at all operating hours when sulfur is burned the unit, including periods of startup, shutdown, load change, continuous operation and malfunction. Monitor downtimes and excess emissions based on 3-hour averages, which include startup emissions, shall be reported on a quarterly basis using the SUMMARY REPORT in 40 CFR 60.7. A detailed report of the cause, duration, magnitude, and corrective action take or preventative measures adopted for each excess emission occurrence, and a listing of monitor downtime occurrences shall accompany the SUMMARY REPORT when the total duration of excess emissions is 1% or greater or if the monitoring system downtime is 5% greater of the total monitored operating hours.

The monitoring device shall meet the applicable requirements of Chapter 62-204, F.A.C., 40 CFR 60, Appendix F, and 40 CFR 60.13, including certification of each CEMS in accordance with 40 CFR 60, Appendix B, Performance Specifications and 40 CFR 60.7(a)(5) Notification Requirements. Data on monitoring equipment specifications, manufacturer, type calibration and maintenance requirements, and the proposed location of each stack probe shall be provided to the Department for review at least 30 days prior to installation of a new CEMS. [Rules 62-4.070(3), F.A.C. and 62-204.800, F.A.C.]

SECTION III - EMISSION UNIT(S) SPECIFIC CONDITIONS

SUBSECTION D. Phosphoric Acid Plant

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

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
073	Phosphoric Acid Plant

1. The production rate of the Phosphoric Acid Plant shall not exceed a daily average of 170 tons per hour of P₂O₅. [Rule 62-210.200, F.A.C.]
2. The Phosphoric Acid Plant may operate up to 8,760 hours per year. [Rule 62-210.200, F.A.C.]
3. Fluoride emissions from the Phosphoric Acid Plant affected facility components shall not exceed 0.012 lb/ton of equivalent P₂O₅ feed, 2.04 lb/hr, and 8.9 TPY. [Rule 62-212.400, F.A.C.]
4. The compliance test procedures for fluorides shall be in accordance with EPA Reference Method 13A or 13B as published in 40 CFR 60, Appendix A. [Rule 62-297.401(13), F.A.C.]

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SECTION III - EMISSION UNIT(S) SPECIFIC CONDITIONS

SUBSECTION E. Enhanced Phosphate Products (EPP) Plant

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

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
007	EPP Plant

1. a. The production rate of the EPP plant shall not exceed 92 tons per hour or 2,208 tons per day of GTSP (granular triple super phosphate). [Rule 62-210.200, F.A.C.]
- b. The production rate of the EPP Plant shall not exceed 100 tons per hour or 2,400 tons per day of AP (ammoniated phosphates). [Rule 62-210.200, F.A.C.]
2. The heat input rate to the rotary dryer shall not exceed 60 MMBtu/hr (daily average). [Rule 62-210.200, F.A.C.]
3. The EPP plant rotary dryer shall be fired with natural gas only, except that No. 2 fuel oil with a maximum sulfur content of 0.5% by weight is allowed as back-up fuel. No. 2 fuel oil shall be fired for no more than 400 hr/yr. [Permit No. 0570008-014-AV]
4. The EPP plant may operate up to 8,760 hours per year. [Rule 62-210.200, F.A.C.]
5. Particulate emissions from the EPP plant shall not exceed the following [Rule 62-212.400, F.A.C.]:

Production Mode	lb/ton product	lb/hr	TPY
GTSP	0.13	12.0	52.6
AP	0.08	8.0	35.04

6. Fluoride emissions from the EPP plant shall not exceed the following [Rule 62-212.400, F.A.C.]:

Production Mode	lb/ton P ₂ O ₅ input	lb/hr	TPY
GTSP	0.058	2.5	10.75
AP	0.041	4.1	17.96

7. Visible emissions from the EPP plant shall not exceed 20% opacity. [Rules 62-296.705(2)(a) and 62-296.320(4)(b)(1), F.A.C.]
8. The compliance test procedures for particulates shall be in accordance with EPA Reference Methods 5 or 5A as published in 40 CFR 60, Appendix A. [Rule 62-297.401(5), F.A.C.]
9. The compliance test procedures for fluorides shall be in accordance with EPA Reference Methods 13A or 13B as published in 40 CFR 60, Appendix A. [Rule 62-297.401(13), F.A.C.]

SECTION III - EMISSION UNIT(S) SPECIFIC CONDITIONS

SUBSECTION F. Animal Feed Ingredient (AFI) Plants No. 1 and 2

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

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
078	AFI Plant No. 1
103	AFI Plant No. 2
079	Diatomaceous Earth Silo
080	Limestone Silo
081	Animal Feed Plant Loadout System

1. The production rate of the AFI Plant No. 1 shall not exceed 1,080 tons per day of AFI. [Rule 62-210.200, F.A.C.]
2. The production rate of the AFI Plant No. 2 shall not exceed 1,200 tons per day of AFI. [Rule 62-210.200, F.A.C.]
3. The maximum natural gas usage for the AFI Plants No. 1 and 2 dryers shall not exceed 93,000 standard cubic feet (scf)/hr (annual average) each. [Permit No. 0570008-014-AV]
4. The maximum new No. 2 fuel oil usage for the AFI Plants No. 1 and 2 dryers shall not exceed 662 gal/hr (daily average) each. [Permit No. 0570008-014-AV]
5. The AFI Plants No. 1 and 2 may operate up to 8,760 hours per year each. [Rule 62-210.200, F.A.C.]
6. Emissions from the AFI Plants No. 1 and 2 shall not exceed the following [Rule 62-210.400, F.A.C.]:

Emission Unit	PM/PM ₁₀			Fluorides	
	Grains per DSCF	lb/hr	TPY	lb/hr	TPY
AFI Plant No. 1 Granulation System	N/A	8	35	N/A	N/A
Defluorination System	N/A	N/A	N/A	2.11	9.25
Milling, Classification, and Cooling Equipment Train No. 1	0.012	5	23	N/A	N/A
AFI Plant No. 2 Granulation System	N/A	8	35	N/A	N/A
Milling, Classification, and Cooling Equipment Train No. 2	0.012	5	23	N/A	N/A
DE Silo	0.012	0.053	0.23	N/A	N/A
Limestone Silo	0.012	0.32	1.40	N/A	N/A
Loadout System	0.012	2.06	9.01	N/A	N/A
Total for AFI Plants No. 1 and 2	N/A	28.72	125.78	2.1	9.25

SECTION III - EMISSION UNIT(S) SPECIFIC CONDITIONS

7. Visible emissions from the AFI Plant No. 1 common plant stack and AFI Plant No. 2 common plant stack shall be less than 15% opacity each. [Permit No. 0570008-008-AC]
8. The AFI Plants No. 1 and 2 dryers shall be fired with natural gas only, except that new No. 2 fuel oil with a maximum sulfur content of 0.5% (by weight) is allowed as a back-up fuel. No. 2 fuel oil shall not be fired for more than 400 hr/yr in each dryer. [Permit No. 0570008-014-AV]
9. The compliance test procedures for particulates shall be in accordance with EPA Reference Method 5 as published in 40 CFR 60, Appendix A. [Rule 62-297.401(5), F.A.C.]
10. The compliance test procedures for fluorides shall be in accordance with EPA Reference Method 13A or 13B as published in 40 CFR 60, Appendix A. [Rule 62-297.401(13), F.A.C.]
11. The compliance test procedures for visible emissions shall be in accordance with EPA Reference Method 9 as published in 40 CFR 60, Appendix A. [Rule 62-297.401(9), F.A.C.]

SECTION III - EMISSION UNIT(S) SPECIFIC CONDITIONS

SUBSECTION G. No. 5 DAP Plant

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

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
055	No. 5 DAP Plant

1. The process input rate of the No. 5 DAP Plant shall not exceed 1,764 tons per day of 100% phosphorous pentoxide (P₂O₅). [Rule 62-210.200, F.A.C.]
2. The heat input rate to the rotary dryer shall not exceed 40 MMBtu/hr (monthly average). [Rules 62-4.160(2) and 62-210.200, F.A.C.]
3. The rotary dryer shall be fired with natural gas only, except that No. 2 fuel oil with a maximum sulfur content of 0.31% by weight is allowed as a back-up fuel. No. 2 fuel oil shall not be fired for more than 400 hr/yr. [Permit No. 0570008-014-AV]
4. The No. 5 DAP Plant may operate up to 8,760 hours per year. [Rule 62-210.200, F.A.C.]
5. Emissions from the No. 5 DAP Plant shall not exceed the following [Rule 62-212.400, F.A.C.]:

Pollutant	Maximum Allowable Emissions		
	lb/ton P ₂ O ₅	lb/hr	TPY
PM/PM ₁₀	0.174	12.8	56.1
Fluorides	0.04	2.9	12.9

6. Visible emissions from the No. 5 DAP Plant shall not exceed 10% opacity. [Permit No. 0570008-014-AV]
7. The compliance test procedures for particulates shall be in accordance with EPA Reference Method 5 as published in 40 CFR 60, Appendix A. [Rule 62-297.410(5), F.A.C.]
8. The compliance test procedures for fluorides shall be in accordance with EPA Reference Methods 13A or 13B as published in 40 CFR 60, Appendix A. [Rule 62-297.410(13), F.A.C.]
9. The compliance test procedures for visible emissions shall be in accordance with EPA Reference Method 9 as published in 40 CFR 60, Appendix A. [Rule 62-297.410(9), F.A.C.]

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

Cargill Fertilizer, Inc.
Tampa Plant Expansion
PSD-FL-315/0570008-036-AC
Riverview, Hillsborough County

Cargill Fertilizer, Inc. has applied to modify several existing emission units at its phosphate fertilizer manufacturing facility located in Riverview, Florida. The proposed changes will include increased molten sulfur through the molten sulfur handling system, additional digestion capacity associated with the Dorrco Reactor at the Phosphoric Acid plant (PAP), modification of the Granular Triple Super Phosphate (GTSP) plant, modification of the Animal Feed Ingredient (AFI) plant, construction of a second AFI granulation train, and modification of the No. 5 Diammonium Phosphate (DAP) plant. Cargill has also requested removal of the existing allowable production rate cap for the Nos. 8 and 9 Sulfuric Acid (H₂SO₄) plants, to allow these plants to simultaneously operate up to their maximum capacities, with a reduction in allowable emissions. As a result of this project, increases in emissions of fluoride (F), sulfur dioxide (SO₂), nitrogen oxides (NO_x), sulfuric acid mist (SAM), carbon monoxide (CO), volatile organic compound (VOC), and total reduced sulfates (TRS), particulate matter (PM), and particulate matter less than or equal to 10 micrometers (PM₁₀) from the proposed modifications may occur.

The increases in emissions of F, SO₂, NO_x, SAM, PM, and PM₁₀ will exceed the significant emission rates listed in Table 212.400-2 of Rule 62-212.400, Florida Administrative Code (F.A.C.). The project is therefore subject to Prevention of Significant Deterioration (PSD) review for F, SO₂, NO_x, SAM, PM, and PM₁₀ in accordance with 62-212.400, F.A.C. A Best Available Control Technology (BACT) determination is part of the review required by Rules 62-212.400 and 62-296, F.A.C.

DATE OF RECEIPT OF COMPLETE BACT APPLICATION:

Original application received on March 13, 2001. BACT application was complete on August 16, 2001.

BACT DETERMINATION PROCEDURE:

In accordance with Chapter 62-212.400, F.A.C., this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department of Environmental Protection (Department), on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that, in making the BACT determination, the Department shall give consideration to:

- Any Environmental Protection Agency determination of BACT pursuant to Section 169, and any emission limitation contained in 40 CFR Part 60 - Standards of Performance for New Stationary Sources or 40 CFR Part 61 - National Emission Standards for Hazardous Air Pollutants.
- All scientific, engineering, and technical material and other information available to the Department.
- The emission limiting standards or BACT determination of any other state.

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

- The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine, for the emission unit in question, the most stringent control available for a similar or identical emission unit or emission unit category. If it is shown that this level of control is technically or economically unfeasible for the emission unit in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

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

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

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

In the case of the proposed project at Cargill, annual emissions of F, SO₂, NO_x, SAM, PM, and PM₁₀ are above significant emission rates triggering review for these pollutants. Therefore, since the proposed project involves physical modification to the plant the BACT analysis will address emissions of F, SO₂, NO_x, SAM, PM, and PM₁₀.

BACT EMISSION LIMITS PROPOSED BY APPLICANT:

1. Molten Sulfur Handling System

POLLUTANT	EMISSION LIMIT	LIMIT BASIS	CONTROL TECHNOLOGY
VE	10% opacity, except 15% during ship unloading	Permit No. 0570008- 014-AV	Wet scrubbers to control emissions from storage tanks while filling and from truck loading station.

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

2. No. 8 Sulfuric Acid Plant

POLLUTANT	EMISSION LIMIT	LIMIT BASIS	CONTROL TECHNOLOGY
SO ₂	393.8 lb/hr	3.5 lb/ton of 100% H ₂ SO ₄ for 24-hour average; 4 lb/ton of 100% H ₂ SO ₄ for 3-hour average	Double-absorption system
	450.0 lb/hr		
SAM	11.3 lb/hr	0.10 lb/ton of 100% H ₂ SO ₄	Mist eliminator
NO _x	N/A	N/A	Good combustion practices

3. No. 9 Sulfuric Acid Plant

POLLUTANT	EMISSION LIMIT	LIMIT BASIS	CONTROL TECHNOLOGY
SO ₂	495.8 lb/hr	3.5 lb/ton of 100% H ₂ SO ₄ for 24-hour average; 4 lb/ton of 100% H ₂ SO ₄ for 3-hour average	Double-absorption system
	566.7 lb/hr		
SAM	14.2 lb/hr	0.10 lb/ton of 100% H ₂ SO ₄	Mist eliminator
NO _x	N/A	N/A	Good combustion practices

4. Phosphoric Acid Plant

POLLUTANT	EMISSION LIMIT	LIMIT BASIS	CONTROL TECHNOLOGY
F	2.04 lb/hr	0.012 lb F/ton P ₂ O ₅ input	Packed scrubber, (2) Vescor scrubbers, and Dorrco scrubber

5. Enhanced Phosphate Products (EPP) Plant

POLLUTANT	EMISSION LIMIT	LIMIT BASIS	CONTROL TECHNOLOGY
PM/PM ₁₀	12 lb/hr for GTSP Mode 8 lb/hr for AP Mode	0.13 lb/ton product 0.08 lb/ton product	RGCV and dryer Venturi scrubbers
F	2.5 lb/hr for GTSP Mode	0.058 lb/ton P ₂ O ₅ input	Packed-bed Tailgas scrubbers
	4.1 lb/hr for AP Mode	0.041 lb/ton P ₂ O ₅ input	
SO ₂	N/A	N/A	Natural gas/low sulfur fuel backup
NO _x	N/A	N/A	Good combustion practices

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6. AFI Plants No. 1 and 2

Emission Unit	SO ₂	NO _x	PM/PM ₁₀			Fluorides		
	Control Technology	Control Technology	Limit Basis	Emission Limit (lb/hr)	Control Technology	Limit Basis	Emission Limit (lb/hr)	Control Technology
AFI Plant No. 1 Granulation System	Good combustion practices	Good combustion practices	N/A	8	Venturi Scrubber	N/A	N/A	N/A
Defluorination System	N/A	N/A	N/A	N/A	N/A	0.5 lb/batch-hour	2.11	Venturi Scrubber and Packed Cross-flow Scrubber
Milling, Classification, and Cooling Equipment Train No. 1	N/A	N/A	0.012 grains/dscf	5	Baghouse	N/A	N/A	N/A
AFI Plant No. 2 Granulation System	Good combustion practices	Good combustion practices	N/A	8	Venturi Scrubber	N/A	N/A	N/A
Milling, Classification, and Cooling Equipment Train No. 2	N/A	N/A	0.012 grains/dscf	5	Baghouse	N/A	N/A	N/A
DE Silo	N/A	N/A	0.012 grains/dscf	0.053	Baghouse	N/A	N/A	N/A
Limestone Silo	N/A	N/A	0.012 grains/dscf	0.32	Baghouse	N/A	N/A	N/A
Loadout System	N/A	N/A	0.012 grains/dscf	2.06	Baghouse	N/A	N/A	N/A

7. No. 5 DAP Plant

POLLUTANT	EMISSION LIMIT	LIMIT BASIS	CONTROL TECHNOLOGY
PM/PM ₁₀	12.8 lb/hr	0.17 lb/ton P ₂ O ₅ input	(3) Venturi scrubbers
F	2.9 lb/hr	0.04 lb/ton P ₂ O ₅ input	(2) Tailgas scrubbers
SO ₂	N/A	N/A	Natural gas/low sulfur fuel backup
NO _x	N/A	N/A	Good combustion practices

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BACT ANALYSIS

1. Molten Sulfur Handling System

Sources of air emissions from the molten sulfur system are summarized below:

- A. PM/PM₁₀, SO₂, H₂S, and VOC emissions from the stack for the scrubber controlling the molten sulfur storage tanks and truck loading station. Emissions from the three existing tanks are currently uncontrolled.
- B. PM/PM₁₀, SO₂, H₂S, and VOC emissions from the molten sulfur storage tank Nos. 1, 2 and 3 vents during periods of natural ventilation
- C. PM/PM₁₀, SO₂, H₂S, and VOC emissions from the molten sulfur pits. Emission rates from the molten sulfur pits will not be affected by the proposed project.

A scrubber will be installed to control PM/PM₁₀, VOC, H₂S, and SO₂ emissions from Molten Sulfur Tank Nos. 1, 2, and 3. The scrubber will control emissions of sulfur particulates from the tanks and the planned truck loading station. Based on the very low PM/PM₁₀ and SO₂ emissions from the entire sulfur handling system, the proposed BACT is the use of wet scrubbers to control PM/PM₁₀ from the storage tanks and no controls for SO₂.

2. Nos. 8 and 9 Sulfuric Acid Plants

The SAPs utilize double absorption technology. In the SAPs, sulfur is burned with dried atmospheric oxygen to produce SO₂. The SO₂ is catalytically oxidized to sulfur trioxide (SO₃) over a catalyst bed. The SO₃ is then absorbed in H₂SO₄ to produce additional H₂SO₄. The remaining SO₂, not previously oxidized, is passed over a final converter bed of catalyst and the SO₃ produced is then absorbed in H₂SO₄. SO₂ and SAM emissions result from the process, as well as a small amount of NO_x.

The control equipment for the SAPs consists of two systems in series. The first system is integral to the H₂SO₄ production process and is the double contact process where the converted SO₃ emissions from the sulfur combustion are absorbed by water in a tower. This process is at least 99 percent efficient at absorbing SO₃. This system is considered process equipment and not considered control equipment. The second system is a high-velocity mist eliminator, which causes moisture (droplets containing sulfuric acid mist) from the double-contact process to be removed from the air stream by impingement. This process is at least 90 percent efficient at removing SAM from the air stream and, therefore, recovering the product.

On a 24-hour average, the proposed BACT emission rate for SO₂ is 3.5 lb/ton. On a 3-hour average, the proposed BACT emission rate is 4.0 lb/ton, equivalent to the NSPS. This higher 3-hour average emission rate is necessary to account for plant process fluctuations and variability.

Recent SO₂ compliance test data indicates that the average SO₂ emissions are between 3.1 and 3.8 lb/ton. These SO₂ levels are above the proposed 3.5 lb/ton, 24-hour average limit, but less than the proposed 3-hour limit of 4.0 lb/ton. Variable emissions result from changing operating rates, process variables, and catalyst aging. An SO₂ emission level lower than 3.5 lb/ton, 24-hour average, may not be achievable on a continuous basis without significant changes to the catalyst system, particularly in light of the potential effects of higher production, catalyst aging, and other

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process variables. Since, this project is a modification at an existing plant, the proposed BACT limit for SO₂ of 3.5 lb/ton, 24-hour average, is reasonable based on recent BACT determinations for similar plants. The Department might have made a different determination if this was a new facility.

Recent SAM compliance test data indicates that the average SAM emissions are between 0.031 and 0.052 lb/ton. These SAM levels are below the future allowable emissions of 0.10 lb/ton for the Nos. 8 and 9 SAP. Cargill originally requested a SAM allowable of 0.12 lb/ton, but has agreed to lower that limit to stay below the 5 percent visibility threshold at the Chassahowitzka NWA Class I area. A SAM emission level lower than 0.10 lb/ton may not be achievable on a continuous basis without significant changes to the mist elimination system, particularly in light of the potential effects of higher production, gas velocities, and other process variables. Such changes would require substantial physical modifications to the plants. The proposed BACT limit of 0.10 lb/ton for SAM is the most stringent BACT issued to date for a SAP plant.

3. Phosphoric Acid Plant

Fluoride-containing gases including hydrogen fluoride (HF) are evolved during production of phosphoric acid in the PAP. Fluoride emissions from the existing PAP are currently controlled by three scrubbers. The proposed project will add a new scrubber as well as reduce the fluoride loading to one of the existing scrubbers.

Currently, the existing scrubber system is achieving lower fluoride emission rates than required by the operation permit. As shown in recent stack tests, actual fluoride emission rates for the existing PAP measured during the compliance tests ranged from 0.0024 lb/ton of P₂O₅ to 0.0105 lb/ton of P₂O₅.

Fluoride emissions from the entire PAP are currently limited by Operation Permit No. 0570008-014-AV to 0.0135 lb/ton of P₂O₅ and 10.01 TPY. This limit is based on a BACT determination issued for the PAP on August 27, 1996.

The Department proposed 0.012 lb of F per ton of P₂O₅ input as an emission limit for the PAP. This was based on the recent BACT determination done by the Department for US Agri-Chemicals Corporation in February 2001. The compliance tests submitted by the applicant provided reasonable assurance to the Department that such a limit can be easily complied with. The applicant accepted the lower BACT limit as proposed by the Department. This limit is consistent with the previous BACT limit for the PAP, as well as the most stringent BACT determination to date for the PAP.

4. EPP Plant

The existing GTSP plant is currently equipped with two venturi scrubbers and two tailgas scrubbers. The two primary venturi scrubbers are of the same design, as are the two tailgas scrubbers. One venturi scrubber controls PM emissions and recovers ammonia from the exhaust gases of the reactor, granulator, cooler, and equipment vents (RGCV scrubber). The other venturi scrubber controls PM emissions from the dryer. Similarly, the two tailgas scrubbers are of the same design and control fluoride emissions from the RGCV and the dryer, respectively.

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The RGCV venturi scrubber and RGCV tailgas scrubber are in series, as are the dryer venturi scrubber and dryer tailgas scrubber. Exhaust gases go to a common stack for the EPP plant.

Currently, the scrubber systems are achieving lower emission rates than required by permit No. 0570008-014-AV. Emissions measured in recent stack tests from the common stack range from 4.0 to 8.2 lb/hr for PM and 0.43 to 1.56 lb/hr for F. These are equivalent to 0.049 to 0.097 lb of PM per ton of GTSP product, and 0.011 to 0.041 lb of F per ton P₂O₅ input.

Since actual PM/PM₁₀ emissions from the EPP plant have been below the allowable emission rate of 21.6 lb/hr, the applicant is proposing to lower the allowable to 12.0 lb/hr, even considering the proposed modifications. The applicant's proposed fluoride emission rate for the EPP plant is 2.5 lb/hr, equivalent to 0.058 lb/ton P₂O₅ input when making GTSP, and 4.1 lb/hr and 0.041 lb/ton P₂O₅ when making MAP or DAP. The proposed BACT limit for MAP/DAP is equal to the most stringent BACT issued to date for a MAP plant.

A previous BACT determination for a DAP plant (IMC-Agrico- New Wales; PSD-FL-241) addressed alternatives for PM/PM₁₀ control. The alternatives addressed consisted of a high-energy (>30 in w.c.) venturi scrubber and a medium-energy (15 to 30 in w.c.) venturi scrubber. The IMC plant employs an existing medium-energy venturi scrubbing system. The high costs of adding a high-energy venturi scrubbing system was deemed economically infeasible with incremental cost effectiveness ranging from \$50,000 to \$75,000 per incremental ton of PM/PM₁₀ removed. As a result, the high-energy venturi scrubber option was found to be infeasible, and the existing medium-energy venturi scrubber was selected as BACT.

Cargill also employs medium-energy wet scrubbers in its MAP plant and a medium energy venturi scrubber. Similar to the above analysis, replacing the existing scrubbers with high-energy venturi scrubbers would not be cost effective. Therefore, the existing medium-energy wet scrubbers (ARCO scrubbers and cooler scrubber) represent BACT for the Cargill EPP plant.

A previous BACT determination for a DAP plant (IMC-Agrico New Wales) addressed alternatives for F control. The alternatives included a packed scrubber using either once-through fresh water, neutralized water from a dedicated pond (fresh water makeup), or process cooling pond water. The first option was dismissed due to concern over fresh water usage and plant water balance problems. The second option was dismissed based on economics, with the cost effectiveness estimated at \$14,000 per ton of F removed. In Cargill's case, the first two options can be dismissed based on similar considerations. This leaves the third option, using process cooling pond water, as BACT.

The EPP Plant dryer is a small source of NO_x and SO₂ due to the fuel combustion in the dryer. Good combustion practices constitute BACT for NO_x for this source. SO₂ emissions are controlled by using natural gas as the primary fuel and using low sulfur content fuel as a backup. This constitutes BACT for SO₂ for this source.

5. AFI Plant No. 1

The animal feed plant No. 1 uses a combination of baghouses, cyclones, and wet scrubbers to control PM/PM₁₀ emissions. Baghouses are used to control all raw material (DE 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

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highly efficient and allow collected PM to be recovered as product. Although wet PM controls (i.e., scrubbers) could be employed, an additional liquid waste stream would be generated.

A new scrubber will be added in the defluorination area to replace the existing packed cross-flow scrubber. Air from the defluorination tanks and the defluorinated acid storage tank will be scrubbed in a new venturi scrubber that removes fluorides. The gases will then pass through a new packed cross-flow scrubber to remove additional F emissions. The packed scrubber contains three packed stages and a de-mister stage. Pond water is used as the scrubbing media and is returned to the existing plant process pond cooling system.

The permitted PM/PM₁₀ emission limits for the No. 1 AFI granulation train are 8 lb/hr and 35.04 TPY. The applicant is proposing control equipment equivalent to a recent BACT determination by FDEP in the AFI Plant No. 1 Construction Permit No. 0570008-28-AC, issued June 8, 1999, capable of attaining the same emission rates, as BACT for the modified No. 1 AFI plant.

In June 1999, FDEP issued a final Air Construction Permit allowing Cargill to make the modifications necessary to increase production of the existing AFI plant from 580 to 770 TPD of AFI. For that permit, FDEP determined an F emission rate of 0.5 pound per batch per hour (lb/batch-hr) and 1.0 lb/hr total to be BACT. Cargill is modifying the existing acid defluorination system with the addition of a fourth acid batch tank and production of defluorinated acid will increase proportionally with the increase in AFI production for both granulation systems; therefore, the maximum hourly F emission rate will increase to 2.11 lb/hr. The new packed scrubber is expected to provide equivalent or better F control. Given this recent BACT determination by FDEP and the increase in production afforded by the proposed modification, the Department believes that an F emission limit of 0.5 lb/batch-hr or 2.11 lb/hr still represents BACT.

The AFI Plant No. 1 dryer is a small source of NO_x and SO₂ due to the fuel combustion in the dryer. Good combustion practices constitute BACT for NO_x for this source. SO₂ emissions are controlled by using natural gas as the primary fuel and using low sulfur content fuel as a backup. This constitutes BACT for SO₂ for this source.

6. AFI Plant No. 2

Exhaust gases from the new granulation plant dryer and reaction system will be sent to a venturi scrubber and then to a new stack adjacent to the second granulation plant building. The new venturi scrubber will be similar in design to the existing venturi scrubber controlling emissions from the No. 1 granulation system. The milling, classification, and cooling equipment will be vented to a baghouse. The granulation plant venturi scrubber and baghouse will exit through a common stack.

The current PM/PM₁₀ emission limit for the material handling sources at the No. 1 AFI plant is 0.012 grain per dry standard cubic foot (gr/dscf), based on FDEP's BACT determination presented in Construction Permit No. 0570008-28-AC, issued on June 8, 1999. Given this recent BACT determination by FDEP, that the material handling sources in the No. 1 AFI plant are identical or similar to the proposed material handling sources for the AFI plant No. 2 and that no other technology is capable of achieving lower PM/PM₁₀ levels than the proposed baghouse technology, the Department believes an emission limit of 0.012 gr/dscf represents BACT for

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these sources. This is also applicable to the proposed baghouse-controlling PM emissions from the No. 2 AFI milling, classification, and cooling equipment.

FDEP determined wet scrubber technology to be BACT in Construction Permit No. 0570008-028-AC, issued on June 8, 1999, for modifications to the No. 1 AFI Plant. The permitted PM/PM₁₀ emission limits for the existing No. 1 AFI granulation train are 8 pounds per hour (lb/hr) and 35.04 TPY. Again, given this recent BACT determination by FDEP for an identical source, Cargill is proposing equivalent control equipment, capable of attaining the same emission rates, as BACT for the No. 2 AFI granulation system.

The AFI Plant No. 2 dryer is a small source of NO_x and SO₂ due to the fuel combustion in the dryer. Good combustion practices constitute BACT for NO_x for this source. SO₂ emissions are controlled by using natural gas as the primary fuel and using low sulfur content fuel as a backup. This constitutes BACT for SO₂ for this source.

7. No. 5 DAP Plant

The No. 5 DAP plant is currently equipped with three venturi scrubbers and two tailgas scrubbers. The three primary venturi scrubbers are of different but similar design, as are the two tailgas scrubbers. One venturi scrubber controls PM emissions and recovers ammonia from the exhaust gases of the reactor and granulator, the second controls the cooler and equipment vents, and the third venturi scrubber controls PM emissions from the dryer. One tailgas scrubber controls fluoride emissions from the reactor, granulator, and cooler, while the second controls emissions from the dryer. Exhaust gases go to a common stack for the No. 5 DAP plant.

Currently, the scrubber systems are achieving lower emission rates than required by permit No. 0570008-014-AV. As shown in recent stack tests, emissions from the common stack range from 1.3 to 2.9 lb/hr for PM and 0.47 to 3.02 lb/hr for F. These are equivalent to 0.018 to 0.042 lb of PM per ton of P₂O₅ input, and 0.008 to 0.042 lb of F per ton P₂O₅ input.

Cargill's proposed PM/PM₁₀ emission rate for the No. 5 DAP plant of 12.8 lb/hr is equivalent to 0.174 lb/ton P₂O₅ input and 0.082 lb/ton of DAP produced. This proposed limit is lower than the previous determinations, based on the actual emissions measured from the No. 5 DAP plant. The proposed limit is justified to provide certainty that the emission limit will be achievable on a continuous basis.

Cargill's proposed fluoride emission rate for the No. 5 DAP plant is 2.9 lb/hr, equivalent to 0.04 lb/ton P₂O₅ input. The proposed BACT limit is equal to the most stringent BACT issued to date for a MAP or DAP plant.

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

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

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

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

Option 2 is the feasible choice, and the BACT requirement will be satisfied by specifying that the maximum emissions from the cyclonic scrubbers be limited to 0.174 lb PM/ton and 0.04 lb F/ton of P₂O₅ input. Actual emissions from recent stack tests ranged from 0.018 to 0.042 lb PM/ton and 0.008 to 0.042 lb F/ton. Test data indicate that the actual emissions from the cyclonic scrubbers are below the minimum previous BACT determinations of 0.156 lb PM/ton and 0.0417 lb F/ton of P₂O₅ input. Based on the range of previous BACT determinations for PM and F, the proposed limits are within the range for PM and lower than the previous determinations for F.

BACT DETERMINATION BY THE DEPARTMENT:

Based on the information provided by the applicant and other information available to the Department the Department agrees with the emission limit proposed by the applicant and establishes the following emission limits as BACT for this project:

1. Molten Sulfur Handling System

POLLUTANT	EMISSION LIMIT	LIMIT BASIS	CONTROL TECHNOLOGY
VE	10% opacity, except 15% during ship unloading	Permit No. 0570008-014-AV	Wet scrubbers to control emissions from storage tanks while filling and from truck loading station.

2. No. 8 Sulfuric Acid Plant

POLLUTANT	EMISSION LIMIT	LIMIT BASIS	CONTROL TECHNOLOGY
SO ₂	393.8 lb/hr 450.0 lb/hr	3.5 lb/ton of 100% H ₂ SO ₄ for 24-hour average; 4 lb/ton of 100% H ₂ SO ₄ for 3-hour average	Double-absorption system
SAM	11.3 lb/hr	0.10 lb/ton of 100% H ₂ SO ₄	Mist eliminator
NO _x	N/A	N/A	Good combustion practices

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3. No. 9 Sulfuric Acid Plant

POLLUTANT	EMISSION LIMIT	LIMIT BASIS	CONTROL TECHNOLOGY
SO ₂	495.8 lb/hr 566.7 lb/hr	3.5 lb/ton of 100% H ₂ SO ₄ for 24-hour average; 4 lb/ton of 100% H ₂ SO ₄ for 3-hour average	Double-absorption system
SAM	14.2 lb/hr	0.10 lb/ton of 100% H ₂ SO ₄	Mist eliminator
NO _x	N/A	N/A	Good combustion practices

4. Phosphoric Acid Plant

POLLUTANT	EMISSION LIMIT	LIMIT BASIS	CONTROL TECHNOLOGY
F	2.04 lb/hr	0.012 lb F/ton P ₂ O ₅ input	Packed scrubber, (2) Vescor scrubbers, and Dorco scrubber

5. Enhanced Phosphate Products (EPP) Plant

POLLUTANT	EMISSION LIMIT	LIMIT BASIS	CONTROL TECHNOLOGY
PM/PM ₁₀	12 lb/hr for GTSP Mode 8 lb/hr for AP Mode	0.13 lb/ton product 0.08 lb/ton product	RGCV and dryer Venturi scrubbers followed by tailgas scrubbers
F	2.5 lb/hr for GTSP Mode 4.1 lb/hr for AP Mode	0.058 lb/ton P ₂ O ₅ input 0.041 lb/ton P ₂ O ₅ input	Venturi scrubbers followed by tailgas scrubbers
SO ₂	N/A	N/A	Natural gas/low sulfur fuel backup
NO _x	N/A	N/A	Good combustion practices

6. AFI Plants No. 1 and 2

Emission Unit	SO ₂	NO _x	PM/PM ₁₀			Fluorides		
	Control Technology	Control Technology	Limit Basis	Emission Limit (lb/hr)	Control Technology	Limit Basis	Emission Limit (lb/hr)	Control Technology
AFI Plant No. 1 Granulation System	Good combustion practices	Good combustion practices	N/A	8	Venturi Scrubber	N/A	N/A	N/A
Defluorination System	N/A	N/A	N/A	N/A	N/A	0.5 lb/batch-hour	2.11	Venturi Scrubber and Packed Cross-flow Scrubber
Milling, Classification, and Cooling Equipment Train No. 1	N/A	N/A	0.012 grains/dscf	5	Baghouse	N/A	N/A	N/A

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AFI Plant No. 2 Granulation System	Good combustion practices	Good combustion practices	N/A	8	Venturi Scrubber	N/A	N/A	N/A
Milling, Classification, and Cooling Equipment Train No. 2	N/A	N/A	0.012 grains/dscf	5	Baghouse	N/A	N/A	N/A
DE Silo	N/A	N/A	0.012 grains/dscf	0.053	Baghouse	N/A	N/A	N/A
Limestone Silo	N/A	N/A	0.012 grains/dscf	0.32	Baghouse	N/A	N/A	N/A
Loadout System	N/A	N/A	0.012 grains/dscf	2.06	Baghouse	N/A	N/A	N/A

7. No. 5 DAP Plant

POLLUTANT	EMISSION LIMIT	LIMIT BASIS	CONTROL TECHNOLOGY
PM/PM ₁₀	12.8 lb/hr	0.17 lb/ton P ₂ O ₅ input	(3) Venturi scrubbers
F	2.9 lb/hr	0.04 lb/ton P ₂ O ₅ input	(2) Tailgas scrubbers
SO ₂	N/A	N/A	Natural gas/low sulfur fuel backup
NO _x	N/A	N/A	Good combustion practices

COMPLIANCE

Compliance with the emission limits shall be in accordance with the following EPA Reference Methods as contained in 40 CFR 60, Appendix A or as otherwise approved by the Department:

EMISSION UNIT	POLLUTANT	EPA REFERENCE METHOD
Molten Sulfur Handling	PM/PM ₁₀	9
Nos. 8 and 9 Sulfuric Acid Plants	SO ₂	8
	SAM	8
	VE	9
Phosphoric Acid Plant	FL	13A or 13B
EPP Plant	PM	5
	FL	13A or 13B
	VE	9
AFI Plants No.1 and 2	PM/PM ₁₀	5
	FL	13A or 13B
	VE	9
No. 5 DAP Plant	PM/PM ₁₀	5
	FL	13A or 13B
	VE	9

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DETAILS OF THE ANALYSIS MAY BE OBTAINED BY CONTACTING:

Syed Arif, P.E. II _____
New Source Review Section
Department of Environmental Protection
Bureau of Air Regulation
2600 Blair Stone Road, MS 5505
Tallahassee, Florida 32399-2400

Recommended By:

Approved By:

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

Howard L. Rhodes, Director
Division of Air Resources Management

Date:

Date:

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, F.S. 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, 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), F.S. the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
- G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgement 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 any records that must be kept under the conditions of the permit;
 - b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
 - c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.
- Reasonable time may depend on the nature of the concern being investigated.

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GENERAL PERMIT CONDITIONS [F.A.C. 62-4-160]

- 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, F.S. 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 F.S. 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 Rules 62-4.120, 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:
- (X) Determination of Best Available Control Technology (BACT)
 - (X) Determination of Prevention of Significant Deterioration (PSD)
 - (X) Compliance with New Source Performance Standards (NSPS)
- 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 for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
 - c. Records of monitoring information shall include:
 - the date, exact place, and time of sampling or measurements;
 - the person responsible for performing the sampling or measurements;

APPENDIX GC
GENERAL PERMIT CONDITIONS [F.A.C. 62-4-160]

- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- 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~~ *Sy Arif 10/12*
THRU: Al Linero *AAL 10/12*
FROM: Syed Arif *Syed Arif*
DATE: September 27, 2001
SUBJECT: Cargill Fertilizer, Incorporated
0570008-036-AC (PSD-FL-315)

Attached is the Public Notice package to modify several existing emission units at its phosphate fertilizer manufacturing facility located in Riverview, Florida. The proposed changes will include increased molten sulfur through the molten sulfur handling system, additional digestion capacity associated with the Dorrco Reactor at the Phosphoric Acid plant, modification of the Granular Triple Super Phosphate plant, modification of the Animal Feed Ingredient (AFI) plant, construction of a second AFI granulation train, and modification of the No. 5 Diammonium Phosphate plant. The applicant is also requesting removal of the existing allowable production rate cap for the Nos. 8 and 9 Sulfuric Acid plants, to allow these plants to simultaneously operate up to their maximum capacities, with a reduction in allowable emissions.

The project is subject to Prevention of Significant Deterioration (PSD) review for F, SO₂, NO_x, SAM, PM, and PM₁₀ in accordance with 62-212.400, F.A.C. A Best Available Control Technology (BACT) determination is part of the review required by Rules 62-212.400 and 62-296, F.A.C.

Sulfur dioxide and sulfuric acid mist emissions from the sulfuric acid plants will be controlled by the double absorption process and mist eliminators, respectively. Fluoride emissions from the phosphoric acid trains will be controlled by the use of scrubbers using process pond water. An air quality impact analysis was required for sulfur dioxide and nitrogen oxides.

September 27 is Day 42 for the project.

I recommend your approval and signature.

AAL/sa

Attachments

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:
 Mr. E. O. Morris
 Vice President of Environmental
 Health and Safety
 Cargill Fertilizer, Inc.
 8813 U.S. Highway 41 South
 Riverview, FL 33569

2. Article Number (Copy from service label)
 7000 2870 0000 7028 2645

COMPLETE THIS SECTION ON DELIVERY

A. Received by (Please Print Clearly) B. Date of Delivery
 10/9/01

C. Signature Agent
 Betty Rees Addressee

D. Is delivery address different from item 1? Yes
 If YES, enter delivery address below: No

3. Service Type
 Certified Mail Express Mail
 Registered Return Receipt for Merchandise
 Insured Mail C.O.D.

4. Restricted Delivery? (Extra Fee) Yes

PS Form 3811, July 1999

Domestic Return Receipt

102595-99-M-1789

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

OFFICIAL USE

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Postage	\$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$

Postmark Here

Sent To
 E. O. Morris
 Street, Apt. No., or PO Box No.
 8813 U.S. Highway 41 South
 City, State, ZIP+4
 Riverview FL 33569

PS Form 3800, May 2000

See Reverse for Instructions