

Memorandum

Florida Department of Environmental Protection

TO: Trina Vielhauer
THRU: Al Linero
FROM: Syed Arif *Syed Arif 6/19*
DATE: June 19, 2003
SUBJECT: DEP File No. 1050053-034-AC
South DAP Plant
Green Bay Facility

Attached for your review is the construction permit for modifying the existing South Diammonium Phosphate (DAP) Fertilizer Plant so that it can alternatively produce Monoammonium Phosphate (MAP) at its Green Bay Facility located at 4390 C.R. 640 West, Bartow, Polk County, Florida. A determination of Best Available Control Technology pursuant to Rule 62-212.400, F.A.C. was not required at this time.

The Department is currently reviewing another Prevention of Significant Deterioration (PSD) application for the same plant which requests an increase in the production rates for both DAP and MAP production.

Due to extreme market pressures, as well as product quality considerations, Cargill is requesting interim approval to produce MAP at their South DAP Fertilizer Plant while the Department is still reviewing the PSD application. In light of this, Cargill has submitted this air construction permit application. The decrease in potential Fluoride and Particulate Matter emissions from the current operating permit due to the issuance of this air construction permit will be 84 and 83 percent, respectively. Fluoride emissions will be reduced from 52.7 tons per year (TPY) to 8.33 TPY. Particulate Matter emissions will be reduced from 205 TPY to 35.5 TPY.

The difference in current actual emissions and future potential emissions resulting from this modification of the South DAP Fertilizer to alternatively allow the production of MAP, will be below PSD significant emission rates for all criteria pollutants. The only physical change to the existing South DAP Fertilizer Plant necessary to also produce MAP is the addition of a phosphoric acid feed pipe to the granulator to redirect a portion of the phosphoric acid fed to the reactor when processing DAP.

The proposed distribution date of June 20 is Day 17 per our clock.

We recommend distribution of the attached Intent to Issue and Draft Permit.

Attachments



Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

P.E. Certification Statement

Cargill Fertilizer, Inc.
Green Bay Facility
South DAP Plant

DEP File No.: 1050053-034-AC
Facility ID No.: 1050053

Project: Air Construction Permit for modifying the existing South Diammonium Phosphate (DAP) Fertilizer Plant so that it can alternatively produce Monoammonium Phosphate (MAP) at its Green Bay Facility located at 4390 C.R. 640 West, Bartow, Polk County, Florida. A determination of Best Available Control Technology pursuant to Rule 62-212.400, F.A.C. was not required at this time. The difference in current actual emissions and future potential emissions resulting from this modification will be below PSD significant emission rates for all criteria pollutants.

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

I conducted this review.

(Seal)

Syed Arif P.E.
Registration Number: 51861

Date

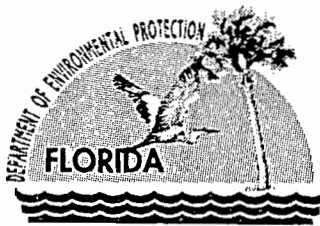
Permitting Authority:

Florida Department of Environmental Protection
Division of Air Resources Management
Bureau of Air Regulation
New Source Review Section
Mail Station #5505
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Telephone: 850/921-9528
Fax: 850/921-9533

"More Protection, Less Process"

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Jeb Bush
Governor

Department of Environmental Protection

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

David B. Struhs
Secretary

June 20, 2003

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

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

Re: DEP File No. 1050053-034-AC
South DAP Plant
Green Bay Facility

Dear Mr. Jellerson:

Enclosed is one copy of the Draft air construction permit to modify the existing South DAP Fertilizer Plant so that it can alternatively produce MAP at the Green Bay Facility located near Bartow, Polk County. The Technical Evaluation and Preliminary Determination, the Department's Intent to Issue Air Construction Permit and the Public Notice of Intent to Issue Air Construction Permit are also included.

The Public Notice 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 of 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 Mr. A. A. Linero, Program Administrator, at the above letterhead address. If you have any other questions, please contact Mr. Syed Arif, P.E. at 850/921-9528.

Sincerely,

A handwritten signature in cursive script that reads "Trina L. Vielhauer".

Trina L. Vielhauer, Chief
Bureau of Air Regulation

TLV/sa

Enclosures

"More Protection, Less Process"

Printed on recycled paper.

In the Matter of an
Application for Permit by:

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

DEP File No. 1050053-034-AC
Green Bay Facility
Polk County

INTENT TO ISSUE AIR CONSTRUCTION PERMIT

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit (copy attached) for the proposed project, detailed in the application specified above. The Department is issuing this Intent to Issue for the reasons stated in the attached Technical Evaluation and Preliminary Determination.

The applicant, Cargill Fertilizer, Inc., applied on June 3, 2003, to the Department of Environmental Protection for a permit to modify the existing South DAP Fertilizer Plant so that it can alternatively produce MAP at its Green Bay Facility. The facility is located in Polk County, Florida.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. The Department has determined that an Air Construction permit is required.

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, 62-297, F.A.C.

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

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

The Department will accept written comments and requests for public meetings concerning the proposed permit issuance action for a period of 14 (fourteen) days from the date of publication of the enclosed Public Notice. 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 comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

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

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

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

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above. Mediation is not available in this proceeding.

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

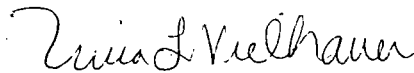
The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number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

of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

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

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

Executed in Tallahassee, Florida.



Trina L. Vielhauer, Chief
Bureau of Air Regulation

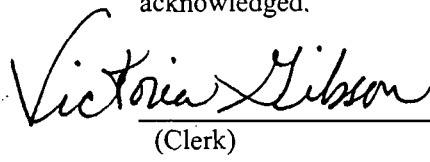
CERTIFICATE OF SERVICE

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, and the DRAFT permit) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 6/23/03 to the person(s) listed:

David B. Jellerson, Cargill Fertilizer, Inc.*
David Buff, P.E., Golder Associates, Inc.
Karen Borel, EPA
John Bunyak, NPS
Jerry Kissell, DEP-SWD

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.

 June 23, 2003
(Clerk) (Date)

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 1050053- 034-AC

Cargill Fertilizer, Inc.
Green Bay Facility
Polk County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Cargill Fertilizer, Inc. for modifying the existing South Diammonium Phosphate (DAP) Fertilizer Plant so that it can alternatively produce Monoammonium Phosphate (MAP) at the Green Bay Facility located at 4390 C.R. 640 West, Bartow, Polk County, Florida. A determination of Best Available Control Technology pursuant to Rule 62-212.400, F.A.C. was not required at this time. The applicant's name and address are: Cargill Fertilizer, Inc., 8813 Highway 41 South, Riverview, Florida 33569.

The Department is currently reviewing another Prevention of Significant Deterioration (PSD) application for the same plant which requests an increase in the production rates for both DAP and MAP production.

Due to extreme market pressures, as well as product quality considerations, Cargill is requesting interim approval to produce MAP at their South DAP Fertilizer Plant while the Department is still reviewing the PSD application. In light of this, Cargill has submitted this air construction permit application. The decrease in potential Fluoride and Particulate Matter emissions from the current operating permit due to the issuance of this air construction permit will be 84 and 83 percent, respectively. Fluoride emissions will be reduced from 52.7 tons per year (TPY) to 8.33 TPY. Particulate Matter emissions will be reduced from 205 TPY to 35.5 TPY.

The difference in current actual emissions and future potential emissions resulting from this modification of the South DAP Fertilizer to alternatively allow the production of MAP, will be below PSD significant emission rates for all criteria pollutants. The only physical change to the existing South DAP Fertilizer Plant necessary to also produce MAP is the addition of a phosphoric acid feed pipe to the granulator to redirect a portion of the phosphoric acid fed to the reactor when processing DAP.

The Department will issue the FINAL Permit, in accordance with the conditions of the DRAFT 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 concerning the proposed permit issuance action for a period of 14 (fourteen) days from the date of publication of this 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 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,

Notice for Newspaper

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

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

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

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

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

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301
Telephone: 850/488-0114
Fax: 850/922-6979

Department of Environmental Protection
Southwest District Office
3804 Coconut Palm Drive
Tampa, Florida 33619-8218
Telephone: 813/744-6100
Fax: 813/744-6084

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

Notice for Newspaper

TECHNICAL EVALUATION
AND
PRELIMINARY DETERMINATION

CARGILL FERTILIZER, INC.

South DAP Plant
Green Bay Facility
Polk County, Florida

DEP File Number
1050053-034-AC

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

June 19, 2003

I. APPLICATION INFORMATION

A. Applicant

Cargill Fertilizer, Inc.
4390 C.R. 640 West
Bartow, Polk County, Florida 33830

Authorized Representative: Mr. David B. Jellerson, Environmental Manager

B. Request

Cargill Fertilizer, Inc. has recently taken ownership of the Green Bay phosphate fertilizer manufacturing facility previously owned by Farmland Hydro, L.P. Due to extreme market pressures, as well as product quality considerations, Cargill desires the option to also produce Monoammonium Phosphate (MAP) in the South Diammonium Phosphate (DAP) Fertilizer Plant. To address this situation in the short term, Cargill can produce MAP in the South DAP Fertilizer Plant by simply redirecting to the granulator a portion of the phosphoric acid now added in the reactor. The total amount of phosphoric acid used in the process would not change from current conditions. Ammonia, which is required to be added in the granulator for the production of DAP, is not used in the granulator for the production of MAP, and the total amount of ammonia used in the process would decrease. The only physical change required would be the addition of a small pipe in the granulator to add the acid.

C. Facility Location

The applicant's facility is located at 4390 C.R. 640 West, Bartow, Polk County, Florida. Latitude and longitude are 27° 50' 39" North and 81° 56' 26" West, respectively. UTM coordinates of the site are: Zone 17, 409.5 km East and 3080.1 km North.

Facility Identification Code (SIC): Major Group No. 28, Industry Group Nos. 2874 and 2819.

D. Reviewing and Process Schedule

06-03-03: Date of Receipt of Application
06-05-03: DEP Telephonic Completeness Request
06-09-03: Application complete

II. PROJECT DESCRIPTION/EMISSIONS

The applicant proposes to modify the South DAP Fertilizer Plant so that it may also produce MAP. This modification simply requires that a portion of the phosphoric acid currently added to the reactor be redirected to the granulator. The total amount of phosphoric acid used in the process would not change from currently permitted conditions. Ammonia, which is required to be added in the granulator for the production of DAP, is not used in the granulator for the production of MAP. The total amount of ammonia used in the process would decrease. Therefore, the total tons of granular product would decrease when producing MAP. The only physical change required would be the addition of a small pipe in the granulator to add the acid.

As currently permitted, allowable fluoride emissions from the South DAP Fertilizer Plant are a function of the P_2O_5 feed rate. No change in the permitted P_2O_5 feed rate is required to accommodate the production of MAP in the South DAP Fertilizer Plant. While producing MAP, Cargill will meet the current F emission limit of 0.06 lb/ton of P_2O_5 feed (40 CFR 63, Subpart BB). These emission and production limits will lower maximum hourly and annual F emissions to 2.76 lb/hr (at the currently permitted maximum production rate of 46 TPH of P_2O_5) and 8.33 TPY, respectively. To avoid New Source Review under prevention of significant deterioration (PSD) regulations, Cargill will limit the difference between current actual F emissions and future potential F emissions below the significant emission rate for F of 3.0 TPY by agreeing to limit annual P_2O_5 production from this emission unit to 277,667 tons per year.

The allowable particulate matter (PM) emission rate for the South DAP Plant is 46.8 pounds per hour (lb/hr) or that allowed by the Process Weight Table Formula contained in Rule 62-296.320(4)(a), F.A.C., based on the actual process input rate to the dryer, whichever is less. To avoid New Source Review under PSD regulations, Cargill will reduce allowable PM and PM_{10} emissions from the South DAP Fertilizer Plant to 0.256 lb/ton of P_2O_5 produced and limit annual MAP/DAP production to 277,667 tons per year of P_2O_5 . These emission and

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

production limits will lower maximum hourly and annual PM and PM₁₀ emissions to 11.8 lb/hr (at the currently permitted maximum production rate of 46 TPH of P₂O₅) and 35.5 TPY, respectively.

Emissions of sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), and sulfuric acid mist (SAM), result from the combustion of various fossil fuels in the dryer. PM/PM₁₀ emissions from the firing of fossil fuels in the dryer are already accounted for in the proposed emission limit of 0.256 lb/ton of P₂O₅. To avoid New Source Review under PSD regulations for this project, Cargill agrees to lower the sulfur content of fuel oil fired in the dryer from 0.5 to 0.05% and eliminate the use of liquefied propane gas.

III. RULE APPLICABILITY

A. Prevention of Significant Deterioration

The current Title V permit (no. 1050053-012-AV) only regulates the feed rate of P₂O₅ to the reactor (limit of 46 TPH P₂O₅). The corresponding production rate of DAP is 100 TPH. Similarly, the allowable fluoride emissions from the emissions unit are based on the P₂O₅ feed rate. As described in Section II, the difference in current actual emissions and future potential emissions resulting from the modification of the South DAP Fertilizer to alternatively allow the production of MAP, will be below PSD significant emission rates for all criteria pollutants.

Since the amount of phosphoric acid used to produce MAP is less than the amount needed for DAP, emission rates from upstream emissions units will be not affected by the requested modification of the South DAP Plant. Similarly, since there is no production rate increase, downstream emission units will not be affected. Cargill believes that actual emissions from the South DAP Plant will not increase as a result of the change to MAP.

Since the emission increase as a result of this project will be below significant emission rates and there will be no debottlenecking of upstream or downstream emission units, New Source Review under PSD regulations is not applicable to the proposed project.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

B. Federal and State Emission Standards

The proposed facility modification is subject to the applicable provisions of Chapter 403, Florida Statutes, Chapters 62-4, 62-212 and 62-296, Florida Administrative Code (F.A.C.). 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.

Rule 62-296.403, F. A. C., Phosphate Processing, requires that existing MAP plants meet BACT or a fluoride limit for the entire plant complex of 0.4 lb/ton P₂O₅. The Green Bay plant meets this latter requirement.

The maximum achievable control technology (MACT) standards promulgated by EPA for Phosphate Fertilizers Production Plants (40 CFR 63, Subpart BB) apply to the South DAP Fertilizer Plant. EPA recognizes both DAP and MAP as “ammoniated phosphates”, and note that most facilities can produce either product in the same process train. Therefore, EPA promulgated one MACT emission standard for ammoniated phosphates. The standard is for fluorides, and is 0.06 lb/ton of equivalent P₂O₅ feed.

IV. AIR QUALITY ANALYSIS

The proposed modification of the South DAP Fertilizer Plant will not result in significant increase of any regulated pollutant. Therefore, an air quality analysis was not required.

V. CONCLUSION

Based on the foregoing technical evaluation of the application and 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. The General and Specific Conditions are listed in the attached draft conditions of approval.

PERMITTEE:

Cargill Fertilizer, Inc.
4390 County Road 640 West
Bartow, Florida 33830

Authorized Representative:

David B. Jellerson
Environmental Manager

DEP Permit No.	1050053-034-AC
Project	Modification of South DAP Plant
SIC No.	2874, 2819
Expires:	March 31, 2004

PROJECT AND LOCATION:

Permit to modify the existing South DAP Fertilizer Plant to also produce MAP.

The facility is located at 4390 C.R. 640 West in Polk County, Florida.

The UTM coordinates are: Zone 17; 409.5 km E and 3080.1 km N.

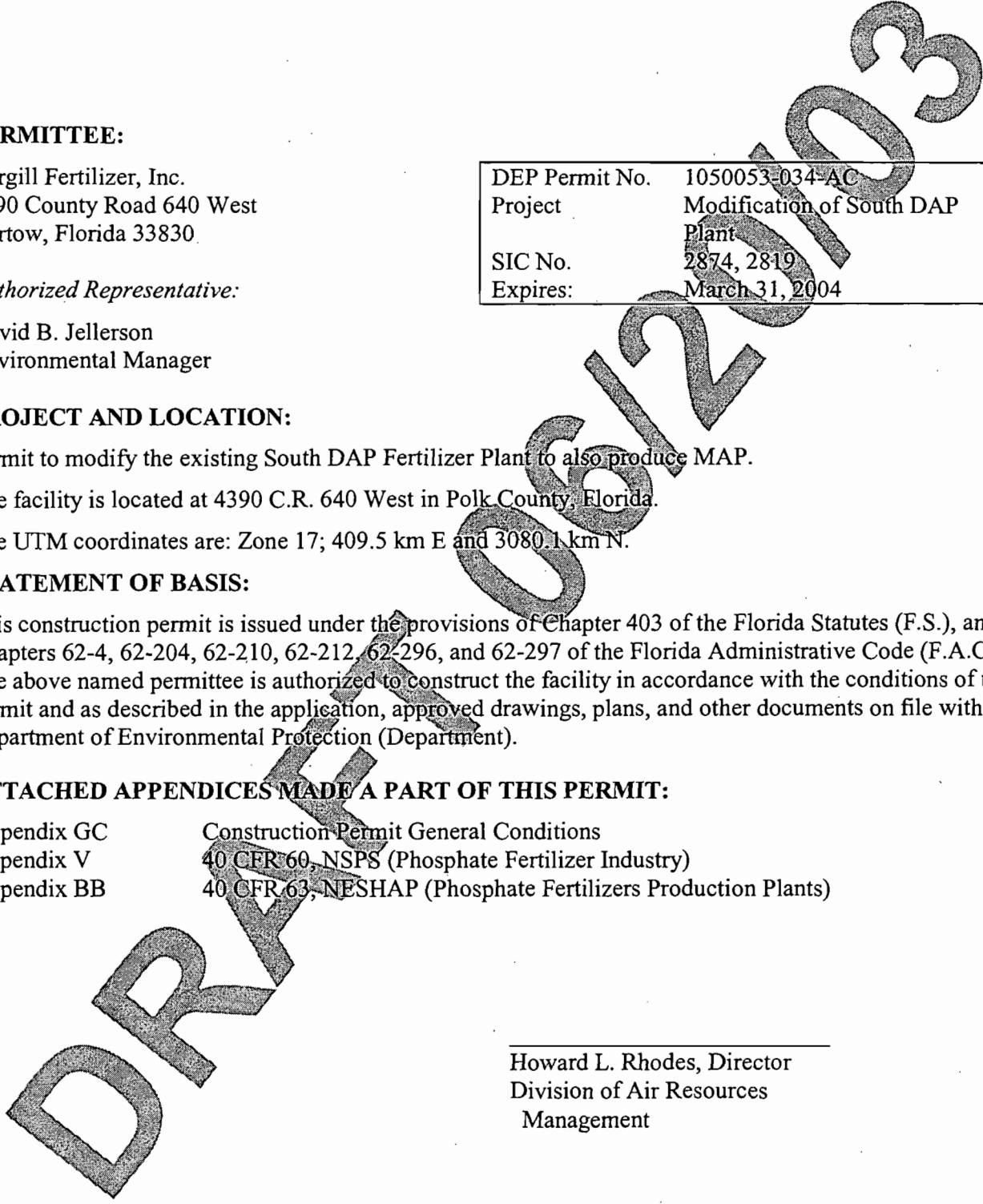
STATEMENT OF BASIS:

This construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.). The above named permittee is authorized to construct 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 MADE A PART OF THIS PERMIT:

- Appendix GC Construction Permit General Conditions
- Appendix V 40 CFR 60, NSPS (Phosphate Fertilizer Industry)
- Appendix BB 40 CFR 63, NESHAP (Phosphate Fertilizers Production Plants)

Howard L. Rhodes, Director
Division of Air Resources
Management



AIR CONSTRUCTION PERMIT 105053-034-AC
SECTION II – ADMINISTRATIVE REQUIREMENTS

FACILITY DESCRIPTION

Cargill Fertilizer, Inc. operates a phosphate fertilizer manufacturing facility near Bartow, Polk County, Florida, producing sulfuric acid, wet-process phosphoric acid, ammoniated phosphate fertilizers and related products. To respond to extreme market pressures, Cargill is requesting interim approval to produce Monoammonium Phosphate (MAP) at their South Diammonium Phosphate (DAP) Fertilizer Plant. This process will only require that a portion of the phosphoric acid currently added to the process in the reactor be added to the process in the granulator instead. The only physical change required would be the addition of a small pipe to the granulator to add the acid.

REGULATORY CLASSIFICATION

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).

The Cargill Green Bay 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.

Based on the initial Title V permit application received June 14, 1996, this facility is a major source of hazardous air pollutants (HAPs).

Standards of Performance for the Phosphate Fertilizer Industry: Diammonium Phosphate Plants (40 CFR 60, Subpart V) apply to the South DAP Fertilizer Plant.

The maximum achievable control technology (MACT) standards promulgated by EPA for Phosphate Fertilizers Production Plants (40 CFR 63, Subpart BB) apply to the South DAP Fertilizer Plant.

PERMIT SCHEDULE:

- 06-03-03: Date of Receipt of Application
- 06-09-03: Application Complete
- 06-xx-03: Issued Intent to Issue Permit
- 06-xx-03: Notice of Intent 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 June 3, 2003
- Department's telephonic request for additional information June 5, 2003
- Applicant's submittal received June 9, 2003
- Technical Evaluation and Preliminary Determination dated June 19, 2003

AIR CONSTRUCTION PERMIT 105053-034-AC
SECTION II – ADMINISTRATIVE REQUIREMENTS

1. Regulating Agencies: All documents related to applications for permits to operate, reports, tests, minor modifications and notifications shall be submitted to the Department's Southwest District Office, 3804 Coconut Palm Drive, Tampa, Florida 33619-8218. All applications for permits to construct or modify an emissions unit(s) *subject to the Prevention of Significant Deterioration or Nonattainment (NA) review requirements* should be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (FDEP), 2600 Blair Stone Road, MS 5505, Tallahassee, Florida 32399-2400 (phone number 850/488-0114).
2. General Conditions: The owner and operator is subject to and shall operate under the attached General Permit Conditions G.1 through G.15 listed in Appendix GC of this permit. General Permit Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
3. Terminology: The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.
4. 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 facility is subject to all applicable provisions of the Code of Federal Regulations Title 40, Part 63, Subpart BB. 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 **March 31, 2004** [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. 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.
9. Stack Testing Facilities: Stack sampling facilities shall be installed in accordance with Rule 62-297.310(6), F.A.C.
10. 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.
11. 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.]

AIR CONSTRUCTION PERMIT 1050053-034-AC
SECTION III - EMISSION UNIT(S) SPECIFIC CONDITIONS

SUBSECTION A. South DAP Fertilizer Plant

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

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
007	South DAP Fertilizer Plant

The South DAP/MAP South Plant produces a maximum of 46 tons per hour of phosphorus pentoxide (P₂O₅) as diammonium phosphate (DAP) or monoammonium phosphate (MAP). The plant consists of a reactor, granulator, dryer, screens, mills, a rotary product cooler, and other associated process equipment. Emissions from the reactor and granulator are vented to a common custom design primary venture/cyclonic acid scrubber which then vents to a secondary custom design pond water scrubber before exhausting to the atmosphere through **Stack A**. Emissions from the dryer are vented to an Airetron primary venture/cyclonic acid scrubber which then vents to a secondary cross-flow pond water scrubber before exhausting to the atmosphere through **Stack B**. Emissions from the screens and mills are vented to an Airetron primary venturi/cyclonic acid scrubber which then vents to the same secondary cross-flow pond water scrubber as the dryer before exhausting to the atmosphere through **Stack B**. Emissions from the rotary product cooler vent to a venture/cyclonic acid scrubber before exhausting to the atmosphere through **Stack B**. **Stack A** is located to the west of **Stack B**. The dryer may be fired with natural gas, or new No. 2 fuel oil at a maximum heat input rate of 60.0 MMBTU/hr.

{Permitting note(s): This emissions unit is regulated under Rule 62-296.403, F.A.C., Phosphate Processing (fluorides); Rule 62-296.320(4), F.A.C., General Particulate Emission Limiting Standards, and Rule 62-296.320(2), F.A.C., General Pollutant Emission Limiting Standards (objectionable odors), 40 CFR 60, Subpart V – Standards of Performance for the Phosphate Fertilizer Industry: Diammonium Phosphate Plants, 40 CFR 63, Subpart BB – National Emission Standards for Hazardous Air Pollutants from Phosphate Fertilizers Production Plants.}

CONSTRUCTION

1. **South DAP Fertilizer Plant Modification Project:** The permittee is authorized to perform the following work to modify the existing South DAP Fertilizer Plant so that it can also produce MAP: add a pipe that while producing MAP can be used to divert a portion of the phosphoric acid to the granulator that is normally fed only to the reactor when producing DAP.

[Application dated June 3, 2003]

EMISSION AND PERFORMANCE REQUIREMENTS

2. **Capacity:**
 - a. The feed rate of material, expressed as 100% P₂O₅, to the reactor shall not exceed 46 tons per hour, which corresponds to 100 tons per hour (TPH) and 92 TPH MAP.
 - b. The annual production rate, expressed as 100% P₂O₅, shall not exceed 277,667 tons per year.

[Application dated June 3, 2003; Rules 62-212.300, 62-296.403(2), and 62-210.200(PTE), F.A.C.]

{Permitting note(s): The authorized construction shall not result in any increases in current permitted capacities for this emission unit.}

3. **Fuels:** The fuel used in the dryer shall be limited to No. 2 Fuel Oil with a maximum sulfur content of 0.05% or natural gas.

[Application dated June 3, 2003; Rules 62-212.300, 62-296.403(2), and 62-210.200(PTE), F.A.C.]

AIR CONSTRUCTION PERMIT 1050053-034-AC
SECTION III - EMISSION UNIT(S) SPECIFIC CONDITIONS

4. Emissions:

- a. PM and PM₁₀ emissions shall not exceed 0.256 lb/ton of P₂O₅, which corresponds to an hourly emission limit of 11.8 lb/hr and an annual emission limit of 35.5 TPY from Stacks A and B combined.
- b. F emissions shall not exceed 0.06 lb/ton of P₂O₅, which corresponds to an hourly emission limit of 2.76 lb/hr and an annual emission limit of 8.33 TPY from Stacks A and B combined.

[Application dated June 3, 2003; Rule 62-296.403(2), F.A.C.; 40 CFR 63.622(a), 63.626(a)(1), and 63.630(a)]

5. Visible Emissions from Stack A and Stack B shall each not be equal to or greater than 20% opacity.

[Rule 62-296.320(4)(b), F.A.C.]

TEST METHODS AND PROCEDURES

6. The compliance test procedures for particulate matter 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.]

7. 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.]

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 62-297.410(9), F.A.C.]

9. 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.]

10. 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.]

MONITORING REQUIREMENTS

11. Each owner or operator of a new or existing diammonium and/or monoammonium phosphate process line or granular triple superphosphate process line subject to the provisions of this subpart shall install, calibrate, maintain, and operate a monitoring system which can be used to determine and permanently record the mass flow of phosphorus-bearing feed material to the process. The monitoring system shall have an accuracy of ±5 percent over its operating range.

[Rule 40 CFR 63.625(a)]

12. Each owner or operator of a new or existing diammonium and/or monoammonium phosphate process line, granular triple superphosphate process line, or granular triple superphosphate storage building using a wet scrubbing emission control system shall install, calibrate, maintain, and operate the following monitoring systems:

AIR CONSTRUCTION PERMIT 1050053-034-AC
SECTION III - EMISSION UNIT(S) SPECIFIC CONDITIONS

- (1) A monitoring system which continuously measures and permanently records the pressure drop across each scrubber in the process scrubbing system in 15-minute block averages. The monitoring system shall be certified by the manufacturer to have an accuracy of ± 5 percent over its operating range.
- (2) A monitoring system which continuously measures and permanently records the flow rate of the scrubbing liquid to each scrubber in the process scrubbing system in 15-minute block averages. The monitoring system shall be certified by the manufacturer to have an accuracy of ± 5 percent over its operating range.

[Rule 40 CFR 63.625(c)]

13. Following the date on which the performance test required in § 63.626 is completed, the owner or operator of a new or existing affected source using a wet scrubbing emission control system and subject to emissions limitations for total fluorides or particulate matter contained in this subpart must establish allowable ranges for operating parameters using the methodology of either paragraph (1) or (2) of this section:

- (1) The allowable range for the daily averages of the pressure drop across each scrubber and of the flow rate of the scrubbing liquid to each scrubber in the process scrubbing system is ± 20 percent of the baseline average value determined as a requirement of § 63.626(c)(4) or (d)(4). The Administrator retains the right to reduce the ± 20 percent adjustment to the baseline average values of operating ranges in those instances where performance test results indicate that a source's level of emissions is near the value of an applicable emissions standard, but, in no instance shall the adjustment be reduced to less than ± 10 percent. The owner or operator must notify the Administrator of the baseline average value and must notify the Administrator each time that the baseline value is changed as a result of the most recent performance test. The baseline average values used for compliance shall be based on the values determined during the most recent performance test. The new baseline average value shall be effective on the date following the performance test.
- (2) The owner or operator of any new or existing affected source shall establish, and provide to the Administrator for approval, allowable ranges of baseline average values for the pressure drop across and of the flow rate of the scrubbing liquid to each scrubber in the process scrubbing system for the purpose of assuring compliance with this subpart. Allowable ranges may be based upon baseline average values recorded during previous performance tests using the test methods required in this subpart and established in the manner required in § 63.626(c)(4) or (d)(4). As an alternative, the owner or operator can establish the allowable ranges of baseline average values using the results of performance tests conducted specifically for the purposes of this paragraph using the test methods required in this subpart and established in the manner required in § 63.626(c)(4) or (d)(4). The source shall certify that the control devices and processes have not been modified subsequent to the testing upon which the data used to establish the allowable ranges were obtained. The allowable ranges of baseline average values developed pursuant to the provisions of this paragraph must be submitted to the Administrator for approval. The owner or operator must request and obtain approval of the Administrator for changes to the allowable ranges of baseline average values. When a source using the methodology of this paragraph is retested, the owner operator shall determine new allowable ranges of baseline average values unless the retest indicates no change in the operating parameters from previous tests. Any new allowable ranges of baseline average values resulting from the most recent performance test shall be effective on the date following the retest. Until changes to allowable ranges of baseline average values are approved by the Administrator, the allowable ranges for use in § 63.624 shall be based upon the range of baseline average values proposed for approval.

[Rule 40 CFR 63.625(f)]

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

- G.1 The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
- G.2 This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings or exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
- G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
- G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
- G.5 This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
- G.6 The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
- G.7 The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
- a) Have access to and copy and records that must be kept under the conditions of the permit;
 - b) Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
 - c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.
- Reasonable time may depend on the nature of the concern being investigated.
- G.8 If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
- a) A description of and cause of non-compliance; and
 - b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.
- The permittee shall be responsible for any and all damages, which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.
- G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida

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

Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

- G.10 The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
- G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
- G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.
- G.13 This permit also constitutes:
- a) Determination of Best Available Control Technology ()
 - b) Determination of Prevention of Significant Deterioration ();
 - c) Compliance with New Source Performance Standards (x). Subpart V requirements and
 - d) Compliance with National Emission Standards for Hazardous Air Pollutants (x). Subpart BB requirements
- G.14 The permittee shall comply with the following:
- a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
 - b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
 - c) Records of monitoring information shall include:
 - 1. The date, exact place, and time of sampling or measurements;
 - 2. The person responsible for performing the sampling or measurements;
 - 3. The dates analyses were performed;
 - 4. The person responsible for performing the analyses;
 - 5. The analytical techniques or methods used; and
 - 6. The results of such analyses.
- G.15 When requested by the Department, the permittee shall within a reasonable time furnish any information required by law, which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

Updated 2/13/02

Subpart V-Standards of Performance for the Phosphate Fertilizer Industry: Diammonium Phosphate Plants

§ 60.220 Applicability and designation of affected facility.

(a) The affected facility to which the provisions of this subpart apply is each granular diammonium phosphate plant having a design capacity of more than 15 tons of equivalent P₂O₅ feed per calendar day. For the purpose of this subpart, the affected facility includes any combination of: reactors, granulators, dryers, coolers, screens, and mills.

(b) Any facility under paragraph (a) of this section that commences construction or modification after October 22, 1974, is subject to the requirements of this subpart.

§ 60.221 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in subpart A of this part.

(a) *Granular diammonium phosphate plant* means any plant manufacturing granular diammonium phosphate by reacting phosphoric acid with ammonia.

(b) *Total fluorides* means elemental fluorine and all fluoride compounds as measured by reference methods specified in § 60.224, or equivalent or alternative methods.

(c) *Equivalent P₂O₅ feed* means the quantity of phosphorus, expressed as phosphorus pentoxide, fed to the process.

§ 60.222 Standard for fluorides.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of 30 g/ megagram (Mg) of equivalent P₂O₅ feed (0.060 lb/ton).

§ 60.223 Monitoring of operations.

(a) The owner or operator of any granular diammonium phosphate plant subject to the provisions of this subpart shall install, calibrate, maintain, and operate a flow monitoring device which can be used to determine the mass flow of phosphorus-bearing feed material to the process. The flow monitoring device shall have an accuracy of ±5 percent over its operating range.

(b) The owner or operator of any granular diammonium phosphate plant shall maintain a daily record of equivalent P₂O₅ feed by first determining the total mass rate in Mg/hr of phosphorus-bearing feed using a flow monitoring device meeting the requirements of paragraph (a) of this section and then by proceeding according to § 60.224(b)(3).

(c) The owner or operator of any granular diammonium phosphate plant subject to the provisions of this subpart shall install, calibrate, maintain, and operate a monitoring device which

continuously measures and permanently records the total pressure drop across the scrubbing system. The monitoring device shall have an accuracy of ± 5 percent over its operating range.

§ 60.224 Test methods and procedures.

(a) In conducting the performance tests required in § 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in § 60.8(b).

(b) The owner or operator shall determine compliance with the total fluorides standard in § 60.222 as follows:

- (1) The emission rate (E) of total fluorides shall be computed for each run using the following equation:

$$E = \left(\sum_{i=1}^N C_{si} Q_{sdi} \right) / (PK)$$

[View or Download PDF](#)

where:

E=emission rate of total fluorides, g/Mg (lb/ton) of equivalent P2O5 feed.

Csi=concentration of total fluorides from emission point "i," mg/dscm (gr/dscf).

Qsdi=volumetric flow rate of effluent gas from emission point "i," dscm/hr (dscf/hr).

N=number of emission points associated with the affected facility.

P=equivalent P2O5 feed rate, Mg/hr (ton/hr).

K=conversion factor, 1000 mg/g (7,000 gr/lb).

(2) Method 13A or 13B shall be used to determine the total fluorides concentration (Csi) and volumetric flow rate (Qsdi) of the effluent gas from each of the emission points. The sampling time and sample volume for each run shall be at least 60 minutes and 0.85 dscm (30 dscf).

(3) The equivalent P2O5 feed rate (P) shall be computed for each run using the following equation:

$$P = M_p R_p$$

where:

Mp=total mass flow rate of phosphorus-bearing feed, Mg/hr (ton/hr).

Rp=P2O5 content, decimal fraction.

(i) The accountability system of § 60.223(a) shall be used to determine the mass flow rate (Mp) of the phosphorus-bearing feed.

(ii) The Association of Official Analytical Chemists (AOAC) Method 9 (incorporated by reference -- see § 60.17) shall be used to determine the P2O5 content (Rp) of the feed.

[Last Updated 12/20/02]

Subpart BB- National Emission Standards for Hazardous Air Pollutants From Phosphate Fertilizers Production Plants

Sec.

GENERAL

63.620 Applicability

63.621 Definitions.

EMISSION STANDARDS AND OPERATING LIMITS

63.622 Standards for existing sources.

63.623 Standards for new sources.

63.624 Operating Requirements.

MONITORING AND COMPLIANCE PROVISIONS

63.625 Monitoring requirements.

63.626 Performance tests and compliance provisions.

NOTIFICATION, REPORTING AND RECORDKEEPING

63.627 Notification, recordkeeping, and reporting requirements.

63.628 Applicability of general provisions.

63.629 Miscellaneous requirements.

63.630 Compliance dates.

OTHER

63.631 Exemption from new source performance standards.

Appendix A to Subpart BB- Applicability to General Provisions to Subpart BB

Subpart BB- National Emission Standards for Hazardous Air Pollutants From Phosphate Fertilizers Production Plants

GENERAL

§ 63.620 Applicability.

(a) Except as provided in paragraphs (c) and (d) of this section, the requirements of this subpart apply to the owner or operator of each phosphate fertilizers production plant.

(b) The requirements of this subpart apply to emissions of hazardous air pollutants (HAPs) emitted from the following new or existing affected sources at a phosphate fertilizers production plant:

(1) Each diammonium and/or monoammonium phosphate process line. The requirements of this subpart apply to the following emission points which are components of a diammonium and/or monoammonium phosphate process line: reactors, granulators, dryers, coolers, screens, and mills.

(2) Each granular triple superphosphate process line. The requirements of this subpart apply to the following emission points which are components of a granular triple superphosphate process line: mixers, curing belts (dens), reactors, granulators, dryers, coolers, screens, and mills.

(3) Each granular triple superphosphate storage building. The requirements of this subpart apply to the following emission points which are components of a granular triple superphosphate storage building: storage or curing buildings, conveyors, elevators, screens and mills.

(c) The requirements of this subpart do not apply to the owner or operator of a new or existing phosphate fertilizers production plant that is not a major source as defined in § 63.2.

(d) The provisions of this subpart do not apply to research and development facilities as defined in § 63.621.

§ 63.621 Definitions.

Terms used in this subpart are defined in the Clean Air Act, in § 63.2, or in this section as follows:

Diammonium and/or monoammonium phosphate process line means any process line manufacturing granular diammonium and/or monoammonium phosphate by reacting ammonia with phosphoric acid which has been derived from or manufactured by reacting phosphate rock and acid.

Equivalent P₂O₅ feed means the quantity of phosphorus, expressed as phosphorous pentoxide, fed to the process.

Equivalent P₂O₅ stored means the quantity of phosphorus, expressed as phosphorus pentoxide, being cured or stored in the affected facility.

Exceedance means a departure from an indicator range established for monitoring under this subpart, consistent with any averaging period specified for averaging the results of the monitoring.

Fresh granular triple superphosphate means granular triple superphosphate produced within the preceding 72 hours.

Granular triple superphosphate process line means any process line, not including storage buildings, manufacturing granular triple superphosphate by reacting phosphate rock with phosphoric acid.

Granular triple superphosphate storage building means any building curing or storing fresh granular triple superphosphate.

Research and development facility means research or laboratory operations whose primary purpose is to conduct research and development into new processes and products, where the operations are under the close supervision of technically trained personnel, and where the facility is not

engaged in the manufacture of products for commercial sale in commerce or other off-site distribution, except in a de minimis manner.

Total fluorides means elemental fluorine and all fluoride compounds, including the HAP hydrogen fluoride, as measured by reference methods specified in 40 CFR Part 60, Appendix A, Method 13 A or B, or by equivalent or alternative methods approved by the Administrator pursuant to §63.7(f).

EMISSION STANDARDS AND OPERATING LIMITS

§ 63.622 Standards for existing sources.

(a) Diammonium and/or monoammonium phosphate process line. On and after the date on which the performance test required to be conducted by §§ 63.7 and 63.626 is required to be completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected source any gases which contain total fluorides in excess of 30 grams/metric ton of equivalent P₂O₅ feed (0.060 lb/ton).

(b) Granular triple superphosphate process line. On and after the date on which the performance test required to be conducted by §§ 63.7 and 63.626 is required to be completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected source any gases which contain total fluorides in excess of 75 grams/metric ton of equivalent P₂O₅ feed (0.150 lb/ton).

(c) Granular triple superphosphate storage building.

(1) On and after the date on which the performance test required to be conducted by §§ 63.7 and 63.626 is required to be completed, no owner or operator subject to the provisions of this subpart

shall cause to be discharged into the atmosphere from any affected source any gases which contain total fluorides in excess of 0.250 grams/hr/metric ton of equivalent P_2O_5 stored (5.0×10^{-4} lb/hr/ton of equivalent P_2O_5 stored).

(2) No owner or operator subject to the provisions of this subpart shall ship fresh granular triple superphosphate from an affected facility.

§ 63.623 Standards for new sources.

(a) Diammonium and/or monoammonium phosphate process line. On and after the date on which the performance test required to be conducted by §§ 63.7 and 63.626 is required to be completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected source any gases which contain total fluorides in excess of 29.0 grams/metric ton of equivalent P_2O_5 feed (0.0580 lb/ton).

(b) Granular triple superphosphate process line. On and after the date on which the performance test required to be conducted by §§ 63.7 and 63.626 is required to be completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected source any gases which contain total fluorides in excess of 61.50 grams/metric ton of equivalent P_2O_5 feed (0.1230 lb/ton).

(c) Granular triple superphosphate storage building

(1) On and after the date on which the performance test required to be conducted by §§ 63.7 and 63.626 is required to be completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected source any gases which contain total fluorides in excess of 0.250 grams/hr/metric ton of equivalent P_2O_5 stored (5.0×10^{-4} lb/hr/ton of equivalent P_2O_5 stored).

(2) No owner or operator subject to the provisions of this subpart shall ship fresh granular triple superphosphate from an affected facility.

§ 63.624 Operating Requirements.

On or after the date on which the performance test required to be conducted by §§ 63.7 and 63.626 is required to be completed, the owner/operator using a wet scrubbing emission control system must maintain daily averages of the pressure drop across each scrubber and of the flow rate of the scrubbing liquid to each scrubber within the allowable ranges established pursuant to the requirements of § 63.625(f)(1) or (2).

MONITORING AND COMPLIANCE PROVISIONS

§ 63.625 Monitoring requirements.

(a) Each owner or operator of a new or existing diammonium and/or monoammonium phosphate process line or granular triple superphosphate process line subject to the provisions of this subpart shall install, calibrate, maintain, and operate a monitoring system which can be used to determine and permanently record the mass flow of phosphorus-bearing feed material to the process. The monitoring system shall have an accuracy of ± 5 percent over its operating range.

(b) Each owner or operator of a new or existing diammonium and/or monoammonium phosphate process line or granular triple superphosphate process line subject to the provisions of this subpart shall maintain a daily record of equivalent P_2O_5 feed by first determining the total mass rate in metric ton/hour of phosphorus bearing feed using a monitoring system for measuring mass flowrate which

meets the requirements of paragraph (a) of this section and then by proceeding according to §63.626(c)(3).

(c) Each owner or operator of a new or existing diammonium and/or monoammonium phosphate process line, granular triple superphosphate process line, or granular triple superphosphate storage building using a wet scrubbing emission control system shall install, calibrate, maintain, and operate the following monitoring systems:

(1) A monitoring system which continuously measures and permanently records the pressure drop across each scrubber in the process scrubbing system in 15-minute block averages. The monitoring system shall be certified by the manufacturer to have an accuracy of ± 5 percent over its operating range.

(2) A monitoring system which continuously measures and permanently records the flow rate of the scrubbing liquid to each scrubber in the process scrubbing system in 15-minute block averages. The monitoring system shall be certified by the manufacturer to have an accuracy of ± 5 percent over its operating range.

(d) The owner or operator of any granular triple superphosphate storage building subject to the provisions of this subpart shall maintain an accurate account of granular triple superphosphate in storage to permit the determination of the amount of equivalent P_2O_5 stored.

(e) (1) Each owner or operator of a new or existing granular triple superphosphate storage building subject to the provisions of this subpart shall maintain a daily record of total equivalent P_2O_5 stored by multiplying the percentage P_2O_5 content, as determined by § 63.626(d)(3), times the total mass of granular triple superphosphate stored.

(2) The owner or operator of any granular triple superphosphate storage building subject to the provisions of this subpart shall develop for approval by the Administrator a site-specific methodology including sufficient recordkeeping for the purposes of demonstrating compliance with § 63.622(c)(2) or 63.623(c)(2), as applicable.

(f) Following the date on which the performance test required in § 63.626 is completed, the owner or operator of a new or existing affected source using a wet scrubbing emission control system and subject to emissions limitations for total fluorides or particulate matter contained in this subpart must establish allowable ranges for operating parameters using the methodology of either paragraph (f)(1) or (2) of this section:

(1) The allowable range for the daily averages of the pressure drop across each scrubber and of the flow rate of the scrubbing liquid to each scrubber in the process scrubbing system is ± 20 percent of the baseline average value determined as a requirement of § 63.626(c)(4) or (d)(4). The Administrator retains the right to reduce the ± 20 percent adjustment to the baseline average values of operating ranges in those instances where performance test results indicate that a source's level of emissions is near the value of an applicable emissions standard, but, in no instance shall the adjustment be reduced to less than ± 10 percent. The owner or operator must notify the Administrator of the baseline average value and must notify the Administrator each time that the baseline value is changed as a result of the most recent performance test. The baseline average values used for compliance shall be based on the values determined during the most recent performance test. The new baseline average value shall be effective on the date following the performance test.

(2) The owner or operator of any new or existing affected source shall establish, and provide to the Administrator for approval, allowable ranges of baseline average values for the pressure drop across and of the flow rate of the scrubbing liquid to each scrubber in the process scrubbing system for the purpose of assuring compliance with this subpart. Allowable ranges may be based upon baseline average values recorded during previous performance tests using the test methods required in this subpart and established in the manner required in § 63.626(c)(4) or (d)(4). As an alternative, the

owner or operator can establish the allowable ranges of baseline average values using the results of performance tests conducted specifically for the purposes of this paragraph using the test methods required in this subpart and established in the manner required in § 63.626(c)(4) or (d)(4). The source shall certify that the control devices and processes have not been modified subsequent to the testing upon which the data used to establish the allowable ranges were obtained. The allowable ranges of baseline average values developed pursuant to the provisions of this paragraph must be submitted to the Administrator for approval. The owner or operator must request and obtain approval of the Administrator for changes to the allowable ranges of baseline average values. When a source using the methodology of this paragraph is retested, the owner operator shall determine new allowable ranges of baseline average values unless the retest indicates no change in the operating parameters from previous tests. Any new allowable ranges of baseline average values resulting from the most recent performance test shall be effective on the date following the retest. Until changes to allowable ranges of baseline average values are approved by the Administrator, the allowable ranges for use in § 63.624 shall be based upon the range of baseline average values proposed for approval.

§ 63.626 Performance tests and compliance provisions.

(a) (1) On or before the applicable compliance date in § 63.630 and once per annum thereafter, each owner or operator of a phosphate fertilizers production plant subject to the provisions of this subpart shall conduct a performance test to demonstrate compliance with the applicable emission standard for each existing diammonium and/or monoammonium phosphate process line, granular triple superphosphate process line, or granular triple superphosphate storage building. The owner or operator shall conduct the performance test according to the procedures in subpart A of this part and in this section.

(2) As required by § 63.7(a)(2) and once per annum thereafter, each owner or operator of a phosphate fertilizers production plant subject to the provisions of this subpart shall conduct a performance test to demonstrate compliance with the applicable emission standard for each new diammonium and/or monoammonium phosphate process line, granular triple superphosphate process line, or granular triple superphosphate storage building. The owner or operator shall conduct the performance test according to the procedures in subpart A of this part and in this section.

(b) In conducting performance tests, each owner or operator of an affected source shall use as reference methods and procedures the test methods in 40 CFR Part 60, Appendix A, or other methods and procedures as specified in this section, except as provided in § 63.7(f).

(c) Each owner or operator of a new or existing diammonium and/or monoammonium phosphate process line or granular triple superphosphate process line shall determine compliance with the applicable total fluorides standards in § 63.622 or § 63.623 as follows:

(1) The emission rate (E) of total fluorides shall be computed for each run using the following equation:

$$E = \left(\sum_{i=1}^N C_{si} Q_{sdi} \right) / (PK)$$

where:

E = emission rate of total fluorides, g/metric ton (lb/ton) of equivalent P₂O₅ feed.

C_{si} = concentration of total fluorides from emission point "i," mg/dscm (mg/dscf).

Q_{sdi} = volumetric flow rate of effluent gas from emission point "i," dscm/hr (dscf/hr).

N = number of emission points associated with the affected facility.

P = equivalent P₂O₅ feed rate, metric ton/hr (ton/hr).

K = conversion factor, 1000 mg/g (453,600 mg/lb).

(2) Method 13A or 13B (40 CFR part 60, appendix A) shall be used to determine the total fluorides concentration (C_{si}) and volumetric flow rate (Q_{sdi}) of the effluent gas from each of the emission points. If Method 13 B is used, the fusion of the filtered material described in section 7.3.1.2 and the distillation of suitable aliquots of containers 1 and 2, described in sections 7.3.3 and 7.3.4 in Method 13 A, may be omitted. The sampling time and sample volume for each run shall be at least one hour and 0.85 dscm (30 dscf).

(3) The equivalent P_2O_5 feed rate (P) shall be computed using the following equation:

$$P = M_p R_p$$

where:

M_p = total mass flow rate of phosphorus-bearing feed, metric ton/hr (ton/hr).

R_p = P_2O_5 content, decimal fraction.

(i) The accountability system described in § 63.625(a) and (b) shall be used to determine the mass flow rate (M_p) of the phosphorus-bearing feed.

(ii) The P_2O_5 content (R_p) of the feed shall be determined using as appropriate the following methods (incorporated by reference- see 40 CFR 63.14) specified in the Book of Methods Used and Adopted By The Association Of Florida Phosphate Chemists, Seventh Edition 1991, where applicable:

(A) Section IX, Methods of Analysis For Phosphate Rock, No. 1 Preparation of Sample.

(B) Section IX, Methods of Analysis For Phosphate Rock, No. 3 Phosphorus- P_2O_5 or $Ca_3(PO_4)_2$, Method A-Volumetric Method.

(C) Section IX, Methods of Analysis For Phosphate Rock, No. 3 Phosphorus- P_2O_5 or $Ca_3(PO_4)_2$, Method B-Gravimetric Quimociac Method.

(D) Section IX, Methods of Analysis For Phosphate Rock, No. 3 Phosphorus- P_2O_5 or $Ca_3(PO_4)_2$, Method C-Spectrophotometric Method.

(E) Section XI, Methods of Analysis For Phosphoric Acid, Superphosphate, Triple superphosphate, and Ammonium Phosphates, No. 3 Total Phosphorus- P_2O_5 , Method A-Volumetric Method.

(F) Section XI, Methods of Analysis For Phosphoric Acid, Superphosphate, Triple superphosphate, and Ammonium Phosphates, No. 3 Total Phosphorus- P_2O_5 , Method B-Gravimetric Quimociac Method.

(G) Section XI, Methods of Analysis For Phosphoric Acid, Superphosphate, Triple superphosphate, and Ammonium Phosphates, No. 3 Total Phosphorus- P_2O_5 , Method C-Spectrophotometric Method.

(4) To comply with § 63.625(f)(1) or (2), the owner or operator shall use the monitoring systems in § 63.625(c) to determine the average pressure loss of the gas stream across each scrubber in the process scrubbing system and to determine the average flow rate of the scrubber liquid to each scrubber in the process scrubbing system during each of the total fluoride runs. The arithmetic averages of the three runs shall be used as the baseline average values for the purposes of § 63.625(f)(1) or (2).

(d) Each owner or operator of a new or existing granular triple superphosphate storage building shall determine compliance with the applicable total fluorides standards in § 63.622 or § 63.623 as follows:

(1) The owner or operator shall conduct performance tests only when the following quantities of product are being cured or stored in the facility.

(i) Total granular triple superphosphate is at least 10 percent of the building capacity, and

(ii) Fresh granular triple superphosphate is at least six percent of the total amount of granular triple superphosphate, or

(iii) If the provision in paragraph (d)(1)(ii) of this sub-section exceeds production capabilities for fresh granular triple superphosphate, fresh granular triple superphosphate is equal to at least 5 days maximum production.

(2) In conducting the performance test, the owner or operator shall use as reference methods and procedures the test methods in Part 60, Appendix A, or other methods and procedures as specified in this section, except as provided in § 63.7(f).

(3) The owner or operator shall determine compliance with the total fluorides standard in §§ 63.622 and 63.623 as follows:

(i) The emission rate (E) of total fluorides shall be computed for each run using the following equation:

$$E = \left(\sum_{i=1}^N C_{si} Q_{sdi} \right) / (PK)$$

where:

E = emission rate of total fluorides, g/hr/metric ton (lb/hr/ton) of equivalent P₂O₅ stored.

C_{si} = concentration of total fluorides from emission point "i," mg/dscm (mg/dscf).

Q_{sdi} = volumetric flow rate of effluent gas from emission point "i," dscm/hr (dscf/hr).

N = number of emission points in the affected facility.

P = equivalent P₂O₅ stored, metric tons (tons).

K = conversion factor, 1000 mg/g (453,600 mg/lb).

(ii) Method 13A or 13B (40 CFR part 60, appendix A) shall be used to determine the total fluorides concentration (C_{si}) and volumetric flow rate (Q_{sdi}) of the effluent gas from each of the emission points. If Method 13B is used, the fusion of the filtered material described in section 7.3.1.2 and the distillation of suitable aliquots of containers 1 and 2, described in Sections 7.3.3 and 7.3.4 in Method 13 A, may be omitted. The sampling time and sample volume for each run shall be at least one hour and 0.85 dscm (30 dscf).

(iii) The equivalent P₂O₅ feed rate (P) shall be computed using the following equation:

$$P = M_p R_p$$

where:

M_p = amount of product in storage, metric ton (ton).

R_p = P₂O₅ content of product in storage, weight fraction.

(iv) The accountability system described in § 63.625(d) and (e) shall be used to determine the amount of product (M_p) in storage.

(v) The P₂O₅ content (R_p) of the product stored shall be determined using as appropriate the following methods (incorporated by reference- see 40 CFR 63.14) specified in the Book of Methods Used and Adopted By The Association Of Florida Phosphate Chemists, Seventh Edition 1991, where applicable:

(A) Section XI, Methods of Analysis For Phosphoric Acid, Superphosphate, Triple superphosphate, and Ammonium Phosphates, No. 3 Total Phosphorus-P₂O₅, Method A-Volumetric Method.

(B) Section XI, Methods of Analysis For Phosphoric Acid, Superphosphate, Triple superphosphate, and Ammonium Phosphates, No. 3 Total Phosphorus-P₂O₅, Method B-Gravimetric Quimociac Method.

(C) Section XI, Methods of Analysis For Phosphoric Acid, Superphosphate, Triple superphosphate, and Ammonium Phosphates, No. 3 Total Phosphorus-P₂O₅, Method C-Spectrophotometric Method, or,

(vi) The P₂O₅ content (R_p) of the product stored shall be determined using as appropriate the following methods (incorporated by reference- see 40 CFR 63.14) specified in the Official Methods of Analysis of AOAC International, sixteenth Edition, 1995, where applicable:

(A) AOAC Official Method 957.02 Phosphorus (Total) In Fertilizers,
Preparation of Sample.

(B) AOAC Official Method 929.01 Sampling of Solid Fertilizers.

(C) AOAC Official Method 929.02 Preparation of Fertilizer Sample.

(D) AOAC Official Method 978.01 Phosphorus (Total) In Fertilizers,

Automated Method.

(E) AOAC Official Method 969.02 Phosphorus (Total) In Fertilizers,
Alkalimetric Quinolinium Molybdophosphate Method.

(F) AOAC Official Method 962.02 Phosphorus (Total) In Fertilizers,
Gravimetric Quinolinium Molybdophosphate Method.

(G) AOAC Official Method 958.01 Phosphorus (Total) in Fertilizer,
Spectrophotometric Molybdovanadophosphate Method.

(4) To comply with § 63.625(f)(1) or (2), the owner or operator shall use the monitoring systems described in § 63.625(c) to determine the average pressure loss of the gas stream across each scrubber in the process scrubbing system and to determine the average flow rate of the scrubber liquid to each scrubber in the process scrubbing system during each of the total fluoride runs. The arithmetic averages of the three runs shall be used as the baseline average values for the purposes of § 63.625(f)(1) or (2).

NOTIFICATION, REPORTING AND RECORDKEEPING

§ 63.627 Notification, recordkeeping, and reporting requirements.

(a) Each owner or operator subject to the requirements of this subpart shall comply with the notification requirements in § 63.9.

(b) Each owner or operator subject to the requirements of this subpart shall comply with the recordkeeping requirements in § 63.10.

(c) The owner or operator of an affected source shall comply with the reporting requirements specified in § 63.10 as follows:

(1) Performance test report. As required by § 63.10, the owner or operator shall report the results of the initial and annual performance tests as part of the notification of compliance status required in § 63.9.

(2) Excess emissions report. As required by § 63.10, the owner or operator of an affected source shall submit an excess emissions report for any exceedance of an operating parameter limit. The report shall contain the information specified in § 63.10. When no exceedances of an operating parameter have occurred, such information shall be included in the report. The report shall be submitted semiannually and shall be delivered or postmarked by the 30th day following the end of the calendar half. If exceedances are reported, the owner or operator shall report quarterly until a request to reduce reporting frequency is approved as described in § 63.10.

(3) Summary report. If the total duration of control system exceedances for the reporting period is less than 1 percent of the total operating time for the reporting period, the owner or operator

shall submit a summary report containing the information specified in § 63.10 rather than the full excess emissions report, unless required by the Administrator. The summary report shall be submitted semiannually and shall be delivered or postmarked by the 30th day following the end of the calendar half.

(4) If the total duration of control system operating parameter exceedances for the reporting period is 1 percent or greater of the total operating time for the reporting period, the owner or operator shall submit a summary report and the excess emissions report.

§ 63.628 Applicability of general provisions.

The requirements of the general provisions in subpart A of this part that are applicable to the owner or operator subject to the requirements of this subpart are shown in appendix A to this subpart.

§ 63.629 Miscellaneous requirements.

The Administrator retains the authority to approve site-specific test plans for uncontrolled granular triple superphosphate storage buildings developed pursuant to § 63.7(c)(2)(i).

§ 63.630 Compliance dates.

(a) Each owner or operator of an existing affected source at a phosphate fertilizers production plant shall achieve compliance with the requirements of this subpart no later than June 10, 2002.

Notwithstanding the requirements of § 63.7(a)(2)(iii), each owner or operator of an existing affected source at a phosphate fertilizers production plant shall fulfill the applicable requirements of § 63.626 no later than June 10, 2002.

(b) Each owner or operator of a phosphate fertilizers production plant that commences construction or reconstruction of an affected source after December 27, 1996 shall achieve compliance with the requirements of this subpart upon startup of operations or by June 10, 1999, whichever is later.

(c) The owner or operator of any existing uncontrolled granular triple superphosphate storage building subject to the provisions of this subpart shall submit for approval by the Administrator a site-specific test plan for each such building according to the provisions of § 63.7 (b)(2)(i) no later than June 12, 2000.

OTHER

§ 63.631 Exemption from new source performance standards.

Any affected source subject to the provisions of this subpart is exempted from any otherwise applicable new source performance standard contained in 40 CFR Part 60, subpart V, subpart W, or subpart X. To be exempt, a source must have a current operating permit pursuant to Title V of the Act and the source must be in compliance with all requirements of this subpart. For each affected source, this exemption is effective upon the date that the owner or operator demonstrates to the Administrator that the requirements of §§ 63.624, 63.625 and 63.626 have been met.

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KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES

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KA 123-97-01
MEMORANDUM

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SEP 02 1998

BUREAU OF
AIR REGULATION

TO: Syed Arif, FDEP

FROM: Pradeep Raval

DATE: August 27, 1998

SUBJECT: North MAP/DAP Plant
Farmland Hydro, L.P.

This is a follow up to our telephone conversation yesterday regarding the suggested wording for measures to be implemented to improve scrubber performance during MAP production. Please consider the following:

"The permittee shall install improved spray nozzles in the HI-MOL scrubber system in order to reduce fluoride and particulate matter emissions during MAP production. Upon completion of performance testing, the Department shall review the performance test data and, if necessary, require additional improvements to the existing air pollution control equipment to achieve an allowable fluoride emission limit during MAP production which is closer to 0.0417 lb F/ton P2O5. The Department may also review the particulate matter emission limit, if warranted.

The performance testing during MAP production, not to be used for compliance purposes, shall consist of four quarterly tests over a 12-month period, using EPA Method 13A or 13B for fluorides; and, EPA Method 5 for particulate matter. Each test shall consist of three complete runs, pursuant to Rule 62-297, FAC. A report shall be submitted to FDEP's Bureau of Air Regulation to document the test results and data analysis to determine the appropriate allowable fluoride and particulate matter emission limits during MAP production. Compliance tests during MAP and DAP production shall be conducted subsequent to the performance testing. At this time the particulate limit during DAP production will also be reviewed. The report shall document the scrubber operating parameters during the tests, as required by this permit."

Please revise the permit expiration date to May of 2000 to accommodate the testing.

If you have any questions, please call me.

par.



ENVIRONMENTAL SERVICES

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KA 123-97-01

August 18, 1998

RECEIVED

AUG 19 1998

BUREAU OF
AIR REGULATION

Mr. A. A. Linero
Florida Department of
Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: U.S. Fish and Wildlife Service,
Air Quality Branch
Letter to Al Linero from Ellen Porter
Dated July 28, 1998

Dear Al:

I have had a chance to review the letter to you from Ellen Porter dated July 28, 1998, regarding Farmland's draft MAP-DAP permit and have a couple comments I would like to make. I understand from Pradeep that matters addressed in this letter might have already been resolved and I hope this is the case.

The comments that I have relate both to the Farmland matter and to statistical analyses presented to the Department or prepared by the Department relating to any matter.

Porter's letter states:

"... the calculations of the stack test result confidence intervals are seriously flawed."

My comment is that the analysis presented in Porter's letter, while statistically correct, is not an estimator of the confidence interval for the variability (or spread) of individually measured emission rates. The estimator presented in Porter's letter establishes confidence limits for the mean (or average) of an entire set of emission data.

In other words, let's assume a company provided a set of data to the Department representing emissions from a particular operation and further assume the mean (or average) and the standard deviation of the data set had been calculated. The company then established the 95th percentile confidence limits for the data set; the interval into which 95 out of every 100 emission measurements would fall. Five out of every 100

Mr. A. A. Linero
Florida Department of
Environmental Protection

August 18, 1998
Page 2

emission measurements would fall outside of this interval (2.5 percent above the interval and 2.5 percent below the interval).

The 95th percentile confidence interval is calculated as the mean (or average) of the data set plus or minus approximately two standard deviations. In other words, the lower bound of the confidence interval would be the mean minus approximately two standard deviations and the upper bound of the confidence interval would be the mean plus approximately two standard deviations. This is the approach that has been used by the Department to set emission limits for existing operations undergoing BACT analyses.

Another statistical test that can be conducted on the data set is to evaluate the reliability of the sample mean, or the reliability of the average of the data set. The data set presented by a company represents a small sampling of the emission rates that occur every hour that the plant is operating under normal conditions. If emission data were available for every hour the plant operated and if all of these emission rates were averaged, one would have the true mean (or true average) emission rate for the plant. The mean (or average) of the data set presented by the hypothetical company represents an estimate of the true average emission rate from the plant. Using statistical analyses, one can establish confidence limits for the range of the true sample mean based on the mean calculated from the limited data set. The analysis presented in Porter's letter establishes confidence limits for the mean (or average) emission rate and does not establish confidence limits for individual emission rate measurements making up the data set.

The attached example is presented to demonstrate the difference between the confidence interval for an entire data set and the confidence interval presented in Porter's letter representing variability in the sample mean.

These comments are provided to you to clarify a matter that hopefully is no longer an issue in the case of Farmland. It is an issue that I am sure will arise may times in the future, however. If you have any questions or comments regarding this information, please do not hesitate to contact me.

Very truly yours,

KOOGLER & ASSOCIATES


John B. Koogler, Ph.D., P.E.

JBK:wa
Enc.

cc: S. Arif, BAR
SWD
polk Co.



**HYPOTHETICAL DATA SET REPRESENTING 17 HOURLY
EMISSION RATE MEASUREMENTS ON A PLANT THAT
OPERATES THOUSANDS OF HOURS (AND THEREFORE
HAS THOUSANDS OF HOURLY EMISSION RATES)**

SAMPLE NUMBER	EMISSION RATE (LB/HR)
1	16
2	22
3	21
4	20
5	23
6	21
7	19
8	15
9	13
10	23
11	17
12	20
13	29
14	18
15	22
16	16
17	25
AVG	20

Number of samples (n) = 17
 Average emission rate (\bar{x}) = 20 lb/hr
 Standard deviation (s) = 3.98 lb/hr
 Number of standard deviations from mean(+ and -)
 that will include 95% of individual samples (t) = 2.12*
 Standard error (s_x) = s/\sqrt{n} = 0.97

* "t" value for probability of 0.05 with 17-1 = 16 degrees of freedom

Based on the 17 emission rates that represent a very large data set (the emission rate for every hour a plant operates), the mean (average or \bar{x}), standard deviation (s) and standard error (s_x) have been calculated. The interval into which 95 out of every 100 measured emission rates will fall is given by the equation:

$$(\bar{x} - 2.12s) \leq \mu \leq (\bar{x} + 2.12s)$$

Where μ = the true mean of the total data set (the average of the emission rates for every hour the plant operated). The true mean is estimated by \bar{x} from the sample population of 17 (a subset of the total data set).

In our example, the 95th percentile confidence limits for individual hourly emission rates are:

$$\begin{aligned} \text{Lower C.L.} &= 20 - 2.12 (3.98) = 11.56 \text{ lb/hr} \\ \text{Upper C.L.} &= 20 + 2.12 (3.98) = 28.44 \text{ lb/hr} \end{aligned}$$

In other words, for every 100 emission rates measured, 95 will be between 11.56 and 28.44 lb/hr, two or three will be less than 11.56 lb/hr and two or three will be greater than 28.44 lb/hr.

The next question is, how well does \bar{x} estimate μ ? - how well does the average emission rate of the 17 samples in the limited data set ($\bar{x} = 20$) represent the average (μ) of the total data set? The 95th percentile confidence interval for this can be calculated using the equation:

$$\begin{aligned} (\bar{x} - 2.12 s_x) \leq \mu \leq (\bar{x} + 2.12 s_x) \text{ or} \\ (\bar{x} - 2.12 s/\sqrt{n}) \leq \mu \leq (\bar{x} + 2.12 s/\sqrt{n}) \end{aligned}$$

(This is the equation proposed in Porter's letter for calculating the 95th percentile confidence interval for the individual samples in the data set).

The 95th percentile confidence interval for the sample mean is:

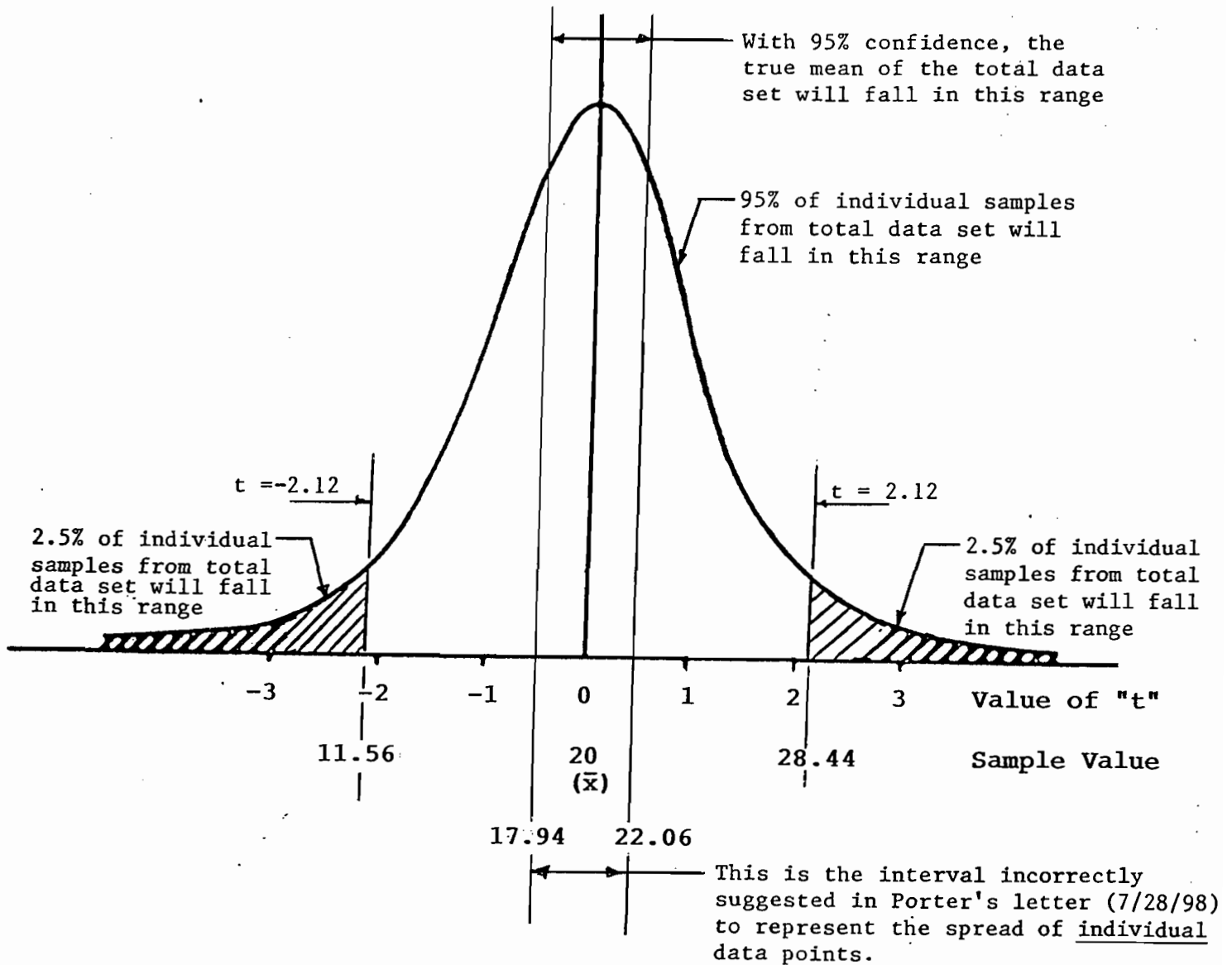
$$\begin{aligned} \text{Lower C.L.} &= 20 - 2.12 (0.97) = 17.94 \text{ lb/hr} \\ \text{Upper C.L.} &= 20 + 2.12 (0.97) = 22.06 \text{ lb/hr} \end{aligned}$$

In other words, the true mean (μ) of the entire data set (the true average emission rate for all hours the plant operates), with 95% confidence, is between 17.94 and 22.06 lb/hr.

These two estimates are presented graphically in the following figure and are explained in the attached text from a statistical reference.

CHARACTERISTICS OF HYPOTHETICAL LIMITED DATA SET (17 SAMPLES)

- n = 17 (16 degrees of freedom)
- \bar{x} = 20 (mean of limited data set)
- s = 3.98 (standard deviation of limited data set)
- s_x = 0.97 (standard error of limited data set)
- t = 2.12 (0.05 probability with 16 d.f.)



FIFTH EDITION

STATISTICAL METHODS

APPLIED TO EXPERIMENTS IN AGRICULTURE AND BIOLOGY

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With Chapter 17 on Sampling by

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must go back to the original fractions, add their numerators and denominators separately, then divide.

EXAMPLE 1.17.1—Three dairy herds of a certain community showed the following reaction to a test for tuberculosis:

Number cows in herd	40	100	10
Percentage reactors	5	2	60

Calculate the average, 6.7%. Do you think this is a better average than $(5 + 2 + 60)/3 = 22.3\%$?

EXAMPLE 1.17.2—The percentages of noxious weed seeds in two samples of timothy are 0.01% and 0.05%. If each sample consisted of 10,000 seeds, what is the average percentage in the two? Ans. 0.03%.

EXAMPLE 1.17.3—If the samples in the foregoing example were 80,000 and 20,000 seeds, respectively, what would be the average? Ans. 0.018%, quite properly nearer the percentage of the larger sample.

EXAMPLE 1.17.4—Schott and Lambert reported that the numbers in table 1.17.1 are averages for 7 years so that the total number of males was 6,972 and of females, 7,126, the sex ratio being 97.84 males per 100 females. Test the hypothesis that the population sex ratio is 100. Ans. $\chi^2 = 1.68$. Note: If the averages were used, chi-square would be 0.24, only one-seventh the correct value.

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- These data were furnished by courtesy of Dr. T. A. Brindley, leader of the cooperative project.

Sampling From a Normally Distributed Population

2.1—Normally distributed population. In the first chapter, sampling was mostly from a population with only two kinds of individuals; odd or even, alive or dead, infested or free. Random samples of n from such a population made up a *binomial distribution*. The variable, an enumeration of successes, was discrete. Now we turn to another kind of population whose individuals are measured for some characteristic such as height or yield or income. The variable flows without a break from one individual to the next—a continuous variable with no limit to the number of individuals with different measurements. Such variables are distributed in many ways, but we shall be occupied mainly with the *normal distribution*.

Next to the binomial, the normal distribution was the earliest to be developed. De Moivre published its equation in 1733, 20 years after Bernoulli had given a comprehensive account of the binomial. That the two are not unrelated is clear from figure 2.1.1. On the left is the graph of a symmetrical binomial distribution similar to that in figure 1.6.1. In this new figure the sample size is 48 and the population sampled has equal numbers of the two kinds of individuals. An indefinitely great

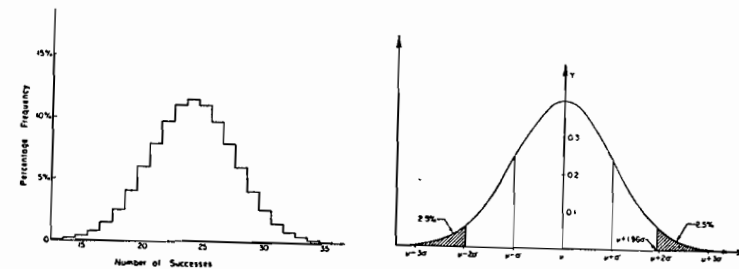


FIG. 2.1.1—At left: Binomial Distribution of successes in samples of 48 from 1:1 population. At right: Normal Distribution with mean μ and standard deviation σ . (see table 8.7.1); the shaded areas comprise 5% of the total.

number of samples were drawn so that the frequencies are expressed as percentages of the total. Successes less than 13 and more than 35 do occur, but their frequencies are so small that they cannot be shown on the graph.

Imagine now that the size of the sample is increased without limit, the width of the intervals on the horizontal axis being decreased correspondingly. The steps of the histogram would soon become so small as to look like the continuous curve at the right. Indeed, the normal distribution is related to the binomial in some such manner as that described. The discrete variable has become *continuous* and the frequencies have merged into each other without a break.

This normal distribution is completely determined by two constants or *parameters*. First, there is the *mean*, μ , which locates the center of the distribution. Second, the *standard deviation*, σ , measures the spread or variation of the individual measurements; in fact, σ is the *scale* (unit of measurement) of the variable which is normally distributed.

From the figure you see that during one sigma on either side of μ the frequency is decreasing ever more rapidly but beyond that point it decreases at a continuously lesser rate. By the time the variable, X , has reached $\pm 3\sigma$ the percentage frequencies are negligibly small. Theoretically, the frequency of occurrence never vanishes entirely, but it approaches zero as X increases indefinitely. The concentration of the measurements close to μ is emphasized by the facts that over $\frac{2}{3}$ of the observations lie in the interval $\mu \pm \sigma$ while some 95% of them are in the interval $\mu \pm 2\sigma$. Beyond $\pm 3\sigma$ lies only 0.26% of the total frequency.

You are doubtless wondering why such a model is being presented since it obviously cannot describe any real population. It is astonishing that this normal distribution has dominated statistical practice as well as theory. Some of the reasons will be noted at suitable places (sections 3.4, 5.6, and 5.7), but three of them can be indicated here. First, there are many biological variables whose distributions are approximately normal, such as heights of men, for example, or lengths of ears of corn, or dressing percentages of swine. Second, it has been learned from both theory and experience that the inferences we shall make from sampling experimental populations are little affected by ordinary deviations from normality. Third, the mathematical treatment of the equation of the normal distribution is surprisingly easy and has been productive of a large body of theory with practical applications. Further discussion of the normal distribution will be found in chapter 8.

2.2—Estimators of μ and σ . While μ and σ are seldom known, they may be estimated from random samples. To illustrate the estimation of the parameters, we turn to the data reported in table 2.2.1. In 1936 the Council on Foods of the American Medical Association sampled the vitamin C content of commercially canned tomato juice by analyzing a specimen from each of the brands that displayed the seal of the Council (3). The data are shown in the second column of the table.

TABLE 2.2.1
VITAMIN C CONCENTRATION OF 17 SPECIMENS OF COMMERCIALY CANNED
TOMATO JUICE, 1936*

Observation Number	Vitamin C Concentration Mg. Per 100 g.	Deviation From Mean	Deviation Squared	
n	X	$x = X - \bar{x}$	x^2	
1	16	- 4	16	
2	22	+ 2	4	
3	21	+ 1	1	
4	20	0	0	
5	23	+ 3	9	
6	21	+ 1	1	
7	19	- 1	1	
8	15	- 5	25	
9	13	- 7	49	
10	23	+ 3	9	
11	17	- 3	9	
12	20	0	0	
13	29	+ 9	81	
14	18	- 2	4	
15	22	+ 2	4	
16	16	- 4	16	
17	25	+ 5	25	
Totals	340	-26	+26	254

$$\bar{x} = 340/17 = 20 \text{ mg. per 100 grams}$$

$$s^2 = \Sigma x^2 / (n - 1) = 254/16 = 15.88 \quad s = 3.98 \text{ mg./100 g.}$$

$$s_x^2 = s^2/n = 15.88/17 = 0.934 \quad s_x = s/\sqrt{17} = 0.965 \text{ mg./100 g.}$$

* Slightly modified, as is our custom, to make calculation easy. The conclusions are unaltered. For the original data see example 2.12.1.

Assuming random sampling from a normal population, μ is estimated by an average called the *mean of the sample* or, more briefly, the *sample mean*. This is calculated by the familiar process of dividing the sum of the observations, X , by their number. Representing the sample mean by \bar{x} ,

$$\bar{x} = 340/17 = 20 \text{ mg. per 100 grams of juice}$$

The symbol, \bar{x} , is often called "bar- x " or "x-bar." We say that this sample mean is an estimator of μ or that μ is estimated by it.

As for the standard deviation, the simplest estimator of it is based on the *range* of the sample observations, that is, the difference between the largest and smallest measurements. For the vitamin C data,

$$\text{range} = 29 - 13 = 16 \text{ mg./100 g.}$$

From the range, sigma is estimated by means of a fraction which depends on the sample size; see table 2.2.2 (13, 18). For $n = 17$, halfway between 16 and 18, the fraction is 0.279, so that

$$\sigma \text{ is estimated by } (0.279)(16) = 4.46 \text{ mg./100 g.}$$

TABLE 2.2.2
RATIO OF σ TO RANGE IN SAMPLES OF n FROM THE NORMAL DISTRIBUTION.
EFFICIENCY OF RANGE AS ESTIMATOR OF σ . NUMBER OF OBSERVATIONS WITH
RANGE TO EQUAL 100 WITH s

n	$\frac{\sigma}{\text{Range}}$	Relative Efficiency	Number per 100	n	$\frac{\sigma}{\text{Range}}$	Relative Efficiency	Number per 100
2	0.886	1.000	100	12	0.307	0.815	123
3	.591	0.992	101	14	.294	.783	128
4	.486	.975	103	16	.283	.753	133
5	.430	.955	105	18	.275	.726	138
6	.395	.933	107	20	.268	.700	143
7	.370	.912	110	30	.245	.604	166
8	.351	.890	112	40	.231	.536	186
9	.337	.869	115	50	.222	.49	204
10	.325	.850	118				

Quite easily, then, we have made a *point estimate* of each parameter of a normal population; these estimators constitute a summary of the information contained in the sample. The sample mean cannot be improved upon as an estimator of μ , but we shall learn to estimate σ more efficiently. Also we shall learn about interval estimates and tests of hypotheses. Before doing so, it is worth while to examine our sample in greater detail.

The first point to be clarified is this: What population was represented by the sample of 17 determinations of vitamin C? I have raised this question tardily; it is the first one to be considered in designing any sampling. The report makes it clear that not all brands were sampled, only the seventeen that were allowed to display the seal of the Council. The dates of the packs were mostly August and September of 1936, about a year before the analyses were made. The Council report states that the vitamin concentration "... may be expected to vary according to the variety of the fruit, the conditions under which the crop has been grown, the degree of ripeness and other factors." About all that can be said, then, is that the sampled population consisted of those year-old containers still available to the 17 selected packers.

Other details are discussed in the following sections.

2.3—The array and its graphical representation. Some of the more intimate features of a sample are shown by arranging the observations in order of size, from low to high, in an *array*. The array of vitamin contents is like this:

13, 15, 16, 16, 17, 18, 19, 20, 20, 21, 21, 22, 22, 23, 23, 25, 29

For a small sample the array serves some of the same purposes as the frequency distribution of a large one.

The range, from 13 to 29, is now obvious. Also, attention is attracted to the concentration of the measures near the center of the array and to

their thinning out at the extremes. In this way the sample may reflect the distribution of the normal population from which it was drawn. But the smaller the sample, the more erratic its reflection may be.

In looking through the vitamin C contents of the several brands, one is struck by their variation. What are the causes of this variation? Different processes of manufacture, perhaps, and different sources of the fruit. Doubtless, also, the specimens examined, being themselves samples of their brands, differed from the brand means. Finally, the laboratory technique of evaluation is never perfectly accurate. Variation is the very essence of statistical data.

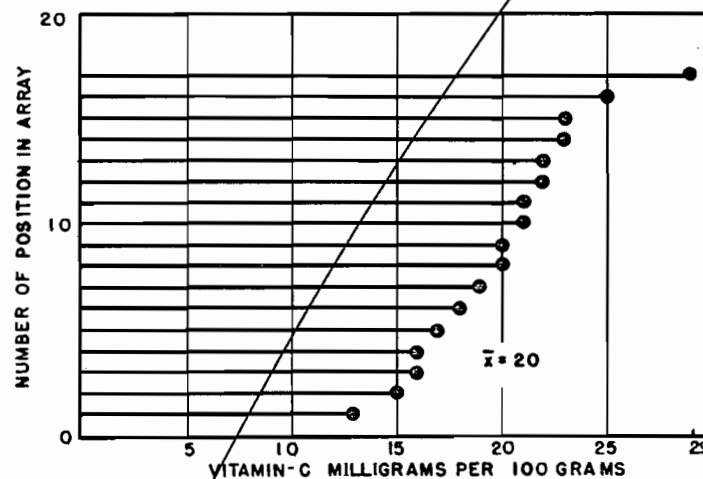


FIG. 2.3.1—Graphical representation of an array. Vitamin C data.

Figure 2.3.1 is a graphical representation of the foregoing array of 17 vitamin determinations. A dot represents each item. The distance of the dot from the vertical line at the left, proportional to the concentration of ascorbic acid in a brand specimen, is read in milligrams per 100 grams on the horizontal scale.

The diagram brings out vividly not only the variation and the concentration in the sample, but also two other characteristics: (i) the rather symmetrical occurrence of the values above and below the mean, and (ii) the scarcity of both extremely small and extremely large vitamin C contents, the bulk of the items being near the middle of the set. These features recur with notable persistence in samples from normal distributions. For many variables associated with living organisms there are averages and ranges peculiar to each, reflecting the manner in which

each seems to express itself most successfully. These norms persist despite the fact that individuals enjoy a considerable freedom in development. A large part of our thinking is built around ideas corresponding to such statistics. The words, pig, daisy, man, each raises an image which is quantitatively described by summary numbers. It is difficult to conceive of any progress in thought until memories of individuals are collected into concepts like averages and ranges of distributions.

2.4—Symbolical representation. The items in any set may be represented by

$$X_1, X_2, X_3, \dots X_n,$$

where the subscripts 1, 2, . . . n, may specify position in the set of n items (not necessarily an array). The three dots accompanying these symbols are read "and so on." Matching the symbols with the values in column 2 of table 2.2.1,

$$X_1 = 16, X_2 = 22, \dots X_{17} = 25 \text{ mg./100 g.}$$

The sample mean is represented by \bar{x} , so that

$$\bar{x} = (X_1 + X_2 + \dots X_n)/n$$

This is condensed into the form,

$$\bar{x} = (\Sigma X)/n,$$

where X stands for every item successively. The symbol, ΣX , is read, "summation X " or "sum of the X ." Applying this formula to the values of X in table 2.2.1,

$$\Sigma X = 340, \text{ and } \bar{x} = 340/17 = 20 \text{ mg./100 g.}$$

2.5—Deviations from sample mean. The individual variations of the items in a set of data may be well expressed by the *deviations* of these items from some centrally located number such as the sample mean. For example, the deviation-from-mean of the first X -value in table 2.2.1 is $16 - 20 = -4$ mg. per 100 g.; that is, this specimen falls short of \bar{x} by 4 mg./100 g. Of special interest is the whole set of deviations calculated from the array in section 2.3:

$$-7, -5, -4, -4, -3, -2, -1, 0, 0, 1, 1, 2, 2, 3, 3, 5, 9$$

These deviations are represented graphically in figure 2.3.1 by the positions of the dots from the vertical line drawn through the sample mean.

Deviations are almost as fundamental in our thinking as are averages themselves. "What a whale of a pig" is a metaphor expressing astonishment at the deviation of an individual's size from the speaker's concept of the normal. Gossip and news are concerned chiefly with deviations from accepted standards of behavior. Curiously, interest is wont to center in departures from norm, rather than in that background of averages

against which the departures achieve prominence. Statistically, freaks are freaks only because of their large deviations.

Deviations are represented symbolically by lower case letters. That is:

$$x_1 = X_1 - \bar{x}$$

$$x_2 = X_2 - \bar{x}$$

$$\cdot \quad \cdot \quad \cdot$$

$$\cdot \quad \cdot \quad \cdot$$

$$x_n = X_n - \bar{x}$$

Just as X may represent any of the items in a set, or all of them in succession, so x represents deviations from sample mean. In general,

$$x = X - \bar{x}$$

It is easy to verify the theorem that the sum of a set of deviations-from-mean is zero; that is $\Sigma x = 0$. The set listed in table 2.2.1 adds to zero, the sum of the positive deviations being equal to the sum of the negatives. This theorem about deviations-from-mean is useful for verifying the calculation of a set of deviations—be sure that the sum is zero. As a consequence of the theorem, it follows that the *mean* of the deviations is zero. This is a theorem about which you will be reminded later.

EXAMPLE 2.5.1—The weights of 12 staminate hemp plants in early April at College Station, Texas, (16), were approximately:

13, 11, 16, 5, 3, 18, 9, 9, 8, 6, 27, and 7 grams

Array the weights and represent them graphically. Calculate the sample mean, 11 grams, and the deviations therefrom. Verify the fact that $\Sigma x = 0$. Show that σ is estimated by 7.4 grams.

EXAMPLE 2.5.2—The heights of 11 men are 64, 70, 65, 69, 68, 67, 68, 67, 66, 72, and 61 inches. Compute the sample mean and verify it by summing the deviations. Are the numbers of positive and negative deviations equal, or only their sums?

EXAMPLE 2.5.3—The yields of alfalfa from 10 plots were 0.8, 1.3, 1.5, 1.7, 1.7, 1.8, 2.0, 2.0, 2.0, and 2.2 tons per acre. How many deviations are positive and how many negative? Is their sum zero? Estimate σ . Ans. 0.46 ton per acre.

EXAMPLE 2.5.4—The weights of 11 forty-year-old men were 148, 154, 158, 160, 161, 162, 166, 170, 182, 195, and 236 pounds. Contrast the graphical representation of this array with that of the preceding example. Notice the fact that only three of the weights exceed the sample mean. Would you expect weights of men to be normally distributed? A test of symmetry will be given in section 8.5.

EXAMPLE 2.5.5—The following were the yields of two varieties of oats in five successive years (bushels per acre):

Variety	Year				
	1	2	3	4	5
A	34	30	41	25	45
B	30	17	33	25	25

Calculate the 5 differences, $A - B$. Might these differences be a sample from a normal population of differences? Assuming that they are, estimate μ and σ . Ans. 9.0 and 8.6 bushels per acre.

EXAMPLE 2.5.6—The following data are adapted from Reddy's (14) investigations of the differences in yield attributable to the disinfection of *Diplodia* infected seeds of maize. The figures represent bushels per acre.

Treatment	Pairs of Plots in 1933					
	1	2	3	4	5	6
Treated	68.1	74.6	64.4	69.2	61.8	57.9
Untreated	64.7	62.5	66.8	69.2	53.9	58.5
Differences	3.4	12.1	-2.4	0.0	7.9	-0.6

Pairs of Plots in 1934									
1	2	3	4	5	6	7	8	9	10
18.0	24.0	18.8	17.8	18.5	27.2	23.6	23.9	20.3	11.9
10.9	24.4	15.1	16.8	13.2	21.6	13.7	17.5	16.3	15.5
7.1	-0.4	3.7	1.0	5.3	5.6	9.9	6.4	4.0	-3.6

Clearly the yields in the two years are not samples from the same population, but the differences may be. Represent graphically the array of differences. Estimate μ and σ in the population of differences. Ans. 3.7 and 4.4 bushels per acre.

EXAMPLE 2.5.7—If you sum the deviations from 3.7 bushels per acre in the foregoing example you will not get zero. Why? If you compute the sample mean of the deviations and add it to 3.7, will you get the exact sample mean of the differences?

EXAMPLE 2.5.8—If you should calculate the sample mean of the yields of the 16 untreated plots in example 2.5.6, would it estimate the parameter of any population that you can describe?

EXAMPLE 2.5.9—Suppose you wish to estimate the yield of a field of 300 rows of corn. You actually harvest 10 rows, chosen at random, and determine the sample mean yield, 5 bushels per row. Would you hesitate to fix the field yield at 1,500 bushels? You would be assuming that the field mean is the same as that of the 10 harvested rows, and would be using the theorem, $\Sigma X = n\bar{x}$.

EXAMPLE 2.5.10—If you have some skill in algebra, prove the theorem that $\Sigma x = 0$. Starting with the relation, $x = X - \bar{x}$, sum both members, then substitute $\Sigma X = n\bar{x}$.

EXAMPLE 2.5.11—If you have two sets of data which are paired as in example 2.5.5, and if you have calculated the resulting set of differences, prove that the sample mean of the differences is equal to the difference between the sample means of the two sets. Verify this theorem by use of the data in example 2.5.5.

2.6—Another estimator of σ ; the sample standard deviation. The range, dependent as it is on only the two extremes in a sample, has a more variable sampling distribution than an estimator based on the whole set of deviations-from-mean in a sample, not just the largest and smallest. Such a set, with 17 deviations, was shown in table 2.2.1 and again as an array in section 2.5. What kind of average is appropriate to summarize these deviations, and to estimate σ with the least sampling variation?

Clearly, the sample mean of the deviations is useless as an estimator because it is always zero. But a natural suggestion is to ignore the signs,

calculating the sample mean of the absolute values of the deviations. The resulting measure of variation, the *mean absolute deviation*, had a considerable vogue in times past. Now, however, we have other estimators, more efficient and more easily calculated.

One of the more efficient estimators is the *sample standard deviation* which we shall denote by s . Its calculation is set out in the right-hand part of table 2.2.1. First, each deviation is squared. Next, the *sum of squares*, Σx^2 , is divided by the number of *degrees of freedom*, one less than the sample size. The result is the *mean square*, s^2 . Finally, the extraction of the square root recovers the original unit of measurement (in this example, mg. per 100 g.). Before further discussion of this average, its calculation should be fixed in mind by the working of a few examples.

EXAMPLE 2.6.1—The five differences, $A-B$, in example 2.5.5 were 4, 13, 8, 0, and 20 bushels per acre. Calculate s . Ans. 7.8 bu./acre. Compare this with the estimate based on the range.

EXAMPLE 2.6.2—In example 2.5.1, calculate the sample standard deviation. Ans. 6.7 grams. Compare this with your first estimate of σ .

EXAMPLE 2.6.3—Calculate s for the alfalfa yields of example 2.5.3. Ans. 0.41 ton per acre.

It may be a little surprising to have the divisor, $n - 1$, proposed for computing an average; you have always calculated the sample mean by using the divisor, n . In computing s^2 , it is necessary to divide by the degrees of freedom if you wish to avoid a bias in estimating σ^2 . Division by n does produce an estimate of σ^2 but it is a *biased estimate*. In the problems we shall consider there is no occasion to use any but the *unbiased estimate*.

You now have two estimators of σ , one of them easier to calculate than the other, but *less efficient*. You need to know what is meant by "less efficient" and what governs the choice of which to use. Both pieces of information are supplied by the fourth columns of table 2.2.2. As an example, if $n = 10$, the estimate from the range is only 85% as efficient as that from s ; meaning that, for the same precision, a sample of 10 with s as estimator is equivalent to a sample of $10/0.85 = 12$ using range. The argument will become clearer as you proceed, but the table indicates right away that, other things being equal, you have to weigh the cost of calculating s against the cost of more observations; in this instance, 12 instead of 10. Now there are some operations where observations are taken for other purposes and are then available to the statistician at no extra cost. For estimating σ he could have a few extra just by copying them. His cue would be to use the range. But consider the alfalfa experiment of example 2.6.3. How much would it cost the investigator to provide 2 extra plots? There is the cost of land and equipment to be considered, together with their availability for use, there are salaries and wages, and finally there is the sale price of the alfalfa. The net cost of the 2 extra plots is to be balanced against the few cents or the few minutes it would take to calculate s . I suggest that, if you value the information to be obtained

from the experiment, you should proceed with the calculation of s . This will give you the maximum information to be obtained from the data. The advantage of the range is that it provides a quick preliminary estimate. Also, since computers sometimes make mistakes, the estimate from the range is an easy approximate check on the calculation of s . For this purpose, it is well to fix in mind a few of the fractions, σ/range . Remember:

If n Is Near This Number	Then σ Is Roughly Estimated From Dividing Range by
5	2
10	3
25	4
100	5

In statistical practice, this rough-and-ready estimator of σ proves itself a most useful device. But for the usual run of experimental data it pays to calculate s .

If you study mathematical statistics, you may hear a good deal about the Principle of Least Squares. The sample mean and deviations therefrom are related to that principle in this manner: if deviations are measured from the sample mean, then the sum of their squares is a minimum. In particular (and reversing the statement) if deviations in table 2.2.1 are measured from some number different from the sample mean, 20, the sum of their squares will be greater than 254. Verify this by trying deviations from, say, 19 then 22.

It seems rather characteristic that large things vary much and small things little. For this reason it is often convenient to express the sample standard deviation as a fraction of the sample mean, the resulting statistic being called *relative standard deviation* or *coefficient of variation*, C . As an example, it is reported (1) that the average statures of one-year and eighteen-year girls are 74.4 and 161.0 cm. respectively, with sample standard deviations 2.64 and 6.12 cm. The two coefficients of variation are

$$C_1 = 2.64/74.4 = 0.036$$

$$C_{18} = 6.12/161.0 = 0.038,$$

almost the same. Usually C is expressed as a percentage, C_1 for example, being 3.6%. Discussion of this characteristic of the sample standard deviation is resumed in section 2.16.

EXAMPLE 2.6.4—The birth weights of 20 guinea pigs, borne in litters of two, were: 30, 30, 26, 32, 30, 23, 29, 31, 36, 30, 25, 34, 32, 24, 28, 27, 38, 31, 34, 30 grams. Estimate σ in 3 ways: (i) by the rough approximation, one-fourth of the range (Ans. 3.8 g.); (ii) by use of the fraction, 0.268, in table 2.2.2 (Ans. 4.0 g.); (iii) by calculating s (Ans. 3.85 g.). N.B.: Observe the time required to calculate s .

EXAMPLE 2.6.5—In the preceding example, how many birth weights would be required to yield the same precision if the range were used instead of s ? Ans. 29 weights.

EXAMPLE 2.6.6—If it takes 5 minutes to weigh a guinea pig (removing and returning to cage, weighing and recording) and 2 minutes to estimate σ using the range, would you have saved or lost time by calculating s ?

EXAMPLE 2.6.7—Suppose you lined up according to height the 16 men in 2 squads of 18-year-old freshmen, then measured the height of the shortest, 64 inches, and of the tallest, 72 inches. Would you accept the midpoint of the range, $(64 + 72)/2 = 68$ inches as a rough estimate of μ , and $8/3 = 2.7$ inches as a quick-and-easy estimate of σ ?

EXAMPLE 2.6.8—The mean yield of hay from 15 plots of alfalfa was 2.2 tons per acre, with $s = 0.35$ ton per acre. Using table 2.2.2, approximate the range on the assumption that $\sigma = 0.35$ ton per acre. Ans. 1.2 tons per acre. Would this suggest that the highest yielding plot bore about 2.8 tons per acre?

2.7—"Student's" t -distribution. We now have adequate point estimators for μ and σ . Next to be considered are *interval estimates* and *tests of hypotheses*.

First we require a sampling distribution analogous to that of chi-square. Known as "*Student's*" t -distribution, it was discovered by W. S. Gosset in 1908 (15) and perfected by R. A. Fisher in 1924 (6). This distribution has revolutionized the statistics of small samples. In the next chapter you will be asked to verify the distribution by the same kind of sampling process as you used for chi-square; indeed it was by such sampling that Gosset first learned about it.

The quantity t is given by the equation,

$$t = \frac{\bar{x} - \mu}{s/\sqrt{n}}$$

That is, t is the deviation of the estimated mean from that of the population, measured in terms of s/\sqrt{n} as the unit. Both \bar{x} and s are calculated from a sample of n observations, assumed to be a random sample from a normal population. We do not know μ though we may have some hypothesis about it. Without μ , t cannot be calculated; but its sampling distribution has been worked out.

The denominator, s/\sqrt{n} , is a useful quantity estimating σ/\sqrt{n} , the *standard error*. We shall call s/\sqrt{n} the *sample standard error* and symbolize it by $s_{\bar{x}}$. Further explanation will be given in chapter 3. For vitamin C, table 2.2.1, $s_{\bar{x}} = 3.98/\sqrt{17} = 0.965$ mg./100 g.

The distribution of t is laid out in table 2.7.1. In large samples it is practically normal with $\mu = 0$ and $\sigma = 1$. It is only for samples of less than 30 that the distinction becomes obvious.

Like the normal, the t -distribution is symmetrical about the mean. This allows the probability in the table to be stated as that of a larger absolute value, sign ignored. As an example, look at the value, $t = 1.96$, for infinite (∞) degrees of freedom, the normal distribution. The probability indicated is 0.05. This means that among samples of great size, drawn at random from a normal population, 5% of them are expected to have either $t > 1.96$ or $t < -1.96$. Figure 2.7.1 shows such values of t

TABLE 2.7.1
THE DISTRIBUTION OF t^*

Degrees of Freedom	Probability of a Larger Value, Sign Ignored								
	0.500	0.400	0.200	0.100	0.050	0.025	0.010	0.005	0.001
1	1.000	1.376	3.078	6.314	12.706	25.452	63.657		
2	.816	1.061	1.886	2.920	4.303	6.205	9.925	14.089	31.598
3	.765	.978	1.638	2.353	3.182	4.176	5.841	7.453	12.941
4	.741	.941	1.533	2.132	2.776	3.495	4.604	5.598	8.610
5	.727	.920	1.476	2.015	2.571	3.163	4.032	4.773	6.859
6	.718	.906	1.440	1.943	2.447	2.969	3.707	4.317	5.959
7	.711	.896	1.415	1.895	2.365	2.841	3.499	4.029	5.405
8	.706	.889	1.397	1.860	2.306	2.752	3.355	3.832	5.041
9	.703	.883	1.383	1.833	2.262	2.685	3.250	3.690	4.781
10	.700	.879	1.372	1.812	2.228	2.634	3.169	3.581	4.587
11	.697	.876	1.363	1.796	2.201	2.593	3.106	3.497	4.437
12	.695	.873	1.356	1.782	2.179	2.560	3.055	3.428	4.318
13	.694	.870	1.350	1.771	2.160	2.533	3.012	3.372	4.221
14	.692	.868	1.345	1.761	2.145	2.510	2.977	3.326	4.140
15	.691	.866	1.341	1.753	2.131	2.490	2.947	3.286	4.073
16	.690	.865	1.337	1.746	2.120	2.473	2.921	3.252	4.015
17	.689	.863	1.333	1.740	2.110	2.458	2.898	3.222	3.965
18	.688	.862	1.330	1.734	2.101	2.445	2.878	3.197	3.922
19	.688	.861	1.328	1.729	2.093	2.433	2.861	3.174	3.883
20	.687	.860	1.325	1.725	2.086	2.423	2.845	3.153	3.850
21	.686	.859	1.323	1.721	2.080	2.414	2.831	3.135	3.819
22	.686	.858	1.321	1.717	2.074	2.406	2.819	3.119	3.792
23	.685	.858	1.319	1.714	2.069	2.398	2.807	3.104	3.767
24	.685	.857	1.318	1.711	2.064	2.391	2.797	3.090	3.745
25	.684	.856	1.316	1.708	2.060	2.385	2.787	3.078	3.725
26	.684	.856	1.315	1.706	2.056	2.379	2.779	3.067	3.707
27	.684	.855	1.314	1.703	2.052	2.373	2.771	3.056	3.690
28	.683	.855	1.313	1.701	2.048	2.368	2.763	3.047	3.674
29	.683	.854	1.311	1.699	2.045	2.364	2.756	3.038	3.659
30	.683	.854	1.310	1.697	2.042	2.360	2.750	3.030	3.646
35	.682	.852	1.306	1.690	2.030	2.342	2.724	2.996	3.591
40	.681	.851	1.303	1.684	2.021	2.329	2.704	2.971	3.551
45	.680	.850	1.301	1.680	2.014	2.319	2.690	2.952	3.520
50	.680	.849	1.299	1.676	2.008	2.310	2.678	2.937	3.496
55	.679	.849	1.297	1.673	2.004	2.304	2.669	2.925	3.476
60	.679	.848	1.296	1.671	2.000	2.299	2.660	2.915	3.460
70	.678	.847	1.294	1.667	1.994	2.290	2.648	2.899	3.435
80	.678	.847	1.293	1.665	1.989	2.284	2.638	2.887	3.416
90	.678	.846	1.291	1.662	1.986	2.279	2.631	2.878	3.402
100	.677	.846	1.290	1.661	1.982	2.276	2.625	2.871	3.390
120	.677	.845	1.289	1.658	1.980	2.270	2.617	2.860	3.373
∞	.6745	.8416	1.2816	1.6448	1.9600	2.2414	2.5758	2.8070	3.2905

* Parts of this table are reprinted by permission from R. A. Fisher's *Statistical Methods for Research Workers*, published by Oliver and Boyd, Edinburgh (1925-1950); from Maxine Merrington's "Table of Percentage Points of the t -Distribution," *Biometrika*, 32:300 (1942); and from Bernard Ostle's *Statistics in Research*, Iowa State College Press (1954).

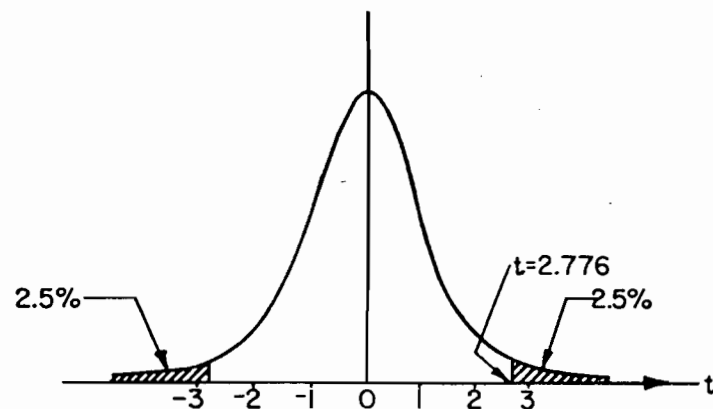


FIG. 2.7.1—Distribution of t with 4 degrees of freedom. The shaded areas comprise 5% of the total area. The distribution is more peaked in the center and has higher tails than the normal.

in the shaded areas; 2.5% of them are in one tail and 2.5% in the other. Effectively, the table shows the two halves of the figure superimposed, giving the sum of the shaded areas (probabilities) in both. So, the probability in the two tails of the t -distribution corresponds to that in one tail of chi-square, table 1.14.1. The reason for making the table this way will shortly appear.

EXAMPLE 2.7.1—In the vitamin C sampling of table 2.2.1, set up the hypothesis that $\mu = 17.954$ mg./100 g. Calculate t . Ans. 2.12.

EXAMPLE 2.7.2—For the vitamin C sample, degrees of freedom = $17 - 1 = 16$, the denominator of the fraction giving t^2 . From table 2.7.1, find the probability of a value of t larger in absolute value than 2.12. Ans. 0.05. This means that, among random samples of $n = 17$ from normal populations, 5% of them are expected to have t -values below -2.12 or above 2.12 .

EXAMPLE 2.7.3—If samples of $n = 17$ are randomly drawn from a normal population and have t calculated for each, what is the probability that t will fall between -2.12 and $+2.12$? Ans. 0.95.

EXAMPLE 2.7.4—If random samples of $n = 17$ are drawn from a normal population, what is the probability of t greater than 2.12? Ans. 0.025.

EXAMPLE 2.7.5—What size of sample would have $|t| > |2|$ in 5% of all random samples from normal populations? Ans. 61. (Note the symbol for "absolute value," that is, ignoring signs.)

EXAMPLE 2.7.6—Among very large samples ($d.f. = \infty$), what value of t would be exceeded in 2.5% of them? Ans. 1.96.

2.8—The interval estimate of μ ; the confidence interval. The argument about the interval estimate for μ is a bit complicated so I am going to tell you how to set the interval before explaining why. As illustration, recall the vitamin C determinations in table 2.2.1; $n = 17$, $\bar{x} = 20$ and

$s_{\bar{x}} = 0.965$ mg./100 g. To get the 95% confidence interval (interval estimate):

1. Enter the table with $df. = 17 - 1 = 16$ and in the column headed .05 take the entry, $t_{.05} = 2.12$.

2. Calculate the quantity,

$$t_{.05}s_{\bar{x}} = (2.12)(0.965) = 2.05 \text{ mg./100 g.}$$

3. The confidence interval is from

$$20 - 2.05 = 17.95 \text{ to } 20 + 2.05 = 22.05 \text{ mg./100 g.}$$

If you say that μ is covered by the interval from 17.95 to 22.05 mg./100 g., you will be right unless a 1-in-20 chance has occurred in the sampling.

The point and 95% interval estimate of μ may be summarized this way: 20 ± 2.05 mg./100 g. (The formula is $\bar{x} \pm t_{.05}s_{\bar{x}}$.)

The explanation of these rules rests on the selection of a particular value for t in the table. If for $df. = n - 1$ the value $t_{.05}$ is chosen, it may be said that this value of t is expected to be exceeded in absolute value in 5% of all samples drawn at random from normal populations. Or the statement may be changed to this: t will lie between $-t_{.05}$ and $+t_{.05}$ in 95% of such samples. That is, the probability is 0.95 that $-t_{.05} \leq t \leq t_{.05}$. Substituting the expression for t , the probability is 0.95 that

$$-t_{.05} \leq \frac{\bar{x} - \mu}{s_{\bar{x}}} \leq t_{.05}$$

Multiplying both sides of each inequality by $s_{\bar{x}}$, the probability is 0.95 that

$$-t_{.05}s_{\bar{x}} \leq \bar{x} - \mu \leq t_{.05}s_{\bar{x}}$$

Transposing \bar{x} , changing signs, and reversing the terms, the probability is 0.95 that

$$\bar{x} - t_{.05}s_{\bar{x}} \leq \mu \leq \bar{x} + t_{.05}s_{\bar{x}}$$

The interpretation is: Before the sample is drawn, the probability is 0.95 that the interval indicated will include μ . After the sample is drawn and the values of \bar{x} , s , and n are substituted, it may be said with confidence that the interval includes μ and the statement will be correct unless a 1-in-20 chance has occurred in the sampling.

An interval estimate for σ will be presented in section 2.14.

EXAMPLE 2.8.1—For the yields of alfalfa in examples 2.5.3 and 2.6.3, $n = 10$, $\bar{x} = 1.70$ and $s = 0.41$ ton/acre. Set 95% confidence limits on the mean of the population from which this is a random sample. Ans. 1.41 and 1.99 tons/acre.

EXAMPLE 2.8.2—In examples 2.5.5 and 2.6.1, the 5 differences had $\bar{d} = 9.0$ and $s_D = 7.8$ bu./acre. Set the 99% interval estimate on μ . Ans. From -7.0 to 25.0 bu./acre. Might the population difference be zero?

EXAMPLE 2.8.3—In an investigation of growth in school children of 8 private schools (7), the sample mean height of 265 boys of age 13.5 to 14.5 years was 63.84 inches with standard deviation, 3.08 inches. What is the 95% confidence interval for μ ? Ans. 63.5 to 64.2 inches. Calculate $C = 4.8\%$

2.9—Estimates and tests of differences. Experiments are most often designed to discover and evaluate *differences* between effects rather than the effects themselves. It is differences between yields produced by fertilizers or differences between gains produced by feeds that are wanted. One of the simplest of such experiments is designed to contrast the effects of two treatments. Pairs of similar individuals are selected, one of the treatments being applied to each. The individuals in the pairs may be field plots or pigs or colonies of bees. If there were only a single pair it would be impossible to say whether the difference in behavior is to be attributed to the two treatments imposed or to the natural variability of the individuals or partly to each. Hence, there must be two or more pairs, or *replications*, one member of every pair being chosen at random to receive the first treatment, the other member the second. The differences between the measurements of the two pairs constitute the sample data upon which inferences are to be based. If there were no individual variation the differences would presumably be all alike. Always there is variation.

In many experiments it may be assumed that the differences make up a random sample from a normal population. Commonly the objective is to learn the size of the mean of this population and particularly if it is different from zero. Let us examine such an experiment.

Youden and Beale (19) wished to find out if two preparations of the mosaic virus would produce different effects on tobacco leaves. The method employed was to rub half a leaf of a tobacco plant with a piece of cheesecloth soaked in one preparation of the virus extract, then to rub the other half similarly with the second preparation. The measurement of potency was the number of local lesions appearing on the half leaf; the measurement is assumed to be a continuous variable. The data reported in table 2.9.1 are taken from leaf number 2 on each of 8 plants. The differences, $D = X_1 - X_2$ in the fourth column make up the random sample in which the experimenter is interested. The question posed by the experiment is this: Does the preparation of the virus affect the number of lesions? In statistical terms, is the mean of the sampled population equal to zero or is it different from zero?

One way to answer the question is to set confidence limits on the population mean difference, μ_D . With $\bar{d} = 4$ lesions, $s_{\bar{d}} = 1.52$ lesions and $t_{.05} = 2.365$, it may be said that, unless a 1-in-20 chance has occurred,

$$4 - (2.365)(1.52) \leq \mu_D \leq 4 + (2.365)(1.52)$$

That is, μ_D is expected to be greater than $4 - (2.365)(1.52) = 0.4$ lesions and less than 7.6. Since zero is not included in the confidence interval,

Farmland Hydro, L.P.

Charles W. Jenkins
Manager of Environmental and Safety Services

Green Bay Plant
County Road 640
Post Office Box 960
Bartow, Florida 33831
Tele: 941 533-1141
Fax: 941 533-8793

July 29, 1998

RECEIVED

JUL 30 1998

**BUREAU OF
AIR REGULATION**

Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road, Mail Station #5505
Tallahassee, FL 32399-2400

**RE: AFFIDAVIT OF PUBLICATION ON
AIR PERMIT NO. 1050053-020-AC (PSD-FL-246)
CONSTRUCTION PERMIT FOR NORTH MAP/DAP PLANT AND SHIPPING**

Enclosed please find the signed and notarized Affidavit of Publication for the above referenced Air Construction Permit. Please note the date of publication was Monday, July 27, 1998.

Should you have any questions or concerns regarding this matter, call me at (941) 533-1141, extension 334.

Sincerely,



Charles W. Jenkins
Manager of Environmental and Safety Services

CWJ:jp\129-98
enc.

cc: Merle Farris, V.P. - Operations
Farmland Hydro, L.P.

cc: S. Arip, BAR
SWD
palk Co.



AFFIDAVIT OF PUBLICATION

THE LEDGER

Lakeland, Polk County, Florida

Case No

STATE OF FLORIDA)
COUNTY OF POLK)

Before the undersigned authority personally appeared Nelson Kirkland, who on oath says that he is Classified Advertising Manager of The Ledger, a daily newspaper published at Lakeland in Polk County, Florida; that the attached copy of advertisement, being a

Public Notice Of Intent

in the matter of

DEP File No. 1050053-020-AC (PSD-F1-246)

in the

Court, was published in said newspaper in the issues of

July 27;

1998

Affiant further says that said The Ledger is a newspaper published at Lakeland, in said Polk County, Florida, and that the said newspaper has heretofore been continuously published in said Polk County, Florida, daily, and has been entered as second class matter at the post office in Lakeland, in said Polk County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.


Signed 
Nelson Kirkland
Classified Advertising Manager

By Nelson Kirkland who is
personally known to me

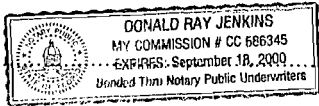
Sworn to and subscribed before me this 29TH

day of July A.D. 19 98

(Seal)


Notary Public

My Commission Expires



ORDER#706854
Farmland Hydro

B742

Attach Notice Here

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP File No. 1050053-020-AC (PSD-F1-246)
North Monoammonium/Diammonium Phosphate (MAP/DAP) Plant
Farmland Hydro, L.P.-Green Bay Facility
Polk County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Farmland Hydro, L.P. to increase the production rates as well as storage and shipping rates of the North monoammonium phosphate (MAP) and diammonium phosphate (DAP) plant at its Green Bay facility. The plant is located at 4390 County Road 640 West, Bartow Polk County, A Best Available Control Technology (BACT) determination was required for fluorides and particulate matter, pursuant to Rule 62-212.400, F.A.C. and 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The applicant's name and address are: Farmland Hydro, L.P., P.O. Box 960, Bartow, Florida 33831.

The MAP production rate will be increased from 120 to 200 tons per hour and the DAP production rate will be increased from 100 to 150 tons per hour. The shipping and storage process rate will be increased to 120 tons of PSD per hour. Controls for fluoride emissions consist of scrubbers using process pond water. Particulate emissions are also controlled by scrubbers.

An air quality impact analysis was conducted. The project is predicted to have no significant impact in the PSD Class I area in the vicinity of the facility or on the Crosshollowka National Wilderness Area PSD Class I area located approximately 100 kilometers northwest of the plant.

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

The Department will accept written comments 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 32309-2400. 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 refile, 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 of 3900 Commonwealth Boulevard, 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 all disputed issues of material fact. If there are none, the petition must so indicate; (d) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; and (f) A demand for relief.

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

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

Mediation is not available in this proceeding.

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:

Polk County Public Works Department - Air Division 4189 Ben Durance Road Bartow, Florida 33830 Telephone: 941/534-7377 Fax: 941/534-7374	Dept. of Environmental Protection Bureau of Air Regulation 111 S. Magnolia Drive, Suite 4 Tallahassee, Florida 32301 Telephone: 850/488-0114 Fax: 850/922-6979	Dept. of Environmental Protection Southwest District 3804 Coconut Palm Drive Tampa, Florida 33619-8218 Telephone: 813/744-6100 Fax: 813/744-6084
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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. 8-742 - 7-27; 1998



U.S. FISH & WILDLIFE SERVICE
AIR QUALITY BRANCH
P.O. BOX 25287, Denver, CO 80225-0287

FACSIMILE COVER SHEET

Date: July 28, 1998

Telephone: (303) 969-2617

Fax: (303) 969-2822

To: Al Linero

From: Ellen Porter

Subject: PSD-FL-246: Farmland Hydro, L.P.—MAP/DAP Draft Permit

FDEP is proposing to issue a permit to Farmland Hydro (FH) for expansion of its MAP/DAP facility. In our initial comments, we recommended that fluoride (F) and particulate matter (PM) emission limits should not exceed the 0.0417 lb F/T and 0.19 lb PM/T limits required by other permits issued by FDEP. FDEP is proposing limits of 0.0417 lb F/T and 0.3 lb PM/T for DAP and 0.06 lb F/T and 0.3 lb PM/T for MAP.

It appears that the limits proposed by FDEP are based upon statistical analyses of stack test results supplied by FH. However, the calculations of the stack test result confidence intervals are seriously flawed. The correct formula for calculating the confidence interval for a normally distributed population is:

$$X - Z\sigma/\sqrt{n} \leq \mu \leq X + Z\sigma/\sqrt{n}$$

Where X is the average of the samples, Z is the number of standard deviations from the mean for a given level of confidence, σ is the population standard deviation, n is the number of samples, and μ is the population mean. FH neglected to divide the standard deviation by the square root of the number of samples—the result of that error is a much-inflated confidence interval.

We re-calculated the statistical analyses for F and PM for MAP, and the PM emissions for DAP. In evaluating the F emissions from MAP, we looked at two scenarios:

1. Table MAP-F-1 included the February 1998 test results and estimated production rates during the runs by dividing the measured hourly F emission rates by the corresponding calculated emission rates in lb F/ton P_2O_5 . Combined emissions/ton versus test date are depicted in Figure MAP-F-1a, while combined emissions/ton versus production rate are depicted in Figure MAP-F-1b, and R/G stack emissions/ton versus production rate are depicted in Figure MAP-F-1c.
2. Because of our uncertainty about the very low production rate during the February 1998 run #1, and the exceptionally high R/G stack F emission rates during the March 1997 and February 1998 tests, all of those values were excluded from Table MAP-F-2 and the remaining data are depicted in Figure MAP-F-2.

Figure MAP-F-1a indicates that F emissions are increasing with the age of the MAP plant—all of the tests run after 1996 are higher than any test run before then. Figure MAP-F-1b indicates that the increase in emissions could also be due to pushing production rate beyond some threshold (60 ton/hr?) at which the scrubber loses effectiveness, but that correlation is very weak compared to the age correlation. Figure MAP-F-1c focuses on the R/G stack as the source of the increase in emissions. Even if the suspect results from March 1997 and February 1998 are retained, the upper ends of the confidence intervals in Table MAP-F-1 range from 0.0431 to 0.0464 lb F/ton P_2O_5 . Table MAP-F-2 shows that, if the suspect test results are excluded, the upper ends of the confidence intervals range from 0.0253 to 0.0270 lb F/ton P_2O_5 . In either case, the corrected limits are significantly lower than the 0.06 lb F/ton limit proposed in the draft permit.

In evaluating the PM emissions from MAP, we looked at three scenarios:

1. Table MAP-PM-1 included the February 1998 test results and assumed that production rates during the runs were the same as for the Fluoride tests. Emissions/ton versus test date are depicted in Figure MAP-PM-1a, while emissions/ton versus production rate are depicted in Figure MAP-PM-1b.
2. Table MAP-PM-2 excluded the February 1998 test results from run #1 because of its unusually low production rate, and assumed that production rates during the other runs were the same as for the Fluoride tests. Emissions/ton versus production rate are depicted in Figure MAP-PM-2.
3. Table MAP-PM-3 excluded the February 1998 test because of the uncertainty over our calculation of production rates. Emissions/ton versus production rate are depicted in Figure MAP-PM-3.

None of the scenarios showed any meaningful correlation between emissions and time or production rate. The high ends of the confidence intervals ranged from 0.18 to 0.20 lb PM/ton of P_2O_5 and provide little justification for FDEP relaxing its previous BACT limit of 0.19 lb PM/ton.

In evaluating PM emissions from DAP, we simply corrected FH's error in calculating the confidence interval by dividing the standard deviation by the square root of 12, the number of samples. This yielded an upper bound to the 99% confidence interval of 0.15lb PM/ton, half of the value calculated by FH and proposed in the draft permit, and below the limit previously proposed by FWS.

Conclusions & Recommendations

The validity of the results from MAP test run #1 on February 18, 1998 should be checked because the production rate appears abnormally low. Production rate data should be supplied for all of the February 1998 tests.

FH incorrectly calculated the proposed limits for its modified MAP and DAP operations due to statistical errors. When those errors are corrected, typical historic emissions are found to be much lower.

Fluoride emissions from MAP production have increased dramatically over the last two years and should not be allowed to justify a permit limit higher than applied to other fertilizer plants. Instead, FH should be encouraged to investigate and remedy the cause of the increased emissions.

Particulate emissions from MAP production are relatively consistent and do not justify a permit limit higher than applied to other fertilizer plants.

When FH's statistical error is corrected, particulate emissions from DAP do not justify a permit limit higher than applied to other fertilizer plants.

Emission limits should not exceed the 0.0417-lb F/T and 0.19 lb PM/T limits required by other permits issued by FDEP.

Contact: Don Shepherd (303) 969-2075

Number of Pages: 17
(Including this cover sheet)

Office Location: 7333 West Jefferson Ave, Suite 450, Lakewood, CO 80235

MAP February 1998 Fluoride Results

Total F			Dryer Stack Fluoride		R/G Stack Fluoride	
Measured Fluoride (lb/hr)	Calculated (lb/ton)	P2O5 ton/hr	(lb/hr)	(lb/ton)	(lb/hr)	(lb/ton)
2.296	0.048	47.8	0.687	0.014	1.609	0.034
3.880	0.062	62.6	0.505	0.008	3.375	0.054
5.207	0.084	62.0	0.510	0.008	4.697	0.076

Table MAP-F-1. All MAP Fluoride Emissions Data

Test Date	DRYER				R/G				Combined			
	TPH-P2O5	F-LB/HR	F-LB/TON		TPH-P2O5	F-LB/HR	F-LB/TON			F-LB/TON		
Feb-98	47.8	0.687	0.0144		47.8	1.609	0.0336			0.0480		
Feb-94	56.4	0.700	0.0124		56.5	0.083	0.0015			0.0139		
Feb-94	56.4	0.645	0.0114		56.5	0.074	0.0013			0.0127		
Feb-94	56.4	0.537	0.0095		56.5	0.915	0.0162			0.0257		
Feb-95	56.5	0.710	0.0126		56.1	1.059	0.0189			0.0314		
Feb-95	56.5	0.787	0.0139		56.1	1.123	0.0200			0.0339		
Feb-95	56.5	0.753	0.0133		56.1	0.29	0.0052			0.0185		
May-96	58.5	0.616	0.0105		58.6	0.317	0.0054			0.0159		
May-96	58.5	0.781	0.0134		58.6	0.061	0.0010			0.0144		
May-96	58.5	0.655	0.0112		58.6	0.041	0.0007			0.0119		
Feb-98	62.0	0.510	0.0082		62.0	4.697	0.0758			0.0840		
Feb-98	62.6	0.505	0.0081		62.6	3.375	0.0539			0.0620		
Mar-97	62.2	0.474	0.0076		63.0	1.99	0.0316			0.0392		
Mar-97	62.2	0.378	0.0061		63.0	1.912	0.0303			0.0364		
Mar-97	62.2	0.346	0.0056		63.0	2.318	0.0368			0.0424		
COUNT			15				15			15		
AVERAGE			0.0105				0.0222			0.0327		
MEDIAN			0.0112				0.0189			0.0314		
ST. DEV			0.0029				0.0220			0.0206		
95% CI			0.0015	0.0091	0.0120		0.0111	0.0110	0.0333	0.0104	0.0223	0.0431
99% CI			0.0019	0.0086	0.0125		0.0146	0.0075	0.0368	0.0137	0.0190	0.0464

Figure MAP-F-1a. Emissions vs. Time

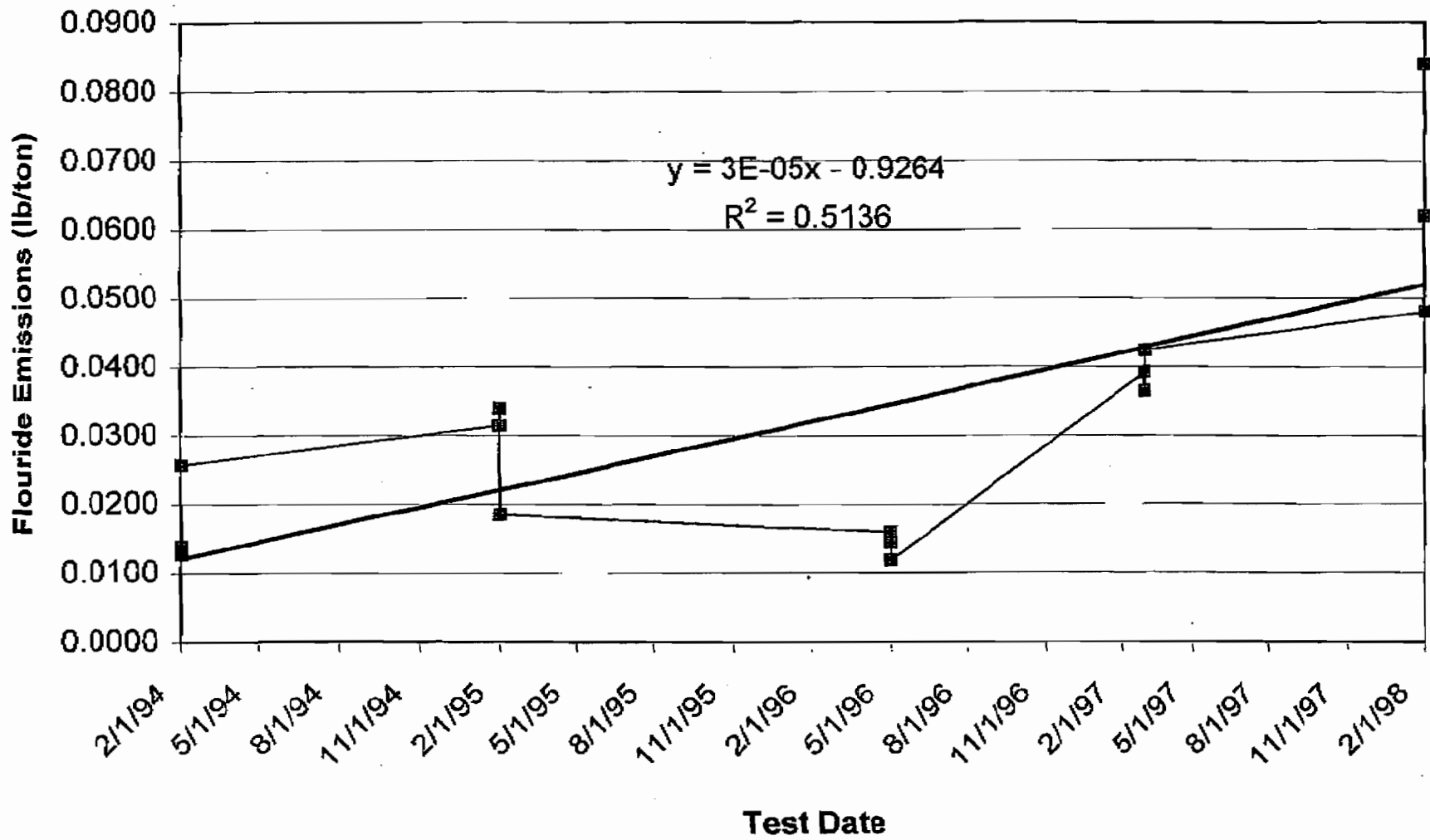


Figure MAP-F-1b. MAP Product vs. Emissions

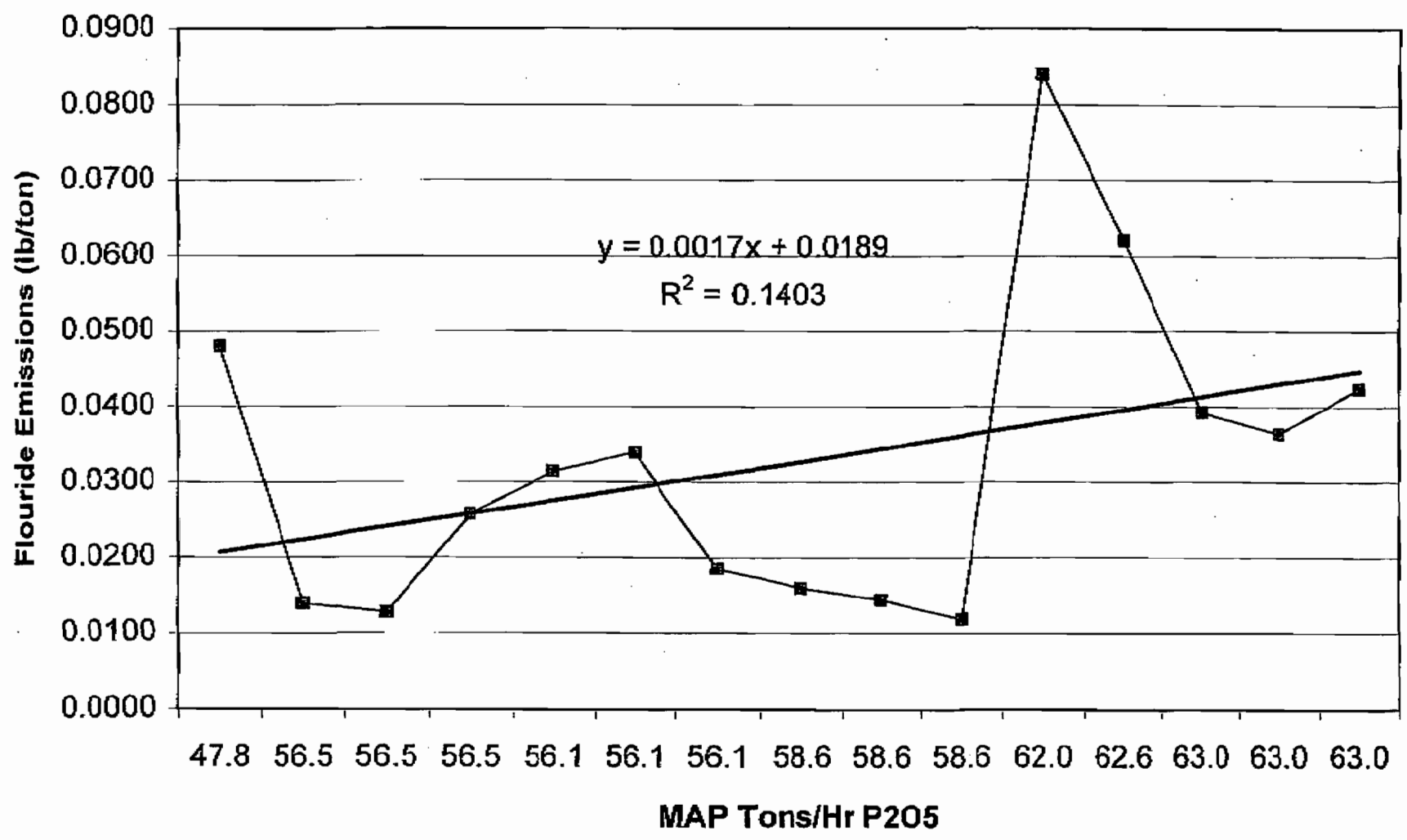


Figure MAP-F-1c. MAP Product vs. R/G Stack Emissions

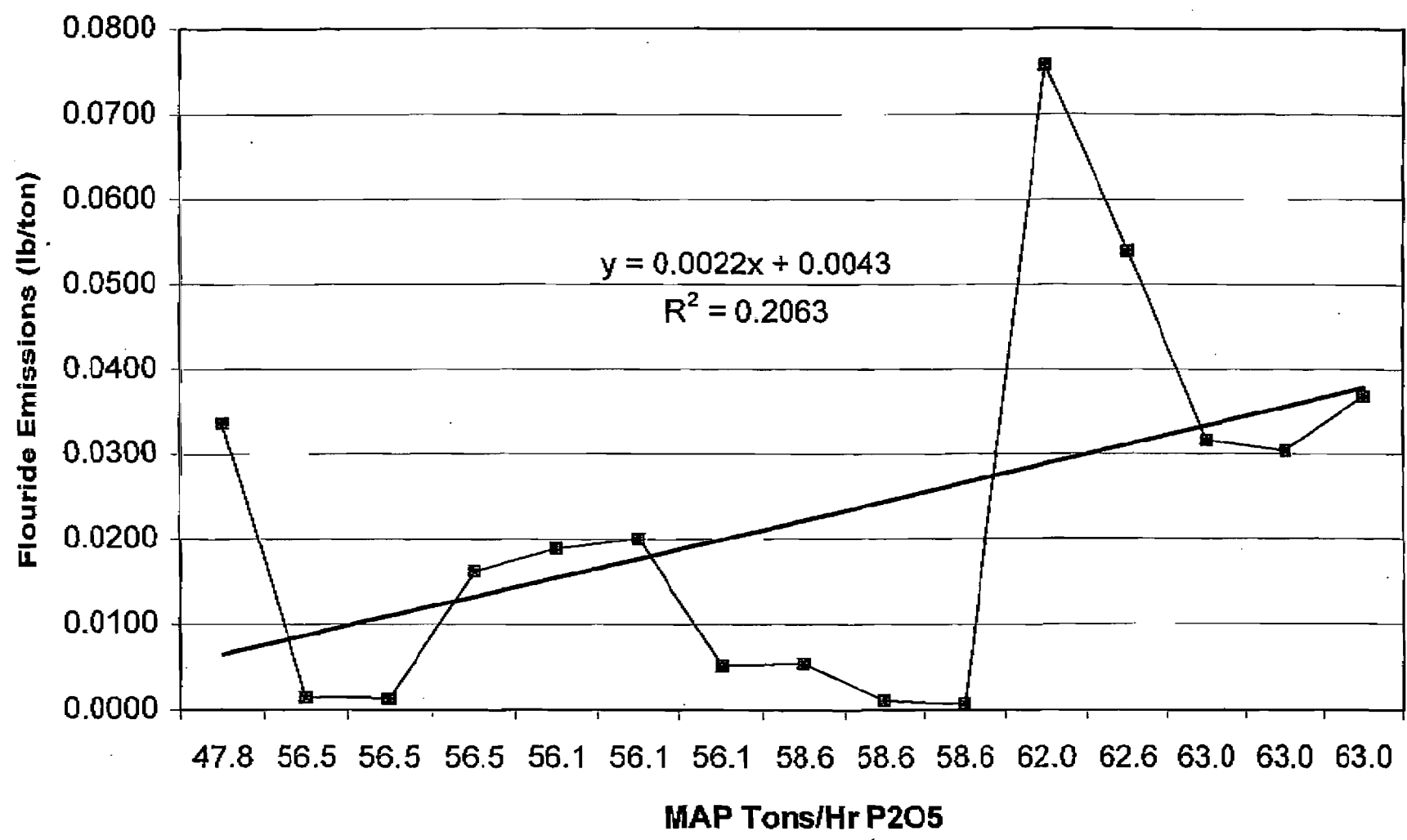


Table MAP-F-2. Edited Fluoride Emissions Data

Test Date	DRYER				R/G				Combined			
	TPH-P2O5	F-LB/HR	F-LB/TON		TPH-P2O5	F-LB/HR	F-LB/TON		F-LB/TON			
Feb-98	47.8	0.687	0.0144		47.8	1.609	0.0336		0.0480	excluded		
Feb-94	56.4	0.700	0.0124		56.5	0.083	0.0015		0.0139			
Feb-94	56.4	0.645	0.0114		56.5	0.074	0.0013		0.0127			
Feb-94	56.4	0.537	0.0095		56.5	0.915	0.0162		0.0257			
Feb-95	56.5	0.710	0.0126		56.1	1.059	0.0189		0.0314			
Feb-95	56.5	0.787	0.0139		56.1	1.123	0.0200		0.0339			
Feb-95	56.5	0.753	0.0133		56.1	0.29	0.0052		0.0185			
May-96	58.5	0.616	0.0105		58.6	0.317	0.0054		0.0159			
May-96	58.5	0.781	0.0134		58.6	0.061	0.0010		0.0144			
May-96	58.5	0.655	0.0112		58.6	0.041	0.0007		0.0119			
Feb-98	62.0	0.510	0.0082		62.0	4.697	0.0758		0.0840	excluded		
Feb-98	62.6	0.505	0.0081		62.6	3.375	0.0539		0.0620	excluded		
Mar-97	62.2	0.474	0.0076		63.0	1.99	0.0316		0.0392	excluded		
Mar-97	62.2	0.378	0.0061		63.0	1.912	0.0303		0.0364	excluded		
Mar-97	62.2	0.346	0.0056		63.0	2.318	0.0368		0.0424	excluded		
COUNT			9				9		9			
AVERAGE			0.0120				0.0078		0.0198			
MEDIAN			0.0124				0.0052		0.0159			
ST. DEV			0.0015				0.0082		0.0084			
95% CI			0.0010	0.0111	0.0130		0.0053	0.0025	0.0131	0.0055	0.0143	0.0253
99% CI			0.0013	0.0108	0.0133		0.0070	0.0008	0.0148	0.0072	0.0126	0.0270

Figure MAP-F-2. MAP Product vs. Edited Emissions

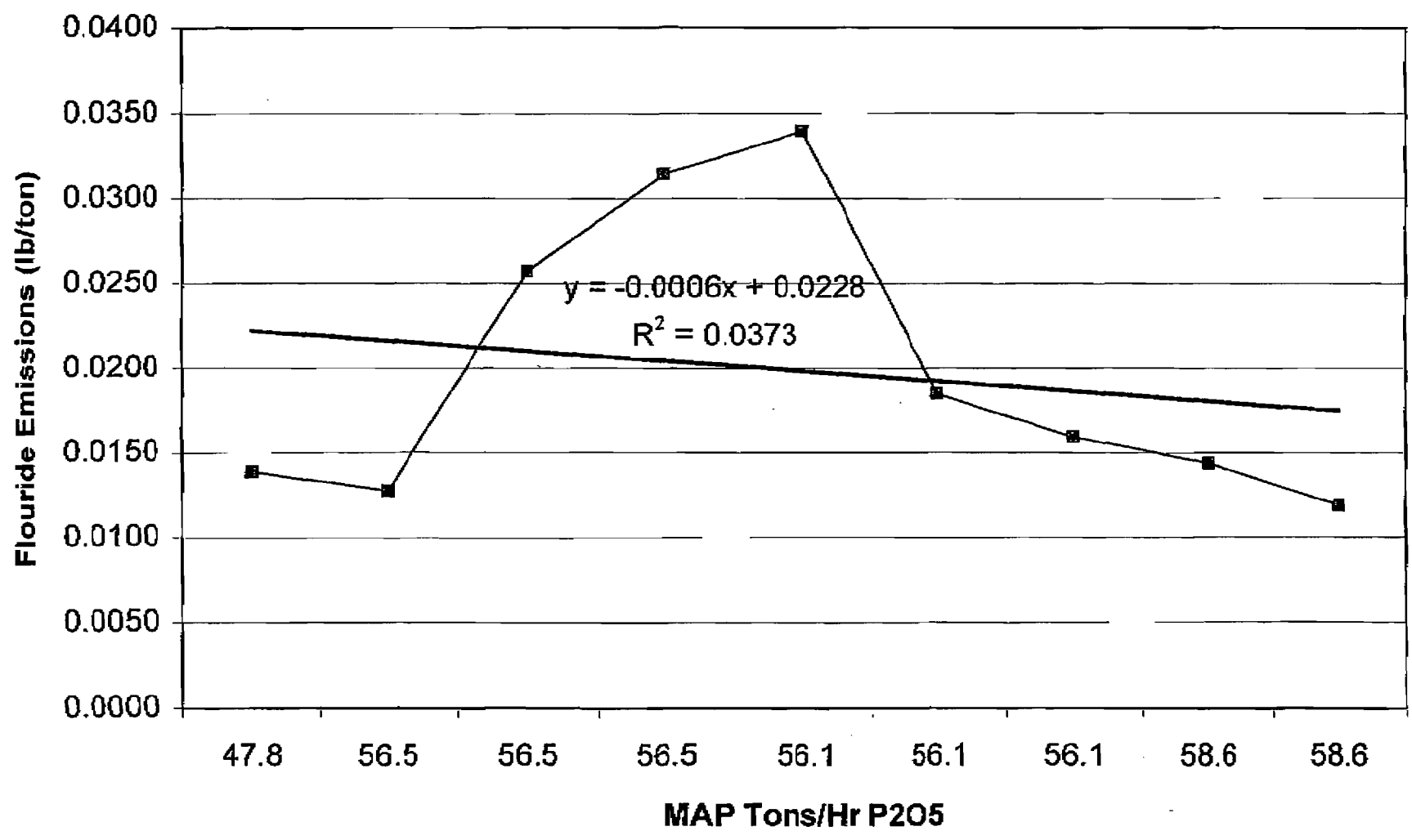


Table MAP-PM-1. All MAP PM Emissions Data

Test Date	DRYER					R/G					Combined		
	TPH-P2O5	PM-LB/HR	PM-LB/TON			TPH-P2O5	PM-LB/HR	PM-LB/TON			PM-LB/TON	PM-LB/TON	
Feb-98	47.8	4.810	0.1006			47.8	1.599	0.0335			0.1341		
Feb-94	56.4	5.413	0.0960			56.5	0.940	0.0166			0.1126		
Feb-94	56.4	7.192	0.1275			56.5	0.857	0.0152			0.1427		
Feb-94	56.4	5.024	0.0891			56.5	1.570	0.0278			0.1169		
Feb-95	56.5	13.194	0.2335			56.1	2.266	0.0404			0.2739		
Feb-95	56.5	6.780	0.1200			56.1	2.610	0.0465			0.1665		
Feb-95	56.5	11.493	0.2034			56.1	1.846	0.0329			0.2363		
May-96	58.5	6.240	0.1067			58.6	2.588	0.0442			0.1508		
May-96	58.5	8.691	0.1486			58.6	3.292	0.0562			0.2047		
May-96	58.5	8.596	0.1469			58.6	2.121	0.0362			0.1831		
Feb-98	62.0	6.856	0.1106			62.0	3.897	0.0629			0.1734		
Feb-98	62.6	2.096	0.0335			62.6	1.490	0.0238			0.0573		
Mar-97	62.2	2.741	0.0441			63.0	1.489	0.0236			0.0677		
Mar-97	62.2	2.967	0.0477			63.0	1.538	0.0244			0.0721		
Mar-97	62.2	4.306	0.0692			63.0	3.790	0.0602			0.1294		
COUNT			15					15			15		
AVERAGE			0.1118					0.0363			0.1481		
MEDIAN			0.1067					0.0335			0.1427		
ST. DEV			0.0559	Min	Max			0.0152	Min	Max	0.0611	Min	Max
95% CI			0.0283	0.0836	0.1401			0.0077	0.0286	0.0440	0.0309	0.1172	0.1790
99% CI			0.0371	0.0747	0.1490			0.0101	0.0262	0.0464	0.0407	0.1074	0.1888

Figure MAP-PM-1a. MAP PM Emissions vs. Time

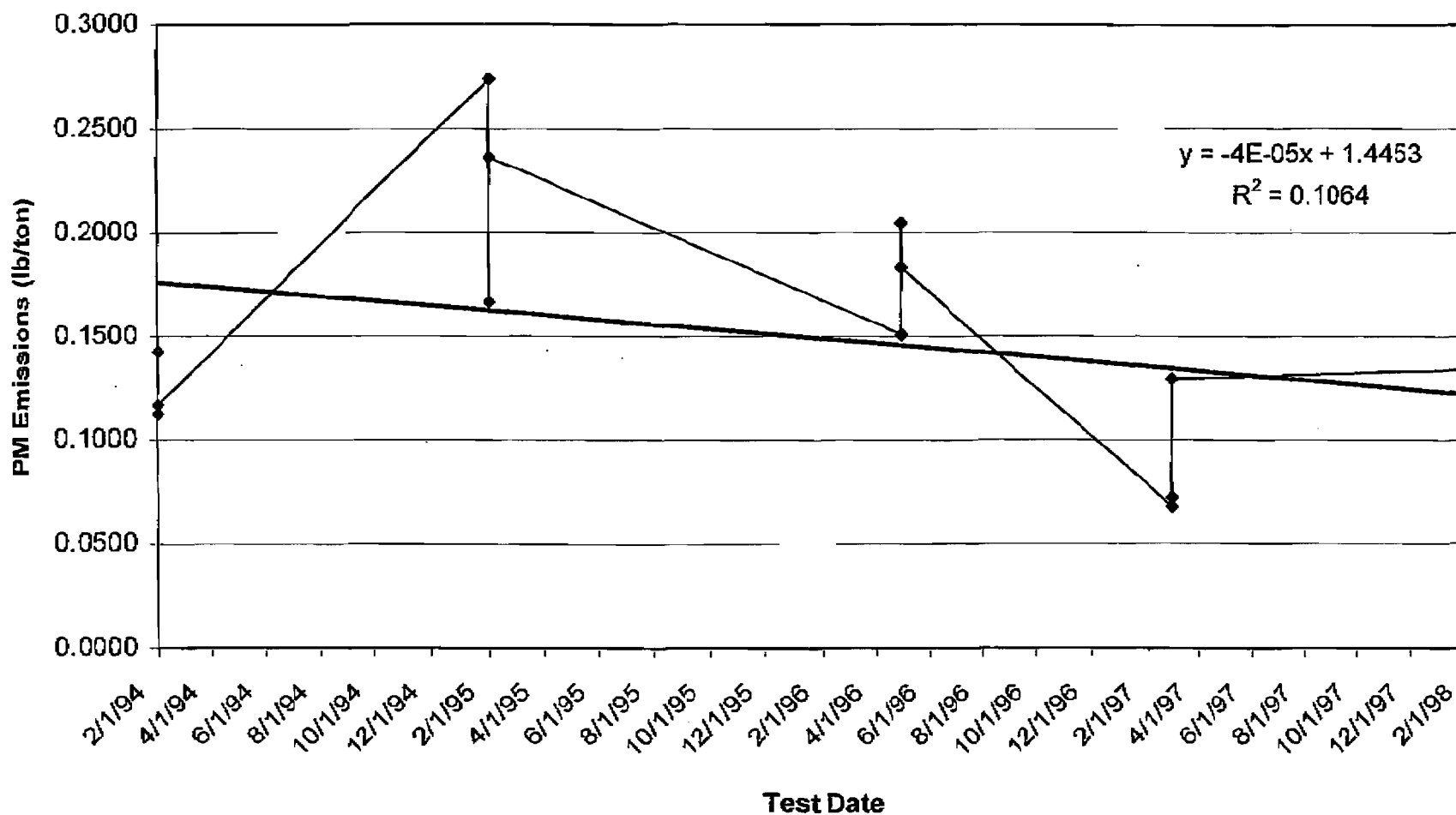


Figure MAP-PM-1b. MAP Product vs. PM Emissions

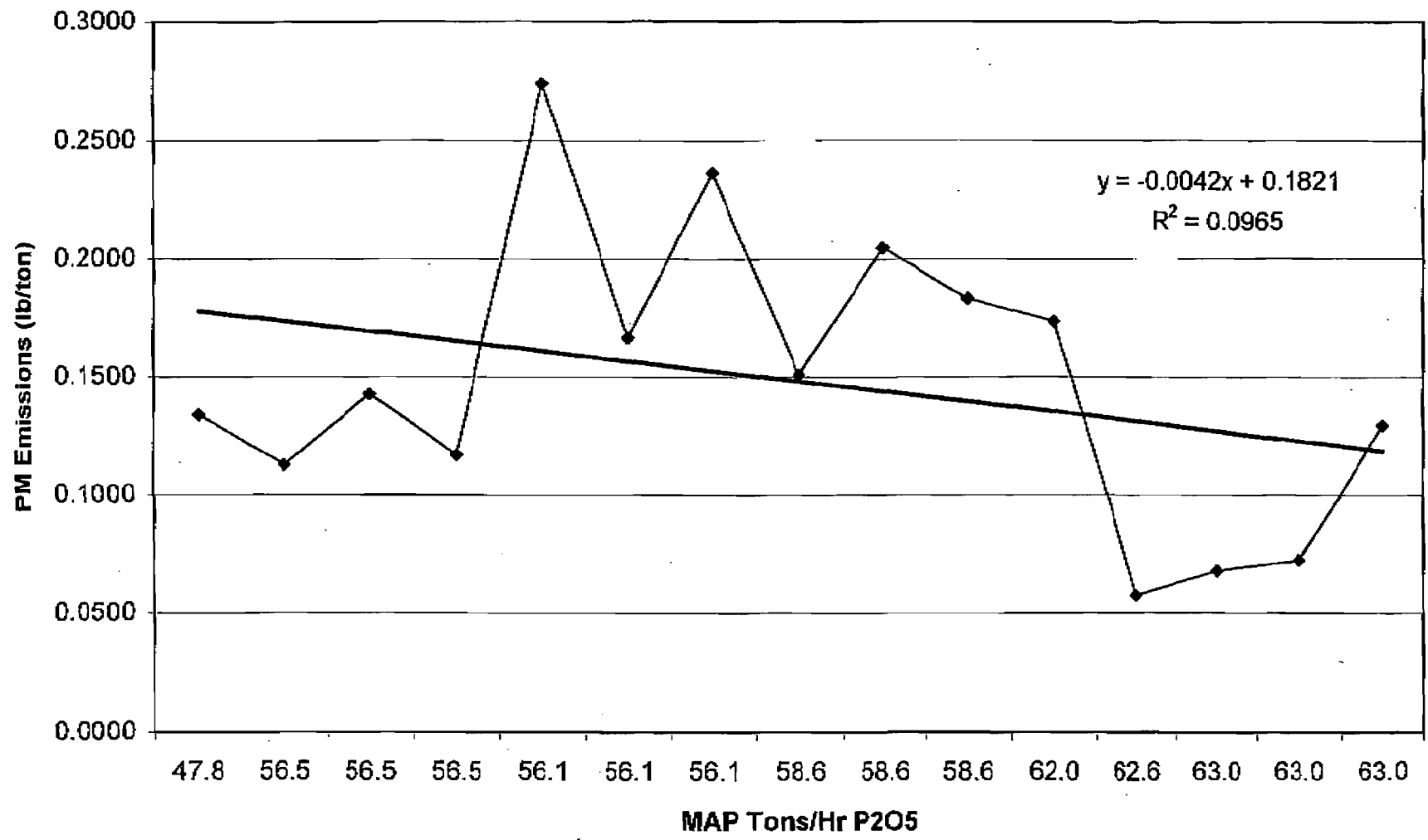


Table MAP-PM-2. Edited MAP PM Emissions Data

Test Date	DRYER					R/G					Combined		
	TPH-P2O5	PM-LB/HR	PM-LB/TON			TPH-P2O5	PM-LB/HR	PM-LB/TON			PM-LB/TON	PM-LB/TON	
Feb-98	47.8	4.810	0.1006	excluded		47.8	1.599	0.0335	excluded		0.1341	excluded	
Feb-94	58.4	5.413	0.0960			56.5	0.940	0.0166			0.1126		
Feb-94	56.4	7.192	0.1275			56.5	0.857	0.0152			0.1427		
Feb-94	56.4	5.024	0.0891			56.5	1.570	0.0278			0.1169		
Feb-95	56.5	13.194	0.2335			56.1	2.266	0.0404			0.2739		
Feb-95	56.5	6.780	0.1200			58.1	2.610	0.0465			0.1665		
Feb-95	56.5	11.493	0.2034			56.1	1.846	0.0329			0.2363		
May-96	58.5	6.240	0.1067			58.6	2.588	0.0442			0.1508		
May-96	58.5	8.691	0.1486			58.6	3.292	0.0562			0.2047		
May-96	58.5	8.596	0.1469			58.6	2.121	0.0362			0.1831		
Feb-98	62.0	6.856	0.1106			62.0	3.897	0.0629			0.1734		
Feb-98	62.6	2.096	0.0335			62.6	1.490	0.0238			0.0573		
Mar-97	62.2	2.741	0.0441			63.0	1.489	0.0236			0.0677		
Mar-97	62.2	2.967	0.0477			63.0	1.538	0.0244			0.0721		
Mar-97	62.2	4.306	0.0692			63.0	3.790	0.0602			0.1294		
COUNT			14					14			14		
AVERAGE			0.1126					0.0365			0.1491		
MEDIAN			0.1086					0.0346			0.1468		
ST. DEV			0.0579	Min	Max			0.0158	Min	Max	0.0633	Min	Max
95% CI			0.0303	0.0823	0.1429			0.0083	0.0282	0.0447	0.0332	0.1159	0.1823
99% CI			0.0398	0.0728	0.1525			0.0108	0.0256	0.0473	0.0436	0.1055	0.1927

Table MAP-PM-2. MAP Product vs. PM Emissions

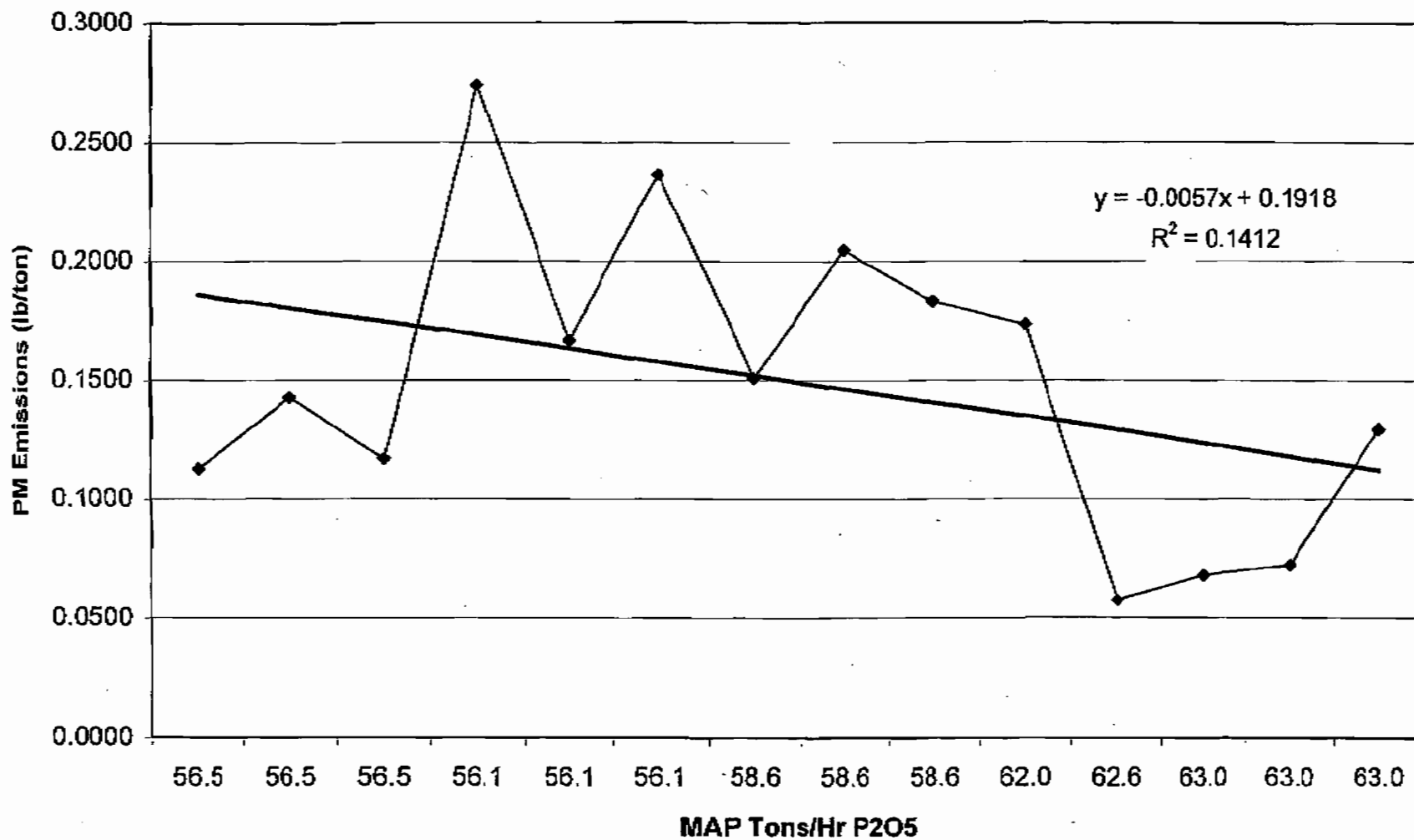
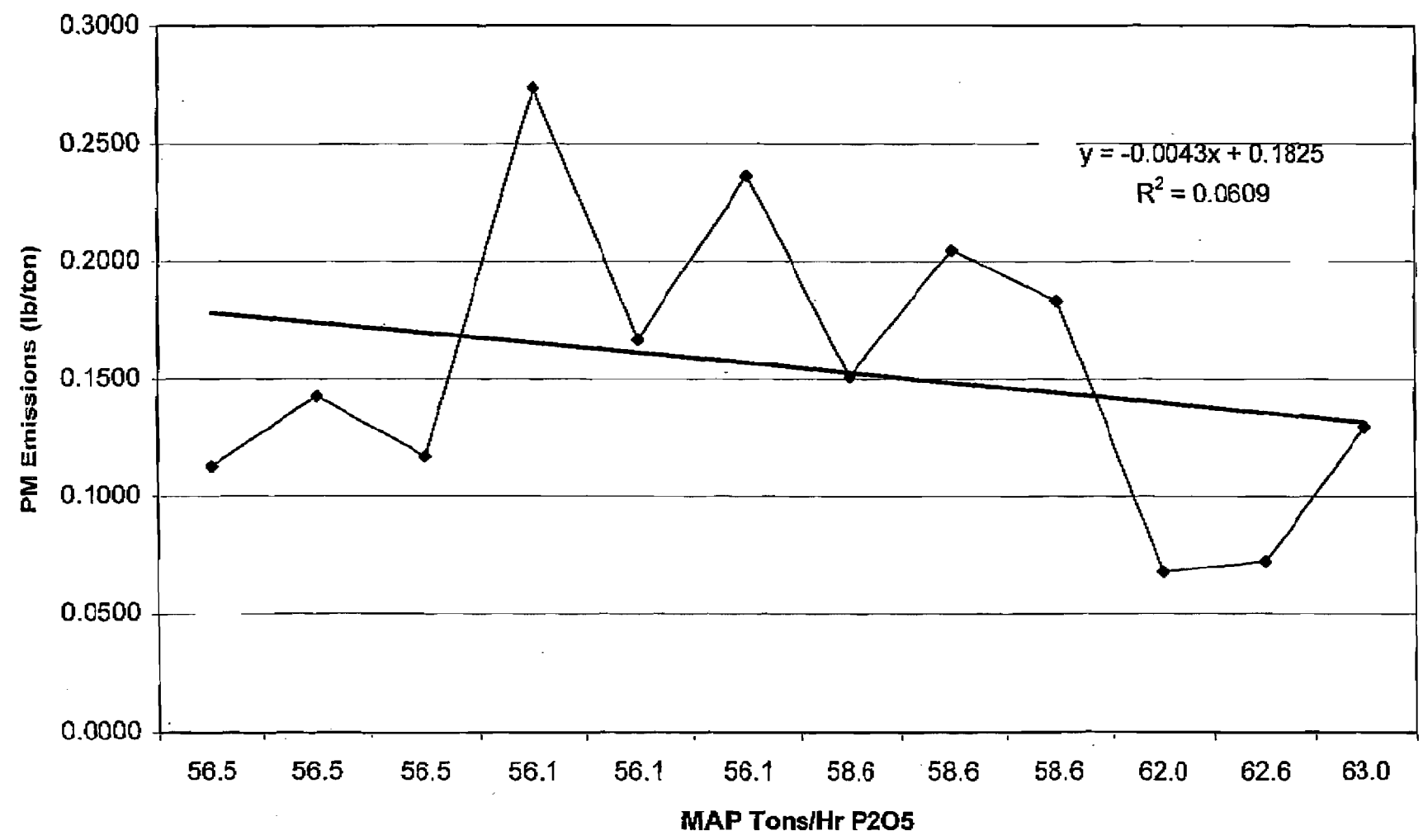


Table MAP-PM-3. MAP PM Emissions Data prior to Feb 98

Test Date	DRYER					R/G					Combined		
	TPH-P2O5	PM-LB/HR	PM-LB/TON			TPH-P2O5	PM-LB/HR	PM-LB/TON			PM-LB/TON		
Feb-98	47.8	4.810	0.1006	excluded		47.8	1.599	0.0335	excluded		0.1341	excluded	
Feb-94	56.4	5.413	0.0960			56.5	0.940	0.0166			0.1126		
Feb-94	56.4	7.192	0.1275			56.5	0.857	0.0152			0.1427		
Feb-94	56.4	5.024	0.0891			56.5	1.570	0.0278			0.1169		
Feb-95	56.5	13.194	0.2335			56.1	2.266	0.0404			0.2739		
Feb-95	56.5	6.780	0.1200			56.1	2.610	0.0465			0.1665		
Feb-95	56.5	11.493	0.2034			56.1	1.846	0.0329			0.2363		
May-96	58.5	6.240	0.1067			58.6	2.588	0.0442			0.1508		
May-96	58.5	8.691	0.1486			58.6	3.292	0.0562			0.2047		
May-96	58.5	8.596	0.1469			58.6	2.121	0.0362			0.1831		
Mar-97	62.2	2.741	0.0441			63.0	1.489	0.0236			0.0677		
Mar-97	62.2	2.967	0.0477			63.0	1.538	0.0244			0.0721		
Mar-97	62.2	4.306	0.0692			63.0	3.790	0.0602			0.1294		
COUNT			12					12			12		
AVERAGE			0.1194					0.0353			0.1547		
MEDIAN			0.1133					0.0346			0.1468		
ST. DEV			0.0578					0.0146			0.0623		
95% CI			0.0327	0.0867	0.1521			0.0083	0.0271	0.0436	0.0353	0.1195	0.1900
99% CI			0.0430	0.0764	0.1624			0.0109	0.0245	0.0462	0.0463	0.1084	0.2011

Figure MAP-PM-3. MAP Product vs. PM Emissions





KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES

4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
352/377-5822 ▪ FAX/377-7158

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AIR REGULATION

KA 123-97-01

July 21, 1998

Mr. Perry Odom, Esq.
Office of General Counsel
Florida Department of
Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: Motion for Extension of Time to
File a Petition

*Farmland -
PSD-FI-246*

Dear Mr. Odom:

Attached is a request for an extension of time to file for a hearing in accordance with Rule 28-106, FAC.

If you have any questions concerning this request, please do not hesitate to contact me.

Very truly yours,

KOOGLER & ASSOCIATES

John B. Koogler, Ph.D., P.E.

JBK:par
Enc.

c: Mr. Syed Arif, DEP
Mr. Charles Jenkins, Farmland

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In the Matter of an Application
for Air Permit by

Farmland Hydro, L.P.
P.O. Box 960
Bartow, FL 33831

DEP File No. 1050053-020-AC and
PSD-FL-246
Polk County - AP

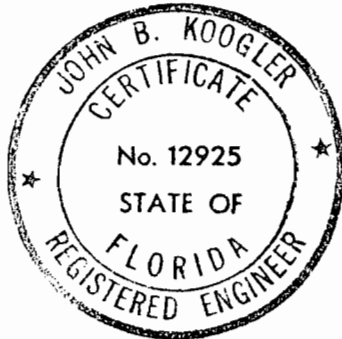
MOTION FOR EXTENSION OF TIME


The Applicant, Farmland Hydro, L.P. (Farmland), by and through its undersigned Engineer of Record and pursuant to Rule 28-106, FAC, requests the Secretary of DEP to grant a 60-day extension of time in which to file a petition. The additional time will allow Farmland to submit additional information to DEP on the North MAP/DAP Plant permit application review.

The DEP Permitting Engineer, Mr. Syed Arif, has indicated that he has no objection to such an extension.

Dated the 21st day of July, 1998 in Gainesville, Alachua County, Florida.

Koogler & Associates
Environmental Services

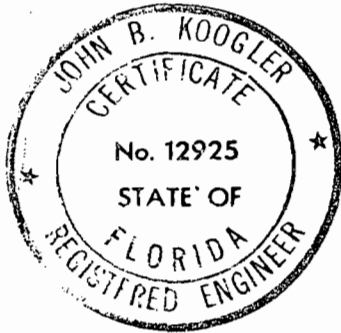


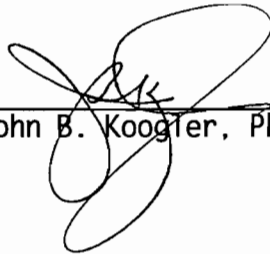


John B. Koogler, Ph.D., P.E.
Florida Registration No. 12925
4014 N.W. 13th Street
Gainesville, FL 32609
(352) 377-5822
Engineer of Record for
Farmland Hydro, L.P.

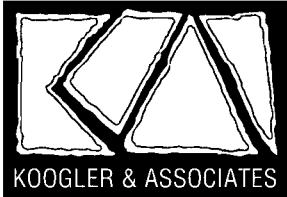
CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing has been furnished to Mr. Perry Odom (OGC) and Mr. Syed Arif (BAR), DEP, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400 and Mr. Charles Jenkins, Manager Environmental & Safety Services, Farmland Hydro, L.P., P.O. Box 960, Bartow, FL 33831, by FAX and by U.S. Mail, this 21st day of July 1998.





John B. Koogler, Ph.D., P.E.



KOUGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
352/377-5822 • FAX/377-7158

KA 123-97-01

July 21, 1998

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BUREAU OF
AIR REGULATION

Mr. Syed Arif
Florida Department of
Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: Comments on Draft Permit
North MAP/DAP Plant
Farmland Hydro, L.P.
DEP File No. 1050053-020-AC, PSD-FL-246

Dear Mr. Arif:

We have received and reviewed FDEP's draft permit, dated July 2, 1998, for the North MAP/DAP Plant. As we have some comments on the draft permit which may require additional time to address, an extension of time to file a petition for an administrative hearing has been submitted to OGC (copy attached).

The following comments are submitted for your consideration:

1. Specific Condition No. 5

It is possible that the rule citation should reflect Rule 62-212.400 (instead of 62-212.410), FAC.

2. Specific Condition No. 9

The sulfur dioxide emission limits should be removed as there is no applicable standard. It should be noted that the SO₂ limits in another company's recent DAP project were applicable based on a BACT analysis. This is not the case in the proposed project. The emissions estimates provided in Farmland's permit application were to demonstrate that the expected emissions would not trigger any regulatory requirements for SO₂. Farmland does not object to the portion of the condition which states:

"During periods of firing No. 2 fuel oil with a maximum sulfur content of 0.05 percent by weight, the firing rate shall not exceed 50 MMBtu/hr and 3.1 million gallons per year. The permittee shall maintain records of the fuel oil supplier's sulfur content analysis."

3. Specific Condition No. 10

This condition, containing nitrogen oxides emission limits, should be deleted as there is no applicable standard. It should be noted that the NOx limits in another company's recent DAP project were applicable based on a BACT analysis. This is not the case in the proposed project. The emissions estimates provided in Farmland's permit application were to demonstrate that the expected emissions would not trigger any regulatory requirements for NOx.

4. Specific Condition No. 11

It is our understanding that the continuous pressure drop monitoring requirement applies to the scrubbers used as pollution control equipment and not to those which serve as process design equipment. Accordingly, the pressure drop monitoring requirement should not be required for the HI-MOL scrubber. Furthermore, it is requested that the condition allow for measurement of fan amps, in place of pressure drop, as allowed under draft Title V permit conditions.

Also, it is possible that the rule citation should reflect Rule 62-204.800 (instead of 62-296.800), FAC.

5. Specific Condition No. 14

In view of comment 2, EPA Method 7E should be removed from this condition as it is not applicable.

6. Specific Condition No. 16

It is possible that the rule citation should reflect Rule 62-204.800 (instead of 62-296.800), FAC.

7. Specific Condition No. 21

The product storage and shipping rate provided to FDEP was incorrect. We apologize for the oversight. The 120 tons per hour (tph) P205 rate conveyed to the Department corresponds to the rate associated with the North MAP/DAP Plant of 106.1 tph P205 storage and 120 tph P205 loadout, or a maximum rate of 120 tph P205. However, the South DAP Plant also contributes to the storage and shipping building with a permitted rate of 46 tph P205. Consequently, the storage and shipping building would handle a combined total of 152.1 tph P205 storage and 180 tph P205 loadout, or a maximum rate of 180 tph P205.

As stated in the permit application, the PM emission rate is not expected to change as a result of the proposed project as no changes are proposed

Mr. Syed Arif
Florida Department of
Environmental Protection

July 21, 1998
Page 3

to the exhaust flow rate or the existing scrubber's operating parameters. With the fan operating at the same rate for 8760 hours both before and after the proposed project, and at the same exhaust particulate loading, no change in the mass emission rate is expected. Therefore, in our opinion, the storage and shipping building emissions would not be subject to PSD/BACT review. However, Farmland is willing to accept more stringent emission limits (discussed below) to expedite the permitting process.

Per your request, the historical particulate matter compliance test information is summarized in Attachment 1. Based on the compliance test results, Farmland should be able to comply with a particulate matter emission limit of 4.1 pounds per hour and 18 tpy. Information requested by you on the existing scrubber, is presented in Attachment 2.

Please note that the fluoride emission limit in the current operating permit is no longer applicable as GTSP is no longer manufactured and stored at the facility. A federally enforceable condition in the 1992 North MAP/DAP Plant PSD permit required that the GTSP production capability be removed.

If you have any questions, please call Pradeep Raval or me.

Very truly yours,

KOGLER & ASSOCIATES


John B. Koogler, Ph.D., P.E.

JBK:par

c: Charles Jenkins, Farmland Hydro, L.P.

CC: Jile
SWD
polk Co
EPA
NPS
C. Holladay, BAR

ATTACHMENT 1

PM COMPLIANCE TEST RESULTS
NORTH MAP/DAP PLANT

Test Date	PM Emission Rate (lbs/hr)
1992	Run 1 1.308
	Run 2 0.989
	Run 3 1.166
1993	Construction
1994	Run 1 0.954
	Run 2 0.939
	Run 3 0.949
1995	Run 1 1.072
	Run 2 0.769
	Run 3 1.072
1996	Run 1 0.363
	Run 2 0.364
	Run 3 0.641
1997	Run 1 0.502
	Run 2 0.501
	Run 3 0.449
1998	Run 1 1.089
	Run 2 6.993
	Run 3 0.924
<hr/>	
	Average 1.169
	S. Dev. 1.482
	Avg + 2* SD 4.133

ATTACHMENT 2

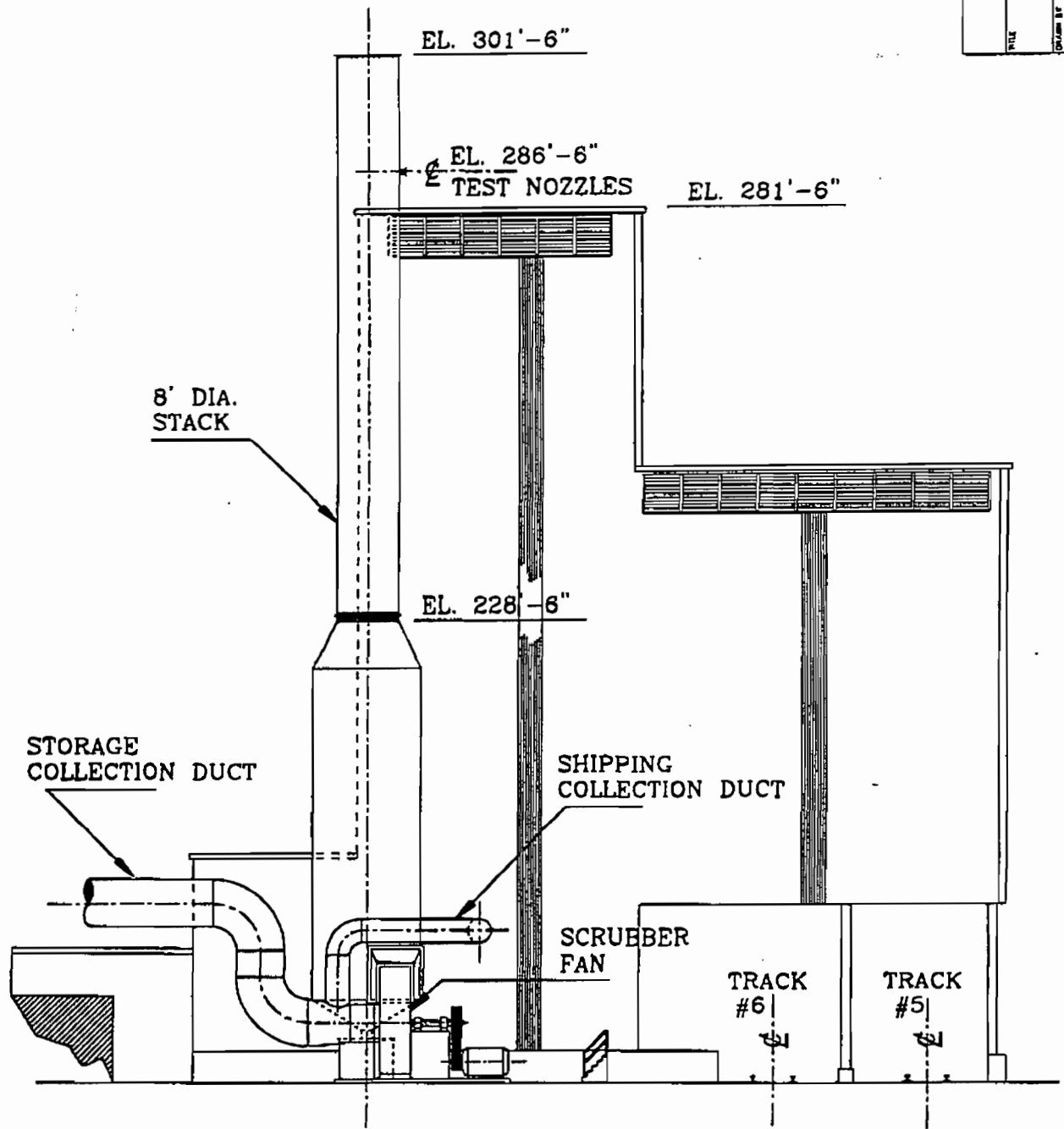
EXISTING STORAGE/SHIPPING SCRUBBER INFORMATION
NORTH MAP/DAP PLANT

Manufacturer:	ARCO (Detroit)
Model:	S.O. # 8928
Installation Date:	1965
Scrubber Dimensions:	14 feet diameter, 52 feet tall
Scrubbing Medium:	Pond water
Liquid Flow Rate:	1000 gpm
Gas Flow Rate:	80,000 cfm
Pressure Drop:	4 inches H ₂ O

FARMLAND HYDRO L.P.
 BARTOW, FLORIDA

FILE STORAGE AND SHIPPING SCRUBBER
 SOURCE NO. 020

DESIGNED BY	SCALE	DATE	PLANNING NO.
CWJ	NONE	9/23/85	
CHECKED BY			
APPROVED BY			



SHIPPING/STORAGE SCRUBBER

VIEW LOOKING WEST



KODGLER & ASSOCIATES
ENVIRONMENTAL SERVICES

4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
352/377-5822 • FAX/377-7158

PROJECT 123-97-01

FAX TRANSMITTAL FORM

TO: Mr. Perry Olson
Mr. Syd Aif
Mr. Charles Jenkins

FAX NO. _____

FROM: John Kogler

DATE: 7/21/98 SENT BY: Wendy

The text being transmitted consists of 3 page(s) PLUS this one. If you do not receive all of the pages or if there are difficulties with this transmission, please call (352) 377-5822.

REMARKS: _____

This message is intended for use only by the individual to whom it has been addressed and may contain confidential or privileged information. If you are not the intended recipient, please note that the use, copying or distribution of this information is not permitted. If you have received this FAX in error, please destroy the original and notify the sender immediately at (352) 377-5822 so that we may prevent any recurrence. Thank you.

Best Available Copy

KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTIETH STREET
GAINESVILLE, FLORIDA 32609
352/377-8822 • FAX/377-7158

KA 123-97-01

July 21, 1998

Mr. Perry Odom, Esq.
Office of General Counsel
Florida Department of
Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: Motion for Extension of Time to
File a Petition

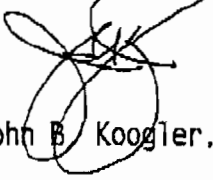
Dear Mr. Odom:

Attached is a request for an extension of time to file for a hearing in accordance with Rule 28-106, FAC.

If you have any questions concerning this request, please do not hesitate to contact me.

Very truly yours,

KOOGLER & ASSOCIATES


John B. Koogler, Ph.D., P.E.

JBK:par
Enc.

c: Mr. Syed Arif, DEP
Mr. Charles Jenkins, Farmland

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In the Matter of an Application
for Air Permit by

Farmland Hydro. L.P.
P.O. Box 960
Bartow, FL 33831

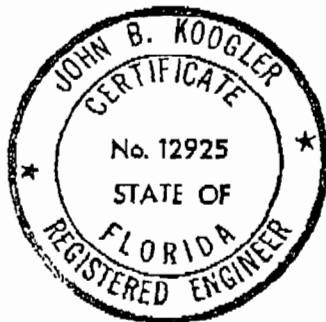
DEP File No. 1050053-020-AC and
PSD-FL-246
Polk County - AP

MOTION FOR EXTENSION OF TIME

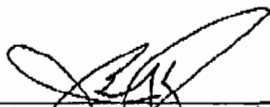
The Applicant, Farmland Hydro. L.P. (Farmland), by and through its undersigned Engineer of Record and pursuant to Rule 28-106, FAC, requests the Secretary of DEP to grant a 60-day extension of time in which to file a petition. The additional time will allow Farmland to submit additional information to DEP on the North MAP/DAP Plant permit application review.

The DEP Permitting Engineer, Mr. Syed Arif, has indicated that he has no objection to such an extension.

Dated the 21st day of July, 1998 in Gainesville, Alachua County, Florida.



Koogler & Associates
Environmental Services


John B. Koogler, Ph.D., P.E.
Florida Registration No. 12925
4014 N.W. 13th Street
Gainesville, FL 32609
(352) 377-5822
Engineer of Record for
Farmland Hydro. L.P.



Jeb Bush
Governor

Department of Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

David B. Struhs
Secretary

April 21, 2000

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. C. M. Farris
Vice President of Operations
Farmland Hydro, L.P.
Post Office Box 960
Bartow, Florida 33831

Re: Extension of Expiration Date of Permit No. 1050053-020-AC, PSD-FL-246
North MAP/DAP Green Bay Facility

The applicant, Farmland Hydro, L.P., applied on April 17, 2000, to the Department for an extension of the expiration date of air construction permit number 1050053-020-AC (PSD-FL-246) for its North MAP/DAP plant located at 4390 County Road 640 West, Bartow, Polk County. The Department has reviewed the request. The expiration date is hereby extended from May 1, 2000 to July 1, 2000 to allow review of special testing required in Specific Condition 23 of the permit.

A copy of this letter shall be filed with the referenced permit and shall become part of the permit. This permitting decision is issued pursuant to Chapter 403, Florida Statutes.

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.

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

Printed on recycled paper.

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.

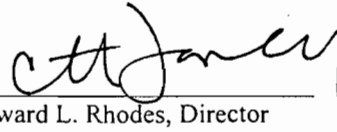
The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2) F.S., and that the purpose of the underlying statute will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

This permitting decision is final and effective on the date filed with the clerk of the Department unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition pursuant to Rule 62-110.106, F.A.C., and the petition conforms to the content requirements of Rules 28-106.201 and 28-106.301, F.A.C. Upon timely filing of a petition or a request for extension of time, this order will not be effective until further order of the Department.

Any party to this permitting decision (order) has the right to seek judicial review of it under section 120.68 of the Florida Statutes, by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.

for 
Howard L. Rhodes, Director
Division of Air Resources
Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this order was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 4-24-00 to the person(s) listed:

- C. M. Farris, Farmland Hydro, L.P.*
- C. W. Jenkins, Farmland Hydro, L.P.
- B. Thomas, DEP-SWD
- Gregg Worley, EPA
- John Bunyak, NPS

Clerk Stamp

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

Kari Jones 4-24-00
(Clerk) (Date)

Z 031 391 957

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent to	
C.M. Farris	
Street & Number	
Fairland Hgld	
Post Office, State, & ZIP Code	
Bartow FL	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	
105053-020-AC 4-24-00	
PSO-FI-246	

PS Form 3800, April 1995

SENDER: COMPLETE THIS SECTION

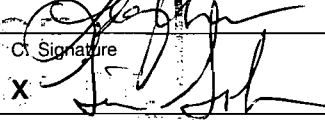
- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. C.M. Farris
 Fairland Hgld, LP
 PO Box 960
 Bartow, FL 33831

COMPLETE THIS SECTION ON DELIVERY

A. Received by (Please Print Clearly) B. Date of Delivery

C. Signature  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

2. Article Number (Copy from service label)

2031 391 957

Farmland Hydro, L.P.

Charles W. Jenkins
Manager of Environmental and Safety Services

Green Bay Plant
County Road 640
Post Office Box 960
Bartow, Florida 33831
Tele: 863 533-1141
Fax: 863 533-8793

April 20, 2000

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Syed Arif, P.E.
Florida Department of Environmental Protection
Bureau of Air Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RECEIVED

APR 28 2000

BUREAU OF AIR REGULATION

**SUBJECT: EVALUATION OF DEMONSTRATION TESTS
FOR CONSTRUCTION PERMIT**
Permit No. 1050053-020-AC

Dear Mr. Arif:

Enclosed please find our evaluation of the demonstration stack tests in accordance with the Specific Condition No. 23 of the Construction Permit. This is offered in completion to the Construction Permit No. 1050053-020-AC, PSD-FL-246.

If you have any questions or need further clarification, please give me a call at my new number of (863) 519-1334.

Sincerely,



Charles W. Jenkins
Manager of Environmental and Safety Services

CWJ:jp\79-00
enc.

cc: Merle Farris, FHLP
Doug Belle, FHLP
Walter Brown, FHLP

CC: EPA
NPS
SWD



CERTIFICATIONS

CERTIFICATION BY RESPONSIBLE OFFICIAL

Based on information and belief formed after reasonable inquiry, I certify that all statements made in this report, including any attachments, are true, accurate and complete.

C. M. Farris
(Signature of Responsible Official)

April 25, 2000
(Date)

Name: C. M. Farris
(Type or Print)

Title: Vice President
of Operations
(Type or Print)

PROFESSIONAL ENGINEER CERTIFICATION

Based on information and belief formed after reasonable inquiry, I certify that all statements made in this report, including any attachments, are true, accurate and complete.

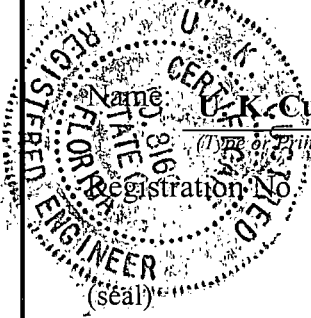
U. K. Custred
(Signature of Responsible Official)

April 20, 2000
(Date)

Name: U. K. Custred P.E.
(Type or Print)

Title: Land Manager
(Type or Print)

Registration No. 8166



MAP-NORTH GRANULATION PLANT EMISSIONS DISCUSSION

OVERVIEW

According to Specific Condition 23 of Air Construction Permit 1050053-020-AC, four compliance-type (demonstration) stack tests were conducted and complete reports submitted to Mr. William Proses of the Southwest District Office of the DEP. The attached Table 1 titled "Construction Demonstration Runs" is a compilation of the individual run results. This source (source no. 029) is a single source comprised of two emission stacks. The first stack emits gasses from the dryer, the screens, the crushing mills and the product cooler. This is referred to as the Dryer Stack. The second source is a combination of gasses from the ammonia and phosphoric acid reactor and from the fertilizer granulator. This is referred to as the R/G Stack.

For comparison purposes, a second table, Table 2 is included titled "MAP North Granulation (Pre-Construction)" and tabulates the individual run stack test data for the previous five (5) years. Table 3 is a similar historical data table for DAP North Granulation and Table 4 is a tabulation of all the particulate emissions from the first three tables. Graphs of the pre and post construction emissions are included for information.

FLUORIDE EMISSIONS EVALUATION

Farmland Hydro, L.P. recognizes that the DEP considers the limit for fluoride emissions from this granulation plant should be set at 0.0417 pounds per ton (ppt) of P_2O_5 regardless of the product being produced (i.e. DAP or MAP). This level does not appear to be practical for MAP production; however, after increasing the MAP rate by nearly 20 % the average total emissions of fluoride ppt have decreased over 12 %.

The total plant average fluoride emission was 0.0266 ppt and the standard deviation was 0.0172 ppt. Evaluating this data as a standardized random variable, it is found that there is approximately an 81 % probability that we could meet an emission value of 0.0417 ppm. The probability for meeting 0.06 ppt is 97.4 %. This is not a comfortable margin but one that we are prepared to meet. For this reason, we propose the limit of 0.06 ppt for the production of MAP on the North Granulation Plant.

PARTICULATE EMISSIONS EVALUATION

The Department has proposed a total limit of 0.19 ppt of particulate matter (PM) as an appropriate limit for this production plant. No revisions of the scrubber system were made to accommodate reduced particulate emissions. The only expenditure was in the area of minor improvements to the sprays in the high mole scrubber for reduced fluoride emissions. The rest of the modification involved an ability to increase the production rate due to improved knowledge of operations and did not involve any expenditure of capital to modify equipment.

MAP-NORTH GRANULATION PLANT EMISSIONS DISCUSSION (continued)

Table 4 summarizes the particulate emissions for each test run of the North Granulation Plant from 1994 through the present including the four construction demonstration runs. Comparing this data, utilizing the same method as was used for the fluoride emissions, there is a probability of meeting an emission level of 0.19 of 89 %. This is not a comfortable margin for such a limit. We could meet a limit of 0.3 ppt with a probability of 99.9 %. For these reasons, it is the assertion of Farmland Hydro, L.P. that the Title V permit limit for total PM should be 0.3 ppt.

REQUIREMENTS TO MEET RECOMMENDED EMISSION

The most practical engineering means to achieve a consistent emission of under 0.0417 ppt of fluoride and 0.19 ppt of total particulate would be to install a tailgas scrubber on each of the two stacks. This solution has been estimated at about \$ 1 million. Detailed engineering will reveal whether or not greater quantities of pond water will need to be delivered to and from this operating facility. If this proves to be the case, the above estimate will need to be increased by 50% to 60%.

The Engineering Department is concerned that we may also need to install high pressure drop venturis in the Dryer and Screens & Mills scrubbers. Detailed engineering would be required to make the final determination on this point and would require a minimum investment of about \$1.0 million additional for the venturises and increased fans for the added pressure drop.

North Granulation Plant
MAP Construction Permit 1050053-020-AC
Demonstration

CONSTRUCTION DEMONSTRATION RUNS

DEMON- STRATION	Run DATE	Product #	Feed Rate Rate TPH TPH -P2O5	REACTOR/GRANULATOR STACK				DRYER STACK				TOTAL PLANT				
				F - Emission		PM - Emission		F - Emission		PM - Emission		F - Emission		PM - Emission		
				#/hour	#/ton P2O5	#/hour	#/ton P2O5	#/hour	#/ton P2O5	#/hour	#/ton P2O5	#/hour	#/ton P2O5	#/hour	#/ton P2O5	
#1	4/12/99	1	153.3	79.72	0.9975	0.0125	1.3009	0.0163								
	4/12/99	2	153.3	79.72	0.5987	0.0075	2.3535	0.0295								
	4/12/99	3	153.3	79.72	1.5379	0.0193	3.3371	0.0419								
	4/15/99	1	156.5	81.40					0.9880	0.0121	4.9721	0.0611	1.9855	0.0247	6.2730	0.0774
	4/15/99	2	156.5	81.40					0.7208	0.0089	4.0295	0.0495	1.3195	0.0164	6.3830	0.0790
	4/15/99	3	156.5	81.40					1.0529	0.0129	4.4048	0.0541	2.5908	0.0322	7.7419	0.0960
#2	7/2/99	1	144.6	72.29	1.1613	0.0161	2.2681	0.0314								
	7/2/99	2	144.6	72.29	0.3882	0.0054	1.7437	0.0241								
	7/2/99	3	144.6	72.29	0.3424	0.0047	2.1818	0.0302								
	6/30/99	1	148.2	74.12					1.1784	0.0159	5.2733	0.0711	2.3397	0.0320	7.5414	0.1025
	6/30/99	2	148.2	74.12					4.3134	0.0582	5.3300	0.0719	4.7016	0.0636	7.0737	0.0960
	6/30/99	3	148.2	74.12					0.5403	0.0073	3.7978	0.0512	0.8827	0.0120	5.9796	0.0814
#3	10/27/99	1	138.2	69.09	1.2988	0.0188	4.4190	0.0640								
	10/27/99	2	138.2	69.09	1.2087	0.0175	3.7207	0.0539								
	10/27/99	3	138.2	69.09	0.9887	0.0143	2.2638	0.0328								
	10/26/99	1	143.3	73.40					0.4845	0.0066	6.1093	0.0832	1.7833	0.0254	10.5283	0.1472
	10/26/99	2	143.3	73.40					0.6997	0.0095	6.0677	0.0827	1.9084	0.0270	9.7884	0.1365
	10/26/99	3	143.3	73.40					0.7320	0.0100	4.6532	0.0634	1.7207	0.0243	6.9170	0.0962
#4	3/20/00	1	146.2	76.01	3.4291	0.0451	1.7385	0.0229								
	3/20/00	2	146.2	76.01	0.0602	0.0008	1.7324	0.0228								
	3/20/00	3	146.2	76.01	0.1891	0.0025	1.5399	0.0203								
	3/16/00	1	154.3	77.14					0.4468	0.0058	7.3691	0.0955	3.8759	0.0509	9.1076	0.1184
	3/16/00	2	154.3	77.14					0.2982	0.0039	10.3963	0.1348	0.3584	0.0047	12.1287	0.1576
	3/16/00	3	154.3	77.14					0.2348	0.0030	12.6959	0.1646	0.4239	0.0055	14.2358	0.1848
TEST STATISTICALS				Average		0.0137	0.0325		0.0128	0.0819		0.0266	0.1144			
				Max.		0.0451	0.0640		0.0582	0.1646		0.0636	0.1848			
				Min		0.0008	0.0163		0.0030	0.0495		0.0047	0.0774			
				Std. Dev.		0.0119	0.0142		0.0148	0.0351		0.0172	0.0347			
				Average + 2 x Standard Deviation		0.0374	0.0609		0.0424	0.1522		0.0610	0.1839			
				Average + 3 x Standard Deviation		0.0493	0.0751		0.0571	0.1873		0.0783	0.2186			

TABLE 1

MAP NORTH GRANULATION (PRE-CONSTRUCTION)

DATE	Run #	Product Rate TPH	Feed Rate TPH -P2O5	REACTOR/GRANULATOR STACK				DRYER STACK				TOTAL PLANT				
				F - Emission		PM - Emission		F - Emission		PM - Emission		F - Emission		PM - Emission		
				#/hour	#/ton P2O5	#/hour	#/ton P2O5	#/hour	#/ton P2O5	#/hour	#/ton P2O5	#/hour	#/ton P2O5	#/hour	#/ton P2O5	
3/1/94	1	119.6	62.20	0.0830	0.0013	0.9400	0.0151									
3/1/94	2	119.6	62.20	0.0740	0.0012	0.8570	0.0138									
3/1/94	3	119.6	62.20	0.9150	0.0147	1.5700	0.0252									
2/27/94	1	119.2	62.00					0.7000	0.0113	5.4130	0.0873	0.7830	0.0126	6.3530	0.1024	
2/27/94	2	119.2	62.00					0.6450	0.0104	7.1920	0.1160	0.7190	0.0116	8.0490	0.1298	
2/27/94	3	119.2	62.00					0.5370	0.0087	5.0240	0.0810	1.4520	0.0234	6.5940	0.1063	
2/2/95	1	118.7	61.70	1.0590	0.0172	2.2660	0.0367									
2/2/95	2	118.7	61.70	1.1230	0.0182	2.6100	0.0423									
2/2/95	3	118.7	61.70	0.2900	0.0047	1.8460	0.0299									
2/4/95	1	119.4	62.10					0.7100	0.0114	13.1940	0.2125	1.7690	0.0286	15.4600	0.2492	
2/4/95	2	119.4	62.10					0.7870	0.0127	6.7800	0.1092	1.9100	0.0309	9.3900	0.1515	
2/4/95	3	119.4	62.10					0.7530	0.0121	11.4930	0.1851	1.0430	0.0168	13.3390	0.2150	
5/1/96	1	124.0	64.50	0.3170	0.0049	2.5880	0.0401									
5/1/96	2	124.0	64.50	0.0610	0.0009	3.2920	0.0510									
5/1/96	3	124.0	64.50	0.0410	0.0006	2.1210	0.0329									
5/3/96	1	123.8	64.40					0.6160	0.0096	6.2400	0.0969	0.9330	0.0145	8.8280	0.1370	
5/3/96	2	123.8	64.40					0.7810	0.0121	8.6910	0.1350	0.8420	0.0131	11.9830	0.1860	
5/3/96	3	123.8	64.40					0.6550	0.0102	8.5960	0.1335	0.6960	0.0108	10.7170	0.1664	
4/8/97	1	133.5	69.43	1.9900	0.0287	1.4900	0.0215									
4/8/97	2	133.5	69.43	1.9120	0.0275	1.4890	0.0214									
4/8/97	3	133.5	69.43	2.3180	0.0334	1.5380	0.0222									
4/10/97	1	131.5	68.36					0.4740	0.0069	2.0960	0.0307	2.4640	0.0356	3.5860	0.0521	
4/10/97	2	131.5	68.36					0.3780	0.0055	2.7410	0.0401	2.2900	0.0331	4.2300	0.0615	
4/10/97	3	131.5	68.36					0.3460	0.0051	2.9670	0.0434	2.6640	0.0384	4.5050	0.0656	
2/13/98	1	117.5	61.11	1.6090	0.0263	1.5990	0.0262									
2/13/98	2	117.5	61.11	3.3750	0.0552	3.7900	0.0620									
2/13/98	3	117.5	61.11	4.6970	0.0769	3.8970	0.0638									
2/11/98	1	120.8	62.80					0.6870	0.0109	4.8100	0.0766	2.2960	0.0373	6.4090	0.1028	
2/11/98	2	120.8	62.80					0.5050	0.0080	4.3060	0.0686	3.8800	0.0633	8.0960	0.1306	
2/11/98	3	120.8	62.80					0.5100	0.0081	6.8560	0.1092	5.2070	0.0850	10.7530	0.1729	
TEST STATISTICS				Average	0.0208	0.0336		0.0095	0.1017		0.0303	0.1353				
				Max.	0.0769	0.0638		0.0127	0.2125		0.0850	0.2492				
				Min	0.0006	0.0138		0.0051	0.0307		0.0108	0.0521				
				Std. Dev.	0.0220	0.0157		0.0024	0.0509		0.0208	0.0566				
Average + 2 x Standard Deviation					0.0647	0.0650		0.0143	0.2035		0.0719	0.2484				
Average + 3 x Standard Deviation					0.0867	0.0807		0.0168	0.2544		0.0927	0.3050				

TABLE 2

DAP NORTH GRANULATION (PRE-CONSTRUCTION)

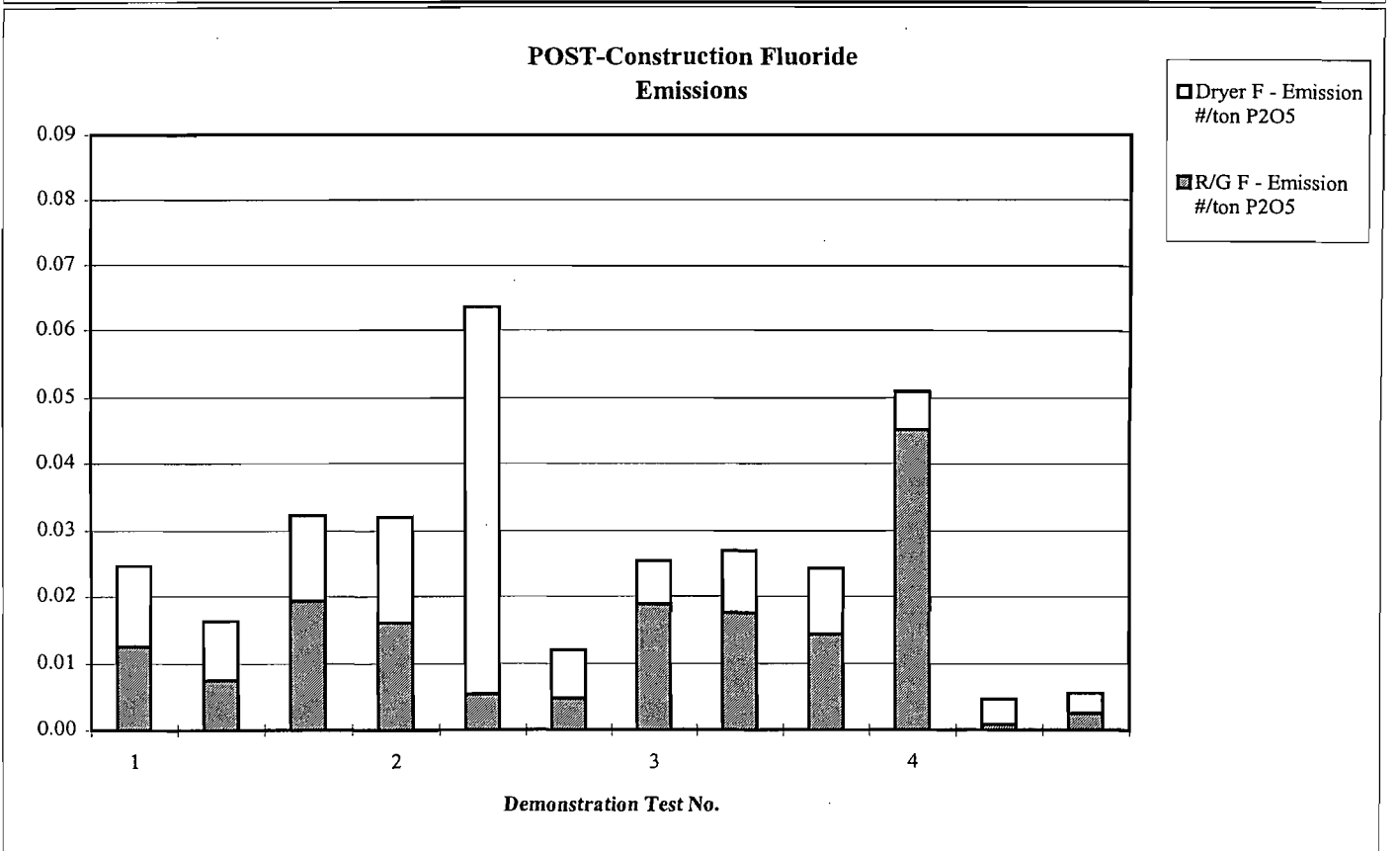
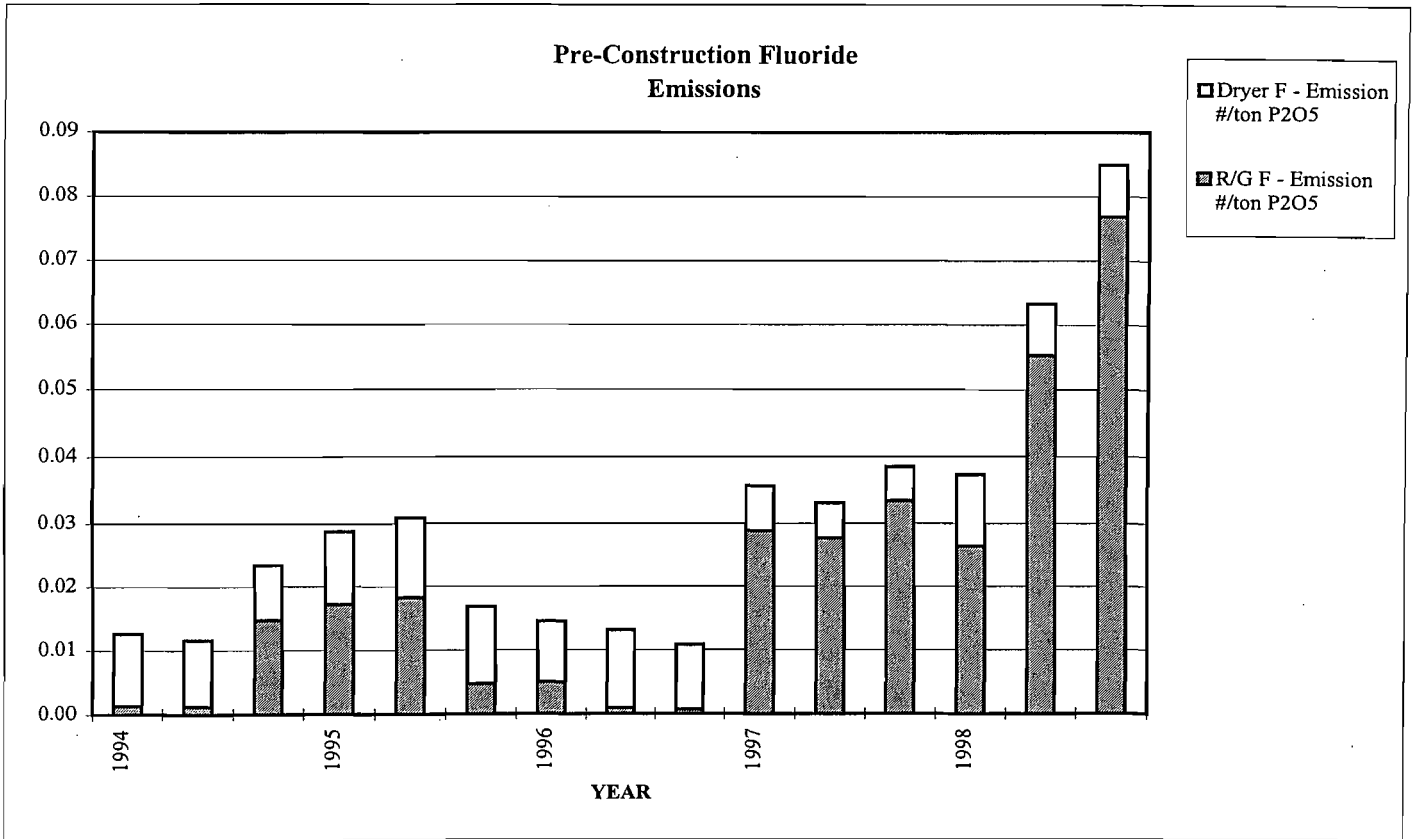
DATE	Run #	Product Rate TPH	Feed Rate TPH -P2O5	REACTOR/GRANULATOR STACK				DRYER STACK				TOTAL PLANT				
				F - Emission		PM - Emission		F - Emission		PM - Emission		F - Emission		PM - Emission		
				#/hour	#/ton P2O5	#/hour	#/ton P2O5	#/hour	#/ton P2O5	#/hour	#/ton P2O5	#/hour	#/ton P2O5	#/hour	#/ton P2O5	
2/20/94	1	90.0	41.40	0.1070	0.0026	0.4320	0.0104									
2/20/94	2	90.0	41.40	0.1520	0.0037	0.6880	0.0166									
2/20/94	3	90.0	41.40	0.1230	0.0030	0.6020	0.0145									
2/27/94	1	96.5	44.40					0.7430	0.0167	1.1480	0.0259	0.8500	0.0193	1.5800	0.0363	
2/27/94	2	96.5	44.40					0.7250	0.0163	0.9500	0.0214	0.8770	0.0200	1.6380	0.0380	
2/27/94	3	96.5	44.40					0.7830	0.0176	1.4470	0.0326	0.9060	0.0206	2.0490	0.0471	
2/16/95	1	97.8	45.00	0.8770	0.0195	2.1990	0.0489									
2/16/95	2	97.8	45.00	0.4320	0.0096	3.0830	0.0685									
2/16/95	3	97.8	45.00	0.2490	0.0055	0.3540	0.0079									
2/15/95	1	97.4	44.80					0.8310	0.0185	2.4200	0.0540	1.7080	0.0380	4.6190	0.1029	
2/15/95	2	97.4	44.80					0.7840	0.0175	3.4310	0.0766	1.2160	0.0271	6.5140	0.1451	
2/15/95	3	97.4	44.80					0.8340	0.0186	2.8570	0.0638	1.0830	0.0241	3.2110	0.0716	
5/14/96	1	93.0	42.80	0.1780	0.0042	0.8960	0.0209									
5/14/96	2	93.0	42.80	0.1270	0.0030	0.9780	0.0229									
5/14/96	3	93.0	42.80	0.0710	0.0017	0.9500	0.0222									
5/16/96	1	88.7	40.80					0.6230	0.0153	2.6770	0.0656	0.8010	0.0194	3.5730	0.0865	
5/16/96	2	88.7	40.80					0.7060	0.0173	2.6350	0.0646	0.8330	0.0203	3.6130	0.0874	
5/16/96	3	88.7	40.80					0.7650	0.0188	1.7680	0.0433	0.8360	0.0204	2.7180	0.0655	
3/19/97	1	104.3	47.97	0.3200	0.0067	0.5950	0.0124									
3/19/97	2	104.3	47.97	0.1860	0.0039	0.1850	0.0039									
3/19/97	3	104.3	47.97	0.2180	0.0045	0.7400	0.0154									
3/18/97	1	105.9	48.71					0.8200	0.0168	11.4150	0.2343	1.1400	0.0235	12.0100	0.2467	
3/18/97	2	105.9	48.71					0.8340	0.0171	5.6740	0.1165	1.0200	0.0210	5.8590	0.1203	
3/18/97	3	105.9	48.71					0.6850	0.0141	3.0310	0.0622	0.9030	0.0186	3.7710	0.0777	
1/26/98	1	98.0	45.10	0.2180	0.0048	0.6430	0.0143									
1/26/98	2	98.0	45.10	0.3360	0.0075	1.3660	0.0303									
1/26/98	3	98.0	45.10	0.2070	0.0046	0.4940	0.0110									
1/29/98	1	100.5	46.21					0.6480	0.0140	9.9780	0.2159	0.8660	0.0189	10.6210	0.2302	
1/29/98	2	100.5	46.21					0.5380	0.0116	8.8780	0.1921	0.8740	0.0191	10.2440	0.2224	
1/29/98	3	100.5	46.21					0.5320	0.0115	2.4320	0.0526	0.7390	0.0161	2.9260	0.0636	
TEST STATISTICS				Average	0.0056	0.0213		0.0161	0.0881		0.0218	0.1094				
				Max.	0.0195	0.0685		0.0188	0.2343		0.0380	0.2467				
				Min	0.0017	0.0039		0.0115	0.0214		0.0161	0.0363				
				Std. Dev.	0.0043	0.0169		0.0023	0.0695		0.0052	0.0704				
Average + 2 x Standard Deviation					0.0143	0.0552		0.0208	0.2271		0.0322	0.2503				
Average + 3 x Standard Deviation					0.0187	0.0721		0.0232	0.2966		0.0374	0.3207				

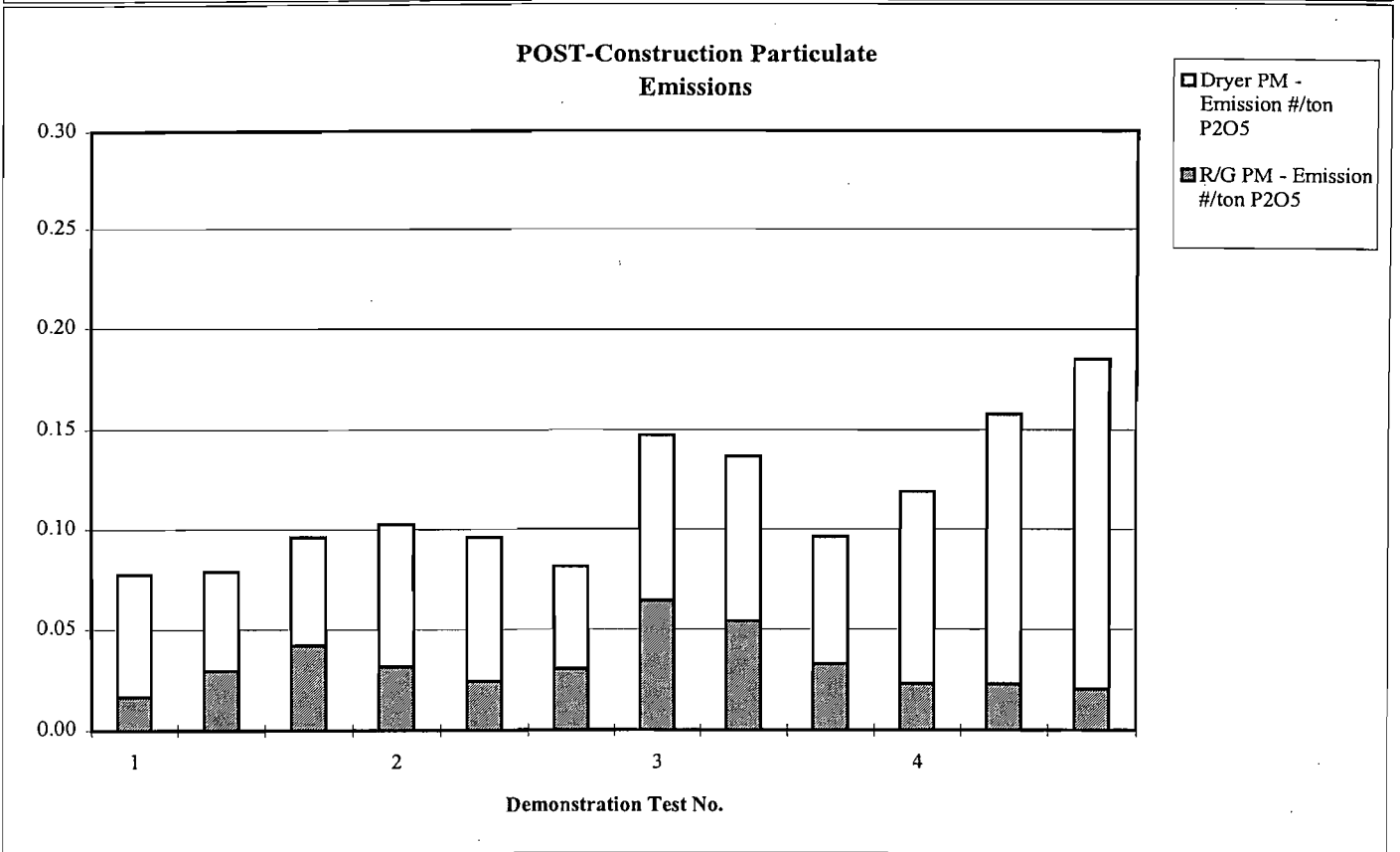
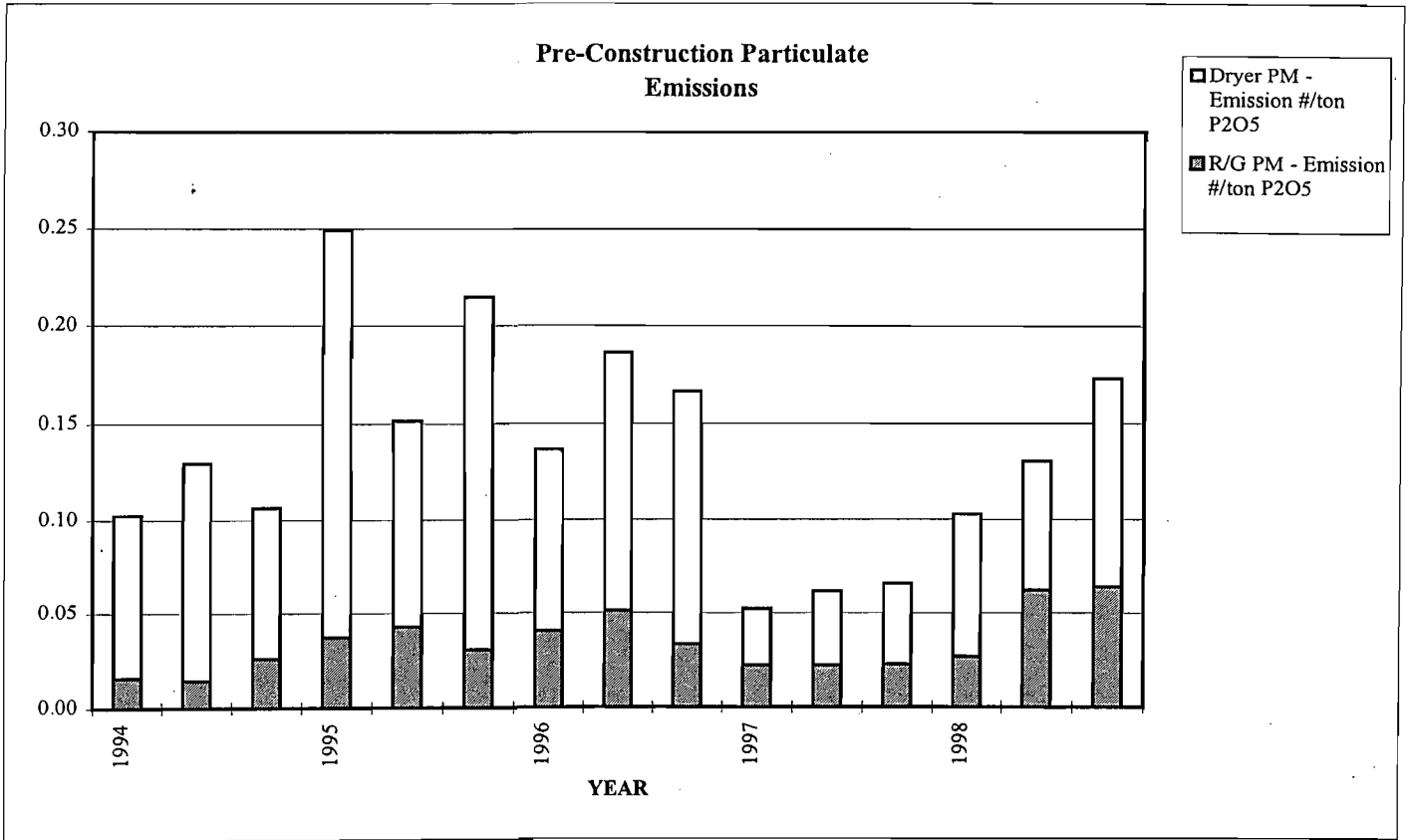
TABLE 3

TABLE 4

TOTAL PM STATS

<u>Product</u>	<u>ppt emission</u>
DAP	0.0363
DAP	0.0380
DAP	0.0471
DAP	0.1029
DAP	0.1451
DAP	0.0716
DAP	0.0865
DAP	0.0874
DAP	0.0655
DAP	0.2467
DAP	0.1203
DAP	0.0777
DAP	0.2302
DAP	0.2224
DAP	0.0636
MAP	0.1024
MAP	0.1298
MAP	0.1063
MAP	0.2492
MAP	0.1515
MAP	0.2150
MAP	0.1370
MAP	0.1860
MAP	0.1664
MAP	0.0521
MAP	0.0615
MAP	0.0656
MAP	0.1028
MAP	0.1306
MAP	0.1729
MAP	0.0774
MAP	0.0790
MAP	0.0960
MAP	0.1025
MAP	0.0960
MAP	0.0814
MAP	0.1472
MAP	0.1365
MAP	0.0962
MAP	0.1184
MAP	0.1576
MAP	0.1848
Average	0.1201
Std. Dev.	0.0570





Farmland Hydro, L.P.

Charles W. Jenkins
Manager of Environmental and Safety Services

Green Bay Plant
County Road 640
Post Office Box 960
Bartow, Florida 33831
Tele: 863 533-1141
Fax: 863 533-8793

April 11, 2000

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Syed Arif, P.E.
Florida Department of Environmental Protection
Bureau of Air Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RECEIVED
APR 17 2000
BUREAU OF AIR REGULATION

SUBJECT: REQUEST FOR EXTENSION OF CONSTRUCTION PERMIT

DEP File No. 1050053-020-AC
Permit No. PSD-FL-246
Project: North MAP/DAP Plant Rate Increase

Dear Mr. Arif:

Concerning the above listed Construction Permit, we request a sixty (60) day extension of the current May 1, 2000, expiration date. The extra time is requested in order to prepare and submit a Certificate of Construction.

If you have any questions or need further clarification, please give me a call at my new number of (863) 519-1334.

Sincerely,



Charles W. Jenkins
Manager of Environmental and Safety Services

CWJ:jp\73-00
enc.

cc: Merle Farris, FHLP
Doug Belle, FHLP
Walter Brown, FHLP
Jerry Kissel, FDEP Southwest District



Concerning the information contained in this request for an extension of time:

CERTIFICATION BY RESPONSIBLE OFFICIAL

Based on information and belief formed after reasonable inquiry, I certify that all statements made in this report, including any attachments, are true, accurate and complete.



(Signature of Responsible Official)

April 12, 2000

(Date)

Name: **C. M. Farris**

(Type or Print)

Title: **Vice President
of Operations**

(Type or Print)

RECEIVED

DEC 29 1999

Date: December 22, 1999

From: Ann Quillian, P.E., Air Permit Engineer, Southwest District *W* BUREAU OF AIR REGULATION

To: Southwest District AC53-265755/PSD-FL-225, 1050053-019-AC/PSD-FL-243, and
1050053-012-AV Files

Subject: 7500 Ton Molten Sulfur Storage Tank (Emission Unit -039)
Farmland Hydro, Green Bay Plant

In preparing the Proposed Title V Operation Permit (1050053-012-AV) for the Farmland Hydro's Green Bay Plant, the construction permitting process for the 7500 Ton Molten Sulfur Storage Tank (Emission Unit -039) was reviewed. This memorandum documents the findings regarding this issue.

Background

1. Air Construction Permit AC53-265755/PSD-FL-225 (Tallahassee Issued September 25, 1995) for the Sulfuric Acid Plants 3, 4, 5 Production Increase

The 7500 Ton Molten Sulfur Storage Tank is mentioned in a May 10, 1995 letter from John Koogler to A.A. Linero (The intent of the letter was to respond to the Department's March 22, 1995 request for additional information). The details regarding the tank are described in Appendix 3 of this May 10, 1995 letter. The final permit, PSD-FL-225, is silent regarding the determination, though the May 10, 1995 letter is referenced as a permit attachment.

2. Air Construction Permit 1050053-019-AC/PSD-FL-243 (Tallahassee Issued July 15, 1998) for the Sulfuric Acid Plant 6 and Associated Storage and Handling

On page 2 of the PSD-FL-243 permit, emission units -003, -038, and -030 through -036 are indicated as the emissions units addressed. The permit is silent with regard to emissions unit -039. From discussions with Syed Arif, a 7700 Ton Molten Sulfur Storage Tank was included in the original permit application (This tank was determined to be the 7500 Ton Molten Sulfur Storage Tank and the 7700 ton capacity was a typographical error per Charles Jenkins of Farmland Hydro.) and was included in the PSD analysis. Syed also indicated that the emission unit numbers were taken from ARMS at the time of permit processing.

3. Air Construction Permit 1050053-022-AC (Southwest District Issued April 19, 1999)

The 7500 Ton Molten Sulfur Storage Tank is listed as emissions unit -039 in the facility description located on the placard page of the Air Construction Permit 1050053-022-AC. Research indicated that the emission unit number of -039 was designated by the permittee in the application and was not in ARMS. In addition, this emission unit number was included in the Draft Title V Operation Permit, which had completed the public comment period in April 1999.

December 22, 1999
7500 Ton Molten Sulfur Storage Tank
Farmland Hydro, Green Bay Plant
Page 2

Conclusion:

After discussions with John Reynolds, FDEP/NSR-Tallahassee, and Pradeep Raval, Koogler & Associates, there was no strong indication of the permit determination regarding this 7500 Ton Molten Sulfur Storage Tank under the Air Construction Permit PSD-FL-225.

However as a result of the information gathered regarding the Air Construction Permit PSD-FL-243, it was concluded that this 7500 Ton tank was included in the PSD-FL-243 permit determination. The tank was included in the permit application, even though it was not specifically listed on page 2 of PSD-FL-243.

Therefore, the 7500 Ton Molten Sulfur Storage Tank is subject to the molten sulfur capacity limitation of 2530 tons per day and 924,000 tons per year [Air Construction Permit, 1050053-019-AC/PSD-FL-243, Condition 3. and Title V Operation Permit 1050053-012-AV, Condition N.1.]. It is also subject to other applicable limitations regarding the molten sulfur storage and handling system [Title V Operation Permit 1050053-012-AV, Section III., Subsection N.].

The 7500 Ton Molten Sulfur Tank was inputted into the ARMS system as emission unit -039.

cc: A.A. Linero, FDEP/NSR – Tallahassee (w/o attachments)

/aq



KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES

4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
352/377-5822 • FAX/377-7158

KA 123-94-06

December 10, 1999

RECEIVED

DEC 13 1999

BUREAU OF AIR REGULATION

Ms. Ann Quillian, P.E.
Florida Department of
Environmental Protection
Southwest District Office
3804 Coconut Palm Drive
Tampa, FL 33619-8318

Subject: Farmland Hydro, L.P.
Comments on Proposed Permit 1050053-012-AV

Dear Ms. Quillian:

This is response to the Proposed Title V permit for Farmland Hydro, L.P., dated November 8, 1999. The following comments, all regarding the fluoride requirements for the fertilizer storage and shipping area, are submitted for your consideration.

The recent PSD permit (PSD-FL-246, by Syed Arif, P.E.) removed GTSP capability from the facility. Consequently, the associated fluoride emission limits and compliance testing requirements are not applicable to the storage and shipping building. Please update the Title V permit accordingly. The following specific conditions need to be updated:

1. On Page J1, Specific Condition(S.C.) J.2. should be deleted, as it is no longer applicable.
2. On Page J2, S.C. J.5., the reference to fluorides and EPA Methods 13A and 13B should be deleted.
3. On Page J3, S.C. J.8., the reference to fluorides and Items B and C should be deleted.

If you have any questions, please call Pradeep Raval or me.

Very truly yours,

KOOGLER & ASSOCIATES

John B. Koogler, Ph.D., P.E.

JBK.par

c: C. Jenkins, Farmland
S. Arif, P.E., FDEP

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF FINAL PERMIT

In the Matter of an
Application for Permit

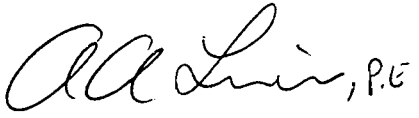
Mr. C.M. Farris
Farmland Hydro, L.P.
Post Office Box 960
Bartow, Florida 33831

DEP File No. 1050053-020-AC
PSD-FL-246

Enclosed is the FINAL Permit Number PSD-FL-246 for increasing production rates as well as storage and shipping rates of the North monoammonium phosphate (MAP) and diammonium phosphate (DAP) at the Farmland Hydro, L.P., Green Bay Facility, Polk County. This permit is issued pursuant to Chapter 403, Florida Statutes and in accordance with Rule 62-212.400., F.A.C. - Prevention of Significant Deterioration(PSD).

Any party to this order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, F.S., by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department of Environmental Protection in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000, and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 (thirty) days from the date this Notice is filed with the Clerk of the Department.

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 NOTICE OF FINAL PERMIT (including the FINAL permit) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 9-11-98 to the person(s) listed:

Mr. C.M. Farris, Farmland *
Mr. Brian Beals, EPA
Mr. John Bunyak, NPS
Mr. Bill Thomas, DEP

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) 9-11-98
(Date)

FINAL DETERMINATION

Farmland Hydro, L.P.

Permit No. 1050053-020-AC, PSD-FL-246

North Monoammonium/Diammonium Phosphate Plant

An Intent to Issue an air construction permit to Farmland Hydro, L.P., to increase production of the North Monoammonium/Diammonium Phosphate (MAP/DAP) plant in Polk County, was distributed on July 2, 1998. The Notice of Intent was published in the Lakeland Ledger on July 27, 1998. Copies of the draft construction permit were available for public inspection at the Department offices in Tampa and Tallahassee.

Comments on the Intent to Issue an air construction permit were submitted by the applicant's consultant (Koogler & Associates) and the U.S Fish & Wildlife Service (FWS). No comments were received from the U.S. Environmental Protection Agency or the public. Koogler & Associates (K & A) comments relates to the specific conditions of the draft permit. FWS comments were directed at the BACT emission limits established for fluorides (F) and particulate matter (PM) for the MAP plant as well as PM for the DAP plant. Their comments and the Department of Environmental Protection (DEP) responses are as follows:

K & A comment on Section III, Specific Condition No. 5

Rule citation should reflect Rule 62-212.400 (instead of 62-212.410), F.A.C.

DEP Response

The rule citation will be changed to reflect the correct rule.

K & A comment on Section III, Specific Condition No. 9

The sulfur dioxide (SO₂) emission limits should be removed as there is no applicable standard.

DEP Response

DEP concurs with the comment of removing the SO₂ emission limits but retaining rest of the specific condition. PSD review was not triggered for SO₂ due to the modifications, and there are no state or federal emission-limiting standards for SO₂ emissions from MAP/DAP plants. Section III, Specific Condition No. 9 will be changed as follows:

~~Total sulfur dioxide emissions from the reactor/granulator/dryer stacks shall not exceed 2.53 lb/hr and 11.1 TPY. During periods of firing No. 2 fuel oil with a maximum sulfur content of 0.05% sulfur by weight, the firing rate shall not exceed 50 million BTU per hour and 3.1 million gallons per year. The permittee shall maintain records of the fuel oil supplier's sulfur content analysis.~~

K & A comment on Section III, Specific Condition No. 10

The nitrogen oxides (NO_x) emission limits should be removed as there is no applicable standard.

DEP Response

DEP will require an initial compliance test for NO_x. If the initial test indicates that the NO_x emissions are less than 40 TPY, then annual testing will not be required. Even though PSD review was not triggered for NO_x, the estimated emissions for this pollutant is approaching the significant emission rate and therefore warrants at least an initial compliance test. Section III, Specific Condition 10 will be changed as follows:

Nitrogen oxides emissions from the reactor/granulator/dryer stacks shall not exceed 7.2 lb/hr and 31.3 TPY. If the initial compliance test indicates nitrogen oxides emissions are less than 40 TPY, then annual testing for the pollutant will not be required and the emission limits will be removed. If the test indicates emissions in excess of 40 TPY, the permittee will be required to submit a PSD analysis for the pollutant.

K & A comment on Section III, Specific Condition No. 11

The pressure drop monitoring requirement should not be required for the HI-MOL Scrubber. Furthermore, it is requested that the condition allow for measurement of fan amps, in place of pressure drop, as allowed under draft Title V permit conditions. The rule citation should be Rule 62-204.800 instead of Rule 62-296.800, F.A.C.

DEP Response

DEP concurs that if the permittee can not continuously measure and record the pressure drop across any scrubber, then the fan amps can be substituted as a surrogate parameter. Additionally, monitoring the liquid flow rate will provide reasonable assurance to the Department that the control equipment's are being properly operated. The rule citation will be changed to reflect the correct rule. Section III, Specific Condition No. 11 will be changed as follows:

The permittee shall install, calibrate, operate and maintain monitoring devices that continuously measure and record the total pressure drop across each scrubbing system. If the total pressure drop can not be measured for a scrubbing system, then the liquid flow

rate and the fan amps shall be measured and recorded for that scrubbing system.
Accuracy of the monitoring devices shall be $\pm 5\%$ over the operating range. [Rules 62-297.310, ~~62-296.800~~ 62-204.800, F.A.C.; 40 CFR 60.223(c)]

K & A comment on Section III, Specific Condition No. 14

EPA Method 7E should be removed from this condition as it is not applicable.

DEP Response

EPA Method 7E will be left in the condition due to the requirement for doing an initial compliance test for NO_x emissions. If the test demonstrates less than 40 TPY NO_x emissions, then the requirement for annual testing will be dropped and so will the reference to EPA Method 7E.

K & A comment on Section III, Specific Condition No. 16

The rule citation should reflect Rule 62-204.800 instead of Rule 62-296.800, F.A.C.

DEP Response

The rule citation will be changed to reflect the correct rule.

K & A comment on Section III, Specific Condition Nos. 21 & 22

The information provided to DEP on the product storage and shipping rate was incorrect. The 120 tons per hour (tph) P₂O₅ rate conveyed to the Department corresponds to the rate associated with the North MAP/DAP Plant of 106.1 tph P₂O₅ storage and 120 tph P₂O₅ loadout, or a maximum rate of 120 tph P₂O₅. However, the South DAP Plant also contributes to the storage and shipping building with a permitted rate of 46 tph P₂O₅. Consequently, the storage and shipping building would handle a combined total of 152.1 tph P₂O₅ storage and 180 tph P₂O₅ loadout, or a maximum rate of 180 tph P₂O₅.

The PM emission rate is not expected to change as a result of the proposed project as no changes are proposed to the exhaust flow rate or the existing scrubber operating parameters.

The F emission limit in the current operating permit is no longer applicable as Granular Triple Super Phosphate (GTSP) is no longer manufactured and stored at the facility. A federally enforceable condition in the 1992 North MAP/DAP Plant PSD permit required that the GTSP production capability be removed.

DEP Response

The Department recognizes the error in the information submitted by the applicant relating to storage and shipping rates and will make the necessary change to reflect the correct rates.

Based on the past compliance test results, the PM emission limit will be further reduced from the current allowable of 30.3 pounds per hour and 133 tpy to 4.1 pounds per hour and 18 tpy. Reference to F emission limit will be deleted as GTSP is no longer produced in the facility.

Accordingly, Section III, Specific Condition 21 will be changed to read as follows:

The maximum permitted process rate for the storage and shipping building is ~~120~~ 180 tons per hour (as P₂O₅).

Section III, Specific Condition 22 will be changed to read as follows:

The allowable emission rates for ~~fluoride and~~ particulate matter from shipping and storage buildings will be ~~the same as the current emission limits in AO53-239602~~ 4.1 pounds per hour and 18 TPY. [Permit AO53-239602 Rule 62-210.200, F.A.C.]

FWS Comment

F and PM emission limits should not exceed the 0.0417 lb F/T and 0.19 lb PM/T limits required by other permits issued by DEP. DEP is proposing limits of 0.0417 lb F/T and 0.3 lb PM/T for DAP and 0.06 lb F/T and 0.3 lb PM/T for MAP.

DEP Response

The Department has asked Farmland to conduct additional testing after installing improved spray nozzles in the HI-MOL Scrubber system at their MAP plant for a possible reduction of their BACT limits for F and PM. The testing will be done on a quarterly basis for a year. Based on the results submitted by the applicant, DEP will lower the BACT limits for F for the MAP plant and PM limits for the MAP/DAP plant. The interim limit is still established at 0.06 lb F/T for MAP plant and 0.3 lb PM/T for MAP/DAP plant.

In order to accommodate the additional testing requirement, DEP will extend the expiration date of the construction permit from **December 31, 1999 to May 1, 2000.**

A new specific condition No. 25 will be added to Section III of the permit. It will read as follows:

The permittee shall install improved spray nozzles in the HI-MOL scrubber system in order to reduce fluoride and particulate matter emissions during MAP production. Upon completion of performance testing, the Department shall review the performance test data and, if necessary, require additional improvements to the existing air pollution control equipment based on BACT criteria to achieve an allowable fluoride emission limit during MAP production of 0.0417 lb F/ton P₂O₅. The Department will also revise the particulate matter emission limit based on the performance test data.

The performance testing during MAP production, not to be used for compliance purposes, shall consist of four quarterly tests over a 12-month period. EPA Method 13A or 13B will be used for fluorides testing, and, EPA Method 5 for particulate matter. Each test shall consist of three complete runs, pursuant to Rule 62-297, FAC. A report shall be submitted to Department's Bureau of Air Regulation within 45 days of the last quarterly performance test. The report shall document the test results and data analysis to determine the appropriate allowable fluoride and particulate matter emission limits during MAP production. The report shall also document the scrubber operating parameters during the tests, as required by this permit.

The permittee shall notify, in writing, the Southwest District Office at least 15 days prior to commencement of each performance test so that the Department has the opportunity to observe the test.

Compliance tests during MAP and DAP production shall be conducted subsequent to the performance testing. At this time, the particulate matter limit during DAP production will also be reviewed.

CONCLUSION

The Final action of the Department is to issue the permit with the changes noted above.



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

PERMITTEE:

Farmland Hydro, L.P.
Post Office Box 960
Bartow, Florida 33831

Authorized Representative:

C. M. Farris
Vice President, Operations

File No.	1050053-020-AC
Permit No.	PSD-FL-246
SIC No.	2874
Project:	North MAP/DAP Plant
Expires:	May 1, 2000

PROJECT AND LOCATION:

Permit for the construction /modification of the North MAP/DAP Plant to increase production and the fertilizer storage and shipping rates at the Farmland (Green Bay) facility, 4390 County Road 640 West, Bartow, Polk County. UTM coordinates are Zone 17; 409.5 km E; 3080.1 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
Appendix CSC Emission Unit(s) Common Specific Conditions

Howard L. Rhodes, Director
Division of Air Resources
Management

AIR CONSTRUCTION PERMIT 1050053-020-AC AND PSD-FL-246

SECTION I. FACILITY INFORMATION

FACILITY DESCRIPTION

The Farmland Hydro, L.P., Green Bay Complex is a phosphate fertilizer manufacturing facility. Phosphate rock is reacted with sulfuric acid (purchased or produced on-site) to make phosphoric acid. The phosphoric acid is further processed or reacted with additional rock or ammonia to make superphosphoric acid, granulated triple super phosphate, monoammonium phosphate (MAP), or diammonium phosphate (DAP).

Farmland's North MAP/DAP Plant presently has a permitted capacity of 120 tons of MAP product per hour and 100 tons of DAP product per hour. This permit allows an increase in the permitted capacity of MAP to 200 tons of product per hour (106.1 tons of P_2O_5 input per hour) and for DAP to 150 tons of product per hour (70.4 tons of P_2O_5 input per hour). Additionally, the maximum permitted process rate for the fertilizer storage and shipping building is increased from 98 to 120 tons of P_2O_5 per hour.

REGULATORY CLASSIFICATION

The North MAP/DAP Plant is classified as a major source of air pollution or Title V source because it has the potential to emit at least 100 tons per year of particulate matter, nitrogen oxides and sulfur dioxide.

PERMIT SCHEDULE:

- 12-24-97: Date of Receipt of Application
- 04-13-98: Application deemed complete
- 07-06-98: Intent issued
- 07-27-98: Notice of Intent published in Lakeland Ledger

RELEVANT DOCUMENTS:

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

- Application received 12-24-97
- Department's incompleteness letters dated 01-23-97, 04-03-98
- Applicant's letters dated 03-06-98, 04-13-98, 06-18-98
- Fish and Wildlife Service letter dated 04-15-98
- Technical Evaluation and Preliminary Determination dated 07-02-98
- Best Available Control Technology determination (issued concurrently with permit)

AIR CONSTRUCTION PERMIT 1050053-020-AC AND PSD-FL-246

SECTION II. EMISSION UNIT(S) 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 of Environmental Protection, Southwest District Office located at 3804 Coconut Palm Drive, Tampa, Florida 33619-8218, and phone number (813)744-6100. All applications for permits to construct or modify an emission unit(s) *subject to the Prevention of Significant Deterioration (PSD)* should be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (FDEP) located at 2600 Blairstone Road, Tallahassee, Florida 32399-2400 and phone number (850)488-0114.
2. General Conditions: The owner and operator is subject to and shall operate under the attached General Permit Conditions G.1 through G.15 listed in *Appendix GC* of this permit. General Permit Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
3. Terminology: The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.
4. Forms and Application Procedures: The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. [Rule 62-210.900, F.A.C.]
5. Expiration: This air construction permit shall expire on **May 1, 2000**. [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 permitting authority 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. Applicable Regulations: The facility is subject to the following regulations: Florida Administrative Code Chapters 62-4; 62-103; 62-204; 62-210; 62-212, 62-296, and 62-297. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements or regulations. [Rule 62-210.300, F.A.C.]

AIR CONSTRUCTION PERMIT 1050053-020-AC AND PSD-FL-246

SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

COMMON CONDITIONS: 40 CFR 60 - NEW SOURCE PERFORMANCE STANDARDS

This permit addresses the following emission units.

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
020	DAP/MAP/TSP Storage & Shipping
029	North MAP/DAP Plant

These emission units shall comply with all applicable requirements of 40 CFR 60, General provisions, Subpart A, adopted by reference in Rule 62-204.800(7), F.A.C.

- 40 CFR 60.7, Notification and record keeping
- 40 CFR 60.8, Performance tests
- 40 CFR 60.11, Compliance with standards and maintenance requirements
- 40 CFR 60.12, Circumvention
- 40 CFR 60.13, Monitoring requirements
- 40 CFR 60.19, General notification and reporting requirements

The North MAP/DAP Plant is subject to the applicable requirements of the New Source Performance Standards (NSPS) adopted by reference in Rules 62-204.800, F.A.C., including:

- 40 CFR 60 Subpart V, Standards of Performance for Diammonium Phosphate Plants (DAP).

SPECIFIC CONDITIONS :

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

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
020	DAP/MAP/TSP Storage & Shipping
029	North MAP/DAP Plant

1. Unless otherwise indicated, the construction and operation of the subject North MAP/DAP production facility shall be in accordance with the capacities and specifications stated in the application. [Rule 62-210.300, F.A.C.]
2. The subject emissions units shall comply with all applicable provisions of the 40 CFR 60 New Source performance Standards for Diammonium Phosphate Plants, Subpart V. [Rule 62-204.800 F.A.C.]
3. The production rate shall not exceed 200 tons of MAP (106.1 tons of P₂O₅ feed per hour) or 150 tons of DAP (70.4 tons of P₂O₅ feed per hour). [Rule 62-210.200, F.A.C. (Definitions - Potential Emissions)]
4. The subject emission units are allowed to operate continuously (8760 hours/year). [Rule 62-210.200, F.A.C. (Definitions - Potential Emissions)]

SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

5. Total fluoride emissions during MAP production shall not exceed 6.4 lb/hr and 27.9 TPY. Total fluoride emissions during DAP production shall not exceed 2.9 lb/hr and 12.7 TPY. [Rule 62-212.400, F.A.C.]
6. Particulate matter emissions from the reactor/granulator/dryer stacks during MAP production shall not exceed 31.8 lb/hr and 139.3 TPY. [Rule 62-212.400, F.A.C.]
7. Particulate matter emissions from the reactor/granulator/dryer stacks during DAP production shall not exceed 21.1 lb/hr and 92.5 TPY. [Rule 62-212.400, F.A.C.]
8. Visible emissions from all scrubber stacks shall not exceed 20% opacity. [Rule 62-212.400, F.A.C.]
9. During periods of firing No. 2 fuel oil with a maximum sulfur content of 0.05% sulfur by weight, the firing rate shall not exceed 50 million BTU per hour and 3.1 million gallons per year. The permittee shall maintain records of the fuel oil supplier's sulfur content analysis. [Rule 62-210.200(228), F.A.C.]
10. Nitrogen oxides emissions from the reactor/granulator/dryer stacks shall not exceed 7.2 lb/hr and 31.3 TPY. If the initial compliance test indicates nitrogen oxides emissions are less than 40 TPY, then annual testing for the pollutant will not be required and the emission limits will be removed. If the test indicates emissions in excess of 40 TPY, the permittee will be required to submit a PSD analysis for the pollutant. [Rule 62-210.200(228), F.A.C.]
11. The permittee shall install, calibrate, operate and maintain monitoring devices that continuously measure and record the total pressure drop across each scrubbing system. If the total pressure drop can not be measured for a scrubbing system, then the liquid flow rate and the fan amps shall be measured and recorded for that scrubbing system. Accuracy of the monitoring devices shall be $\pm 5\%$ over the operating range. [Rules 62-297.310, 62-204.800, F.A.C.; 40 CFR 60.223(c)]
12. Before this construction permit expires, the subject emission units shall be tested for compliance with the above emission limits. For the duration of all tests the emission unit 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.]
13. The Department's Southwest District office in Tampa shall be notified in writing at least 15 days prior to the compliance tests. Written reports of the test results shall be submitted to that office within 45 days of test completion. [Rule 62-297.310, F.A.C.]

AIR CONSTRUCTION PERMIT 1050053-020-AC AND PSD-FL-246

SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

14. The compliance test procedures shall be in accordance with EPA Reference Methods 1, 2, 3, 4, 5, 7E, 9 and 13A or 13B, as appropriate, as published in 40 CFR 60, Appendix A. 60, Appendix A. [Rules 62-204.800 and 62-297.310(7)(c), F.A.C.]
15. All measurements, records, and other data required to be maintained by this facility shall be retained for at least five (5) years following the data on which such measurements, records, or data are recorded. These data shall be made available to the Department upon request. [Rule 62-4.070(3), F.A.C.]
16. The permittee shall install, calibrate, maintain, and operate a monitoring device which can be used to determine the mass flow of phosphorus-bearing feed material to the process. The monitoring device shall have an accuracy of ± 5 percent over its operating range. The permittee shall maintain a daily record of equivalent P_2O_5 feed by first determining the total mass rate in metric ton/hour of phosphorus bearing feed using the flow monitoring device meeting the requirements of 40 CFR 60.223(a) and then by proceeding according to 40 CFR 60.224(b)(3). [Rule 62-204.800, F.A.C.; 40 CFR 60.223(b)]
17. 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.]
18. 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.]
19. The subject emissions units shall be subject to the following:
 - Excess emissions resulting from startup, shutdown or malfunction of any source shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700, F.A.C.]
 - Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited. [Rule 62-210.700, F.A.C.]
 - Considering operational variations in types of industrial equipment operations affected by this rule, the Department may adjust maximum and minimum factors to provide reasonable and practical regulatory controls consistent with the public interest. [Rule 62-210.700, F.A.C.]
 - In case of excess emissions resulting from malfunctions, each source shall notify the Department or the appropriate Local Program in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700, F.A.C.]

AIR CONSTRUCTION PERMIT 1050053-020-AC AND PSD-FL-246

SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

20. The permittee shall submit an Annual Operating Report using DEP Form 62-210.900(4) to the Department's Southwest District office by March 1 of the following year for the previous year's operation. [Rule 62-210.370, F.A.C.]
21. The maximum permitted process rate for the storage and shipping building is 180 tons per hour (as P₂O₅). [Rule 62-210.200, F.A.C. (Definitions - Potential Emissions)]
22. The allowable emission rate for particulate matter from shipping and storage buildings will be 4.1 pounds per hour and 18 TPY. [Rule 62-210.200, F.A.C. (Definitions - Potential Emissions)]
23. The permittee shall install improved spray nozzles in the HI-MOL scrubber system in order to reduce fluoride and particulate matter emissions during MAP production. Upon completion of performance testing, the Department shall review the performance test data and, if necessary, require additional improvements to the existing air pollution control equipment based on BACT criteria to achieve an allowable fluoride emission limit during MAP production of 0.0417 lb F/ton P₂O₅. The Department will also revise the particulate matter emission limit based on the performance test data.

The performance testing during MAP production, not to be used for compliance purposes, shall consist of four quarterly tests over a 12-month period. EPA Method 13A or 13B will be used for fluorides testing, and, EPA Method 5 for particulate matter. Each test shall consist of three complete runs, pursuant to Rule 62-297, F.A.C. A report shall be submitted to Department's Bureau of Air Regulation within 45 days of the last quarterly performance test. The report shall document the test results and data analysis to determine the appropriate allowable fluoride and particulate matter emission limits during MAP production. The report shall also document the scrubber operating parameters during the tests, as required by this permit.

The permittee shall notify, in writing, the Southwest District Office at least 15 days prior to commencement of each performance test so that the Department has the opportunity to observe the test.

Compliance tests during MAP and DAP production shall be conducted subsequent to the performance testing. At this time, the particulate matter limit during DAP production will also be reviewed. [Rule 62-212.400, F.A.C.]

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

North Monoammonium and Diammonium Phosphate Plant
Farmland Hydro, L.P. (Green bay Complex)
PSD-FL-246 / 1050053-020-AC
Bartow, Polk County

The Farmland Hydro, L.P. proposes to increase the production rates of monoammonium phosphate (MAP) from 120 to 200 tons per hour (TPH) and of diammonium phosphate (DAP) from 100 to 150 TPH at its existing North MAP/DAP Plant in Bartow, Polk County. The proposed modification will result in a significant increase in emissions of particulate matter (PM/PM₁₀) and fluorides (F). The project is, therefore, subject to Prevention of Significant Deterioration (PSD) review in accordance with Rule 62-212.400, Florida Administrative Code (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.

The North MAP/DAP plant reacts phosphoric acid with ammonia and produces granular MAP and DAP while generating emissions as indicated below:

Pollutant	PSD Level ¹	Actual Emissions ²	Current Allowables	Proposed Emissions ³	Net Change ⁴	Subject to PSD Review?
F (MAP)	3	4.5	16.4	27.9	23.4	Yes
F (DAP)	3	4.1	12.1	18.5	14.4	Yes
PM (MAP)	25/15 ⁵	44.0	98.6	139.3	97.3 ⁶	Yes
PM (DAP)	25/15 ⁵	15.3	70.7	92.5	79.2 ⁶	Yes
NO _x	40	9.6	N/A	31.3	21.7	No
SO ₂	40	0.04	N/A	11.1 ⁷	11.1	No
CO	100	2.4	N/A	7.8	5.4	No
VOC	40	0.2	N/A	0.2	0	No

¹ Tons per year (Rule 212.400, F.A.C.)

² Based on two-year average using 1995 and 1996 compliance data for F and PM/PM₁₀. CO and VOC emissions based on AP-42 factors for boilers.

³ Proposed by applicant as allowable emissions at the new production rate.

⁴ Applicant's proposed emissions minus actuals.

⁵ PM/PM₁₀.

⁶ The net increase includes contemporaneous emissions of 2.0 tpy.

⁷ SO₂ emissions are limited by low sulfur (0.05%) oil usage.

DATE OF RECEIPT OF COMPLETE BACT APPLICATION:

April 13, 1998

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

BACT DETERMINATION PROCEDURE:

In accordance with Chapter 62-212, F.A.C., this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department of Environmental Protection (Department), on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that, in making the BACT determination, the Department shall give consideration to:

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

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

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

- *Fluorides* (HF, SiF₄). Controlled generally by scrubbing with pond water.
- *Particulate Matter* (PM, PM₁₀). Controlled generally by wet scrubbing or filtration.
- *Combustion Products* (SO₂, NO_x, PM). Controlled generally by good combustion of clean fuels.

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

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

BACT LIMITS PROPOSED BY APPLICANT:

POLLUTANT	EMISSION LIMIT	LIMIT BASIS	CONTROL TECHNOLOGY
F (MAP)	6.4 lb/hr	0.06 lb/ton P ₂ O ₅ input	Two-stage scrubbers using acid/pond water
F (DAP)	4.2 lb/hr	0.06 lb/ton P ₂ O ₅ input	Two-stage scrubbers using acid/pond water
PM (MAP)	31.8 lb/hr	0.3 lb/ton P ₂ O ₅ input	Two-stage scrubbers using acid/pond water
PM(DAP)	21.1 lb/hr	0.3 lb/ton P ₂ O ₅ input	Two-stage scrubbers using acid/pond water

BACT POLLUTANT ANALYSIS

GASEOUS FLUORIDES (F)

Fluoride-containing gases including hydrogen fluoride (HF) and silicon tetrafluoride (SiF₄) are evolved during the exothermic reaction between ammonia and phosphoric acid that occurs in the reactor and to a lesser extent in the granulator. Since the vent gases from the reactor and granulator contain ammonia in high concentrations, the first scrubbing stage uses a phosphoric acid stream as the scrubbing medium for recovery of ammonia so that it is recycled back to the process. A final stage of pond water scrubbing removes most of the fluoride evolved from the process as well as that which is stripped out of the phosphoric acid in the first stage scrubber.

Additional fluoride and ammonia emissions are generated in the dryer and are controlled by a separate two-stage scrubbing system as for the reactor and granulator. Gaseous fluoride and ammonia emissions from the cooler are relatively low and therefore do not require special controls. The applicant has proposed that the existing emission control equipment be considered as BACT.

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

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

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 granulator, dryer, 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 applicant has proposed that the existing control equipment be considered as BACT.

BACT DETERMINATION BY THE DEPARTMENT:

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

POLLUTANT	EMISSION LIMIT	LIMIT BASIS
F (MAP)	6.4 lb/hr	0.06 lb/ton P ₂ O ₅ input (includes cooler emissions)
F (DAP)	2.9 lb/hr	0.0417 lb/ton P ₂ O ₅ input (includes cooler emissions)
PM/PM ₁₀ (MAP)	31.8 lb/hr	0.3 lb/ton P ₂ O ₅ input
PM/PM ₁₀ (DAP)	21.1 lb/hr	0.3 lb/ton P ₂ O ₅ input

FLUORIDES

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

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

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

Option 2 is possible, the main considerations being the cost of installing the pond and equipment and the cost of operating a lime treatment unit. Lime treatment to a pH level of 3.5 to 4.0 causes fluorides to precipitate out of solution, primarily as calcium fluoride. At this point the water would contain as low as 30-60 ppm fluoride. With second-stage lime treatment to a pH of 6.0 or more, the calcium compounds (mainly dicalcium phosphate) precipitate out along with additional calcium fluoride. Upon settling at a PH in the range of 6.5 to 8.8, the fluoride content of the clear neutralized water may be as low as 15 ppm, depending on the quality of the neutralization facility and the mixing efficiency.

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

Costs for Option 2 are based on the data submitted by the applicant:

ITEM	COST
Packed Scrubber	\$ 1,500,000
Lined Pond	\$ 4,500,000
Total Installed Cost (TIC)	\$ 6,000,000
 Annual Costs:	
Capital Recovery (TIC x 0.1175)	\$ 705,000
Operation & Maintenance (@ 8.7% of TIC)	\$ 52,000
Total Annual Cost	\$ 757,400

Based on the Department's recently proposed BACT for fluorides from a fertilizer (prilled MAP) plant of 0.019 lb/ton P₂O₅ feed, which has an option for a recirculated scrubber water treatment system with a dedicated pond to meet the BACT emissions limit, the potential emissions from the North MAP/DAP Plant can be projected as follows:

$$F \text{ Removed} = 106.1 \text{ tph P}_2\text{O}_5 \times 0.019 \text{ lb/ton P}_2\text{O}_5 \times 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs}$$

8.8 tpy

The cost of additional control:

$$\begin{aligned} \text{Total Cost} &= \$757,400 / (27.9 \text{ tpy} - 8.8 \text{ tpy}) \\ &= \$ 39,654/\text{ton additional F removed} \end{aligned}$$

This figure is sufficiently high to rule out Option 2. However it should be noted that the low magnitude of fluoride emissions relative to their potential environmental impact justifies the consideration of higher fluoride cost effectiveness figures relative to the high tonnage pollutants such as sulfur dioxide and nitrogen oxides. Option 3, therefore, is determined by the top-down approach as the basis for the fluoride BACT emission limit.

The BACT limit for MAP is determined to be 0.06 lb/ton P₂O₅ feed based on the recent compliance test results for the MAP plant done between 1994 - 1998. Additionally, the process equipment utilized for MAP production i.e., the pipe reactor system is very sensitive to process flow changes, and this results in a wider range of emissions than that for DAP production. Farmland is the only facility in Florida that is using pipe reactor technology for MAP production. The BACT limit for DAP will be the same as determined for the IMC-Agrico Nichols and New Wales Plant (0.0417 lb F/ton P₂O₅ input). This limit has been demonstrated by Farmland based on their compliance test results between 1994 - 1998 to be achievable.

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

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

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.

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 since the existing venturi scrubbers are capable of being operated in the medium energy range, the BACT requirement will be satisfied by specifying their normal operation at a minimum pressure drop of 15 in. w.c.

COMPLIANCE

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

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

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

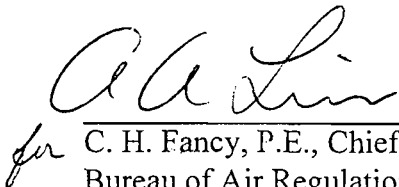
APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

DETAILS OF THE ANALYSIS MAY BE OBTAINED BY CONTACTING:

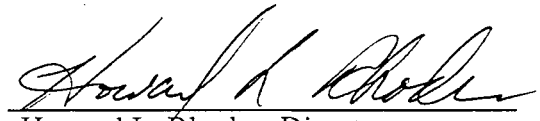
Syed Arif, P.E., Permit Engineer, New Source Review Section
Department of Environmental Protection
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended By:

Approved By:



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



Howard L. Rhodes, Director
Division of Air Resources Management

9/10/98

Date:

9/10/98

Date:

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

- G.1 The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
- G.2 This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings or exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
- G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
- G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
- G.5 This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
- G.6 The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
- G.7 The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
- (a) Have access to and copy and records that must be kept under the conditions of the permit;
 - (b) Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
 - (c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

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

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

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

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

- G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.
- G.10 The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
- G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
- G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.
- G.13 This permit also constitutes:
- (a) Determination of Best Available Control Technology (*X*)
 - (b) Determination of Prevention of Significant Deterioration (*X*); and
 - (c) Compliance with New Source Performance Standards (*X*).
- G.14 The permittee shall comply with the following:
- (a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
 - (b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
 - (c) Records of monitoring information shall include:
 - 1. The date, exact place, and time of sampling or measurements;
 - 2. The person responsible for performing the sampling or measurements;
 - 3. The dates analyses were performed;
 - 4. The person responsible for performing the analyses;
 - 5. The analytical techniques or methods used; and
 - 6. The results of such analyses.
- G.15 When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

APPENDIX CSC

EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

SUBSECTION 1.0 CONSTRUCTION REQUIREMENTS

- 1.1 Applicable Regulations: Unless otherwise indicated in this permit, the construction and operation of the subject emission unit(s) 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, 62-103, 62-204, 62-210, 62-212, 62-213, 62-296, 62-297; and the applicable requirements of the Code of Federal Regulations Section 40, Part 60, adopted by reference in the Florida Administrative Code regulation [Rule 62-204.800, 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 requirements or regulations. [Rule 62-210.300, F.A.C.]

SUBSECTION 2.0 EMISSION LIMITING STANDARDS

- 2.1 General Particulate Emission Limiting Standards. General Visible Emissions Standard: Except for emissions units that are subject to a particulate matter or opacity limit set forth or established by rule and reflected by conditions in this permit, no person shall cause, let, permit, suffer, or allow to be discharged into the atmosphere the emissions of air pollutants from any activity, the density of which is equal to or greater than that designated as Number 1 on the Ringelmann Chart (20% opacity). [Rule 62-296-320(4)(b)1, F.A.C.]
- 2.2 Unconfined Emissions of Particulate Matter [Rule 62-296.320(4)(c), F.A.C.]
- (a) The owner or operators shall not cause, let, permit, suffer or allow the emissions of unconfined particulate matter from any source whatsoever, including, but not limited to, vehicular movement, transportation of materials, construction, alteration, demolition or wrecking, or industrially related activities such as loading, unloading, storing or handling, without taking reasonable precautions to prevent such emission.
 - (b) Any permit issued to a facility with emissions of unconfined particulate matter shall specify the reasonable precautions to be taken by that facility to control the emissions of unconfined particulate matter.
 - (c) Reasonable precautions include the following:
 - Paving and maintenance of roads, parking areas and yards.
 - Application of water or chemicals to control emissions from such activities as demolition of buildings, grading roads, construction, and land clearing.
 - Application of asphalt, water, oil, chemicals or other dust suppressants to unpaved roads, yards, open stock piles and similar activities.
 - Removal of particulate matter from roads and other paved areas under the control of the owner or operator of the facility to prevent reentrainment, and from buildings or work areas to prevent particulate from becoming airborne.
 - Landscaping or planting of vegetation.
 - Use of hoods, fans, filters, and similar equipment to contain, capture and/or vent particulate matter.

APPENDIX CSC

EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

- Confining abrasive blasting where possible.
- Enclosure or covering of conveyor systems.

NOTE: Facilities that cause frequent, valid complaints may be required by the Permitting Authority to take these or other reasonable precautions. In determining what constitutes reasonable precautions for a particular source, the Department shall consider the cost of the control technique or work practice, the environmental impacts of the technique or practice, and the degree of reduction of emissions expected from a particular technique or practice.

2.3 General Pollutant Emission Limiting Standards: [Rule 62-296.320, F.A.C.]

- (a) The owner or operator shall not store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems.
- (b) No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor.

NOTE: An objectionable odor is defined as any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [F.A.C. 62-210.200(198)]

SUBSECTION 3.0 OPERATION AND MAINTENANCE

3.1 Changes/Modifications: The owner or operator shall submit to the Permitting Authority(s), for review any changes in, or modifications to: the method of operation; process or pollution control equipment; increase in hours of operation; equipment capacities; or any change which would result in an increase in potential/actual emissions. Depending on the size and scope of the modification, it may be necessary to submit an application for, and obtain, an air construction permit prior to making the desired change. *Routine maintenance of equipment will not constitute a modification of this permit.* [Rule 62-4.030, 62-210.300 and 62-4.070(3), F.A.C.]

3.2 Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the owner or operator shall notify the Permitting Authority as soon as possible, but at least within (1) working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; the steps being taken to correct the problem and prevent future recurrence; and where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit and the regulations. [Rule 62-4.130, F.A.C.]

APPENDIX CSC

EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

- 3.3 Circumvention: The owner or operator shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]
- 3.4 Excess Emissions Requirements [Rule 62-210.700, F.A.C.]
- (a) Excess emissions resulting from start-up, shutdown or malfunction of these emissions units 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 Permitting Authority office for longer duration. [Rule 62-210.700(1), F.A.C.]
 - (b) Excess emissions that are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during start-up, shutdown, or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]
 - (c) In case of excess emissions resulting from malfunctions, the owner or operator shall notify Permitting Authority within one (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the problem; and the corrective actions being taken to prevent recurrence. [Rule 62-210.700(6), F.A.C.]
- 3.5 Operating Procedures: Operating procedures shall include good operating practices and proper training of all operators and supervisors. The good operating practices shall meet the guidelines and procedures as established by the equipment manufacturers. All operators (including supervisors) of air pollution control devices shall be properly trained in plant specific equipment. [Rule 62-4.070(3), F.A.C.]

SUBSECTION 4.0 MONITORING OF OPERATIONS

- 4.1 Determination of Process Variables
- (a) The permittee shall operate and maintain equipment and/or instruments necessary to determine process variables, such as process weight input or heat input, when such data is needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.
 - (b) Equipment and/or instruments used to directly or indirectly determine such process variables, including devices such as belt scales, weigh hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value. [Rule 62-297.310(5), F.A.C.]

APPENDIX CSC

EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

SUBSECTION 5.0 TEST REQUIREMENTS

- 5.1 Test Performance: Within 60 days after achieving the maximum production rate at which these emission units will be operated, but not later than 180 days after initial startup and annually thereafter, the owner or operator of this facility shall conduct performance test(s) pursuant to 40 CFR 60.8, Subpart A, General Provisions and 40 CFR 60, Appendix A. No other test method shall be used unless approval from the Department has been received in writing. Unless otherwise stated in the applicable emission limiting standard rule, testing of emissions shall be conducted with the emission unit(s) operating at permitted capacity pursuant to Rule 62-297.310(2), F.A.C. [Rules 62-204.800, 62-297.310, 62-297.400, 62-297.401, F.A.C.]
- 5.2 Test Procedures shall meet all applicable requirements of the Florida Administrative Code Chapter 62-297. [Rule 62-297.310, F.A.C.]
- 5.3 Test Notification: The owner or operator shall notify the Permitting Authority in writing at least (30) days (initial) and 15 days (annual) prior to each scheduled compliance test to allow witnessing. The notification shall include the compliance test date, place of such test, the expected test time, the facility contact person for the test, and the person or company conducting the test. The (30) or (15) day notification requirement may be waived at the discretion of the Department. Likewise, if circumstances prevent testing during the test window specified for the emission unit, the owner or operator may request an alternate test date before the expiration of this window. [Rule 62-297.310 and 40 CFR 60.8, F.A.C.]
- 5.4 Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in Rule 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C. or in a permit issued pursuant to those rules is being violated, it may require the owner or operator of the facility to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions units and to provide a report on the results of said tests to the Permitting Authority. [Rule 62-297.310(7)(b), F.A.C.]
- 5.5 Stack Testing Facilities: The owner or operator shall install stack testing facilities in accordance with Rule 62-297.310(6), F.A.C.
- 5.6 Exceptions and Approval of Alternate Procedures and Requirements: An Alternate Sampling Procedure (ASP) may be requested from the Bureau of Air Monitoring and Mobile Sources of the Florida Department of Environmental Protection in accordance with the procedures specified in Rule 62-297.620, F.A.C.
- 5.7 Operating Rate During Testing: Unless otherwise stated in the applicable emission limiting standard rule, testing of emissions shall be conducted with the emissions unit operation at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impracticable to test at permitted capacity, an

APPENDIX CSC

EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

emissions unit may be tested at less than the minimum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test load until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. [Rule 62-297.310(2) and (3), F.A.C.]

SUBSECTION 6.0 REPORTS AND RECORDS

- 6.1 Duration: All reports and records required by this permit shall be kept for at least (5) years from the date the information was recorded. [Rule 62-4.160(14)(b), F.A.C.]
- 6.2 Emission Compliance Stack Test Reports:
- (a) A *test report* indicating the results of the required compliance tests shall be filed with the Permitting Authority as soon as practical, but no later than 45 days after the last sampling run is completed. [Rule 62-297.310(8), F.A.C.]
 - b) The *test report* shall provide sufficient detail on the tested emission unit and the procedures used to allow the Department to determine if the test was properly conducted and if the test results were properly computed. At a minimum, the test report shall provide the applicable information listed in **Rule 62-297.310(8), F.A.C.**
- 6.3 Excess Emissions Report: If excess emissions occur, the owner or operator shall notify the Permitting Authority within (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the Department may request a written summary report of the incident. Pursuant to the New Source Performance Standards, excess emissions shall also be reported in accordance with 40 CFR 60.7, Subpart A. [Rules 62-4.130 and 62-210.700(6), F.A.C.]
- 6.4 Annual Operating Report for Air Pollutant Emitting Facility: Before March 1st of each year, the owner or operator shall submit to the Permitting Authority this required report [DEP Form No. 62-210.900(5)], which summarizes operations for the previous calendar year. [Rule 62-210.370(3), F.A.C.]

SUBSECTION 7.0 OTHER REQUIREMENTS

- 7.1 Waste Disposal: The owner or operator shall treat, store, and dispose of all liquid, solid, and hazardous wastes in accordance with all applicable Federal, State, and Local regulations. This air pollution permit does not preclude the permittee from securing any other types of required permits, licenses, or certifications.

Best Available Copy

Z 333 612 501

US Postal Service
Receipt for Certified Mail
 No Insurance Coverage Provided.
 Do not use for International Mail (See reverse)

PS Form 3800, April 1995

Sent to C.M. Farris	
Street & Number Fairland Hydro	
Post Office, State, & ZIP Code Barrow, FL	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date 09-11-98	
1050053-020-AC	
P50-FI-246	

If your RETURN ADDRESS completed on the reverse side?

- Complete this form for all mail services.
- Complete this form for all mail services.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. Addressee's Address
2. Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
C.M. Farris
Fairland Hydro, LP
P O Box 960
Barrow, FL 33831

4a. Article Number
Z 333 612 501

4b. Service Type
 Registered Certified
 Express Mail Insured
 Return Receipt for Merchandise COD

7. Date of Delivery
9-15-98

5. Received By: (Print Name)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)
Jean Hicks

X 960

Thank you for using Return Receipt Service.

Florida Department of
Environmental Protection

Memorandum

TO: Howard L. Rhodes

THRU: Clair Fancy
Al Linero *CAF 9/10*

FROM: Syed Arif *Syed Arif*

DATE: September 2, 1998

SUBJECT: Farmland Hydro, L.P., 1050053-020-AC,
PSD-FL-246

Attached for approval and signature is a construction permit number 1050053-020-AC, PSD-FL-246 to increase production rates as well as storage and shipping rates for Farmland's North monoammonium phosphate (MAP) and diammonium phosphate (DAP) plant at its Green Bay facility in Polk County, Florida. A Technical Evaluation and Preliminary Determination was issued, and the facility was required to do a public notice. Comments were submitted by the applicant and U.S. Fish & Wildlife Service. Their comments have been properly responded in the final determination.

The emission unit is a source of fluorides (F) and particulate matter (PM) emissions. Control of F and PM emissions is accomplished by wet scrubbing equipment. These scrubbers are designed for a variety of functions which include ammonia recovery, particulate collection, and fluorine removal. The BACT emission limit for F and PM for the DAP plant was determined by the Department to be 0.0417 lb F/ton P_2O_5 and 0.3 lb PM/ton P_2O_5 . The interim BACT limit for F and PM for the MAP plant was determined to be 0.06 lb F/ton P_2O_5 and 0.3 lb PM/ton P_2O_5 . The applicant is required to modify the spray system for the scrubber and to conduct quarterly testing for one year during MAP production. The Department will reduce the BACT limits for F and PM based on the results of the tests.

The project provides reasonable assurance that all the requirements of the permit and BACT determination will be complied with. **I recommend your approval and signature.**



Department of Environmental Protection

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

July 2, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. C. M. Farris
Vice President - Operations
Farmland Hydro, L.P.
Post Office Box 960
Bartow, Florida 33831

Re: DRAFT Permit No. 1050053-020-AC (PSD-FL-246)
Green Bay Facility, North MAP/ DAP Plant

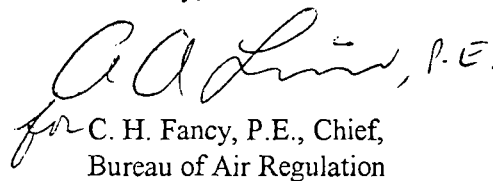
Dear Mr. Farris:

Enclosed is one copy of the Draft Air Construction Permit for the Green Bay Facility, North MAP/ DAP Plant located at 4390 County Road 640 West, Bartow, Polk 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 OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT" must be published. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within 7 (seven) days of publication. Failure to publish the notice and provide proof of publication 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 or Mr. Linero at 850/488-1344.

Sincerely,


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

CHF/sa

Enclosures

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP File No. 1050053-020-AC (PSD-FL-246)
North Monoammonium/Diammonium Phosphate (MAP/DAP) Plant
Farmland Hydro, L.P.- Green Bay Facility
Polk County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Farmland Hydro, L.P. to increase the production rates as well as storage and shipping rates of the North monoammonium phosphate (MAP) and diammonium phosphate (DAP) plant at its Green Bay facility. The plant is located at 4390 County Road 640 West, Bartow, Polk County. A Best Available Control Technology (BACT) determination was required for fluorides and particulate matter, pursuant to Rule 62-212.400, F.A.C. and 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The applicant's name and address are: Farmland Hydro, L.P., P.O. Box 960, Bartow, Florida 33831.

The MAP production rate will be increased from 120 to 200 tons per hour and the DAP production rate will be increased from 100 to 150 tons per hour. The shipping and storage process rate will be increased to 120 tons of P_2O_5 per hour. Controls for fluoride emissions consist of scrubbers using process pond water. Particulate emissions are also controlled by scrubbers.

An air quality impact analysis was conducted. The project is predicted to have no significant impact in the PSD Class II area in the vicinity of the facility or on the Chassahowitzka National Wilderness Area PSD Class I area located approximately 100 kilometers northwest of the plant.

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

The Department will accept written comments 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.

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, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of

that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with rule 28-106.205 of the Florida Administrative Code.

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

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

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

Mediation is not available in this proceeding.

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:

Polk County Public Works Department - Air Division 4189 Ben Durrance Road Bartow, Florida 33830 Telephone: 941/534-7377 Fax: 941/534-7374	Dept. of Environmental Protection Bureau of Air Regulation 111 S. Magnolia Drive, Suite 4 Tallahassee, Florida 32301 Telephone: 850/488-0114 Fax: 850/922-6979	Dept. of Environmental Protection Southwest District 3804 Coconut Palm Drive Tampa, Florida 33619-8218 Telephone: 813/744-6100 Fax: 813/744-6084
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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.

In the Matter of an
Application for Permit by:

Farmland Hydro, L.P.
P.O. Box 960
Bartow, Florida 33831

DEP File No. 1050053-020-AC
Draft Permit No. PSD-FL-246
Green Bay North MAP/DAP Plant
Polk County

INTENT TO ISSUE AIR CONSTRUCTION PERMIT

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit (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, Farmland Hydro, L.P., submitted a complete application on April 13, 1998 to the Department for an air construction permit to increase the production rates of monoammonium phosphate (MAP) and diammonium phosphate (DAP) to 200 and 150 tons per hour, respectively at its Green Bay North MAP/DAP Plant located at 4390 County Road 640 West, Bartow, Polk County.

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

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

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

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

The Department will accept written comments concerning the proposed permit issuance action for a period of 30 (thirty) days from the date of publication of "Public Notice of Intent to Issue Air Construction Permit." Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public

inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

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

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

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

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

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

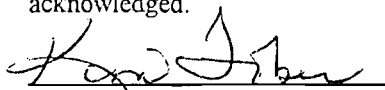
CERTIFICATE OF SERVICE

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 7-2-98 to the person(s) listed:

Mr. C.M. Farris, Farmland *
Mr. Brian Beals, EPA
Mr. John Bunyak, NPS
Mr. Bill Thomas, DEP

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) 7-2-98
(Date)

P 265 659 380

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail (See reverse)

Sent to	C M Farris
Street & Number	Farmstead
Post Office, State, & ZIP Code	Barton, FL
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom, & Date Delivered	
Return Receipt Showing to Whom, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	7-2-98

PS Form 3800, April 1995
1058053-020-AG
D & N

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. C. M. Farris, VP
Farmstead Hwy, LP
P O Box 960
Barton, FL
33831

4a. Article Number
P 265 659 380

4b. Service Type

Registered Certified
 Express Mail Insured
 Return Receipt for Merchandise COD

7. Date of Delivery
7/13/98

5. Received By: (Print Name)
Dean Hicks

6. Signature: (Addressee or Agent)
X [Signature]

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1994

Domestic Return Receipt

Thank you for using Return Receipt Service.

TECHNICAL EVALUATION
AND
PRELIMINARY DETERMINATION

FARMLAND HYDRO, L.P.

North Monoammonium and Diammonium Plant
Fertilizer Storage & Shipping
Bartow, Polk County

DEP File No. 1050053-020-AC
PSD-FL-246

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

July 2, 1998

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

1. APPLICATION INFORMATION

1.1 Applicant Name and Address

Farmland Hydro, L.P.
P.O. Box 960
Bartow, Florida 33831

Authorized Representative: Mr. C.M. Farris, V.P., Operations

1.2 Reviewing and Process Schedule

12-24-97: Date of Receipt of Application
01-23-97: DEP Completeness Request
03-06-98: Farmland's response to DEP's Completeness Request of 01-23-97
04-03-98: DEP Completeness Request
04-13-98: Farmland's response to DEP's Completeness Request of 04-03-98. Application complete
07-02-98: Issue Intent

2. FACILITY INFORMATION

2.1 Facility Location

The Farmland fertilizer facility is located off County Road 640, near Bartow, Polk County. This site is approximately 105 kilometers from the Chassahowitzka National Wilderness Area, a Class I PSD Area. The UTM coordinates of this facility are Zone 17; 410.3 km E; 3079.7 km N.

2.2 Standard Industrial Classification Codes (SIC)

Major Group No.	28	Chemicals and Allied Products
Industry Group No.	2874	Phosphate Fertilizers

2.3 Facility Category

This phosphate fertilizer facility makes sulfuric acid, phosphoric acid, super phosphoric acid, monoammonium phosphate (MAP) and diammonium phosphate (DAP). Phosphoric acid is made by acidulation of phosphate rock with sulfuric acid. Waste gypsum is produced and stacked. The phosphoric acid is reacted with ammonia to make MAP and DAP. The sulfuric acid is produced on-site by burning elemental sulfur, catalytically converting the resulting sulfur dioxide to sulfur trioxide, and absorbing it into a recirculating sulfuric acid solution.

The facility is classified as a major or Title V source of air pollution because emissions of at least one regulated air pollutant, such as particulate matter (PM/PM₁₀), sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO), or volatile organic compounds (VOC) exceed 100 TPY.

This industry is included in the list of the 28 Major Facility Categories per Table 62-212.400-1, F.A.C. Because emissions are greater than 100 TPY for at least one criteria pollutant, the facility is also a major facility with respect to Rule 62-212.400, Prevention of Significant Deterioration (PSD). Per Table 62-212.400-2, modifications at the facility resulting in emissions increases greater than 40 TPY of NO_x or SO₂ or 7 TPY of sulfuric acid mist (SAM), require review per the PSD rules and a determination of Best Available Control Technology (BACT) per Rule 62-212,

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

PSD rules and a determination of Best Available Control Technology (BACT) per Rule 62-212, F.A.C. The facility includes sulfur storage and handling for which certain analyses are required per Rule 62-212.600, F.A.C.

3. PROCESS DESCRIPTION

In the basic ammoniated phosphate process, anhydrous ammonia is reacted with phosphoric acid. The slurry produced by the ammoniation is then sprayed onto a bed of solids in the granulator and additional ammonia (if required) is added to complete the acid neutralization and produced the final product grade. The resulting slurry/solids mixture contains excess water which is removed by drying in a fossil fuel fired direct contact rotary dryer. The dried solids are then screened to remove on size product. The product size material is passed through a product cooler and then to storage. The over-sized and under-sized materials are crushed and recirculated through the granulator. Air emissions of fluorides, particulate matter, and ammonia are controlled by the process reactions and add-on wet scrubbers. Please refer to Figures 1 & 2 for the description of DAP and MAP North Plant respectively.

4. PROJECT DESCRIPTION

This permit addresses the following emissions units:

EMISSION UNIT NO.	SYSTEM	EMISSION UNIT DESCRIPTION
020	Product	DAP/MAP/TSP Storage & Shipping
029	Process	North MAP/DAP Plant

The applicant proposes to increase the granular MAP and DAP production rate of the existing North MAP/DAP Plant from 120 to 200 tons per hour MAP and 100 to 150 tons per hour DAP. The project may involve minor plant process equipment changes (e.g., pumps, piping, ducting, etc.) to achieve the production rate increase. Major physical modifications were made to the plant in 1992 to increase the production rates at that time. Based on the operating experience over the past few years, the applicant expects the existing plant to operate at even higher rates than currently permitted. Therefore, the current request for a production increase is proposed with virtually no equipment changes. The existing fertilizer storage and shipping system will be able to accommodate the increase from 98 to 120 tons per hour P_2O_5 without requiring any changes to the existing equipment.

The proposed project will result in actual increases in fluorides (Fl) and particulate matter (PM/PM₁₀). There will also be minimal emissions increases of sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO) and volatile organic compounds (VOC). Emissions increases of SO₂, NO_x, CO and VOC are below their respective significant emission levels per Table 62-212.400-2, F.A.C., and do not require PSD or non-attainment new source review. However, PSD review is required for Fl and PM/PM₁₀ since emissions, per the application, will increase by more than PSD significant levels.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

5. RULE APPLICABILITY

The project is subject to the federal new source performance standards (NSPS) for DAP plants (40 CFR 60, Subpart V), incorporated by reference in Rule 62-204.800, F.A.C.

The proposed project is also subject to permitting, preconstruction review, emissions limits and compliance requirements under the provisions of Chapter 403, Florida Statutes, and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.).

This facility is located in Polk County, an area designated as attainment for all criteria pollutants in accordance with Rule 62-204.360, F.A.C. The proposed project is subject to review under Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD), because the potential emission increases for F1 and PM/PM₁₀ exceed the significant emission rates given in Chapter 62-212, Table 62-212.400-2, F.A.C. PSD review requires an assessment of air quality impacts and a determination of Best Available Control Technology (BACT).

The emission units affected by this permit modification shall comply with all applicable provisions of the Florida Administrative Code (including applicable portions of the Code of Federal Regulations incorporated therein) 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 62-210.300	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
Rule 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 62-297.401	Compliance Test Methods
Rule 62-297.520	EPA Continuous Monitor Performance Specifications

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

6. SOURCE IMPACT ANALYSIS

6.1 Air Quality Analysis

6.1.1 Introduction

According to the application, the proposed project will increase emissions of two pollutants in excess of PSD significant amounts: PM_{10} and F. PM_{10} is a criteria pollutant and has national and state ambient air quality standards (AAQS) and PSD increments defined for it. F is a non-criteria pollutant and has no AAQS or PSD increments defined for it; therefore, no air quality impact analysis was required for F. Instead, the NSPS requirements will establish the F emission limit for this project. The PSD regulations require the following air quality analyses for this project:

- A significant impact analysis for PM_{10} ;
- An analysis of existing air quality for PM_{10} and F
- An analysis of impacts on soils, vegetation, and visibility and of growth-related air quality modeling impacts.

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

6.1.2 Analysis of Existing Air Quality and Determination of Background Concentrations

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

If preconstruction ambient monitoring is exempted, determination of background concentrations for PSD significant pollutants with established AAQS may still be necessary for use in any required AAQS analysis. These concentrations may be established from the required preconstruction ambient air quality monitoring analysis or from existing representative monitoring data. These background ambient air quality concentrations are added to pollutant impacts predicted by modeling and represent the air quality impacts of sources not included in the modeling.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

The table below shows that predicted PM₁₀ impacts from the project are predicted to be less than the de minimus level; therefore, preconstruction ambient air quality monitoring is not required for this pollutant. The table shows that predicted F impacts from the project are predicted to be greater than the de minimus level. The department is not requiring preconstruction monitoring for F for this project because there are no EPA-approved monitoring methods for F. The maximum impact of the project's F emissions were modeled, however, and compared to the department's draft ambient reference concentrations for F. The modeled impacts from the project were less than these reference concentrations. In addition, a BACT determination which will set maximum emission limits for F emissions is required for this project

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

Pollutant	Avg. Time	Max Predicted Impact (ug/m ³)	De Minimus Level(ug/m ³)	Impact Greater Than De Minimus?
PM ₁₀	24-hour	4.7	10	NO
F	24-hour	1.6	0.25	YES

6.1.3 Models and Meteorological Data Used in the Air Quality Impact Analysis

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

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

Since five years of data were used in ISCST3, the highest-second-high (HSH) short-term predicted concentrations were compared with the appropriate AAQS or PSD increments. For the annual

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

averages, the highest predicted yearly average was compared with the standards. For determining the project's significant impact area in the vicinity of the facility and if there are significant impacts from the project on any PSD Class I area, both the highest short-term predicted concentrations and the highest predicted yearly averages were compared to their respective significant impact levels.

6.1.4 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. Sixteen receptor rings with 10 degree intervals (10-360 degrees) were placed at distances ranging from 0.5 to 18 km from the facility, which is located in a PSD Class II area. In addition receptors were located along the facility's property boundary. Thirteen discrete receptors were set in the Chassahowitzka National Wilderness Area (CNWA) which is a PSD Class I area located approximately 105 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. The results of the significant impact modeling show that there are no significant impacts predicted from emissions from this project; therefore, no further modeling was required.

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

Pollutant	Averaging Time	Maximum Predicted Impact (ug/m ³)	Significant Impact Level (ug/m ³)	Significant Impact?
PM ₁₀	Annual	0.12	1	NO
	24-hour	4.7	5	NO

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

Pollutant	Averaging Time	Maximum Predicted Impact (ug/m ³)	Significant Impact Level (ug/m ³)	Significant Impact?
PM ₁₀	Annual	0.002	0.2	NO
	24-hour	0.03	0.3	NO

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

6.2 Additional Impacts Analysis

6.2.1 Impact Analysis Impacts On Soils, Vegetation, And Wildlife

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

6.2.2 Impact On Visibility

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

6.2.3 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.

7. CONCLUSION

Based on the foregoing technical evaluation of the application and additional information submitted by the applicant, the Department has made a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations, provided the Department's BACT determination is implemented.

Syed Arif, P.E.
Cleve Holladay, Meteorologist

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PERMITTEE:

Farmland Hydro, L.P.
P.O. Box 960
Bartow, Florida 33831

Authorized Representative:
C. M. Farris
Vice President, Operations

File No.	1050053-020-AC
Permit No.	PSD-FL-246
SIC No.	2874
Project:	North MAP/DAP Plant
Expires:	December 31, 1999

PROJECT AND LOCATION:

Permit for the construction /modification of the North MAP/DAP Plant to increase production and the fertilizer storage and shipping rates at the Farmland (Green Bay) facility, 4390 County Road 640 West, Bartow, Polk County. UTM coordinates are Zone 17; 409.5 km E; 3080.1 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
Appendix CSC	Emission Unit(s) Common Specific Conditions

Howard L. Rhodes, Director
Division of Air Resources
Management

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SECTION I. FACILITY INFORMATION

SUBSECTION A. FACILITY DESCRIPTION

Farmland's North MAP/DAP Plant presently has a permitted capacity of 120 tons of MAP product per hour and 100 tons of DAP product per hour. This permit allows an increase in the permitted capacity of MAP to 200 tons of product per hour (106.1 tons of P_2O_5 input per hour) and for DAP to 150 tons of product per hour (70.4 tons of P_2O_5 input per hour). Additionally, the maximum permitted process rate for the fertilizer storage and shipping building is increased from 98 to 120 tons of P_2O_5 per hour.

SUBSECTION B. REGULATORY CLASSIFICATION

The North MAP/DAP Plant is classified as a major source of air pollution or Title V source because it has the potential to emit at least 100 tons per year of particulate matter, nitrogen oxides and sulfur dioxide.

SUBSECTION C. PERMIT SCHEDULE:

- 12-24-97: Date of Receipt of Application
- 04-13-98: Application deemed complete
- 07-06-98: Intent issued

SUBSECTION D. RELEVANT DOCUMENTS:

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

- Application received 12-24-97
- Department's incompleteness letters dated 01-23-97, 04-03-98
- Applicant's letters dated 03-06-98, 04-13-98, 06-18-98
- Fish and Wildlife Service letter dated 04-15-98
- Technical Evaluation and Preliminary Determination dated 07-02-98
- Best Available Control Technology determination (issued concurrently with permit)

DRAFT**SECTION II. EMISSION UNIT(S) GENERAL REQUIREMENTS**

SUBSECTION A. ADMINISTRATIVE

- A.1 Regulating Agencies: All documents related to applications for permits to operate, reports, tests, minor modifications and notifications shall be submitted to the Department of Environmental Protection, Southwest District Office located at 3804 Coconut Palm Drive, Tampa, Florida 33619-8218, and phone number (813)744-6100. All applications for permits to construct or modify an emission unit(s) *subject to the Prevention of Significant Deterioration (PSD)* should be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (FDEP) located at 2600 Blairstone Road, Tallahassee, Florida 32399-2400 and phone number (850)488-0114.
- A.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.]
- A.3 Terminology: The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.
- A.4 Forms and Application Procedures: The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. [Rule 62-210.900, F.A.C.]
- A.5 Expiration: This air construction permit shall expire on December 31, 1999. [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 permitting authority 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.]
- A.6 Applicable Regulations: The facility is subject to the following regulations: Florida Administrative Code Chapters 62-4; 62-103; 62-204; 62-210; 62-212, 62-296, and 62-297. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements or regulations. [Rule 62-210.300, F.A.C.]

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SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

SUBSECTION A. COMMON CONDITIONS: 40 CFR NEW SOURCE PERFORMANCE STANDARDS

EMISSION UNITS

This permit addresses the following emission units.

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
020	DAP/MAP/TSP Storage & Shipping
029	North MAP/DAP Plant

These emission units shall comply with all applicable requirements of 40 CFR 60, General Provisions, Subpart A, adopted by reference in Rule 62-204.800(7), F.A.C.

- A.1 [40 CFR 60.7, Notification and record keeping]
- A.2 [40 CFR 60.8, Performance tests]
- A.3 [40 CFR 60.11, Compliance with standards and maintenance requirements]
- A.4 [40 CFR 60.12, Circumvention]
- A.5 [40 CFR 60.13, Monitoring requirements]
- A.6 [40 CFR 60.19, General notification and reporting requirements]

The North MAP/DAP Plant is subject to the applicable requirements of the New Source Performance Standards (NSPS) adopted by reference in Rules 62-204.800, F.A.C., including: 40 CFR 60 Subpart V, Standards of Performance for Diammonium Phosphate Plants (DAP).

SUBSECTION B. SPECIFIC CONDITIONS :

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

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
020	DAP/MAP/TSP Storage & Shipping
029	North MAP/DAP Plant

1. Unless otherwise indicated, the construction and operation of the subject North MAP/DAP production facility shall be in accordance with the capacities and specifications stated in the application. [Rule 62-210.300, F.A.C.]
2. The subject emissions units shall comply with all applicable provisions of the 40 CFR 60 New Source performance Standards for Diammonium Phosphate Plants, Subpart V. [Rule 62-204.800 F.A.C.]
3. The production rate shall not exceed 200 tons of MAP (106.1 tons of P₂O₅ feed per hour) or 150 tons of DAP (70.4 tons of P₂O₅ feed per hour). [Rule 62-210.200, F.A.C.]
4. The subject emission units are allowed to operate continuously (8760 hours/year). [Rule 62-210.200, F.A.C.]

DRAFT**SECTION III. EMISSION UNIT(S), SPECIFIC CONDITIONS**

5. Total fluoride emissions during MAP production shall not exceed 6.4 lb/hr and 27.9 TPY. Total fluoride emissions during DAP production shall not exceed 2.9 lb/hr and 12.7 TPY. [Rule 62-212.410, F.A.C.]
6. Particulate matter emissions from the reactor/granulator/dryer stacks during MAP production shall not exceed 31.8 lb/hr and 139.3 TPY. [Rule 62-212.400, F.A.C.]
7. Particulate matter emissions from the reactor/granulator/dryer stacks during DAP production shall not exceed 21.1 lb/hr and 92.5 TPY. [Rule 62-212.400, F.A.C.]
8. Visible emissions from all scrubber stacks shall not exceed 20% opacity. [Rule 62-212.400, F.A.C.]
9. Total sulfur dioxide emissions from the reactor/granulator/dryer stacks shall not exceed 2.53 lb/hr and 11.1 TPY. During periods of firing No. 2 fuel oil with a maximum sulfur content of 0.05% sulfur by weight, the firing rate shall not exceed 50 million BTU per hour and 3.1 million gallons per year. The permittee shall maintain records of the fuel oil supplier's sulfur content analysis. [Rule 62-210.200(228), F.A.C.]
10. Nitrogen oxides emissions from the reactor/granulator/dryer stacks shall not exceed 7.2 lb/hr and 31.3 TPY. [Rule 62-210.200(228), F.A.C.]
11. The permittee shall install, calibrate, operate and maintain monitoring devices that continuously measure and record the total pressure drop across each scrubbing system. Accuracy of the monitoring devices shall be $\pm 5\%$ over the operating range. [Rules 62-297.310, 62-296.800, F.A.C.; 40 CFR 60.223(c)]
12. Before this construction permit expires, the subject emission units shall be tested for compliance with the above emission limits. For the duration of all tests the emission unit 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.]
13. The Department's Southwest District office in Tampa shall be notified in writing at least 15 days prior to the compliance tests. Written reports of the test results shall be submitted to that office within 45 days of test completion. [Rule 62-297.310, F.A.C.]
14. The compliance test procedures shall be in accordance with EPA Reference Methods 1, 2, 3, 4, 5, 7E, 9 and 13A or 13B, as appropriate, as published in 40 CFR 60, Appendix A. 60, Appendix A. [Rules 62-204.800 and 62-297.310(7)(c), F.A.C.]

DRAFT**SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS**

15. All measurements, records, and other data required to be maintained by this facility shall be retained for at least five (5) years following the data on which such measurements, records, or data are recorded. These data shall be made available to the Department upon request. [Rule 62-4.070(3), F.A.C.]
16. The permittee shall install, calibrate, maintain, and operate a monitoring device which can be used to determine the mass flow of phosphorus-bearing feed material to the process. The monitoring device shall have an accuracy of ± 5 percent over its operating range. The permittee shall maintain a daily record of equivalent P_2O_5 feed by first determining the total mass rate in metric ton/hour of phosphorus bearing feed using the flow monitoring device meeting the requirements of 40 CFR 60.223(a) and then by proceeding according to 40 CFR 60.224(b)(3). [Rule 62-296.800, F.A.C.; 40 CFR 60.223(b)]
17. 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.]
18. 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.]
19. The subject emissions units shall be subject to the following:
 - Excess emissions resulting from startup, shutdown or malfunction of any source shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700, F.A.C.]
 - Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited. [Rule 62-210.700, F.A.C.]
 - Considering operational variations in types of industrial equipment operations affected by this rule, the Department may adjust maximum and minimum factors to provide reasonable and practical regulatory controls consistent with the public interest. [Rule 62-210.700, F.A.C.]
 - In case of excess emissions resulting from malfunctions, each source shall notify the Department or the appropriate Local Program in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700, F.A.C.]
20. The permittee shall submit an Annual Operating Report using DEP Form 62-210.900(4) to the Department's Southwest District office by March 1 of the following year for the previous year's operation. [Rule 62-210.370, F.A.C.]

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SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

21. The maximum permitted process rate for the storage and shipping building is 120 tons per hour (as P₂O₅). [Rule 62-210.200, F.A.C.]
22. The allowable emission rates for fluorides and particulate matter from shipping and storage buildings will be the same as the current emission limits in AO53-239602. [Permit AO53-239602]

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

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North Monoammonium and Diammonium Phosphate Plant
Farmland Hydro, L.P. (Green bay Complex)
PSD-FL-246 / 1050053-020-AC
Bartow, Polk County

The Farmland Hydro, L.P. proposes to increase the production rates of monoammonium phosphate (MAP) from 120 to 200 tons per hour (TPH) and of diammonium phosphate (DAP) from 100 to 150 TPH at its existing North MAP/DAP Plant in Bartow, Polk County. The proposed modification will result in a significant increase in emissions of particulate matter (PM/PM₁₀) and fluorides (F). The project is, therefore, subject to Prevention of Significant Deterioration (PSD) review in accordance with Rule 62-212.400, Florida Administrative Code (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.

The North MAP/DAP plant reacts phosphoric acid with ammonia and produces granular MAP and DAP while generating emissions as indicated below:

Pollutant	PSD Level ¹	Actual Emissions ²	Current Allowables	Proposed Emissions ³	Net Change ⁴	Subject to PSD Review?
F (MAP)	3	4.5	16.4	27.9	23.4	Yes
F (DAP)	3	4.1	12.1	18.5	14.4	Yes
PM (MAP)	25/15 ⁵	44.0	98.6	139.3	97.3 ⁶	Yes
PM (DAP)	25/15 ⁵	15.3	70.7	92.5	79.2 ⁶	Yes
NO _x	40	9.6	N/A	31.3	21.7	No
SO ₂	40	0.04	N/A	11.1 ⁷	11.1	No
CO	100	2.4	N/A	7.8	5.4	No
VOC	40	0.2	N/A	0.2	0	No

¹ Tons per year (Rule 212.400, F.A.C.)

² Based on two-year average using 1995 and 1996 compliance data for F and PM/PM₁₀. CO and VOC emissions based on AP-42 factors for boilers.

³ Proposed by applicant as allowable emissions at the new production rate.

⁴ Applicant's proposed emissions minus actuals.

⁵ PM/PM₁₀.

⁶ The net increase includes contemporaneous emissions of 2.0 tpy.

⁷ SO₂ emissions are limited by low sulfur (0.05%) oil usage.

DATE OF RECEIPT OF COMPLETE BACT APPLICATION:

April 13, 1998

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

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BACT DETERMINATION PROCEDURE:

In accordance with Chapter 62-212, F.A.C., this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department of Environmental Protection (Department), on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that, in making the BACT determination, the Department shall give consideration to:

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

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

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

- *Fluorides* (HF, SiF₄). Controlled generally by scrubbing with pond water.
- *Particulate Matter* (PM, PM₁₀). Controlled generally by wet scrubbing or filtration.
- *Combustion Products* (SO₂, NO_x, PM). Controlled generally by good combustion of clean fuels.

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

DRAFT

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

BACT LIMITS PROPOSED BY APPLICANT:

POLLUTANT	EMISSION LIMIT	LIMIT BASIS	CONTROL TECHNOLOGY
F (MAP)	6.4 lb/hr	0.06 lb/ton P ₂ O ₅ input	Two-stage scrubbers using acid/pond water
F (DAP)	4.2 lb/hr	0.06 lb/ton P ₂ O ₅ input	Two-stage scrubbers using acid/pond water
PM (MAP)	31.8 lb/hr	0.3 lb/ton P ₂ O ₅ input	Two-stage scrubbers using acid/pond water
PM(DAP)	21.1 lb/hr	0.3 lb/ton P ₂ O ₅ input	Two-stage scrubbers using acid/pond water

BACT POLLUTANT ANALYSIS

GASEOUS FLUORIDES (F)

Fluoride-containing gases including hydrogen fluoride (HF) and silicon tetrafluoride (SiF₄) are evolved during the exothermic reaction between ammonia and phosphoric acid that occurs in the reactor and to a lesser extent in the granulator. Since the vent gases from the reactor and granulator contain ammonia in high concentrations, the first scrubbing stage uses a phosphoric acid stream as the scrubbing medium for recovery of ammonia so that it is recycled back to the process. A final stage of pond water scrubbing removes most of the fluoride evolved from the process as well as that which is stripped out of the phosphoric acid in the first stage scrubber.

Additional fluoride and ammonia emissions are generated in the dryer and are controlled by a separate two-stage scrubbing system as for the reactor and granulator. Gaseous fluoride and ammonia emissions from the cooler are relatively low and therefore do not require special controls. The applicant has proposed that the existing emission control equipment be considered as BACT.

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

DRAFT

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

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 granulator, dryer, 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 applicant has proposed that the existing control equipment be considered as BACT.

BACT DETERMINATION BY THE DEPARTMENT:

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

POLLUTANT	EMISSION LIMIT	LIMIT BASIS
F (MAP)	6.4 lb/hr	0.06 lb/ton P ₂ O ₅ input (includes cooler emissions)
F (DAP)	2.9 lb/hr	0.0417 lb/ton P ₂ O ₅ input (includes cooler emissions)
PM/PM ₁₀ (MAP)	31.8 lb/hr	0.3 lb/ton P ₂ O ₅ input
PM/PM ₁₀ (DAP)	21.1 lb/hr	0.3 lb/ton P ₂ O ₅ input

FLUORIDES

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

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

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

Option 2 is possible, the main considerations being the cost of installing the pond and equipment and the cost of operating a lime treatment unit. Lime treatment to a pH level of 3.5 to 4.0 causes fluorides to precipitate out of solution, primarily as calcium fluoride. At this point the water would contain as low as 30-60 ppm fluoride. With second-stage lime treatment to a pH of 6.0 or more, the calcium compounds (mainly dicalcium phosphate) precipitate out along with additional calcium fluoride. Upon settling at a pH in the range of 6.5 to 8.8, the fluoride content of the clear neutralized water may be as low as 15 ppm, depending on the quality of the neutralization facility and the mixing efficiency.

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

DRAFT

Costs for Option 2 are based on the data submitted by the applicant:

ITEM	COST
Packed Scrubber	\$ 1,500,000
Lined Pond	\$ 4,500,000
Total Installed Cost (TIC)	\$ 6,000,000
Annual Costs:	
Capital Recovery (TIC x 0.1175)	\$ 705,000
Operation & Maintenance (@ 8.7% of TIC)	\$ 52,000
Total Annual Cost	\$ 757,400

Based on the Department's recently proposed BACT for fluorides from a fertilizer (prilled MAP) plant of 0.019 lb/ton P₂O₅ feed, which has an option for a recirculated scrubber water treatment system with a dedicated pond to meet the BACT emissions limit, the potential emissions from the North MAP/DAP Plant can be projected as follows:

$$\begin{aligned} \text{F Removed} &= 106.1 \text{ tph P}_2\text{O}_5 \times 0.019 \text{ lb/ton P}_2\text{O}_5 \times 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\ &= 8.8 \text{ tpy} \end{aligned}$$

The cost of additional control:

$$\begin{aligned} \text{Total Cost} &= \$757,400 / (27.9 \text{ tpy} - 8.8 \text{ tpy}) \\ &= \$ 39,654/\text{ton additional F removed} \end{aligned}$$

This figure is sufficiently high to rule out Option 2. However it should be noted that the low magnitude of fluoride emissions relative to their potential environmental impact justifies the consideration of higher fluoride cost effectiveness figures relative to the high tonnage pollutants such as sulfur dioxide and nitrogen oxides. Option 3, therefore, is determined by the top-down approach as the basis for the fluoride BACT emission limit.

The BACT limit for MAP is determined to be 0.06 lb/ton P₂O₅ feed based on the recent compliance test results for the MAP plant done between 1994 - 1998. Additionally, the process equipment utilized for MAP production i.e., the pipe reactor system is very sensitive to process flow changes, and this results in a wider range of emissions than that for DAP production. Farmland is the only facility in Florida that is using pipe reactor technology for MAP production. The BACT limit for DAP will be the same as determined for the IMC-Agrico Nichols and New Wales Plant (0.0417 lb F/ton P₂O₅ input). This limit has been demonstrated by Farmland based on their compliance test results between 1994 - 1998 to be achievable.

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

DRAFT

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

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.

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 since the existing venturi scrubbers are capable of being operated in the medium energy range, the BACT requirement will be satisfied by specifying their normal operation at a minimum pressure drop of 15 in. w.c.

COMPLIANCE

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

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

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

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

DRAFT

DETAILS OF THE ANALYSIS MAY BE OBTAINED BY CONTACTING:

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

Recommended By:

Approved By:

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

Howard L. Rhodes, Director
Division of Air Resources Management

Date:

Date:

APPENDIX CSC

EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

SUBSECTION 1.0 CONSTRUCTION REQUIREMENTS

- 1.1 Applicable Regulations: Unless otherwise indicated in this permit, the construction and operation of the subject emission unit(s) 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, 62-103, 62-204, 62-210, 62-212, 62-213, 62-296, 62-297; and the applicable requirements of the Code of Federal Regulations Section 40, Part 60, adopted by reference in the Florida Administrative Code regulation [Rule 62-204.800, 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 requirements or regulations. [Rule 62-210.300, F.A.C.]

SUBSECTION 2.0 EMISSION LIMITING STANDARDS

- 2.1 General Particulate Emission Limiting Standards. General Visible Emissions Standard: Except for emissions units that are subject to a particulate matter or opacity limit set forth or established by rule and reflected by conditions in this permit, no person shall cause, let, permit, suffer, or allow to be discharged into the atmosphere the emissions of air pollutants from any activity, the density of which is equal to or greater than that designated as Number 1 on the Ringelmann Chart (20% opacity). [Rule 62-296-320(4)(b)1, F.A.C.]
- 2.2 Unconfined Emissions of Particulate Matter [Rule 62-296.320(4)(c), F.A.C.]
- (a) The owner or operators shall not cause, let, permit, suffer or allow the emissions of unconfined particulate matter from any source whatsoever, including, but not limited to, vehicular movement, transportation of materials, construction, alteration, demolition or wrecking, or industrially related activities such as loading, unloading, storing or handling, without taking reasonable precautions to prevent such emission.
 - (b) Any permit issued to a facility with emissions of unconfined particulate matter shall specify the reasonable precautions to be taken by that facility to control the emissions of unconfined particulate matter.
 - (c) Reasonable precautions include the following:
 - Paving and maintenance of roads, parking areas and yards.
 - Application of water or chemicals to control emissions from such activities as demolition of buildings, grading roads, construction, and land clearing.
 - Application of asphalt, water, oil, chemicals or other dust suppressants to unpaved roads, yards, open stock piles and similar activities.
 - Removal of particulate matter from roads and other paved areas under the control of the owner or operator of the facility to prevent reentrainment, and from buildings or work areas to prevent particulate from becoming airborne.
 - Landscaping or planting of vegetation.
 - Use of hoods, fans, filters, and similar equipment to contain, capture and/or vent particulate matter.

APPENDIX CSC

EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

- Confining abrasive blasting where possible.
- Enclosure or covering of conveyor systems.

NOTE: Facilities that cause frequent, valid complaints may be required by the Permitting Authority to take these or other reasonable precautions. In determining what constitutes reasonable precautions for a particular source, the Department shall consider the cost of the control technique or work practice, the environmental impacts of the technique or practice, and the degree of reduction of emissions expected from a particular technique or practice.

2.3 General Pollutant Emission Limiting Standards: [Rule 62-296.320, F.A.C.]

- (a) The owner or operator shall not store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems.
- (b) No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor.

NOTE: An objectionable odor is defined as any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [F.A.C. 62-210.200(198)]

SUBSECTION 3.0 OPERATION AND MAINTENANCE

3.1 Changes/Modifications: The owner or operator shall submit to the Permitting Authority(s), for review any changes in, or modifications to: the method of operation; process or pollution control equipment; increase in hours of operation; equipment capacities; or any change which would result in an increase in potential/actual emissions. Depending on the size and scope of the modification, it may be necessary to submit an application for, and obtain, an air construction permit prior to making the desired change. *Routine maintenance of equipment will not constitute a modification of this permit.* [Rule 62-4.030, 62-210.300 and 62-4.070(3), F.A.C.]

3.2 Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the owner or operator shall notify the Permitting Authority as soon as possible, but at least within (1) working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; the steps being taken to correct the problem and prevent future recurrence; and where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit and the regulations. [Rule 62-4.130, F.A.C.]

APPENDIX CSC

EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

- 3.3 Circumvention: The owner or operator shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rules 62-210.650, F.A.C.]
- 3.4 Excess Emissions Requirements [Rule 62-210.700, F.A.C.]
- (a) Excess emissions resulting from start-up, shutdown or malfunction of these emissions units 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 Permitting Authority office for longer duration. [Rule 62-210.700(1), F.A.C.]
 - (b) Excess emissions that are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during start-up, shutdown, or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]
 - (c) In case of excess emissions resulting from malfunctions, the owner or operator shall notify Permitting Authority within one (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the problem; and the corrective actions being taken to prevent recurrence. [Rule 62-210.700(6), F.A.C.]
- 3.5 Operating Procedures: Operating procedures shall include good operating practices and proper training of all operators and supervisors. The good operating practices shall meet the guidelines and procedures as established by the equipment manufacturers. All operators (including supervisors) of air pollution control devices shall be properly trained in plant specific equipment. [Rule 62-4.070(3), F.A.C.]

SUBSECTION 4.0 MONITORING OF OPERATIONS

- 4.1 Determination of Process Variables
- (a) The permittee shall operate and maintain equipment and/or instruments necessary to determine process variables, such as process weight input or heat input, when such data is needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.
 - (b) Equipment and/or instruments used to directly or indirectly determine such process variables, including devices such as belt scales, weigh hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value. [Rule 62-297.310(5), F.A.C.]

APPENDIX CSC

EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

SUBSECTION 5.0 TEST REQUIREMENTS

- 5.1 Test Performance: Within 60 days after achieving the maximum production rate at which these emission units will be operated, but not later than 180 days after initial startup and annually thereafter, the owner or operator of this facility shall conduct performance test(s) pursuant to 40 CFR 60.8, Subpart A, General Provisions and 40 CFR 60, Appendix A. No other test method shall be used unless approval from the Department has been received in writing. Unless otherwise stated in the applicable emission limiting standard rule, testing of emissions shall be conducted with the emission unit(s) operating at permitted capacity pursuant to Rule 62-297.310(2), F.A.C. [**Rules 62-204.800, 62-297.310, 62-297.400, 62-297.401, F.A.C.**]
- 5.2 Test Procedures shall meet all applicable requirements of the Florida Administrative Code Chapter 62-297. [**Rule 62-297.310, F.A.C.**]
- 5.3 Test Notification: The owner or operator shall notify the Permitting Authority in writing at least *(30) days* (initial) and *15 days* (annual) prior to each scheduled compliance test to allow witnessing. The notification shall include the compliance test date, place of such test, the expected test time, the facility contact person for the test, and the person or company conducting the test. The (30) or (15) day notification requirement may be waived at the discretion of the Department. Likewise, if circumstances prevent testing during the test window specified for the emission unit, the owner or operator may request an alternate test date before the expiration of this window. [**Rule 62-297.310 and 40 CFR 60.8, F.A.C.**]
- 5.4 Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in Rule 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C. or in a permit issued pursuant to those rules is being violated, it may require the owner or operator of the facility to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions units and to provide a report on the results of said tests to the Permitting Authority. [**Rule 62-297.310(7)(b), F.A.C.**]
- 5.5 Stack Testing Facilities: The owner or operator shall install stack testing facilities in accordance with **Rule 62-297.310(6), F.A.C.**
- 5.6 Exceptions and Approval of Alternate Procedures and Requirements: An Alternate Sampling Procedure (ASP) may be requested from the Bureau of Air Monitoring and Mobile Sources of the Florida Department of Environmental Protection in accordance with the procedures specified in **Rule 62-297.620, F.A.C.**
- 5.7 Operating Rate During Testing: Unless otherwise stated in the applicable emission limiting standard rule, testing of emissions shall be conducted with the emissions unit operation at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impracticable to test at permitted capacity, an

APPENDIX CSC

EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

emissions unit may be tested at less than the minimum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test load until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. [Rule 62-297.310(2) and (3), F.A.C.]

SUBSECTION 6.0 REPORTS AND RECORDS

- 6.1 Duration: All reports and records required by this permit shall be kept for at least (5) years from the date the information was recorded. [Rule 62-4.160(14)(b), F.A.C.]
- 6.2 Emission Compliance Stack Test Reports:
- (a) A *test report* indicating the results of the required compliance tests shall be filed with the Permitting Authority as soon as practical, but no later than 45 days after the last sampling run is completed. [Rule 62-297.310(8), F.A.C.]
 - (b) The *test report* shall provide sufficient detail on the tested emission unit and the procedures used to allow the Department to determine if the test was properly conducted and if the test results were properly computed. At a minimum, the test report shall provide the applicable information listed in **Rule 62-297.310(8), F.A.C.**
- 6.3 Excess Emissions Report: If excess emissions occur, the owner or operator shall notify the Permitting Authority within (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the Department may request a written summary report of the incident. Pursuant to the New Source Performance Standards, excess emissions shall also be reported in accordance with 40 CFR 60.7, Subpart A. [Rules 62-4.130 and 62-210.700(6), F.A.C.]
- 6.4 Annual Operating Report for Air Pollutant Emitting Facility: Before March 1st of each year, the owner or operator shall submit to the Permitting Authority this required report [DEP Form No. 62-210.900(5)], which summarizes operations for the previous calendar year. [Rule 62-210.370(3), F.A.C.]

SUBSECTION 7.0 OTHER REQUIREMENTS

- 7.1 Waste Disposal: The owner or operator shall treat, store, and dispose of all liquid, solid, and hazardous wastes in accordance with all applicable Federal, State, and Local regulations. This air pollution permit does not preclude the permittee from securing any other types of required permits, licenses, or certifications.

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

- G.1 The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
- G.2 This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings or exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
- G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
- G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
- G.5 This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
- G.6 The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
- G.7 The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
- (a) Have access to and copy and records that must be kept under the conditions of the permit;
 - (b) Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
 - (c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

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

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

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

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

- G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.
- G.10 The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
- G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
- G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.
- G.13 This permit also constitutes:
- (a) Determination of Best Available Control Technology (*X*)
 - (b) Determination of Prevention of Significant Deterioration (*X*); and
 - (c) Compliance with New Source Performance Standards (*X*).
- G.14 The permittee shall comply with the following:
- (a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
 - (b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
 - (c) Records of monitoring information shall include:
 - 1. The date, exact place, and time of sampling or measurements;
 - 2. The person responsible for performing the sampling or measurements;
 - 3. The dates analyses were performed;
 - 4. The person responsible for performing the analyses;
 - 5. The analytical techniques or methods used; and
 - 6. The results of such analyses.
- G.15 When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

Florida Department of
Environmental Protection

Memorandum

TO: ~~Clair Fancy~~ *aaf for cif 7/2*
THRU: Al Linero *aaf 7/2*
FROM: Syed Arif *Syed Arif*
DATE: July 1, 1998
SUBJECT: Farmland Hydro, L.P./ Green Bay North MAP/DAP Plant /
1050053-020-AC (PSD-FL-246)

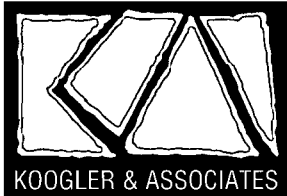
Attached is the Public Notice package for increasing the production rate at the above referenced facility.

The only pollutants that underwent PSD review were PM/PM₁₀ and Fluorides. The BACT determination concluded that the existing control equipment meets BACT requirements. The BACT for MAP/DAP fluorides and PM/PM₁₀ were based on the past actuals as demonstrated during the compliance tests results for 1994-1998. Additionally, the fertilizer storage and shipping process rates will be increased from 98 to 120 tons per hour P₂O₅.

I recommend your approval and signature.

AAL/sa

Attachments



KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES

4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
352/377-5822 • FAX/377-7158

KA 123-97-01

June 18, 1998

RECEIVED

JUN 19 1998

BUREAU OF
AIR REGULATION

Mr. Syed Arif
Florida Department of
Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: DAP Emissions Information
North MAP/DAP Plant
Farmland Hydro, L.P.
DEP File No. 1050053-020-AC, PSD-FL-246

Dear Mr. Arif:

This is in response to your telephone conversation with Pradeep Raval today, requesting additional information on DAP emissions from the North MAP/DAP Plant.

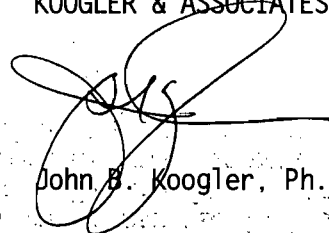
The emission comparisons for DAP production are summarized in Tables 1 and 2. The emission calculations are also attached. The results of the comparison indicate that the PSD applicability previously submitted for particulate matter (PM) and fluorides (F), based on MAP production, is more conservative.

Regarding your request for additional supporting information for a F limit during MAP production, the information from a compliance test conducted earlier in the year is presented in Table 3. Based on these data, which indicate a F emission rate of 0.06 lb/ton P205, it requested that the F limit on the MAP production mode remain at 0.06 lb/ton P205. As explained during your site visit, the pipe reactor system in the MAP plant is very sensitive to process flow changes, and this results in a wider range of emissions than that for DAP production. We are not aware of any other MAP plant currently using a pipe reactor like Farmland's.

If you have any further questions, please call Pradeep Raval or me.

Very truly yours,

KOOGLER & ASSOCIATES



John B. Koogler, Ph.D., P.E.

JBK:par

c: Charles Jenkins, Farmland Hydro, L.P.

cc: SWD
park Co.

EPA

NPS

C. Helladay, BAR

TABLE 1
 CHANGES IN EMISSION RATES
 NORTH MAP/DAP PLANT
 BASED ON DAP PRODUCTION

	ALLOWABLE EMISSION RATES			
	CURRENT (100 TPH DAP)		PROPOSED (150 TPH DAP)	
	lb/hr	tpy	lb/hr	tpy
Fluorides	2.76	12.1	4.22	18.5
Particulates	16.1	70.7	21.1	92.5

NOTES:

- (1) See attached calculations of emission rates.
- (2) The emission rates corresponds to the total for both North Plant stacks combined, when producing DAP.

TABLE 2
NET EMISSION CHANGES(1)
NORTH MAP/DAP PLANT
BASED ON DAP PRODUCTION

POLLUTANT	EMISSION RATE (tpy)			SIG.(2)	PSD?
	ACTUALS	PROPOSED	NET CHANGE		
Fluorides	4.1	18.5	14.4	3	YES
Particulates	15.3	92.5	79.2 (3)	25/15	YES
Sulfur Dioxide	0.04	11.1 (4)	11.1	40	NO
Nitrogen Oxides	9.6	31.3	21.7	40	NO
Carbon Monoxide	2.4	7.8	5.4	100	NO
Organics, VOCs	0.2	0.2	0	40	NO

- (1) See attached emission calculations.
- (2) Pursuant to Rule 62-212, FAC. Significant levels for PM and PM10 are 25 and 15 tpy, respectively.
- (3) The net increase includes contemporaneous emissions of 2.0 tpy.
- (4) SO2 emissions are limited by low sulfur (0.05%) oil usage.

TABLE 3

EMISSION MEASUREMENTS DURING MAP PRODUCTION

EXECUTIVE SUMMARY

TOTAL PLANT STACK RESULTS

FLUORIDE RESULTS

FEBRUARY 11-14, 1998

RUN #	Dryer Stack F lb/hr	R/G Stack F lb/hr	TOTAL F lb/hr	TOTAL F lb/ton	Permit Limit F lb/ton
1	0.687	1.609	2.296	0.048	
2	0.505	3.375	3.880	0.062	
3	0.510	4.697	5.207	0.084	
Average	0.567	3.227	3.794	0.06	0.06

PARTICULATE RESULTS

RUN #	Dryer Stack PM lb/hr	R/G Stack PM lb/hr	TOTAL PM lb/hr	Permit Limit PM lb/hr
1	4.810	1.599	4.810	
2	4.306	3.790	8.096	
3	6.856	3.897	10.753	
Average	5.324	3.095	8.419	22.5

EMISSION CALCULATIONS
EMISSION COMPARISONS BASED ON DAP EMISSIONS

NORTH MAP/DAP PLANT
FARMLAND HYDRO, L.P.

MAXIMUM ALLOWABLE EMISSION RATES

The maximum F and PM emissions during DAP Production:

F = 2.76 lb/hr; 12.1 tpy
PM/PM10 = 16.1 lb/hr; 70.7 tpy

ACTUAL EMISSION RATES

Based on 1995 and 1996 (same period used for MAP) compliance tests conducted during DAP production:

Year	Hours Operated	Compliance Test Emission Rate (lb/hr)	
		F	PM
1995	7413	1.34	4.77
1996	7738	0.82	3.30
AVERAGE	7576	1.08	4.04

Actual F and PM/PM10 emissions can be estimated from the annual hours of operation and the DAP compliance test data. Estimated emissions of SO₂, NO_x, CO and VOCs are the same as previously submitted.

F = 1.08 lb/hr x 7576 hrs/yr x ton/2000 lbs
= 4.1 tpy
PM/PM10 = 4.04 lb/hr x 7576 hrs/yr x ton/2000 lbs
= 15.3 tpy

PROPOSED ALLOWABLE EMISSION RATES

MAXIMUM PROCESS RATE: Based on maximum DAP production capacity and 98% conversion efficiency,

P205 INPUT = 150 tph DAP x 0.46 x 1/0.98 conversion
(For DAP) = 70.4 tph P205

NOTE: P205 INPUT = 200 tph MAP x 0.52 x 1/0.98 conversion
(For MAP) = 106.1 tph P205

$$\begin{aligned}
 \text{F (DAP)} &= 70.4 \text{ tph P205} \times 0.06 \text{ lb F/ton P205} \\
 &= 4.22 \text{ lb/hr} \\
 &\times 8760 \text{ hrs/yr} \times \text{ton/2000 lbs} \\
 &= 18.5 \text{ tpy}
 \end{aligned}$$

$$\begin{aligned}
 \text{PM/PM10 (DAP)} &= 70.4 \text{ tph P205} \times 0.3 \text{ lb PM/ton P205} \\
 &= 21.1 \text{ lb/hr} \\
 &\times 8760 \text{ hrs/yr} \times \text{ton/2000 lbs} \\
 &= 92.5 \text{ tpy}
 \end{aligned}$$

NET EMISSIONS INCREASES

Net emissions = Proposed + Contemporaneous - Actual

Based on site permitting history, the following contemporaneous emissions would need to be included in the calculations.

$$\text{F} = 0 \text{ tpy}$$

$$\text{PM/PM10} = 2.0 \text{ tpy}$$

The net emissions increases associated with the proposed project can be estimated as follows:

$$\begin{aligned}
 \text{F (DAP)} &= (18.5 + 0 - 4.1) \text{ tpy} \\
 &= 14.4 \text{ tpy}
 \end{aligned}$$

(NOTE: The net F increase projected under MAP mode was 23.4 tpy)

$$\begin{aligned}
 \text{PM/PM10 (DAP)} &= (92.5 + 2.0 - 15.3) \text{ tpy} \\
 &= 79.2 \text{ tpy}
 \end{aligned}$$

(NOTE: The net PM increase projected under MAP mode was 97.3 tpy)



United States Department of the Interior

FISH AND WILDLIFE SERVICE

1875 Century Boulevard
Atlanta, Georgia 30345

April 15, 1998

IN REPLY REFER TO:

PSD-FL-246

RECEIVED

APR 20 1998

BUREAU OF
AIR REGULATION

Mr. C. H. Fancy
Chief, Bureau of Air Regulation
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road, MS 48
Tallahassee, Florida 32399-2400

Dear Mr. Fancy:

1050053-020-AC
PSD-FL-246

Our Air Quality Branch has reviewed the additional information provided in the March 3, 1998, letter from Koogler & Associates to Mr. Syed Arif, Florida Department of Environmental Protection, and forwarded to us by your Department regarding Farmland Hydro, L.P.'s proposal to increase the monoammonium phosphate (MAP) and diammonium phosphate production rate at its phosphate fertilizer manufacturing facility in Polk County, Florida. In a January 28, 1998, letter and technical review document we requested that Farmland be required to meet lower emissions rates than those proposed for fluorides and particulate matter. In its March 3 letter, Farmland presented compliance test information to support their assertion that they could not meet our requested fluoride emission rate of 0.0417 lb/ton P₂O₅. Our Air Quality Branch has reviewed this test information, and their comments are summarized below.

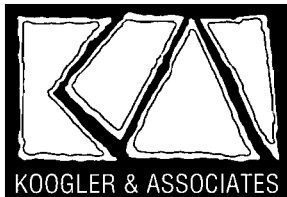
Results from Farmland's past compliance tests appear inconsistent, particularly for fluoride emissions. For example, all tests from February 1994 to May 1996 demonstrated that very low emission rates were achievable for the MAP Reactor/Granulator. Significantly higher emission rates were observed in March 1997, skewing the average emission rates. Please require Farmland to submit information explaining the higher March 1997 results.

If you have any questions, please contact Ms. Ellen Porter of our Air Quality Branch in Denver at 303/969-2617.

Sincerely yours,

for Sam D. Hamilton
Regional Director

cc: S. Arif, BAR
SWD
EPA
Polk Co.
Koogler & Assoc.



KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
 4014 NW THIRTEENTH STREET
 GAINESVILLE, FLORIDA 32609
 352/377-5822 • FAX/377-7158

KA 123-97-01

April 9, 1998

RECEIVED

APR 13 1998

**BUREAU OF
 AIR REGULATION**

Mr. Syed Arif
 Florida Department of
 Environmental Protection
 Twin Towers Office Building
 2600 Blair Stone Road
 Tallahassee, FL 32399-2400

Subject: Additional Information
 North MAP/DAP Plant
 Farmland Hydro, L.P.
 DEP File No. 1050053-020-AC, PSD-FL-246

Dear Mr. Arif:

This is in response to FDEP's letter dated April 3, 1998, requesting additional information on the fluorides compliance test data for the North Plant reviewed by the U.S. Fish & Wildlife Service (FWS).

The data submitted to FDEP are based on actual compliance tests conducted in accordance with applicable testing requirements under normal operating conditions. The variability in fluoride emissions is typical for the North Plant. As can be expected, there is greater variability in emissions from individual plant sections than the total plant emissions. This shows how the fluoride emissions distribution within the plant can vary; a characteristic of phosphate fertilizer plants accounted for by EPA when promulgating the NSPS.

In our opinion, the higher R/G fluoride emissions in the March 1997 test can be explained by the fluorides distribution within the plant at the time of the test and the fact that the plant was operating at the highest material processing rate tested.

If you have any further questions, please call Pradeep Raval or me.

Very truly yours,

KOOGLER & ASSOCIATES


 John B. Koogler, Ph.D., P.E.

cc: File
 SWP
 POLK CO
 Cleve Holladay, BAR
 EPA

JBK:par NPS

c: Charles Jenkins, Farmland Hydro, L.P.



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

April 3, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. C. M. Farris, Vice President, Operations
Farmland Hydro, L.P.
Post Office Box 960
Bartow, Florida 33831

Re: DEP File No. 1050053-020-AC (PSD-FL-246)
Green Bay Facility, MAP/DAP Production Increases

Dear Mr. Farris:

Enclosed are the comments we received by fax from the Air Quality Branch of the Fish and Wildlife Service in response to your March 3, 1998 information addressing our letter dated January 23, 1998. We will send you a copy of the signed version from the Fish and Wildlife Service when we receive it. Please respond to their question about the compliance test information which was submitted in response to question No. 2 of the January 23, 1998 letter.

The Department will resume processing this application after receipt of the requested information. If you have any questions regarding this matter, please call me at (850)488-1344.

Sincerely,

A handwritten signature in cursive script, appearing to read "Syed Arif P.E. 4/3".
for Syed Arif, P.E.

SA/ch/t

Enclosure

cc: Brian Beals, EPA
John Bunyak, NPS
Bill Thomas, SWD
Joe King, Polk County
John Koogler, P.E.



U.S. FISH & WILDLIFE SERVICE
AIR QUALITY BRANCH

P.O. BOX 25287, Denver, CO 80225-0287

FACSIMILE COVER SHEET

Date: April 2, 1998

Telephone: (303) 969-2617

Fax: (303) 969-2822

To: FDEP

Through: Cleve Holladay

From: Ellen Porter

Subject: Farmland Hydro MAP/DAP Plant. Response to Koogler & Assoc.
March 3 letter to FDEP.

We question the results of Farmland's past compliance tests, particularly for fluoride. For example, all tests from Feb 94 to May 96 demonstrated that very low levels were achievable for the R/G. Higher rates were observed in Mar 97, skewing the average. Please have Farmland provide information explaining why the Mar 97 results were significantly higher than those from previous tests.

Number of Pages: **3**
(Including this cover sheet)

Office Location: 7333 West Jefferson Ave, Suite 450, Lakewood, CO 80235

P 265 659 326

US Postal Service
Receipt for Certified Mail

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Mr CM Farris	
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Farmland Hydro	
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1056053-020-AC 4-3-98 PSD-FI-246	

PS Form 3800, April 1995

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3. Article Addressed to:
 Mrs. M. Farris, VP
 Farmland Hydro
 P.O. Box 960
 Bartow, FL 33831

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P 265 659 326

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APR - 7 1998

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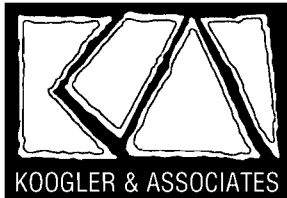
X Jean Hicks

X 960

PS Form 3811, December 1994

Domestic Return Receipt

Thank you for using Return Receipt Service.



KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES

4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
352/377-5822 • FAX/377-7158

KA 123-97-01

March 3, 1998

RECEIVED

MAR 06 1998

**BUREAU OF
AIR REGULATION**

Mr. Syed Arif
Florida Department of
Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: Additional Information
North MAP/DAP Plant
Farmland Hydro, L.P.
DEP File No. 1050053-020-AC, PSD-FL-246.

Dear Mr. Arif:

This is in response to FDEP's letter dated January 23, 1998, requesting additional information on the above referenced project. The responses are in the order of the questions raised by FDEP and the U.S. Fish & Wildlife Service (FWS). Where the same issues were raised by both agencies, a single response has been provided.

1. Please provide the process flow diagram for this project indicating the scrubbers at each process step and any minor modifications required to facilitate the increase in production rates for MAP/DAP. Also, provide information on the scrubbers, what type, efficiencies, etc.

RESPONSE:

The proposed project does not involve any planned changes in the plant equipment. Some minor changes may be made, if required, to pumps, piping, ducting, etc. The requested information is presented in Attachment 1.

2. Please note that a previous BACT for IMC-Agrico DAP Plant (PSD-FL-204) was determined to be 0.0417 lb/ton P205 for fluoride emissions. This was based on the historical compliance test results for fluoride emissions at their DAP plant. Please provide similar data of compliance test results (last five years) for the MAP/DAP plants. Indicate by statistical analyses the most stringent BACT limit (lb/ton P205) that can be established based on the compliance test results. Provide the same analysis for particulate matter emissions.

RESPONSE:

The requested compliance test information is presented in Attachment 2. The statistical analysis of past compliance tests on the North MAP/DAP Plant indicates that the most stringent fluorides emissions limit, at a 99 percent confidence level, is 0.054 pound per ton P205 feed. This limit would be more stringent than the 0.06 pound per ton P205 proposed by Farmland. On the other hand the proposed particulate matter limit, of 0.288 pound per ton P205, is more restrictive than the statistically derived limit.

3. Tables 3-1 and 3-2 of the application gives changes in emission rates and net emission changes for MAP production. Please provide the same information for DAP production.

RESPONSE:

The requested information, based on DAP production, is included in Attachment 2. It should be noted that the PSD applicability determination is the same for either set of emissions data.

4. The current air operating permit required emissions test from each stack (main stack and Reactor-Granulator stack) for ammonia during MAP/DAP production. Please provide the results for these tests, and indicate the percent loss of ammonia from the process.

RESPONSE:

The information on ammonia tests results, shown below, indicates a negligible process loss (0.3 percent) by way of stack emissions.

STACK	PRODUCT	AMMONIA FEED (tph)	AMMONIA EMISSIONS (lb/hr)			
			Run 1	Run 2	Run 3	Avg.
R/G DRYER	MAP	14.5	9.64	19.97	18.63	16.08
	MAP		0.25	0.41	0.97	0.54
R/G DRYER	DAP	19.7	78.82	197.05	40.05	105.31
	DAP		3.10	2.27	2.88	2.75

5. The highest modeled concentration due to the proposed project is greater than the 24-hour PM10 Class II significant impact level; therefore, a full impact analysis to determine impacts on the ambient air quality standard (AAQS) and PSD Class II increment is required for the 24-hour PM10 averaging time.

RESPONSE:

The particulate matter significant impact analysis (SIA) has been revised, based on discussions with Mr. Cleve Holladay, using an emissions rate from the plant of 30.6 pounds per hour, or 0.288 lb/ton P205 input. The SIA results indicate that the maximum predicted ambient air impacts are less than significant. A summary of the revised modeling analysis is presented in Attachment 3.

Issues Raised By U.S. Fish & Wildlife Service

6. What are the control efficiencies of the scrubbers used in the North MAP/DAP Plant?

RESPONSE:

Farmland's existing scrubber system combination is based on optimum process design. This design is inherently optimum for air pollution control also (see Attachment 1). Therefore, it is meaningful to address the overall system performance. As discussed in PSD-FL-186, reviewed by the NPS/FWS, the overall system is designed to achieve 99.9 percent control of fluorides.

7. An explanation should be provided for the "0.52" factor used in the calculations.

RESPONSE:

The factor of 0.52 used in the calculations represents the conversion of ton of MAP to tons of P205. The "tons of P205 input" reference, used in state and federal rules, is a convenient basis for comparing phosphate fertilizer plant capacities and emissions.

8. Will other existing emission units be affected by the proposed project? All affected plants should be addressed in the PSD applicability. Modification of the MAP/DAP and SAP plants within the two years dictates that they be considered a single project.

RESPONSE:

As discussed in the individual applications, all affected plants are addressed in the PSD applicability. The two PSD applications were submitted separately to FDEP as they are unrelated projects.

The sulfuric acid plant project was contemplated in order to increase reliability of sulfuric acid supply. Farmland is hoping to offset its current sulfuric acid purchases, and associated dependence on the unpredictable acid availability on the market, with the construction of the new plant.

On the other hand, the North MAP/DAP Plant just recently reached a point where Farmland felt comfortable with the existing plant's potential for higher operation rate based on the operation experience over the past few years. Some of the phosphoric acid shipped off-site, is proposed to be diverted to the North MAP/DAP Plant to increase production.

The two projects have not been combined into a single PSD project as they are independent projects. The request for an increase in fertilizer production will rely on the readily available phosphoric acid, not on any changes in sulfuric acid production. In past conversations with EPA staff, it was explained that to be considered together, the projects should be dependent projects. As explained above, the one project does not depend on the other.

9. **Provide supporting documentation for the cost estimates on the system using neutralized process water. Also, the latest version of the EPA Cost Control Manual now recommends a 7% interest rate.**

RESPONSE:

Most of the information, regarding cost estimates for a system using neutralized process water, was based on conversations with phosphate industry contractors in Florida. No written cost proposals were forthcoming from the contractors as the initial information was sufficient for them to establish that the system would not be cost effective for control of fluorides.

The interest rate of 7 percent, mentioned by the FWS for use in determining capital recovery, is based on EPA guidance. EPA also allows a sensitivity determination for an appropriate interest rate. Acceptable rates range from 3 percent, typically associated with consumables such as food and clothing, to 10 percent, associated with equipment such as plant machinery. The rate of 10 percent, in Farmland's case, also includes lost investment opportunity given the current investment market trends.

Mr. Syed Arif
Florida Department of
Environmental Protection

March 3, 1998
Page 5

10. Emission limits for fluorides and particulate matter should not exceed the emission limits required by other FDEP permits.

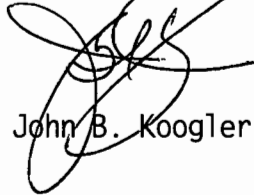
RESPONSE:

The definition of BACT includes the consideration of numerous site specific factors on a case-by-case basis. This is evident in FDEP's current review and the RBLC information attached by the FWS.

We appreciate the prompt review and request for additional information from all parties involved in the review of the proposed project. If you have any further questions, please call Pradeep Raval or me.

Very truly yours,

KOGLER & ASSOCIATES



John B. Koogler, Ph.D., P.E.

JBK:par
Enc.

c: Charles Jenkins, Farmland Hydro, L.P.

cc: File
EPA
NPS
SWD
Palk Co
Cleve Halladay, BMR

ATTACHMENT 1

PROCESS FLOW DIAGRAM

LIST AND TYPE OF PLANT SCRUBBERS

REACTOR/GRANULATOR

HI-MOL SCRUBBER	:	HORIZONTAL SPRAY, CYCLONIC SEPARATOR
LO-MOL SCRUBBER	:	VENTURI, CYCLONIC SEPARATOR
BFL SCRUBBER	:	VAPORIZER/CONDENSER/SCRUBBER

DRYER

DRYER SCRUBBER	:	VERTICAL SPRAY, CYCLONIC SEPARATOR
CROSS-FLOW SCRUBBER	:	CROSS-FLOW

SCREEN/MILLS

S/M SCRUBBER	:	VERTICAL SPRAY, CYCLONIC SEPARATOR
CROSS-FLOW SCRUBBER	:	CROSS-FLOW

COOLER

COOLER SCRUBBER	:	VENTURI, CYCLONIC SEPARATOR
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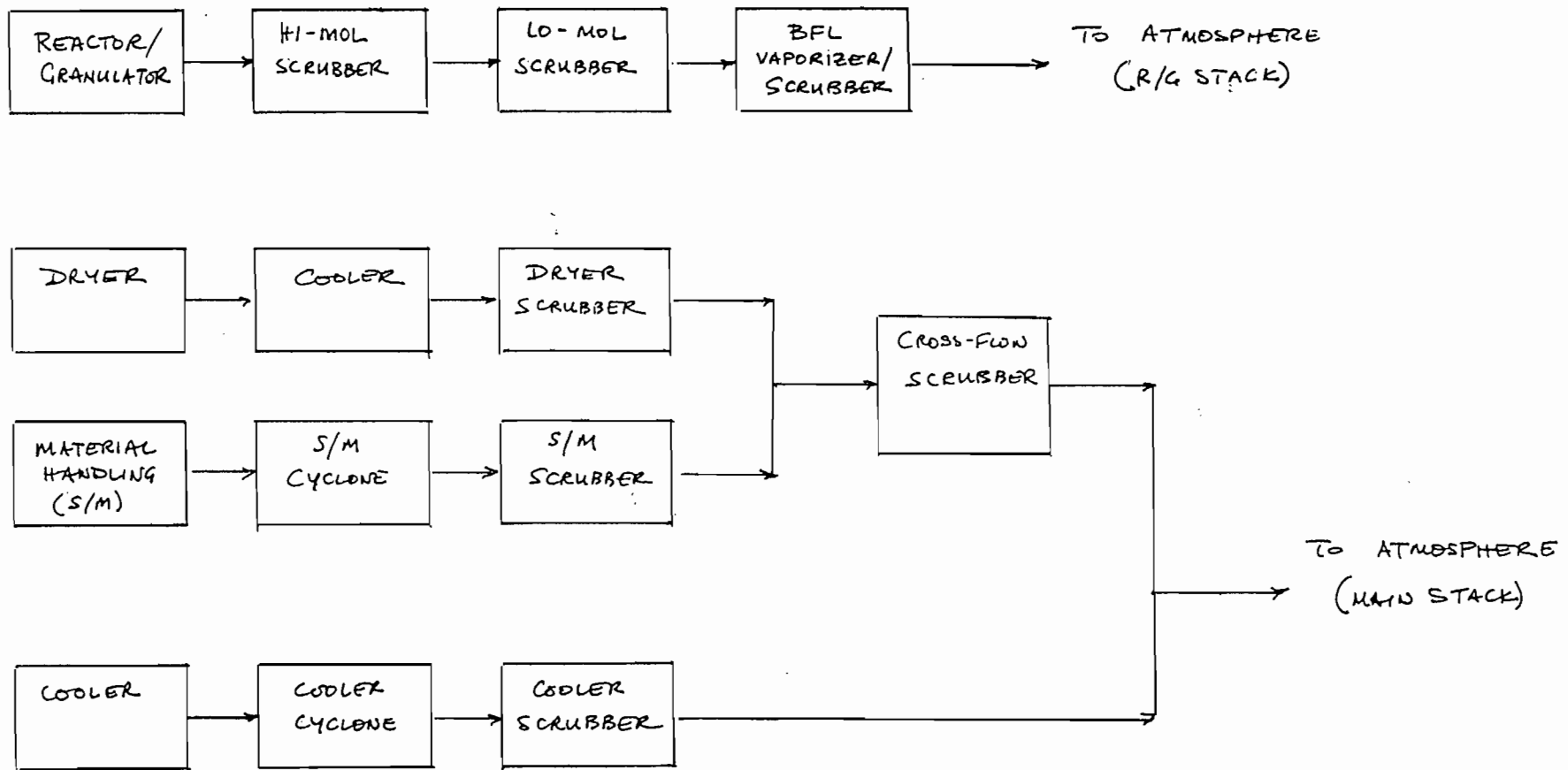
PLEASE SEE ATTACHED SCRUBBER PROCESS FLOW DIAGRAM FOR OVERALL ARRANGEMENT.

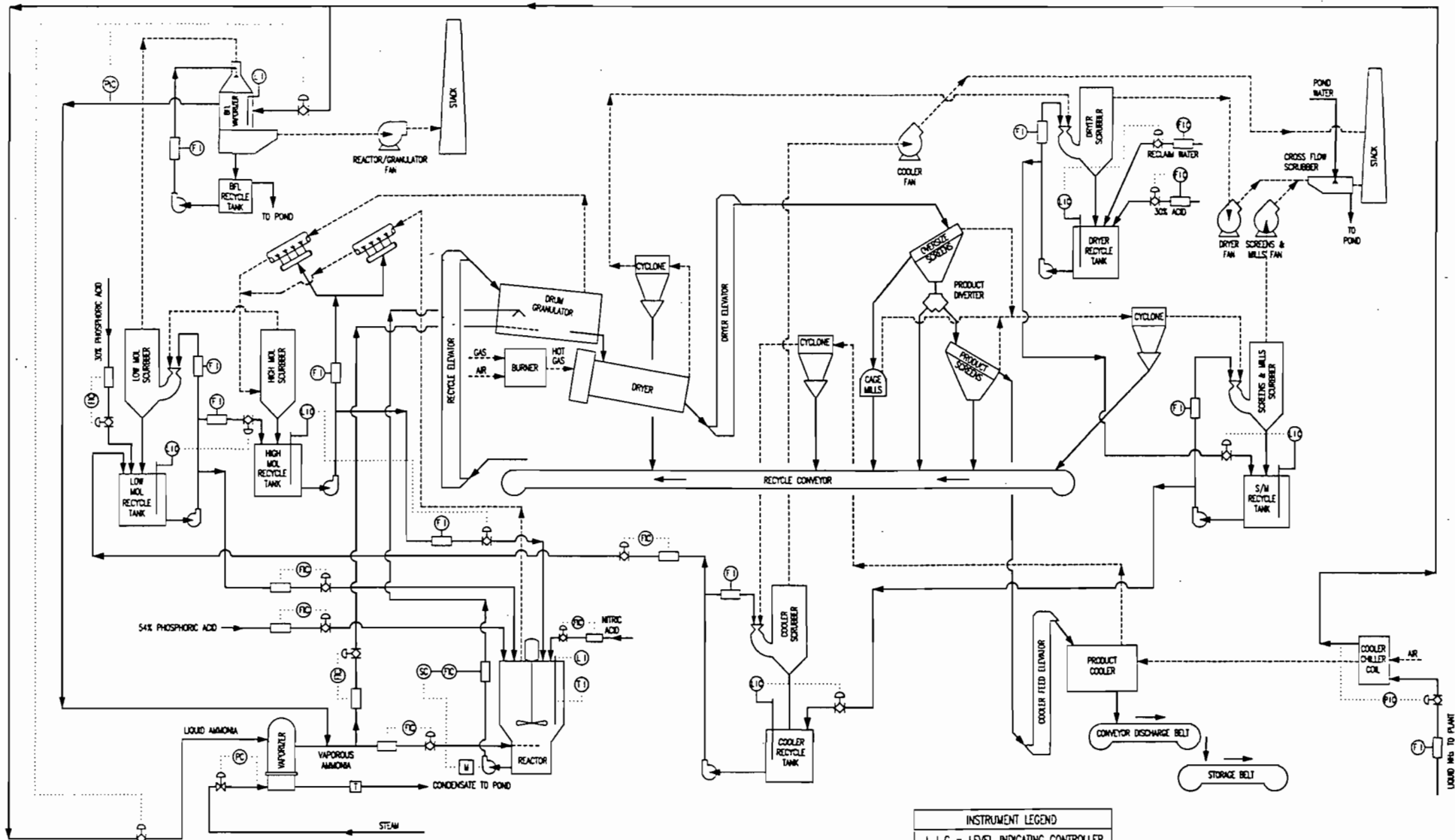
PROCESS FLOW - CONTROLS (APC)

FARMLAND HYDRO, L.P.

MAP/DAP NORTH PLANT

(PROPOSED LAYOUT)

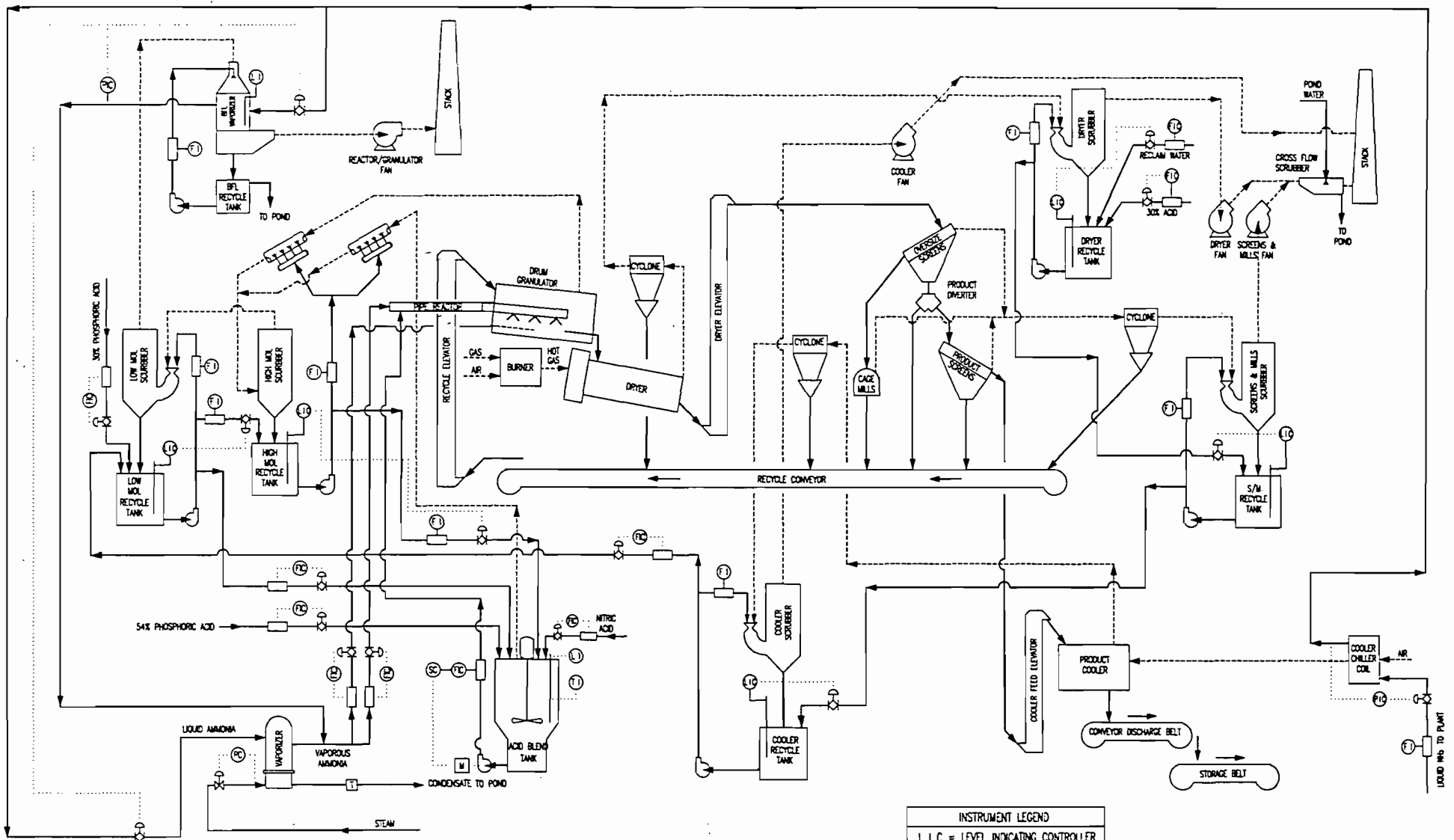




INSTRUMENT LEGEND

- L I C = LEVEL INDICATING CONTROLLER
- F I C = FLOW INDICATING CONTROLLER
- T I = TEMPERATURE INDICATOR
- L I = LEVEL INDICATOR
- S C = SPEED CONTROLLER
- F I = FLOW INDICATOR
- P I C = PRESSURE INDICATING CONTROLLER
- P C = PRESSURE CONTROLLER

FARMLAND HYDRO, L.P. BARTOW, FLORIDA			
DAP NORTH PLANT (18-46-0)			
DESIGNED BY K. ADAMS	SCALE NONE	DATE 7-26-93	NO. 35-F-024
CHECKED BY L. J. ...	DATE 7-26-93	REVISED BY ...	REVISED DATE ...



INSTRUMENT LEGEND

- L I C = LEVEL INDICATING CONTROLLER
- F I C = FLOW INDICATING CONTROLLER
- T I = TEMPERATURE INDICATOR
- L I = LEVEL INDICATOR
- S C = SPEED CONTROLLER
- F I = FLOW INDICATOR
- P I C = PRESSURE INDICATING CONTROLLER
- P C = PRESSURE CONTROLLER

FARMLAND HYDRO, L.P. BARTOW, FLORIDA			
MAP NORTH PLANT (11-52-0)			
DESIGNED BY	DATE	SCALE	PROJECT NO.
DRAWN BY	2-26-98	NONE	35-F-024B
CHECKED BY			1



KOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES

4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
904/377-5822 ■ FAX 377-7158

KA 123-92-01

June 17, 1992

Mr. Willard Hanks
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: Farmland Hydro, LP
MAP/DAP North Plant Permit Application

Dear Mr. Hanks:

Attached is information provided to Mr. Stan Kukier of EPA Region IV regarding the above project. This information will also serve to update your file on the project.

If you have any questions, please do not hesitate to call me.

Very truly yours,

KOGLER & ASSOCIATES

Pradeep A. Raval

PAR:wa
Enc.

MEMORANDUM

file
Faxed to
Stan Kutier,
EPA.
PR
6/11/92

TO: Mr. Willard Hanks
FDER, Tallahassee

FROM: Pradeep Raval *Raval*

DATE: April 20, 1992

SUBJECT: Additional Information on Farmland Hydro, L.P.
North Plant MAP/DAP Modification

This is in response to your request to identify the overall fluoride control in the proposed MAP/DAP North Plant project.

The fluorides in the feed to the North plant under DAP and MAP production mode will be 114.54 and 91.65 pounds fluoride/per ton of P_2O_5 , respectively.

Based on the proposed fluoride emission limit of 0.06 pound per ton of P_2O_5 , the overall process control efficiency can be estimated as follows:

MAP Mode:

$$\begin{aligned}\text{Fluoride Control Eff.} &= (91.65 - 0.06)/91.65 \times 100 \\ &= 99.9\%\end{aligned}$$

DAP Mode:

$$\begin{aligned}\text{Fluoride Control Eff.} &= (114.65 - 0.06)/114.65 \times 100 \\ &= 99.9\%\end{aligned}$$

It is anticipated that this response will satisfy the only remaining question you had on the proposed project.

If you have any additional questions, please do not hesitate to give me a call.

ATTACHMENT 2

COMPLIANCE TEST INFORMATION

MAP Production - Fluoride Emissions

DATE	Dryer			R/G			Combined F - lb/ton	
	Rate TPH-P2O5	F- lb/hr	F - lb/ton	Rate TPH-P2O5	F- lb/hr	F - lb/ton		
Feb-94	56.4	0.700	0.0124	56.5	0.083	0.0015	0.0139	
Feb-94	56.4	0.645	0.0114	56.5	0.074	0.0013	0.0127	
Feb-94	56.4	0.537	0.0095	56.5	0.915	0.0162	0.0257	
Feb-95	56.5	0.710	0.0126	56.1	1.059	0.0189	0.0314	
Feb-95	56.5	0.787	0.0139	56.1	1.123	0.0200	0.0339	
Feb-95	56.5	0.753	0.0133	56.1	0.290	0.0052	0.0185	
May-96	58.5	0.616	0.0105	58.6	0.317	0.0054	0.0159	
May-96	58.5	0.781	0.0134	58.6	0.061	0.0010	0.0144	
May-96	58.5	0.655	0.0112	58.6	0.041	0.0007	0.0119	
Mar-97	62.2	0.474	0.0076	63.0	1.990	0.0316	0.0392	
Mar-97	62.2	0.378	0.0061	63.0	1.912	0.0303	0.0364	
Mar-97	62.2	0.346	0.0056	63.0	2.318	0.0368	0.0424	
Average =			0.0106				0.0141	0.0247
Standard Deviation =			0.002863				0.013401	0.011430
Average + 3 x Std. Dev. =			0.0192				0.0543	0.0590

MAP Production - PM Emissions

DATE	Dryer			R/G			Combined PM-lb/ton	
	Rate TPH-P2O5	PM-lb/hr	PM-lb/ton	Rate TPH-P2O5	PM-lb/hr	PM-lb/ton		
Feb-94	56.4	5.413	0.0960	56.5	0.940	0.0166	0.1126	
Feb-94	56.4	7.192	0.1275	56.5	0.857	0.0152	0.1427	
Feb-94	56.4	5.024	0.0891	56.5	1.570	0.0278	0.1169	
Feb-95	56.5	13.194	0.2335	56.1	2.266	0.0404	0.2739	
Feb-95	56.5	6.780	0.1200	56.1	2.610	0.0465	0.1665	
Feb-95	56.5	11.493	0.2034	56.1	1.846	0.0329	0.2363	
May-96	58.5	6.240	0.1067	58.6	2.588	0.0442	0.1508	
May-96	58.5	8.691	0.1486	58.6	3.292	0.0562	0.2047	
May-96	58.5	8.596	0.1469	58.6	2.121	0.0362	0.1831	
Mar-97	62.2	2.096	0.0337	63.0	1.490	0.0237	0.0573	
Mar-97	62.2	2.741	0.0441	63.0	1.489	0.0236	0.0677	
Mar-97	62.2	2.967	0.0477	63.0	1.538	0.0244	0.0721	
Average =			0.1164				0.0323	0.1487
Standard Deviation =			0.061380				0.012669	0.068176
Average + 3 x Std. Dev. =			0.3006				0.0703	0.3533

While the preferred limits are indicated above, the limits based on a 99 percent confidence level can be estimated as follows:

$$F = 0.0247 + 2.58 \times 0.01143$$

$$= 0.054 \text{ lb/ton P2O5 input}$$

$$PM = 0.1487 + 2.58 \times 0.068176$$

$$= 0.325 \text{ lb/ton P2O5 input}$$

DAP Production - Fluoride Emissions

DATE	Rate			Dryer			Rate	R/G		Combined
	TPH-P2O5	F- lb/hr	F- lb/ton	TPH-P2O5	F- lb/hr	F- lb/ton		F- lb/ton	F- lb/ton	
Feb-94	40.4	0.743	0.0184	37.6	0.107	0.0028			0.0213	
Feb-94	40.4	0.725	0.0180	37.6	0.152	0.0040			0.0220	
Feb-94	40.4	0.783	0.0194	37.6	0.123	0.0033			0.0227	
Feb-95	40.7	0.831	0.0204	40.9	0.877	0.0214			0.0418	
Feb-95	40.7	0.784	0.0193	40.9	0.432	0.0106			0.0298	
Feb-95	40.7	0.834	0.0205	40.9	0.249	0.0061			0.0266	
May-96	37.1	0.623	0.0168	38.9	0.178	0.0046			0.0214	
May-96	37.1	0.706	0.0190	38.9	0.127	0.0033			0.0223	
May-96	37.1	0.765	0.0206	38.9	0.071	0.0018			0.0224	
Mar-97	44.3	0.820	0.0185	43.6	0.320	0.0073			0.0259	
Mar-97	44.3	0.834	0.0188	43.6	0.186	0.0043			0.0231	
Mar-97	44.3	0.685	0.0155	43.6	0.218	0.0050			0.0205	
Average =			0.0188				0.0062		0.0250	
Standard Deviation =			0.001518				0.005331		0.005951	
Average + 3 x Std. Dev. =			0.0233				0.0222		0.0428	

DAP Production - PM Emissions

DATE	Rate			Dryer			Rate	R/G		Combined
	TPH-P2O5	PM-lb/hr	PM-lb/ton	TPH-P2O5	PM-lb/hr	PM-lb/ton		PM-lb/ton	PM-lb/ton	
Feb-94	40.4	1.148	0.0284	37.6	0.432	0.0115			0.0399	
Feb-94	40.4	0.950	0.0235	37.6	0.688	0.0183			0.0418	
Feb-94	40.4	1.447	0.0358	37.6	0.602	0.0160			0.0518	
Feb-95	40.7	2.420	0.0594	40.9	2.199	0.0538			0.1132	
Feb-95	40.7	3.431	0.0842	40.9	3.083	0.0754			0.1596	
Feb-95	40.7	2.857	0.0701	40.9	0.354	0.0087			0.0788	
May-96	37.1	2.677	0.0722	38.9	0.896	0.0230			0.0952	
May-96	37.1	2.635	0.0710	38.9	0.978	0.0251			0.0962	
May-96	37.1	1.768	0.0477	38.9	0.950	0.0244			0.0721	
Mar-97	44.3	11.415	0.2578	43.6	0.595	0.0136			0.2715	
Mar-97	44.3	5.674	0.1282	43.6	0.185	0.0042			0.1324	
Mar-97	44.3	3.031	0.0685	43.6	0.740	0.0170			0.0854	
Average =			0.0789				0.0242		0.1032	
Standard Deviation =			0.062946				0.020364		0.063854	
Average + 3 x Std. Dev. =			0.2678				0.0853		0.2947	

While the preferred limits are indicated above, the limits based on a 99 percent confidence level can be estimated as follows:

$$F = 0.025 + 2.58 \times 0.005951$$

$$= 0.040 \text{ lb/ton P2O5 input}$$

$$PM = 0.1032 + 2.58 \times 0.063854$$

$$= 0.268 \text{ lb/ton P2O5 input}$$

ATTACHMENT 3

MODELING INFORMATION

TABLE 5-1a

REVISED AIR QUALITY MODELING PARAMETERS
FOR PARTICULATE MATTERFARMLAND HYDRO, L.P.
POLK COUNTY, FLORIDA

Stack		Emissions (g/s)	Ht (m)	Dia (m)	Vel (mps)	Temp (°K)
R/G (Current)	PM/PM10	0.83	39.3	1.68	10.64	354
R/G (Proposed)	PM/PM10	1.00	39.3	1.68	13.90	372
Dryer/Cooler (Current)	PM/PM10	2.00	39.3	2.29	13.11	315
Dryer/Cooler (Proposed)	PM/PM10	2.85	39.3	2.29	19.55	316

TABLE 5-2a

REVISED SUMMARY OF SIGNIFICANT IMPACT ANALYSES
FOR PARTICULATE MATTERFARMLAND HYDRO, L.P.
POLK COUNTY, FLORIDA

MET YEAR	MAX. PREDICTED PM10 AMBIENT AIR IMPACTS ($\mu\text{g}/\text{m}^3$) (1)			
	Class I Area		Class II Area	
	24-hr	Annual	24-hr	Annual
1987	0.02	0.001	4.44	0.11
1988	0.02	0.001	4.93	0.11
1989	0.02	0.001	3.57	0.09
1990	0.02	0.001	3.61	0.12
1991	0.02	0.001	4.14	0.11
EPA SIG. (2)	0.3	0.2	5	1
NPS SIG. (3)	0.27	0.08	NA	NA
Is Impact Significant ?	NO	NO	NO	NO

NOTES:

- (1) The above predicted impacts represent the highest-high impacts.
- (2) Significant impact levels proposed by EPA.
- (3) Significant impact levels suggested by National Park Service.

THIS DISK CONTAINS PARTICULATE MATTER (PM) MODELING FILES FOR THE FARMLAND HYDRO, L.P. FACILITY IN GREEN BAY, FLORIDA. THE FOLLOWING ARE OUTPUT FILES. ARE IN ASCII FORMAT.

THE FOLLOWING FILES CONTAIN ISCST3 MODELING OF:
SIA FOR CLASS 1 AREA CHASSAHOWITZKA NWR, AND CLASS 2 AREAS AND BUILDING DOWNWASH PROFILE INPUT PROGRAM (BPIP) FILES.

CLASS 1 MODELING OF SIGNIFICANT IMPACT ANALYSIS (SIA) FOR CHASSAHOWITZKA NWR CLASS 1 AREAS ARE PROVIDED IN THE FOLLOWING FILES:

FRM1PM87	OUT	51,002	02-04-98	PM CLASS 1 SIA FOR 1987
FRM1PM88	OUT	51,002	02-04-98	PM CLASS 1 SIA FOR 1988
FRM1PM89	OUT	51,002	02-04-98	PM CLASS 1 SIA FOR 1989
FRM1PM90	OUT	51,002	02-04-98	PM CLASS 1 SIA FOR 1990
FRM1PM91	OUT	51,002	02-04-98	PM CLASS 1 SIA FOR 1991

SIGNIFICANT IMPACT ANALYSIS (SIA) FOR CLASS 2 AREAS ARE PROVIDED IN THE FOLLOWING FILES:

FRM2PM87	OUT	168,946	02-04-98	PM CLASS 2 AND FAAQS SIA FOR 1987
FRM2PM88	OUT	168,946	02-04-98	PM CLASS 2 AND FAAQS SIA FOR 1988
FRM2PM89	OUT	168,946	02-04-98	PM CLASS 2 AND FAAQS SIA FOR 1989
FRM2PM90	OUT	168,946	02-04-98	PM CLASS 2 AND FAAQS SIA FOR 1990
FRM2PM91	OUT	168,946	02-04-98	PM CLASS 2 AND FAAQS SIA FOR 1991

BUILDING INPUT PROFILE PROGRAM (BPIP) FILES ARE PROVIDED IN BPIP-DW.EXE. BUILDING DOWNWASH CALCULATIONS ARE USED IN ALL MODELING. THE FOLLOWING BPIP FILES ARE PROVIDED:

FRM1	INP	2,124	10-28-97	INPUT FOR PM SOURCES
FRM1	OUT	5,836	10-28-97	OUTPUT FOR PM SOURCES
FRM1	SUM	91,659	10-28-97	SUMMARY FOR PM SOURCES

IF THERE ARE ANY QUESTIONS OR IF I MAY PROVIDE ADDITIONAL FILES, OR CLARIFICATION PLEASE CALL.

FEBRUARY 4, 1998
KOOGLER AND ASSOCIATES
(352) 377-5822
KOOGLER@WORLDNET.ATT.NET



IN REPLY REFER TO:

United States Department of the Interior

FISH AND WILDLIFE SERVICE

1875 Century Boulevard
Atlanta, Georgia 30345

January 28, 1998

RECEIVED

FEB 04 1998

**BUREAU OF
AIR REGULATION**

Mr. C. H. Fancy
Chief, Bureau of Air Regulation
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road, MS 48
Tallahassee, Florida 32399-2400

105 0053-020-AC
p50-F1-246

Dear Mr. Fancy:

Our Air Quality Branch has reviewed the Prevention of Significant Deterioration Application from Farmland Hydro, L.P., to increase the monoammonium phosphate and diammonium phosphate production rate at its phosphate fertilizer manufacturing facility in Polk County, Florida. The plant is located 110 km south of Chassahowitzka Wilderness, a Class I air quality area, administered by the Fish and Wildlife Service. The technical review comments from our Air Quality Branch are enclosed.

Thank you for giving us the opportunity to comment on this permit application. We appreciate your cooperation in notifying us of proposed projects with the potential to impact the air quality and related resources of our Class I air quality areas. If you have any questions, please contact Ms. Ellen Porter of our Air Quality Branch in Denver at 303/969-2617.

Sincerely yours,

for Sam D. Hamilton
Regional Director

Enclosures

cc: J. Reynolds, BAR
C. Holladay, BAR

**Technical Review of Prevention of Significant Deterioration
Permit Application for Farmland Hydro, L.P.'s
Proposed Increase in Production of Monoammonium Phosphate
and Diammonium Phosphate
Polk County, Florida**

by

**Air Quality Branch, Fish and Wildlife Service – Denver
January 22, 1998**

Farmland Hydro, L.P., (Farmland) is proposing to increase the monoammonium phosphate (MAP) and diammonium phosphate (DAP) production rate at its phosphate fertilizer manufacturing facility in Polk County, Florida. The plant is located 110 km south of Chassahowitzka Wilderness, a Class I air quality area administered by the U.S. Fish and Wildlife Service. The project will result in significant increases in emissions of fluorides (F) and particulate matter (PM).

POLLUTANT	EMISSIONS INCREASE (TPY)
F	23.4
PM	97

We find the permit application to be incomplete for the following reasons.

Prevention of Significant Deterioration (PSD) Applicability

In November 1997, Farmland submitted a Prevention of Significant Deterioration (PSD) permit application to expand its sulfuric acid plant (SAP) production capacity. The currently proposed MAP/DAP production increase would occur at the same manufacturing facility. Therefore, the two projects should be considered as one. According to the EPA *New Source Review Workshop Manual*,

"Usually, at least two basic questions should be asked when evaluating the construction of multiple minor projects to determine if they should have been considered a single project. First, were the projects proposed over a relatively short period of time? Second, could the changes be considered as part of a single project?"

Because the projects would occur within two years of each other, and because the SAP ultimately feeds the MAP/DAP, they should be considered a single project. Both of the recent applications from Farmland should be combined and the effects of these projects on other emission sources at the facility should be evaluated with respect to PSD applicability and impacts.

In addition, the emissions calculations provided in Appendix A are not explained adequately. The equipment covered is not described and the origin of the "0.52" factor used in the input calculation is not explained.

Best Available Control Technology (BACT) Analysis

Farmland proposes that the existing wet scrubbing system, consisting of a two-stage wet scrubber followed by an ammonia vaporizer be considered BACT. However, because Farmland did not provide control efficiency estimates in this application, it is impossible to evaluate the effectiveness of the system. A similar system shown in the RACT/BACT/LAER Clearinghouse (RBLC) has a fluoride removal efficiency of 99.9%, but it is unclear whether Farmland's proposed technology would achieve this level of control.

Farmland rejected an alternate control technology, a packed bed scrubber using neutralized process water, on the basis of excessive cost. However, no documentation supporting the cost estimates was provided, and costs cannot be verified. Furthermore, the 10% interest rate used to calculate the capital recovery factor is incorrect. The latest version of the EPA Control Cost Manual recommends a 7% interest rate.

In addition, Farmland has proposed limits for fluoride emissions of 0.06 pounds per ton (lb/T) of feed material (P_2O_5) and for particulate matter of 0.3 lb/T of feed. The Florida Department of Environmental Protection (FDEP) has required similar plants to meet substantially lower limits for fluoride of 0.0417 lb/T and for particulate matter of 0.19 lb/T (see enclosed table).

BACT Analysis Conclusions & Recommendations

Both of the recent applications from Farmland should be combined and reviewed as one project, and the effects of these projects on other emission sources at the facility should be evaluated with respect to PSD applicability and impacts.

The application should be considered incomplete until the applicant provides more complete information on the nature of the processes to be modified, emission changes, effectiveness of the proposed control technology, and documentation to support the costs presented for competing control alternatives.

Emission limits should not exceed the 0.0417 lb fluoride/T and 0.19 lb particulate matter/T limits required by other similar permits issued by FDEP.

Air Quality Related Values (AQRV) Analysis

Farmland concluded that because the predicted air quality impacts were less than the significant impact levels for increment, no adverse impacts to Class I AQRVs would be expected. We agree that the potential for impacts to Class I AQRVs from this project is low, but our conclusion is based the distance of the project and the types and amounts of emissions. As we

have stated in the past, the AQRV analysis is independent of the Class I increment analysis. A source may have an adverse impact on AQRVs even though its predicted impacts are less than the significant impact levels for increment.

Farmland conducted a VISCREEN analysis to assess potential visible plume impacts to Chassahowitzka. The analysis predicted that this project would have a low potential to cause visible plumes in Chassahowitzka. However, we would like to clarify several points regarding this analysis.

First, because Farmland is greater than or equal to 50 km from a model receptor in the Class I area, Farmland should have consulted our office regarding the need for a regional haze analysis (see attached "Interim Visibility Modeling Guidance for Sources Locating or Expanding Near Chassahowitzka Wilderness, Florida"). If the only significant emissions included 97 TPY PM and 23 TPY F, we would advise Farmland that a regional haze analysis was not required because of the low potential for impacts. However, if FDEP determines that the two Farmland applications should be combined and reviewed as one, Farmland should perform a regional haze analysis taking into consideration all emissions increases due to the SAP project and the MAP/DAP project. Farmland should compare their contribution to regional haze to the screening level of 0.5 deciview. If their predicted impacts are less than or equal to 0.5 deciview, the impact is considered insignificant and no further analysis is needed. If predicted impacts are greater than 0.5 deciview, Farmland should conduct a cumulative modeling analysis including proposed emissions and all other increment-consuming sources. If the cumulative analysis predicts impacts less than or equal to 1.0 deciview, the impact is considered insignificant and no further analysis is needed. If cumulative impacts are greater than 1.0 deciview, significant haze impacts are possible and FWS will make a case-by-case adverse impact determination regarding the proposed project, considering the frequency, magnitude, and duration of impacts.

Contact: Ellen Porter, Air Quality Branch (303) 969-2617.

**Interim Visibility Modeling Guidance
For Sources Locating or Expanding Near
Chassahowitzka Wilderness, Florida
December 1997**

This Interim Visibility Modeling Guidance Document has been developed for use by PSD permit applicants seeking to locate or expand near Chassahowitzka Wilderness, a Class I area administered by the U.S. Fish and Wildlife Service (FWS). A more detailed, comprehensive guidance document will be available in early 1998.

Applicants should assume a background visual range of 65 km for Chassahowitzka Wilderness.

Sources less than 50 km from a Class I area:

Sources *less than 50 km* from a Class I area should perform an analysis to assess the potential for visible plumes from their emissions at the Class I area. The recommended models are VISCREEN (Levels 1 and 2) as the screening model and PLUVUE II as the more refined model. If the screening or refined modeling predicts an impact less than a delta E of 2.0 and a contrast of 0.05, no plume impact is expected and no further analysis is required. If the modeling predicts an impact equal to or greater than the 2.0 or 0.05 values, the potential for plume impacts is significant and the FLM will determine on a case-by-case basis whether or not those impacts would be adverse, considering predicted frequency, magnitude, duration, and other factors.

Sources greater than or equal to 50 km from a Class I area:

Sources *greater than or equal to 50 km* from a model receptor in a Class I area should perform an analysis to assess the potential for a significant increase in uniform (i.e., regional) haze in the Class I area due to the source's emissions. The source may choose to use a screening model (e.g., ISC) or a more refined model (e.g., Mesopuff or Calpuff). If the predicted impact is less than or equal to 0.5 deciview, the impact is considered insignificant and no further analysis is needed. If the predicted impact is greater than 0.5 deciview, the applicant should conduct a cumulative modeling analysis including the new source's proposed emissions and all other increment-consuming emissions. If the cumulative analysis predicts an impact less than or equal to 1.0 deciview, the impact is considered insignificant and no further analysis is needed. If the cumulative impact is greater than 1.0 deciview, a significant increase in haze is possible and FWS will make a case-by-case adverse impact determination regarding the proposed project, considering the predicted frequency, magnitude, and duration of impacts.

Contact: Bud Rolofson, FWS Air Quality Branch (303) 969-2804

Fertilizer Plant Permits from RBLC

Plant	Permit Issued	Product	Pollutant	Control Technology	Control Efficiency	Permit Emission Rate (Lb/T P205)	Average Emission Rate (Lb/T P205)
C. F. Industries	5/25/92	MAP	F	2-stage scrubber w. cooler	99.8%	0.06	
				fresh water in last stage			
Farmland Hydro	7/28/92	DAP/MAP	F	multi-stage scrubbers	99.9%	0.06	
IMC-Agrico	4/13/94	DAP	F	venturi scrubber		0.0417	
IMC-Agrico	4/18/94	DAP	F	venturi scrubber		0.0417	
							0.05
Cargill	11/28/94	DAP	PM	venturi/packed tower		0.19	
Cargill	10/13/92	DAP	PM	venturi/packed tower		0.19	
IMC-Agrico	4/13/94	DAP	PM	venturi scrubber		0.41	
IMC-Agrico	4/18/94	DAP	PM	venturi scrubber		0.41	
							0.30
Cargill	10/13/92	DAP	SO2	0.5% S oil		0.56	0.56



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

January 23, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. C. M. Farris, Vice President, Operations
Farmland Hydro, L.P.
Post Office Box 960
Bartow, Florida 33831

Re: DEP File No. 1050053-020-AC (PSD-FL-246)
Green Bay Facility, MAP/DAP Production Increases

Dear Mr. Farris:

The Department has received the application on December 24, 1997 for an increase in the monoammonium and diammonium phosphate production rates of the existing facility at the Farmland's Green Bay Complex in Polk County. Based on our initial review of the proposed project, we have determined that additional information is needed in order to continue processing this application package. Please submit the information requested below to the Department's Bureau of Air Regulation:

1. Please provide the process flow diagram for this project indicating the scrubbers at each process step and any minor modifications required to facilitate the increase in production rates for MAP/DAP. Also, provide information on the scrubbers, what type, efficiencies, etc.
2. Please note that a previous BACT for IMC-Agrico DAP Plant (PSD-FL-204) was determined to be 0.0417 lb/ton P_2O_5 for fluoride emissions. This was based on the historical compliance test results for fluoride emissions at their DAP plant. Please provide similar data of compliance test results (last five years) for the MAP/DAP plants. Indicate by statistical analyses the most stringent BACT limit (lb/ton P_2O_5) that can be established based on the compliance test results. Provide the same analyses for particulate matter emissions.
3. Tables 3-1 and 3-2 of the application gives changes in emission rates and net emission changes for MAP production. Please provide the same information for DAP production.
4. The current air operating permit required emissions test from each stack (main stack and Reactor-Granulator stack) for ammonia during MAP/DAP production. Please provide the results for these tests, and indicate the percent loss of ammonia from the process.

5. The highest modeled concentration due to the proposed project is greater than the 24-hour PM₁₀ Class II significant impact level; therefore, a full impact analysis to determine impacts on the ambient air quality standard (AAQS) and PSD Class II increment is required for the 24-hour PM₁₀ averaging time.

We are including correspondence we have received from the U.S. Fish and Wildlife Service. Please respond to their comments. We have not yet received comments from EPA. Their comments will be forwarded to you as soon as we receive them.

The Department will resume processing this application after receipt of the requested information. If you have any questions regarding this matter, please call Cleve Holladay or John Reynolds (while Syed Arif is on leave) at (850)488-1344.

Sincerely,



A. A. Linero, P.E. Administrator
New Source Review Section

AAAL/sa

Enclosure

cc: Brian Beals, EPA
John Bunyak, NPS
Bill Thomas, SWD
Joe King, Polk County
John Koogler, P.E.

Best Available Copy

P 265 659 285

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

PS Form 3800, April 1995

Sent to		C.M. Farris
Street & Number		Farmland
Post Office, State & ZIP Code		Barlow, FL
Postage		\$
Certified Fee		
Special Delivery Fee		
Restricted Delivery Fee		
Return Receipt Showing to Whom & Date Delivered		
Return Receipt Showing to Whom, Date, & Addressee's Address		
TOTAL Postage & Fees		\$
Postmark or Date		1-23-98
		1050053-020-AC
		PSD-FI-246

RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. Addressee's Address
2. Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

C.M. Farris, VP
Operations
Farmland Hydro, LP
PO Box 960
Barlow, FL 32511

4a. Article Number

P 265 659 285

4b. Service Type

- | | |
|---|---|
| <input type="checkbox"/> Registered | <input checked="" type="checkbox"/> Certified |
| <input type="checkbox"/> Express Mail | <input type="checkbox"/> Insured |
| <input type="checkbox"/> Return Receipt for Merchandise | <input type="checkbox"/> COD |

7. Date of Delivery

1-27-98

Address (Only if requested)

Jean Wick

Thank you for using Return Receipt Service.

Receipt



**U.S. FISH & WILDLIFE SERVICE
AIR QUALITY BRANCH**

P.O. BOX 25287, Denver, CO 80225-0287

FACSIMILE COVER SHEET

Date: 1/20/98

Telephone: (303) 969-2617

Fax: (303) 969-2822

To: Cleve Holladay

From: Ellen Porter

Subject: Farmland Hydro

Number of Pages: 45
(Including this cover sheet)

Office Location: 7333 West Jefferson Ave, Suite 450, Lakewood, CO 80235

MEMORANDUM

To: Cleve Holladay
From: Ellen Porter
Subject: Farmland Hydro, L.P.
Date: January 20, 1998

General Comments

The permit application is incomplete in several details, as discussed below. A process flow diagram and a description of the exact equipment affected by the proposed modification would be helpful. Also, the application implies that there will be no increase in emissions from the storage and shipping of MAP and DAP, despite their increased production. Farmland should explain this apparent contradiction. And, although the scrubber presumably controlling the dryer/screens/mills stack and R/G stack is proposed as Best Available Control Technology (BACT), no control efficiency is given. Emissions calculations provided in Appendix A are explained poorly or not at all; the equipment covered is not described and the origin of the "0.52" factor used in the input calculation is not explained.

Prevention of Significant Deterioration (PSD) Applicability

One overarching issue that must be addressed is the relationship of the proposed project to other existing emission units at this source. In late 1997, Farmland Hydro (FH) submitted a Prevention of Significant Deterioration (PSD) permit application to expand its sulfuric acid plant (SAP) production capacity. Any pollutant subject to PSD must be controlled through the use of BACT and the applicant must demonstrate that it will not adversely affect air quality. Although FH stated in that application that PSD applied only to sulfuric acid mist, nitrogen oxides, and sulfur dioxide from the new sulfuric acid plant, an increase in production at the sulfuric acid plant that would result in a corresponding increase in production and emissions at other fertilizer operations at this facility must also be counted towards triggering PSD. In addition to the pollutants noted above, emissions of hydrogen sulfide and volatile organic compounds from the other affected parts of the plant must be added to determine PSD applicability for those pollutants. In our comments to FDEP regarding the SAP, FWS advised that the applicant should quantify and add any increases in emissions of these pollutants from the existing facility to the quantities described above.

FH now proposes to expand the utilization of its monoammonium phosphate (MAP) and diammonium phosphate (DAP) plant by requesting that its permit limits be revised to reflect greater production. FH's application is based on the premise that it triggers PSD for only fluorides (F) and particulate matter (PM). Although FH has quantified the increases in emissions that occur at the existing MAP/DAP due to its increased

utilization, it should also include any increases in emissions that could occur at the phosphoric and sulfuric acid plants that also supply materials to the MAP/DAP plant. If the MAP/DAP plant requires the production of additional phosphoric acid to supply its input, the resulting increase in fluorides must be considered. Furthermore, because production of more phosphoric acid typically requires the use of more sulfuric acid and phosphate rock, the SO₂ and PM emissions that result from production and use of these substances at this source must be included.

Modification of the MAP/DAP and SAP within two years dictates that they be considered a single project. Rather than treating this application as a separate modification of an existing facility, it should instead be considered along with the SAP application and the air quality impacts of both projects should be reviewed. According to the EPA *New Source Review Workshop Manual*, "Usually, at least two basic questions should be asked when evaluating the construction of multiple minor projects to determine if they should have been considered a single project. First, were the projects proposed over a relatively short period of time? Second, could the changes be considered as part of a single project?" Because the projects occur within two years of each other, and because the SAP ultimately feeds the MAP/DAP, they must be considered a single project. In that case, potential emissions of all pollutants should be compared to their respective PSD thresholds. Those pollutants subject to PSD should be subjected to full PSD review, including Best Available Control Technology (BACT), increment, and impacts analyses.

Best Available Control Technology (BACT)

FH proposes that the existing wet scrubbing system, consisting of a two-stage wet scrubber followed by an ammonia vaporizer be considered BACT. Although this may be the same system that is shown in the RACT/BACT/LAER Clearinghouse (RBLC) as having a fluoride removal efficiency of 99.9%, in the absence of any control efficiency estimates in this application, it is impossible to evaluate its effectiveness.

FH rejected an alternate control technology, a packed bed scrubber using neutralized process water, on the basis of excessive cost. However, no documentation supporting any of the cost estimates was provided, and costs cannot be verified. Furthermore, the 10% interest rate used to calculate the capital recovery factor is incorrect—the latest version of the EPA Control Cost Manual now recommends a 7% interest rate.

A review of the RBLC (enclosed) found that FDEP has issued permits requiring that fluoride (F) emissions be limited to 0.0417 lb. per ton of phosphate (lb/T), and particulate (PM) be limited to 0.19 lb/T. These limits are substantially lower than the 0.06 lb F/T and 0.3 lb PM/T proposed by FH.

Conclusions & Recommendations

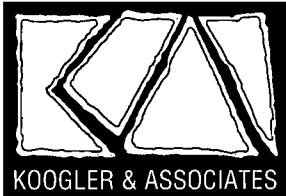
Both of the recent applications from FH should be combined and reviewed as one project, and the effects of these projects on other emission sources at the facility should be evaluated with respect to PSD applicability and impacts.

The application should be considered incomplete until the applicant provides more complete information on the nature of the processes to be modified, emission changes, effectiveness of the proposed control technology, and documentation to support the costs presented for competing control alternatives.

Emission limits should not exceed the 0.0417 lb F/T and 0.19 lb PM/T limits required by other permits issued by FDEP.

Fertilizer Plant Permits from RBLC

Plant	Permit Issued	Product	Pollutant	Control Technology	Control Efficiency	Permit Emission Rate (Lb/T P205)	Average Emission Rate (Lb/T P205)
?		MAP	F	2-stage scrubber w. cooler fresh water in last stage	99.8%	0.06	
Farmland Hydro	7/28/92	DAP/MAP	F	multi-stage scrubbers	99.9%	0.06	
IMC-Agrico	4/13/94	DAP	F	venturi scrubber		0.0417	
IMC-Agrico	4/18/94	DAP	F	venturi scrubber		0.0417	
							0.05
Cargill	11/28/94	DAP	PM	venturi/packed tower		0.19	
Cargill	10/13/92	DAP	PM	venturi/packed tower		0.19	
IMC-Agrico	4/13/94	DAP	PM	venturi scrubber		0.41	
IMC-Agrico	4/18/94	DAP	PM	venturi scrubber		0.41	
							0.30
Cargill	10/13/92	DAP	SO2	0.5% S oil		0.56	0.56



KOGLER & ASSOCIATES

ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
352/377-5822 ■ FAX/377-7158

KA 123-97-01

December 17, 1997

Mr. A. A. Linero
Florida Department of
Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: Polk County-AP
Farmland Hydro, L.P.
Green Bay Complex
PSD Permit Application
North MAP/DAP Plant Production Increase

1050053 - 020 - AC
PSD - F1 - 246

Dear Mr. Linero:

Farmland Hydro, L.P. is submitting this PSD permit application for an increase in the production rate of the existing MAP/DAP Plant and the fertilizer storage and shipping rates at the Green Bay Complex in Polk County, Florida.

Enclosed are eight (8) copies of the permit application, along with a check in the amount of \$7500 (application fee). A disk, containing the modeling output of the air impact analysis associated with the proposed project, is also enclosed.

If you have any questions, please call Pradeep Raval or me.

Very truly yours,

KOGLER & ASSOCIATES

John B. Koogler, Ph.D., P.E.

JBK:par
Enc.

c: Charles Jenkins, Farmland Hydro, L.P.

RECEIVED

DEC 24 1997

**BUREAU OF
AIR REGULATION**

VENDOR NO.

101890

VENDOR NAME

Farmland Hydro, L.P.
Post Office Box 960 Bartow, Florida 33831

FHL

NBCDA

FHAP

CODE	CHECK NO.
IO	0000004695
DATE	PAGE
12/19/1997	1 of 1

0000004695

FLORIDA DEPT OF ENVIRONMENTAL
FARMLAND HYDRO, L.P. ACCOUNTS PAYABLE CHECK DETAIL

B.A.	DATE	INVOICE NO.	DOCUMENT NO.	GROSS	DISCOUNT	NET
FHL	12/18/1997	121797	100006071	7,500.00		7,500.00
	Return to Joan					
		Total		\$7,500.00		\$7,500.00

DETACH VOUCHER BEFORE DEPOSITING



Farmland Hydro, L.P.
Post Office Box 960 Bartow, Florida 33831



NationsBank, N.A. (South)
Atlanta, Dekalb County, Georgia
64-1278/611

NO. 0000004695

DATE	CHECK NO.
12/19/1997	0000004695

AMOUNT VOID AFTER 180 DAYS

AMOUNT
*****\$7,500.00

PAY EXACTLY *****7,500 DOLLARS AND 00 CENTS

TO
THE
ORDER
OF

FLORIDA DEPT OF ENVIRONMENTAL
PROTECTION
BUREAU OF AIR REGULATIONS
TWIN TOWERS OFFICE BLDG
2600 BLAIRSTONE RD
TALLAHASSEE FL 32399-2400

FARMLAND HYDRO, L.P. ACCOUNTS PAYABLE

CM Harris
Joan Reddy



PSD PERMIT APPLICATION
FOR
NORTH MAP / DAP PLANT

PREPARED FOR:

FARMLAND HYDRO, L.P.
GREEN BAY COMPLEX
POLK COUNTY, FLORIDA

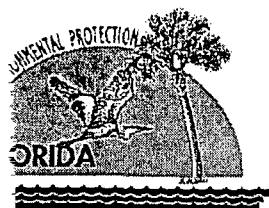
DECEMBER 1997

PREPARED BY:

KOGLER & ASSOCIATES
4014 N.W. 13TH STREET
GAINESVILLE, FLORIDA 32609
(352) 377-5822



4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
352/377-5822 • FAX 377-7158



Department of Environmental Protection

DIVISION OF AIR RESOURCES MANAGEMENT

RECEIVED

DEC 24 1997

BUREAU OF
AIR REGULATION

APPLICATION FOR AIR PERMIT - LONG FORM

See Instructions for Form No. 62-210.900(1)

I. APPLICATION INFORMATION

This section of the Application for Air Permit form identifies the facility and provides general information on the scope and purpose of this application. This section also includes information on the owner or authorized representative of the facility (or the responsible official in the case of a Title V source) and the necessary statements for the applicant and professional engineer, where required, to sign and date for formal submittal of the Application for Air Permit to the Department. If the application form is submitted to the Department using ELSA, this section of the Application for Air Permit must also be submitted in hard-copy.

Identification of Facility Addressed in This Application

Enter the name of the corporation, business, governmental entity, or individual that has ownership or control of the facility; the facility site name, if any; and the facility's physical location. If known, also enter the facility identification number.

1. Facility Owner/Company Name: Farmland Hydro, L.P.	
2. Site Name: Green Bay Plant	
3. Facility Identification Number: 1050053 [] Unknown	
4. Facility Location: Street Address or Other Locator: 4390 County Road 640 West City: Bartow County: Polk Zip Code: 33830	
5. Relocatable Facility? [] Yes [X] No	6. Existing Permitted Facility? [X] Yes [] No

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	December 24, 1997
2. Permit Number:	1050053-020-AC
3. PSD Number (if applicable):	PSD-FI-246
4. Siting Number (if applicable):	

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official: C. M. Farris, Vice President, Operations
2. Owner/Authorized Representative or Responsible Official Mailing Address: Organization/Firm: Farmland Hydro, L.P. Street Address: P.O. Box 960 City: Bartow State: FL Zip Code: 33831
3. Owner/Authorized Representative or Responsible Official Telephone Numbers: Telephone: (941) 533-1141 Fax: (941) 533 - 8793
4. Owner/Authorized Representative or Responsible Official Statement: <i>I, the undersigned, am the owner or authorized representative* of the non-Title V source addressed in this Application for Air Permit or the responsible official, as defined in Rule 62-210.200, F.A.C., of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.</i> <p>Signature <u><i>C. M. Farris</i></u> Date <u><i>Dec. 19, 1997</i></u></p>

* Attach letter of authorization if not currently on file.

Scope of Application

This Application for Air Permit addresses the following emissions unit(s) at the facility. An Emissions Unit Information Section (a Section III of the form) must be included for each emissions unit listed.

Emissions Unit ID	Description of Emissions Unit	Permit Type
020	DAP/MAP/TSP STORAGE & SHIPPING	AC1A
029	NORTH MAP/DAP PLANT	AC1A

Purpose of Application and Category

Check one (except as otherwise indicated):

Category I: All Air Operation Permit Applications Subject to Processing Under Chapter 62-213, F.A.C.

This Application for Air Permit is submitted to obtain:

- Initial air operation permit under Chapter 62-213, F.A.C., for an existing facility which is classified as a Title V source.
- Initial air operation permit under Chapter 62-213, F.A.C., for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.

Current construction permit number: _____

- Air operation permit renewal under Chapter 62-213, F.A.C., for a Title V source.

Operation permit to be renewed: _____

- Air operation permit revision for a Title V source to address one or more newly constructed or modified emissions units addressed in this application.

Current construction permit number: _____

Operation permit to be revised: _____

- Air operation permit revision or administrative correction for a Title V source to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. Also check Category III.

Operation permit to be revised/corrected: _____

- Air operation permit revision for a Title V source for reasons other than construction or modification of an emissions unit. Give reason for the revision; e.g., to comply with a new applicable requirement or to request approval of an "Early Reductions" proposal.

Operation permit to be revised: _____

Reason for revision: _____

Category II: All Air Operation Permit Applications Subject to Processing Under Rule 62-210.300(2)(b), F.A.C.

This Application for Air Permit is submitted to obtain:

- Initial air operation permit under Rule 62-210.300(2)(b), F.A.C., for an existing facility seeking classification as a synthetic non-Title V source.

Current operation/construction permit number(s): _____

- Renewal air operation permit under Rule 62-210.300(2)(b), F.A.C., for a synthetic non-Title V source.

Operation permit to be renewed: _____

- Air operation permit revision for a synthetic non-Title V source. Give reason for revision; e.g., to address one or more newly constructed or modified emissions units.

Operation permit to be revised: _____

Reason for revision: _____

Category III: All Air Construction Permit Applications for All Facilities and Emissions Units

This Application for Air Permit is submitted to obtain:

- Air construction permit to construct or modify one or more emissions units within a facility (including any facility classified as a Title V source).

Current operation permit number(s), if any: AO53-239602, -250142

- Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

Current operation permit number(s): _____

- Air construction permit for one or more existing, but unpermitted, emissions units.

Application Processing Fee

Check one:

Attached - Amount: \$ 7500

Not Applicable.

Construction/Modification Information

1. Description of Proposed Project or Alterations: This application for a PSD construction permit is submitted to increase the allowable MAP/DAP fertilizer production rates of the North MAP/DAP Plant and the fertilizer storage and shipping rates, as described in the application and associated report. No physical modifications are anticipated with the proposed project.
2. Projected or Actual Date of Commencement of Construction: 6-1-98
3. Projected Date of Completion of Construction: 6-1-99

Professional Engineer Certification

1. Professional Engineer Name: : John B. Koogler, Ph.D., P.E. Registration Number: 12925
2. Professional Engineer Mailing Address: Organization/Firm: Koogler & Associates Street Address: 4014 NW 13th Street City: Gainesville State: FL Zip Code: 32609
3. Professional Engineer Telephone Numbers: Telephone: (352) 377 - 5822 Fax: (352) 377 - 7158

4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

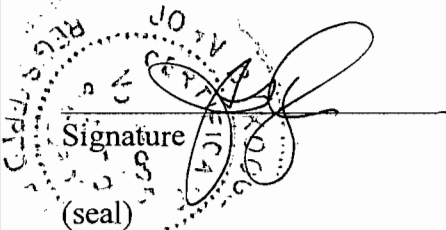
(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [] if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [X] if so), I further certify that the engineering features of each such emissions unit described in this application have been ~~designed~~ or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [] if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

A circular professional engineer seal for the State of Florida. The seal contains the text "STATE OF FLORIDA" around the top edge and "PROFESSIONAL ENGINEER" around the bottom edge. In the center, there is a signature and the word "Signature" printed below it. The seal is partially obscured by the signature and the date line.

12/17/97
Date

* Attach any exception to certification statement.

Application Contact

1. Name and Title of Application Contact: Pradeep Raval
2. Application Contact Mailing Address: Organization/Firm: Koogler & Associates Street Address: 4014 NW 13th Street City: Gainesville State: FL Zip Code: 32609
3. Application Contact Telephone Numbers: Telephone: (352) 377 - 5822 Fax: (352) 377 - 7158

Application Comment

This application is submitted in the format discussed with FDEP. Additional information will be submitted , if necessary, during the permitting process.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates: Zone: 17 East (km): 409.50 North (km): 3080.10			
2. Facility Latitude/Longitude: Latitude (DD/MM/SS): 27/50/39 Longitude (DD/MM/SS): 81/56/26			
3. Governmental Facility Code:	4. Facility Status Code: A	5. Facility Major Group SIC Code: 28	6. Facility SIC(s): 2874
7. Facility Comment (limit to 500 characters): Phosphate Fertilizer Plant			

Facility Contact

1. Name and Title of Facility Contact: Charles Jenkins, Manager of Env. & Safety Servs.			
2. Facility Contact Mailing Address: Organization/Firm: Farmland Hydro, L.P., Green Bay Plant Street Address: P.O. Box 960 City: Bartow State: FL Zip Code: 33831			
3. Facility Contact Telephone Numbers: Telephone: (941) 533-1141 Fax: (941) 533 - 8793			

Facility Regulatory Classifications

1. Small Business Stationary Source? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
2. Title V Source? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
3. Synthetic Non-Title V Source? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
4. Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Synthetic Minor Source of Pollutants Other than HAPs? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
6. Major Source of Hazardous Air Pollutants (HAPs)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
7. Synthetic Minor Source of HAPs? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
8. One or More Emissions Units Subject to NSPS? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
9. One or More Emission Units Subject to NESHAP? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
10. Title V Source by EPA Designation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
11. Facility Regulatory Classifications Comment (limit to 200 characters):

B. FACILITY REGULATIONS

Rule Applicability Analysis (Required for Category II applications and Category III applications involving non Title-V sources. See Instructions.)

NA

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

FDEP CORE LIST	
FS 120, 403	
FAC 62-4, 204, 210, 212, 213, 214, 252, 256, 257, 281, 296, 297	
40 CFR 52, 55, 60, 61, 63, 82.	

C. FACILITY POLLUTANTS

Facility Pollutant Information

1. Pollutant Emitted	2. Pollutant Classification
PM/PM10	A
SO2	A
NOX	A
SAM	A
FL	B
CO	B

D. FACILITY POLLUTANT DETAIL INFORMATION

Facility Pollutant Detail Information: Pollutant _____ of _____

1. Pollutant Emitted: NA		
2. Requested Emissions Cap:	(lb/hour)	(tons/year)
3. Basis for Emissions Cap Code:		
4. Facility Pollutant Comment (limit to 400 characters):		

Facility Pollutant Detail Information: Pollutant _____ of _____

1. Pollutant Emitted:		
2. Requested Emissions Cap:	(lb/hour)	(tons/year)
3. Basis for Emissions Cap Code:		
4. Facility Pollutant Comment (limit to 400 characters):		

E. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements for All Applications

1. Area Map Showing Facility Location: <input checked="" type="checkbox"/> Attached, Document ID: Report <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
2. Facility Plot Plan: <input checked="" type="checkbox"/> Attached, Document ID: Report <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
3. Process Flow Diagram(s): <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested
4. Precautions to Prevent Emissions of Unconfined Particulate Matter: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
5. Fugitive Emissions Identification: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested
6. Supplemental Information for Construction Permit Application: <input checked="" type="checkbox"/> Attached, Document ID: Report <input type="checkbox"/> Not Applicable

Additional Supplemental Requirements for Category I Applications Only

7. List of Proposed Exempt Activities: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
8. List of Equipment/Activities Regulated under Title VI: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Equipment/Activities On site but Not Required to be Individually Listed <input checked="" type="checkbox"/> Not Applicable
9. Alternative Methods of Operation: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
10. Alternative Modes of Operation (Emissions Trading): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

<p>11. Identification of Additional Applicable Requirements: <input type="checkbox"/> Attached, Document ID:_____ <input checked="" type="checkbox"/> Not Applicable</p>
<p>12. Compliance Assurance Monitoring Plan: <input type="checkbox"/> Attached, Document ID:_____ <input checked="" type="checkbox"/> Not Applicable</p>
<p>13. Risk Management Plan Verification:</p> <p><input type="checkbox"/> Plan Submitted to Implementing Agency - Verification Attached, Document ID:_____</p> <p><input type="checkbox"/> Plan to be Submitted to Implementing Agency by Required Date</p> <p><input checked="" type="checkbox"/> Not Applicable</p>
<p>14. Compliance Report and Plan: <input type="checkbox"/> Attached, Document ID:_____ <input checked="" type="checkbox"/> Not Applicable</p>
<p>15. Compliance Certification (Hard-copy Required): <input type="checkbox"/> Attached, Document ID:_____ <input checked="" type="checkbox"/> Not Applicable</p>

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through L as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application. Some of the subsections comprising the Emissions Unit Information Section of the form are intended for regulated emissions units only. Others are intended for both regulated and unregulated emissions units. Each subsection is appropriately marked.

A. TYPE OF EMISSIONS UNIT (Regulated and Unregulated Emissions Units)

Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one:

The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one:

This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

**B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)**

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section (limit to 60 characters): DAP/MAP/TSP STORAGE & SHIPPING		
2. Emissions Unit Identification Number: 020 [<input type="checkbox"/>] No Corresponding ID [<input type="checkbox"/>] Unknown		
3. Emissions Unit Status Code: A	4. Acid Rain Unit? [<input type="checkbox"/>] Yes [<input checked="" type="checkbox"/>] No	5. Emissions Unit Major Group SIC Code: 28
6. Emissions Unit Comment (limit to 500 characters):		

Emissions Unit Control Equipment

A.

1. Description (limit to 200 characters): WET SCRUBBER
2. Control Device or Method Code: 013

Emissions Unit Information Section (1 of 2)

B.

1. Description (limit to 200 characters):
2. Control Device or Method Code:

C.

1. Description (limit to 200 characters):
2. Control Device or Method Code:

**C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)**

Emissions Unit Details

1. Initial Startup Date: NA		
2. Long-term Reserve Shutdown Date: NA		
3. Package Unit: NA		
Manufacturer:		Model Number:
4. Generator Nameplate Rating: NA MW		
5. Incinerator Information: NA		
	Dwell Temperature:	°F
	Dwell Time:	seconds
	Incinerator Afterburner Temperature:	°F

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate: NA		mmBtu/hr
2. Maximum Incineration Rate: NA	lb/hr	tons/day
3. Maximum Process or Throughput Rate: 120 TPH P2O5		
4. Maximum Production Rate:		
5. Operating Capacity Comment (limit to 200 characters): BASED ON 30-DAY AVERAGE.		

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule:		
	24 hours/day	7 days/week
	52 weeks/year	8760 hours/year

Emissions Unit Information Section (1 of 2)

**D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)**

Rule Applicability Analysis (Required for Category II applications and Category III applications involving non Title-V sources. See Instructions.)

N/A

Emissions Unit Information Section (1 of 2)

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

SEE PAGE 12.	

Emissions Unit Information Section (1 of 2)

E. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram:	
2. Emission Point Type Code: <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	
3. Descriptions of Emissions Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): NA	
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:	
5. Discharge Type Code: <input type="checkbox"/> D <input type="checkbox"/> F <input type="checkbox"/> H <input type="checkbox"/> P <input type="checkbox"/> R <input checked="" type="checkbox"/> V <input type="checkbox"/> W	
6. Stack Height:	131 feet
7. Exit Diameter:	8.0 feet
8. Exit Temperature:	77 °F

Emissions Unit Information Section (1 of 2)

9. Actual Volumetric Flow Rate:	98,000 acfm
10. Percent Water Vapor :	NA %
11. Maximum Dry Standard Flow Rate:	NA dscfm
12. Nonstack Emission Point Height:	NA feet
13. Emission Point UTM Coordinates: Zone: East (km): North (km):	
14. Emission Point Comment (limit to 200 characters): Common Scrubber For Shipping and Storage Building.	

Emissions Unit Information Section (1 of 2)

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)

Segment Description and Rate: Segment 1 of 3

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): Fertilizer Storage	
2. Source Classification Code (SCC): 3-05-105-97	
3. SCC Units: Tons Processed	
4. Maximum Hourly Rate: 120 tph P2O5	5. Maximum Annual Rate: 1,051,200
6. Estimated Annual Activity Factor: NA	
7. Maximum Percent Sulfur: NA	8. Maximum Percent Ash: NA
9. Million Btu per SCC Unit: NA	
10. Segment Comment (limit to 200 characters): Tons Product Stored, tph based on 30-day average.	

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)

Segment Description and Rate: Segment 2 of 3

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): Fertilizer Curing (for TSP)	
2. Source Classification Code (SCC): 3-05-105-97	
3. SCC Units: Tons Processed	
4. Maximum Hourly Rate: 120 tph P2O5	5. Maximum Annual Rate: 1,051,200
6. Estimated Annual Activity Factor: NA	
7. Maximum Percent Sulfur: NA	8. Maximum Percent Ash: NA
9. Million Btu per SCC Unit: NA	
10. Segment Comment (limit to 200 characters):	

**F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)**

Segment Description and Rate: Segment 3 of 3

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): Product Shipping	
2. Source Classification Code (SCC): 3-05-105-97	
3. SCC Units: Tons Processed	
4. Maximum Hourly Rate: 120 tph P2O5	5. Maximum Annual Rate: 1,051,200
6. Estimated Annual Activity Factor: NA	
7. Maximum Percent Sulfur: NA	8. Maximum Percent Ash: NA
9. Million Btu per SCC Unit: NA	
10. Segment Comment (limit to 200 characters): TPH based on 30-day average.	

**G. EMISSIONS UNIT POLLUTANTS
(Regulated and Unregulated Emissions Units)**

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	013	000	EL
FL	013	000	EL

Emissions Unit Information Section (1 of 2)

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

Pollutant Detail Information:

1. Pollutant Emitted: PM/PM10		
2. Total Percent Efficiency of Control:	96 %	
3. Potential Emissions:	30.3 lb/hour	132.7 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 _____ to _____ tons/year		
6. Emission Factor: 30.3 LB/HR Reference: PERMIT		
7. Emissions Method Code: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5		
8. Calculation of Emissions (limit to 600 characters): PM/PM10 = 30.3 LB/HR X 8760 HRS/YR X TON /2000 LBS = 132.7 TPY		
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Currently permitted rates. No changes in emissions expected from the proposed project.		

Emissions Unit Information Section (1 of 2)

Allowable Emissions (Pollutant identified on front of page)

A.

1. Basis for Allowable Emissions Code: OTHER		
2. Future Effective Date of Allowable Emissions: NA		
3. Requested Allowable Emissions and Units: 30.3 LBS/HR		
4. Equivalent Allowable Emissions:	30.3 lb/hour	132.7 tons/year
5. Method of Compliance (limit to 60 characters): EPA METHOD 5		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):		

B.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hr	tons/year
5. Method of Compliance (limit to 60 characters):		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):		

Emissions Unit Information Section (1 of 2)

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

Pollutant Detail Information:

1. Pollutant Emitted: FL		
2. Total Percent Efficiency of Control:		%
3. Potential Emissions:	2.75 lb/hour	12 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 _____ to _____ tons/year		
6. Emission Factor: 2.75 LB/HR Reference: PERMIT		
7. Emissions Method Code: <input checked="" type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5		
8. Calculation of Emissions (limit to 600 characters): FL = 2.75 LBS/HR X 8760 HRS/YR X TON/2000 LBS = 12 TPY		
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Currently permitted rates. No changes in emissions expected from the proposed project.		

Emissions Unit Information Section (1 of 2)

Allowable Emissions (Pollutant identified on front of page)

A.

1. Basis for Allowable Emissions Code: OTHER		
2. Future Effective Date of Allowable Emissions: NA		
3. Requested Allowable Emissions and Units: 2.75 LBS/HR		
4. Equivalent Allowable Emissions:	2.75 lb/hour	12 tons/year
5. Method of Compliance (limit to 60 characters): EPA METHOD 13A OR 13B		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Testing for F required only if TSP produced and stored.		

B.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hr	tons/year
5. Method of Compliance (limit to 60 characters):		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):		

Emissions Unit Information Section (1 of 2)

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Visible Emissions Limitation: Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: VE
2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Requested Allowable Opacity: Normal Conditions: 20% Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4. Method of Compliance: EPA METHOD 9
5. Visible Emissions Comment (limit to 200 characters): GENERAL VE

Visible Emissions Limitation: Visible Emissions Limitation _____ of _____

1. Visible Emissions Subtype:
2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Requested Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4. Method of Compliance:
5. Visible Emissions Comment (limit to 200 characters):

**J. CONTINUOUS MONITOR INFORMATION
(Regulated Emissions Units Only)**

Continuous Monitoring System: Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information: Manufacturer: _____ Model Number: _____ Serial Number: _____	
5. Installation Date:	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters):	

Continuous Monitoring System: Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information: Manufacturer: _____ Model Number: _____ Serial Number: _____	
5. Installation Date:	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters):	

**K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT
TRACKING INFORMATION
(Regulated and Unregulated Emissions Units)**

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

If the emissions unit addressed in this section emits particulate matter or sulfur dioxide, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for particulate matter or sulfur dioxide. Check the first statement, if any, that applies and skip remaining statements.

- [X] The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.

- [] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and emissions unit consumes increment.

- [] The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

- [] For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

- [] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

Emissions Unit Information Section (1 of 2)

2. Increment Consuming for Nitrogen Dioxide?

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

- The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
- None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code:			
PM	<input type="checkbox"/> C	<input type="checkbox"/> E	<input type="checkbox"/> Unknown
SO2	<input type="checkbox"/> C	<input type="checkbox"/> E	<input type="checkbox"/> Unknown
NO2	<input type="checkbox"/> C	<input type="checkbox"/> E	<input type="checkbox"/> Unknown
4. Baseline Emissions:			
PM	lb/hour		tons/year
SO2	lb/hour		tons/year
NO2			tons/year
5. PSD Comment (limit to 200 characters):			

**L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)**

Supplemental Requirements for All Applications

<p>1. Process Flow Diagram <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested</p>
<p>2. Fuel Analysis or Specification <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested</p>
<p>3. Detailed Description of Control Equipment <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested</p>
<p>4. Description of Stack Sampling Facilities <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested</p>
<p>5. Compliance Test Report <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously submitted, Date: _____ <input checked="" type="checkbox"/> Not Applicable</p>
<p>6. Procedures for Startup and Shutdown <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable</p>
<p>7. Operation and Maintenance Plan <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable</p>
<p>8. Supplemental Information for Construction Permit Application <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable</p>
<p>9. Other Information Required by Rule or Statute <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable</p>

Emissions Unit Information Section (1 of 2)

Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operation <input type="checkbox"/> Attached, Document ID:_____ <input checked="" type="checkbox"/> Not Applicable
11. Alternative Modes of Operation (Emissions Trading) <input type="checkbox"/> Attached, Document ID:_____ <input checked="" type="checkbox"/> Not Applicable
12. Identification of Additional Applicable Requirements <input type="checkbox"/> Attached, Document ID:_____ <input checked="" type="checkbox"/> Not Applicable
13. Compliance Assurance Monitoring Plan <input type="checkbox"/> Attached, Document ID:_____ <input checked="" type="checkbox"/> Not Applicable
14. Acid Rain Application (Hard-copy Required) <input type="checkbox"/> Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID:_____
<input type="checkbox"/> Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID:_____
<input type="checkbox"/> New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID:_____
<input type="checkbox"/> Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID:_____
<input checked="" type="checkbox"/> Not Applicable

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through L as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application. Some of the subsections comprising the Emissions Unit Information Section of the form are intended for regulated emissions units only. Others are intended for both regulated and unregulated emissions units. Each subsection is appropriately marked.

A. TYPE OF EMISSIONS UNIT (Regulated and Unregulated Emissions Units)

Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one:

The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? Check one:

This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

**B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)**

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section (limit to 60 characters): NORTH MAP/DAP FERTILIZER PLANT		
2. Emissions Unit Identification Number: 029 [<input type="checkbox"/>] No Corresponding ID [<input type="checkbox"/>] Unknown		
3. Emissions Unit Status Code: A	4. Acid Rain Unit? [<input type="checkbox"/>] Yes [<input checked="" type="checkbox"/>] No	5. Emissions Unit Major Group SIC Code: 28
6. Emissions Unit Comment (limit to 500 characters):		

Emissions Unit Control Equipment

A.

1. Description (limit to 200 characters): Wet Scrubber
2. Control Device or Method Code: 013

Emissions Unit Information Section (2 of 2)

B.

1. Description (limit to 200 characters):
2. Control Device or Method Code:

C.

1. Description (limit to 200 characters):
2. Control Device or Method Code:

**C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)**

Emissions Unit Details

1. Initial Startup Date: NA		
2. Long-term Reserve Shutdown Date: NA		
3. Package Unit: NA		
Manufacturer:		Model Number:
4. Generator Nameplate Rating: NA MW		
5. Incinerator Information: NA		
	Dwell Temperature:	°F
	Dwell Time:	seconds
	Incinerator Afterburner Temperature:	°F

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate:	50 mmBtu/hr
2. Maximum Incineration Rate: NA lb/hr	tons/day
3. Maximum Process or Throughput Rate: NA	
4. Maximum Production Rate: 200 TPH MAP OR 150 TPH DAP	
5. Operating Capacity Comment (limit to 200 characters):	
200 TPH MAP OR 150 TPH DAP	

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule:		
	24 hours/day	7 days/week
	52 weeks/year	8760 hours/year

**D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)**

Rule Applicability Analysis (Required for Category II applications and Category III applications involving non Title-V sources. See Instructions.)

N/A

Emissions Unit Information Section (2 of 2)

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

SEE PAGE 12.	

**E. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)**

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram:	
2. Emission Point Type Code: <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	
3. Descriptions of Emissions Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): DRYER/SCREENS/MILLS STACK R/G STACK	
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: NA	
5. Discharge Type Code: <input type="checkbox"/> D <input type="checkbox"/> F <input type="checkbox"/> H <input type="checkbox"/> P <input type="checkbox"/> R <input checked="" type="checkbox"/> V <input type="checkbox"/> W	
6. Stack Height:	129 feet
7. Exit Diameter:	7.5 feet
8. Exit Temperature:	109 °F

Emissions Unit Information Section (2 of 2)

9. Actual Volumetric Flow Rate:	170,000 acfm
10. Percent Water Vapor :	NA %
11. Maximum Dry Standard Flow Rate:	NA dscfm
12. Nonstack Emission Point Height:	NA feet
13. Emission Point UTM Coordinates: Zone: East (km): North (km):	
14. Emission Point Comment (limit to 200 characters):	

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)

Segment Description and Rate: Segment 1 of 4

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): Chemical Manufacturing - Fuel-Fired Equipment Process Heaters - Natural Gas	
2. Source Classification Code (SCC): 3-90-006-99	
3. SCC Units: Million Cubic Feet Burned	
4. Maximum Hourly Rate: 0.05	5. Maximum Annual Rate: 438
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur: NA	8. Maximum Percent Ash: NA
9. Million Btu per SCC Unit: 1000	
10. Segment Comment (limit to 200 characters):	

Emissions Unit Information Section (2 of 2)

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)

Segment Description and Rate: Segment 2 of 4

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): Chemical Manufacturing - Fuel-Fired Equipment Process Heaters - Fuel oil	
2. Source Classification Code (SCC): 3-90-005-99	
3. SCC Units: THOUSAND GALLONS BURNED	
4. Maximum Hourly Rate: 0.357	5. Maximum Annual Rate: 3128
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur: 0.05	8. Maximum Percent Ash: NA
9. Million Btu per SCC Unit: 140	
10. Segment Comment (limit to 200 characters):	

**F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)**

Segment Description and Rate: Segment 3 of 4

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): FERTILIZER PRODUCTION	
2. Source Classification Code (SCC): 3-01-030-24	
3. SCC Units: TONS PRODUCED	
4. Maximum Hourly Rate: 200	5. Maximum Annual Rate: 1,752,000
6. Estimated Annual Activity Factor: NA	
7. Maximum Percent Sulfur: NA	8. Maximum Percent Ash: NA
9. Million Btu per SCC Unit: NA	
10. Segment Comment (limit to 200 characters): 200 TPH MAP	

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)

Segment Description and Rate: Segment 4 of 4

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): FERTILIZER PRODUCTION	
2. Source Classification Code (SCC): 3-01-030-23	
3. SCC Units: TONS PRODUCED	
4. Maximum Hourly Rate: 150	5. Maximum Annual Rate: 1,314,000
6. Estimated Annual Activity Factor: NA	
7. Maximum Percent Sulfur: NA	8. Maximum Percent Ash: NA
9. Million Btu per SCC Unit: NA	
10. Segment Comment (limit to 200 characters): 150 TPH DAP	

**G. EMISSIONS UNIT POLLUTANTS
(Regulated and Unregulated Emissions Units)**

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
NOx	000	000	NS
SO2	000	000	NS
CO	000	000	NS
PM	013	000	EL
FL	013	000	EL

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

Pollutant Detail Information:

1. Pollutant Emitted: PM/PM10		
2. Total Percent Efficiency of Control: %		
3. Potential Emissions:	31.8 lb/hour	139.3 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 _____ to _____ tons/year		
6. Emission Factor: 31.8 LBS/HR Reference: Plant performance		
7. Emissions Method Code: <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5		
8. Calculation of Emissions (limit to 600 characters): PM/PM10 = 31.8 LB/HR X 8760 HRS/YR X TON/2000 LBS = 139.3 TPY		
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):		

Emissions Unit Information Section (2 of 2)

Allowable Emissions (Pollutant identified on front of page)

A.

1. Basis for Allowable Emissions Code: BACT		
2. Future Effective Date of Allowable Emissions: NA		
3. Requested Allowable Emissions and Units: 31.8 LBS/HR		
4. Equivalent Allowable Emissions:	31.8 lb/hour	139.3 tons/year
5. Method of Compliance (limit to 60 characters): EPA METHOD 5		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): BACT		

B.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hr	tons/year
5. Method of Compliance (limit to 60 characters):		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):		

Emissions Unit Information Section (2 of 2)

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: FL		
2. Total Percent Efficiency of Control: %		
3. Potential Emissions:	6.37 lb/hour	27.9 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 _____ to _____ tons/year		
6. Emission Factor: 0.06 LB/TON P205 Reference: CFR		
7. Emissions Method Code: <input checked="" type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5		
8. Calculation of Emissions (limit to 600 characters): FL = 0.06 LB/TON P205 X 106.1 TPH P205 = 6.37 LB/HR X 8760 HRS/YR X TON/2000 LBS = 27.9 TPY		
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):		

Emissions Unit Information Section (2 of 2)

Allowable Emissions (Pollutant identified on front of page)

A.

1. Basis for Allowable Emissions Code: RULE		
2. Future Effective Date of Allowable Emissions: NA		
3. Requested Allowable Emissions and Units: 0.06 lb/ton P2O5		
4. Equivalent Allowable Emissions:	3.74 lb/hour	16.4 tons/year
5. Method of Compliance (limit to 60 characters): EPA METHOD 13A OR 13B		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): BACT		

B.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hr	tons/year
5. Method of Compliance (limit to 60 characters):		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):		

Emissions Unit Information Section (2 of 2)

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Visible Emissions Limitation: Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: VE
2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Requested Allowable Opacity: Normal Conditions: 20% Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4. Method of Compliance: EPA METHOD 9
5. Visible Emissions Comment (limit to 200 characters): GENERAL VE

Visible Emissions Limitation: Visible Emissions Limitation _____ of _____

1. Visible Emissions Subtype:
2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Requested Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4. Method of Compliance:
5. Visible Emissions Comment (limit to 200 characters):

**J. CONTINUOUS MONITOR INFORMATION
(Regulated Emissions Units Only)**

Continuous Monitoring System: Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information: Manufacturer: _____ Model Number: _____ Serial Number: _____	
5. Installation Date:	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters): 	

Continuous Monitoring System: Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information: Manufacturer: _____ Model Number: _____ Serial Number: _____	
5. Installation Date:	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters): 	

**K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT
TRACKING INFORMATION
(Regulated and Unregulated Emissions Units)**

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

If the emissions unit addressed in this section emits particulate matter or sulfur dioxide, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for particulate matter or sulfur dioxide. Check the first statement, if any, that applies and skip remaining statements.

- The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

Emissions Unit Information Section (2 of 2)

2. Increment Consuming for Nitrogen Dioxide?

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

-] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.
-] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
-] The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
-] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
-] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code:			
PM	<input type="checkbox"/>] C	<input type="checkbox"/>] E	<input type="checkbox"/>] Unknown
SO2	<input type="checkbox"/>] C	<input type="checkbox"/>] E	<input type="checkbox"/>] Unknown
NO2	<input type="checkbox"/>] C	<input type="checkbox"/>] E	<input type="checkbox"/>] Unknown
4. Baseline Emissions:			
PM	lb/hour		tons/year
SO2	lb/hour		tons/year
NO2			tons/year
5. PSD Comment (limit to 200 characters):			

**L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)**

Supplemental Requirements for All Applications

<p>1. Process Flow Diagram <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested</p>
<p>2. Fuel Analysis or Specification <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested</p>
<p>3. Detailed Description of Control Equipment <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested</p>
<p>4. Description of Stack Sampling Facilities <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Waiver Requested</p>
<p>5. Compliance Test Report <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously submitted, Date: _____ <input checked="" type="checkbox"/> Not Applicable</p>
<p>6. Procedures for Startup and Shutdown <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable</p>
<p>7. Operation and Maintenance Plan <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable</p>
<p>8. Supplemental Information for Construction Permit Application <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable</p>
<p>9. Other Information Required by Rule or Statute <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable</p>

Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operation <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
11. Alternative Modes of Operation (Emissions Trading) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
12. Identification of Additional Applicable Requirements <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
13. Compliance Assurance Monitoring Plan <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
14. Acid Rain Application (Hard-copy Required) <input type="checkbox"/> Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID: _____ <input type="checkbox"/> Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID: _____ <input type="checkbox"/> New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID: _____ <input type="checkbox"/> Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

REPORT IN SUPPORT OF A
PSD PERMIT APPLICATION

PREPARED FOR:

FARMLAND HYDRO, L.P.
GREEN BAY COMPLEX
POLK COUNTY, FLORIDA

DECEMBER 1997

PREPARED BY:

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TABLE OF CONTENTS

	PAGE
1.0 SYNOPSIS OF APPLICATION	1
1.1 Applicant	1
1.2 Facility Location	1
1.3 Project Description	1
2.0 FACILITY DESCRIPTION	1
3.0 PROPOSED PROJECT	5
3.1 Air Emissions	5
3.2 Rule Review	5
3.3 Rule Applicability	9
4.0 BEST AVAILABLE CONTROL TECHNOLOGY	16
4.1 Emission Standards for DAP Plant	16
4.2 Control Technology	16
4.3 BACT Conclusion	18
5.0 AIR QUALITY REVIEW	19
6.0 GOOD ENGINEERING PRACTICE STACK HEIGHT	22
7.0 IMPACTS ON SOILS, VEGETATION AND VISIBILITY	23
7.1 Impacts on Soils and Vegetation	23
7.2 Growth Related Impacts	23
7.3 Visibility Impacts	23
7.4 Air Quality Related Values Analysis For Class I Area	23
8.0 CONCLUSION	25
APPENDIX A - CALCULATIONS	
APPENDIX B - CURRENT AIR PERMITS	
APPENDIX C - MODELING OUTPUT DISK FILE INDEX	
APPENDIX D - BACT COST ANALYSIS FOR FLUORIDES CONTROL	

LIST OF FIGURES

FIGURE	TITLE	PAGE
FIGURE 2-1	SITE LOCATION MAP	2
FIGURE 2-2	AREA LOCATION MAP	3
FIGURE 2-3	FACILITY PLOT PLAN	4

LIST OF TABLES

TABLE	TITLE	PAGE
TABLE 3-1	CHANGES IN EMISSION RATES OF NORTH MAP/DAP PLANT	10
TABLE 3-2	NET EMISSIONS CHANGES	11
TABLE 3-3	MAJOR FACILITY CATEGORIES	12
TABLE 3-4	SIGNIFICANT EMISSION RATES	13
TABLE 3-5	AMBIENT AIR QUALITY STANDARDS	14
TABLE 3-6	PSD INCREMENTS	15
TABLE 5-1	AIR QUALITY MODELING PARAMETERS	20
TABLE 5-2	SUMMARY OF AIR IMPACT ANALYSES FOR PM/PM10	21
TABLE 7-1	SUMMARY OF VISCREEN RESULTS	24

1.0 SYNOPSIS OF APPLICATION

1.1 APPLICANT

Farmland Hydro, L.P.
Green Bay Complex
P.O. Box 960
Bartow, FL 33831

1.2 FACILITY LOCATION

Farmland Hydro, L.P. (Farmland), Green Bay Complex, consists of a phosphate chemical fertilizer manufacturing facility approximately six miles southwest of Bartow, Florida, on State Road 640 in Polk County. The UTM coordinates of the Farmland, Green Bay Complex are Zone 17, 409.5 km east and 3079.5 km north.

1.3 PROJECT DESCRIPTION

Farmland proposes to increase the granular monoammonium phosphate (MAP) and diammonium phosphate (DAP) production rate of the existing North MAP/DAP Plant from 120 to 200 tons per hour MAP and 100 to 150 tons per hour DAP. This corresponds to an increase in the maximum process input rate from the current 62.4 tph P2O5 to 106.1 tph P2O5 (based on MAP production at a 98 percent recovery factor). The project may involve minor plant process equipment changes (e.g. pumps, piping, ducting etc.) to achieve the production rate increase. The existing fertilizer storage and shipping system will be able to accommodate the increase without requiring any changes to the existing equipment.

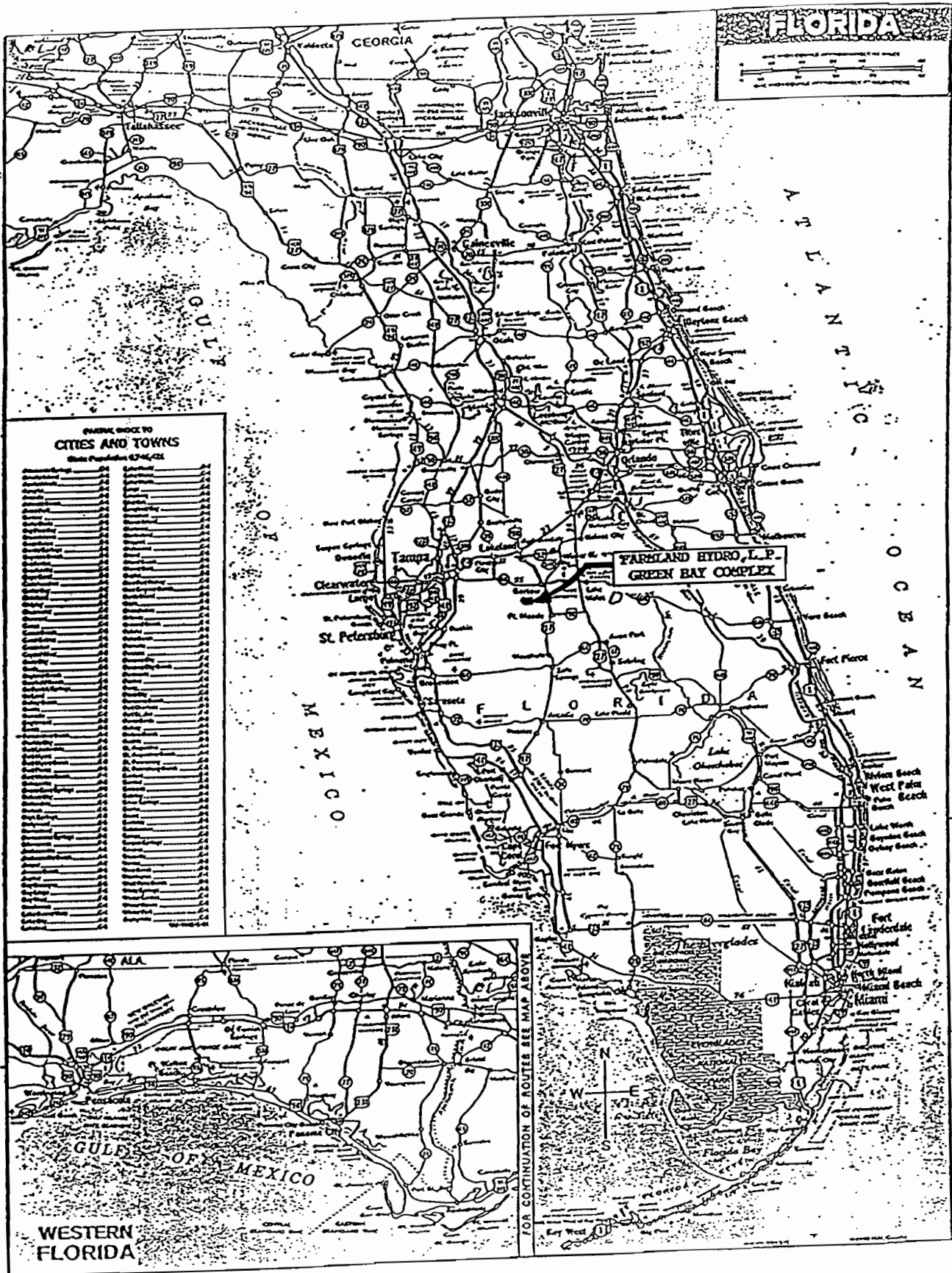
The proposed project will result in a significant net increase, pursuant to Rule 62-210, Florida Administrative Code (FAC) in the emission rate of fluorides and particulate matter.

Farmland is submitting this report in support of the PSD permit application to the Florida Department of Environmental Protection (FDEP) for an increase in the production rate of the existing North MAP/DAP Plant. The report includes a description of the existing chemical complex, a review of Best Available Control Technology (BACT), an ambient air quality analysis and an evaluation of the impact of the proposed modification on soils, vegetation and visibility.

2.0 FACILITY DESCRIPTION

Farmland Hydro, L.P., Green Bay Complex, consists of a phosphate chemical fertilizer manufacturing facility located in Polk County (see Figures 2-1 and 2-2). The existing fertilizer complex processes wet phosphate rock into fertilizer products. Phosphate rock is reacted with sulfuric acid to produce phosphoric acid. The phosphoric acid is then converted into fertilizer products. The chemical complex includes sulfuric acid plants, phosphoric acid plants, a super phosphoric acid plant, plants to produce MAP and DAP, and storage, handling, grinding and shipping facilities for phosphate rock, ammonia, sulfur, and fertilizer products. Figure 2-3, Plot Plan, shows the location of the existing plants.

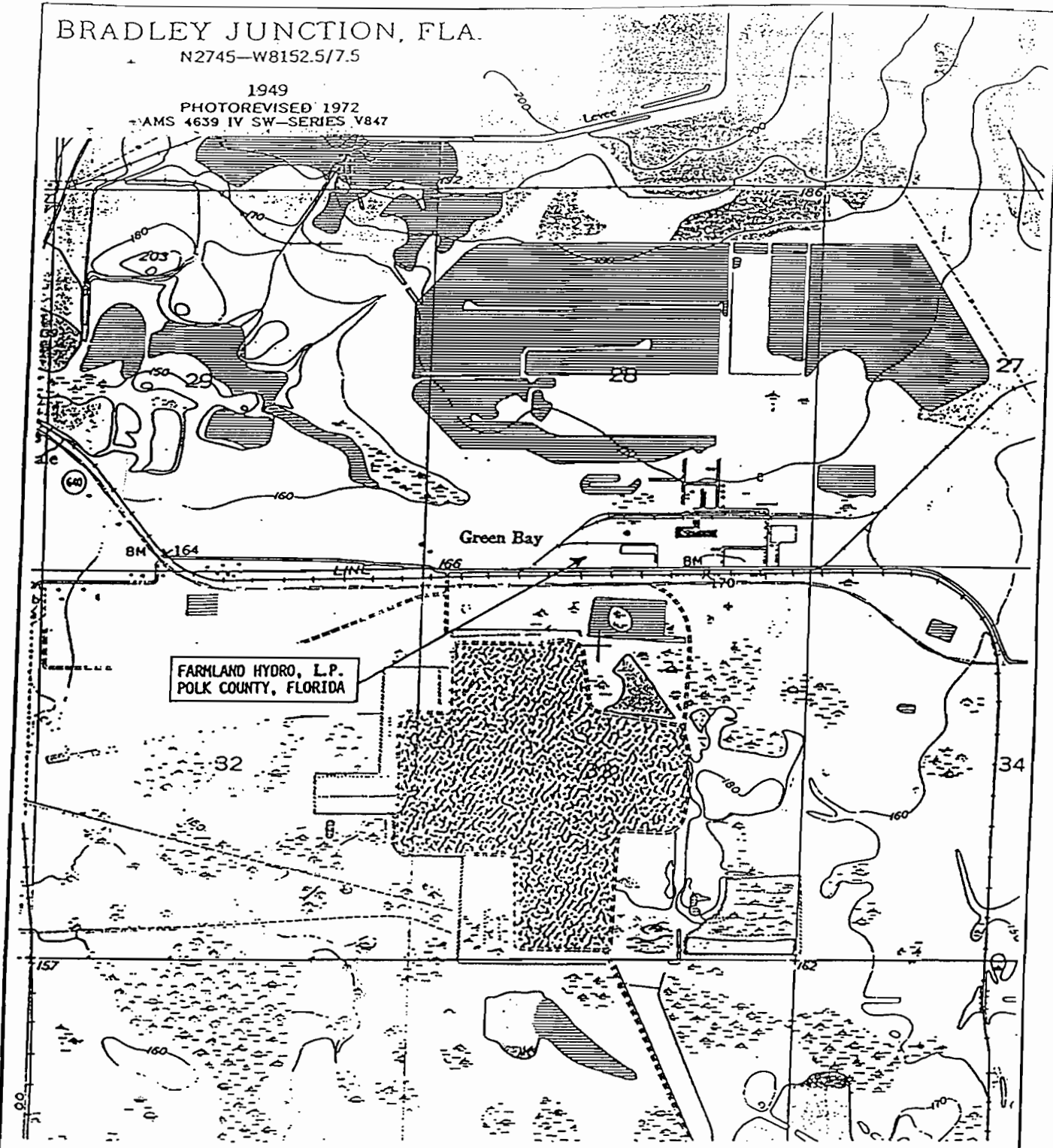
SITE LOCATION MAP FARMLAND HYDRO, L.P.



BRADLEY JUNCTION, FLA.

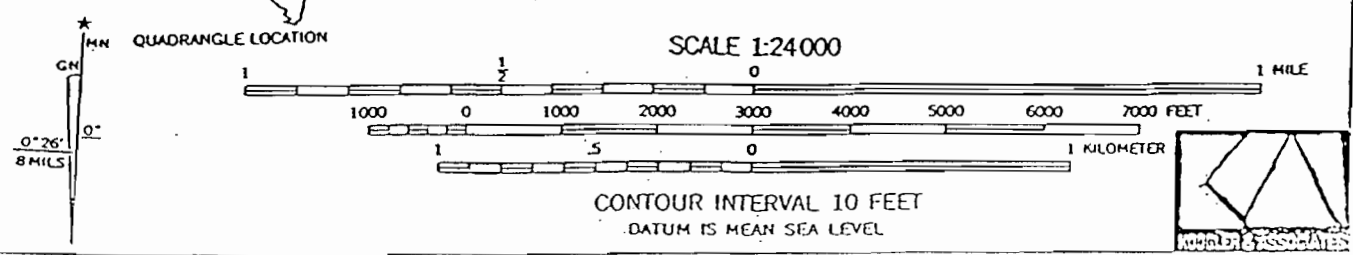
N2745-W8152.5/7.5

1949
PHOTOREVISED 1972
AMS 4639 IV SW-SERIES V847



FARMLAND HYDRO, L.P.
POLK COUNTY, FLORIDA

FIGURE 2-2
AREA LOCATION MAP



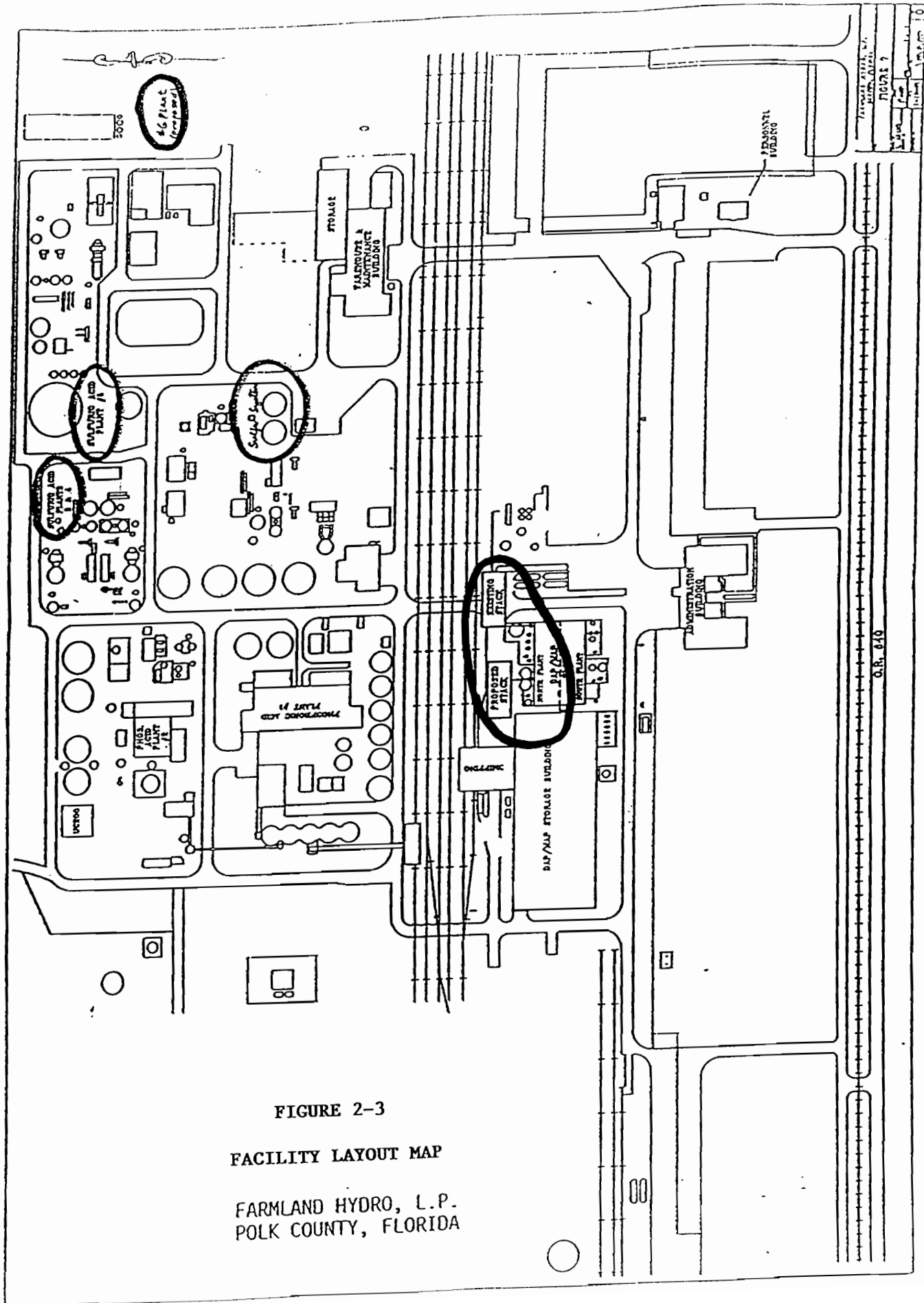


FIGURE 2-3

FACILITY LAYOUT MAP

FARMLAND HYDRO, L.P.
POLK COUNTY, FLORIDA

3.0 PROPOSED PROJECT

In 1992, FDEP issued PSD-FL-186 for the modification of the North MAP/DAP Plant to allow an increase in the production rate of the plant. Major physical modifications were made to the plant at that time to increase the production rates. Based on the operating experience over the past few years, Farmland expects the existing plant to operate at even higher rates than currently permitted. The current request for a production increase is proposed with virtually no equipment changes. At the most, there may be need for replacement of minor components such as pumps, piping and ductwork, for the smooth operation of the plant. No major equipment changes are planned for the proposed project. A process flow diagram is not included as there is no change from the information in FDEP files.

In retrospect, the 1992 projection of the ultimate production capacity of the modified plant was underestimated. The requested production rates, of 200 tons per hour MAP and 150 tons per hour DAP, reflect the rates that should probably have been requested in 1992. This corresponds to a maximum feed rate of 106.1 tph P205.

Some of the excess phosphoric acid currently produced, normally supplied to off site customers, will be diverted to the North MAP/DAP Plant for the proposed production increase. Consequently, the proposed project will not result in a modification of any other chemical plant at the facility.

3.1 AIR EMISSIONS

The proposed increase in production rate of the North MAP/DAP Plant is expected to result in an increase in actual air emissions. The changes in air emissions associated with the proposed project are summarized in Table 3-1. No emissions changes are expected in the storage/shipping areas. The projected net emissions increases, presented in Table 3-2, are significant (as defined in Rule 62-212, FAC) for fluorides (F) and particulate matter (PM/PM10); and, less than significant for sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO) and volatile organic compounds (VOCs).

3.2 RULE REVIEW

The following are the state and federal air regulatory requirements that apply to new or modified sources subject to a Prevention of Significant Deterioration (PSD) review.

In accordance with EPA and State of Florida PSD review requirements, all major new or modified sources of air pollutants regulated under the Clean Air Act (CAA) are subject to preconstruction review. Florida's State Implementation Plan (SIP), approved by the EPA, authorizes the Florida Department of Environmental Protection (FDEP) to manage the air pollution program in Florida.

The PSD review determines whether or not significant air quality deterioration will result from a new or modified facility. Federal PSD regulations are contained in 40CFR52.21, Prevention of Significant Deterioration of Air Quality. The State of Florida has adopted PSD

regulations which are essentially identical to the federal regulations and are contained in Chapter 62-212 of the Florida Administration Code (FAC).

All new major facilities and major modifications to existing facilities are subject to control technology review, source impact analysis, air quality analysis and additional impact analyses for each pollutant subject to a PSD review. A facility must also comply with the Good Engineering Practice (GEP) stack height rule.

A major facility is defined in the PSD rules as any one of the 28 specific source categories (see Table 3-3) which has the potential to emit 100 tons per year (tpy) or more, or any other stationary facility which has the potential to emit 250 tpy or more, of any pollutant regulated under the Clean Air Act. A major modification is defined in the PSD rules as a change at an existing major facility which increases the actual emissions by greater than significant amounts (see Table 3-4).

3.2.1 Ambient Air Quality Standards

The EPA and the state of Florida have developed/adopted ambient air quality standards, AAQS (see Table 3-5). Primary AAQS protect the public health while the secondary AAQS protect the public welfare from adverse effects of air pollution. Areas of the country have been designated as attainment or nonattainment for specific pollutants. Areas not meeting the AAQS for a given pollutant are designated as nonattainment areas for that pollutant. Any new source or expansion of existing sources in or near these nonattainment areas are usually subject to more stringent air permitting requirements. Projects proposed in attainment areas are subject to air permit requirements which would ensure continued attainment status.

3.2.2 PSD Increments

In promulgating the CAA Amendments, Congress quantified concentration increases above an air quality baseline concentration levels for sulfur dioxide (SO₂) and particulate matter less than 10 microns (PM₁₀) which would constitute significant deterioration. The size of the allowable increment depends on the classification of the area in which the source would be located or have an impact. Class I areas include specific national parks, wilderness areas and memorial parks. Class II areas are all areas not designated as Class I areas and Class III areas are industrial areas in which greater deterioration than Class II areas would be allowed. There are no designated Class III areas in Florida.

In 1988, EPA promulgated PSD regulations for nitrogen oxides (NO_x) and PSD increments for nitrogen dioxide (NO₂) concentrations. FDEP adopted the NO₂ increments in July 1990 (see Table 3-6 for PSD increments).

In the PSD regulations, baseline concentration is defined as the ambient concentration level for a given pollutant which exists in the baseline area at the time of the applicable baseline date and includes the actual emissions representative of facilities in existence on the applicable baseline date, and the allowable emissions of major stationary facilities

which commenced construction before January 6, 1975, but were not in operation by the applicable baseline date.

The emissions not included in the baseline concentration and, therefore, affecting PSD increment consumption are the actual emissions from any major stationary facility on which construction commenced after January 6, 1975, for SO₂ and PM₁₀, and February 8, 1988, for NO₂, and the actual emission increases and decreases at any stationary facility occurring after the baseline date.

3.2.3 Control Technology Evaluation

The PSD control technology review requires that all applicable federal and state emission limiting standards be met and that Best Available Control Technology (BACT) be applied to the source. The BACT requirements are applicable to all regulated pollutants subject to a PSD review.

BACT is defined in Chapter 62, FAC as an emission limitation, including a visible emission standard, based on the maximum degree of reduction of each pollutant emitted which the Department, on a case-by-case basis, taking into account energy, environmental, and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques (including fuel cleaning or treatment or innovative fuel combustion techniques) for control of such pollutant.

If the Department determines that technological or economic limitations on the application of measurement methodology to a particular part of a source or facility would make the imposition of an emission standard infeasible, a design, equipment, work practice, operational standard or combination thereof, may be prescribed instead, to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set forth the emissions reductions achievable by implementation of such design, equipment, work practice or operation.

Each BACT determination shall include applicable test methods or shall provide for determining compliance with the standard(s) by means which achieve equivalent results.

The reason for evaluating the BACT is to minimize as much as possible the consumption of PSD increments and to allow future growth without significantly degrading air quality. The BACT review also analyzes if the most current control systems are incorporated in the design of a proposed facility. The BACT, as a minimum, has to comply with the applicable New Source Performance Standard for the source. The BACT analysis requires the evaluation of the available air pollution control methods including a cost-benefit analysis of the alternatives. The cost-benefit analysis includes consideration of materials, energy, and economic penalties associated with the control systems, as well as environmental benefits derived from the alternatives.

EPA determined that the bottom-up approach (starting at NSPS and working up to BACT) was not providing the level of BACT originally intended. As a result, in December 1987, EPA strongly suggested changes in the

implementation of the PSD program including the "top-down" approach to BACT. The top-down approach requires an application to start with the most stringent control alternative, often Lowest Achievable Emission Rate (LAER), and justify its rejection or acceptance as BACT. Rejection of control alternatives may be based on technical or economical infeasibility, physical differences, locational differences, and environmental or energy impact differences when comparing a proposed project with a project previously subject to that BACT.

3.2.4 Air Quality Monitoring

An application for a PSD permit requires an analysis of ambient air quality in the area affected by the proposed facility or major modification. For a new major facility, the affected pollutants are those that the facility would potentially emit in significant amounts. For a major modification, the pollutants are those for which the net emissions increase exceeds the significant emission rate.

Ambient air monitoring for a period of up to one year, but no less than four months, is required. Existing ambient air data for a location in the vicinity of the proposed project is acceptable if the data meet FDEP quality assurance requirements. If not, additional data would need to be gathered. There are guidelines available for designing a PSD air monitoring network in EPA's "Ambient Monitoring Guidelines for Prevention of Significant Deterioration."

FDEP may exempt a proposed major stationary facility or major modification from the monitoring requirements with respect to a particular pollutant if the emissions increase of the pollutant from the facility or modification would cause air quality impacts less than the de minimis levels (see Table 3-4).

3.2.5 Ambient Impact Analysis

A source impact analysis is required for a proposed major source subject to PSD for each pollutant for which the increase in emissions exceeds the significant emission rate. Specific atmospheric dispersion models are required in performing the impact analysis. The analysis should demonstrate the project's compliance with AAQS and allowable PSD increments. The impact analysis for criteria pollutants may be limited to only the new or modified source if the net increase in impacts due to the new or modified source is below significant impact levels.

Typically, a five-year period is used for the evaluation of the highest, second-highest short-term concentrations for comparison to AAQS or PSD increments. The term "highest, second-highest" refers to the highest of the second-highest concentrations at all receptors. The second-highest concentration is considered because short-term AAQS specify that the standard should not be exceeded at any location more than once a year. If less than five years of meteorological data are used in the modeling analysis, the highest concentration at each receptor is normally used.

3.2.6 Additional Impact Analysis

The PSD rules also require analyses of the impairment to visibility and the impact on soils and vegetation that would occur as a result of the project. A visibility impairment analysis must be conducted for PSD Class I areas along with an air quality related values (AQRV) analysis. Impacts due to commercial, residential, industrial, and other growth associated with the source must be addressed.

3.2.7 Good Engineering Practice Stack Height

In accordance with Rule 62-210, FAC, the degree of emission limitation required for control of any pollutant should not be affected by a stack height that exceeds GEP, or any other dispersion technique. GEP stack height is defined as the highest of:

1. 65 meters (m), or
2. A height established by applying the formula:

$$H_g = H + 1.5 L$$

where:

- H_g - GEP stack height,
- H - Height of the structure or nearby structure, and
- L - Lesser dimension, height or projected width of nearby structure(s)

3. A height demonstrated by a model or field study.

The GEP stack height regulations require that the stack height used in modeling for determining compliance with AAQS and PSD increments not exceed the GEP stack height. The actual stack height may be higher or lower.

3.3 RULE APPLICABILITY

The proposed North MAP/DAP Plant production increase is classified as a major modification to a major facility subject to both state and federal regulations as set forth in Chapter 62-212, FAC. The facility is located in an area classified as attainment for each of the regulated air pollutants. The proposed project will result in significant increases, as defined in Rule 62.212, FAC, in the emissions of F and PM/PM10, and is subject to PSD preconstruction review requirements. This will include a determination of BACT, an air quality review, Good Engineering Practice stack height analysis and an evaluation of impacts on soils, vegetation and visibility.

TABLE 3-1
 CHANGES IN EMISSION RATES
 NORTH MAP/DAP PLANT

	ALLOWABLE EMISSION RATES			
	CURRENT (120 TPH MAP)		PROPOSED (200 TPH MAP)	
	lb/hr	tpy	lb/hr	tpy
Fluorides	3.74	16.4	6.37	27.9
Particulates	22.5	98.6	31.8	139.3

NOTES:

- (1) See Appendix A for calculations of emission rates.
- (2) The emission rates corresponds to the total for both North Plant stacks combined.

TABLE 3-2

NET EMISSION CHANGES(1)
NORTH MAP/DAP PLANT

POLLUTANT	EMISSION RATE (tpy)			SIG.(2)	PSD?
	ACTUALS	PROPOSED	NET CHANGE		
Fluorides	4.5	27.9	23.4	3	YES
Particulates	44.0	139.3	97.3 (3)	25/15	YES
Sulfur Dioxide	0.04	11.1 (4)	11.1	40	NO
Nitrogen Oxides	9.6	31.3	21.7	40	NO
Carbon Monoxide	2.4	7.8	5.4	100	NO
Organics, VOCs	0.2	0.2	0	40	NO

- (1) See Appendix A for emission calculations.
- (2) Pursuant to Rule 62-212, FAC. Significant levels for PM and PM10 are 25 and 15 tpy, respectively.
- (3) The net increase includes contemporaneous emissions of 2.0 tpy.
- (4) SO2 emissions are limited by low sulfur (0.05%) oil usage.

TABLE 3-3

MAJOR FACILITY CATEGORIES

Fossil fuel fired steam electric plants of more than 250 MMBTU/hr heat input
Coal cleaning plants (with thermal dryers)
Kraft pulp mills
Portland cement plants
Primary zinc smelters
Iron and steel mill plants
Primary aluminum ore reduction plants
Primary copper smelters
Municipal incinerators capable of charging more than 250 tons of refuse per day
Hydrofluoric acid plants
Sulfuric acid plants
Nitric acid plants
Petroleum refineries
Lime plants
Phosphate rock processing plants
Coke oven batteries
Sulfur recovery plants
Carbon black plants (furnace process)
Primary lead smelters
Fuel conversion plants
Sintering plants
Secondary metal production plants
Chemical process plants
Fossil fuel boilers (or combinations thereof) totaling more than 250 million
BTU/hr heat input
Petroleum storage and transfer units with total storage capacity exceeding
300,000 barrels
Taconite ore processing plants
Glass fiber processing plants
Charcoal production plants

TABLE 3-4

REGULATED AIR POLLUTANTS - SIGNIFICANT EMISSION RATES

Pollutant	Significant Emission Rate tons/yr	De Minimis Ambient Impacts ug/m3
CO	100	575 (8-hour)
NOx	40	14 (NO2, Annual)
SO2	40	13 (24-hour)
Ozone	40 (VOC)	-
PM (TSP)	25	10 (24-hour)
PM10	15	10 (24-hour)
TRS (including H2S)	10	0.2 (1-hour)
H2SO4 mist	7	-
Fluorides	3	0.25 (24-hour)
Vinyl Chloride	1	15 (24-hour)
	<u>pounds/yr</u>	
Lead	1200	0.1 (Quarterly avg)
Mercury	200	0.25 (24-hour)
Asbestos	14	-
Beryllium	0.8	0.001 (24-hour)

TABLE 3-5
 AMBIENT AIR QUALITY STANDARDS

Pollutant	FDEP (State)		USEPA (National)			
	ug/m3	PPM	Primary		Secondary	
	ug/m3	PPM	ug/m3	PPM	ug/m3	PPM
SO ₂ , 3-hour	1,300	0.5	-	-	1300	0.5
	260	0.1	365	0.14	-	-
	60	0.02	80	0.03	-	-
PM10, 24-hour	150	-	150	-	150	-
	50	-	50	-	50	-
CO, 1-hour	40,000	35	40,000	35	-	-
	10,000	9	10,000	9	-	-
Ozone, 1-hour	235	0.12	235	0.12	235	0.12
NO ₂ , Annual	100	0.05	100	-	100	-
Lead, Quarterly	1.5	-	1.5	-	1.5	-

TABLE 3-6
PSD INCREMENTS

Pollutant	Allowable PSD Increments (State/National)		
	Class I ug/m3	Class II ug/m3	Class III ug/m3
TSP, Annual	5	19	37
24-hour	10	37	75
SO ₂ , Annual	2	20	40
24-hour	5	91	182
3-hour	25	512	700
NO ₂ , Annual	2.5	25	50

4.0 BEST AVAILABLE CONTROL TECHNOLOGY

Best Available Control Technology (BACT) is required to control air pollutants emitted from newly constructed major sources or from modification to the major emitting facilities if the modification results in significant increase in the emission rate of regulated pollutants (see Table 3-4 for significant emission levels). The emission rate increases proposed by Farmland have been summarized in Table 3-1. A BACT analysis is therefore required for F and PM/PM10.

4.1 EMISSION STANDARDS FOR MAP/DAP PLANTS

Federal New Source Performance Standards (NSPS) have been promulgated for DAP plants. These standards became effective on October 22, 1974 and are codified in 40 CFR 60, Subpart V and require fluoride emissions to be limited to no more than 0.06 pound per ton of P2O5. Although no separate NSPS exist for MAP plants, the fluoride emission standard that applies to the DAP plants has generally been extended to MAP plants. The NSPS under Subpart V do not include emission standards for other criteria pollutants.

EPA revised/amended the New Source Performance Standards for DAP plants in 1989. At that time, no changes to the emission standard was deemed necessary or justified. There has been no change in EPA philosophy related to DAP plants since the 1989 review. This is apparent in EPA's proposed Maximum Achievable Control Technology (MACT) standard for hydrogen fluoride (HF), recently proposed under 40 CFR 63. The proposed MACT standard, which regulates HF as F, imposes the existing NSPS for fluorides, of 0.06 lbF/ton P2O5 feed, on existing plants.

4.2 CONTROL TECHNOLOGY

At all the MAP/DAP plants, wet scrubbing equipment is conventionally applied for removal of ammonia, fluorides and particulate dusts from effluent gas streams. These scrubbers are designed for a variety of functions which include ammonia recovery, particulate collection, and fluorine removal. These functions require a complex arrangement of the scrubbing equipment often tailored for the requirements of a specific facility. No add-on controls are utilized for products of combustion.

Although the FDEP's control technology review focus is usually on fluorides, the fertilizer manufacturing process collectively optimizes the collection of particulate matter, ammonia recovery and fluorides. The combination of requirements for particulate collection, gas absorption for NH3 recovery, and fluoride emission control dictates the choice of air pollution control equipment at the time of construction of the plant.

The current control equipment was determined to be BACT by FDEP in 1992, when the plant was being modified. The scrubbing arrangement consists of a two stage venturi-cyclonic followed by an ammonia vaporizer using an innovative design. The ammonia vaporizer condenses the moisture out of the process exit gas stream. The condensate then scrubs the fluorides in the process exit gas stream prior to discharge to the atmosphere.

There have been two other control technologies evaluated by FDEP in recent BACT determinations relative to granular MAP/DAP manufacture. One control alternative involves the use of once-through fresh water in tail gas scrubbing, while the other involves the use of recirculated neutralized water in the tail gas scrubber with a dedicated pond.

The use of once-through fresh water is not possible given the strict water conservation requirements imposed by the Water Management District. The use of recirculated neutralized water was recently evaluated and found not to be cost effective. It is expected that this conclusion would hold true for most existing facilities where the existing scrubbing systems were permitted under BACT requirements.

The following discussion addresses the estimated costs associated with the use of a tailgas packed bed scrubber with recirculated scrubber water for control of fluorides from the proposed project. The recirculated water treatment system would include neutralization and a dedicated cooling pond.

FDEP has previously enquired about standard "cost factors" for cost estimation. However, it has not been possible to get any such factors from contractors who insist that each project has to be evaluated on a case by case basis due to an increasing number of legal, environmental and economic variables.

The information below has been gathered based on Farmland's past experience, and from recent discussions with private contractors in the phosphate industry.

1. The dedicated lined cooling pond size, based on flow and required heat dissipation rate, is estimated at 30 acres.
2. The construction cost associated with a completed lined pond, including a liming station, is estimated at \$4,500,000.
3. Liming costs associated with neutralization of the scrubber water, assuming fresh water makeup, can range from \$5 to \$10 per 1000 gallons, depending on the buffering capacity. For the proposed project, it is assumed that the liming cost would be \$5/1000 gals. The total annual maintenance costs and liming, are estimated at \$30,000 per year.
4. Sludge disposal costs are not included as it is assumed that the sludge can be stored on-site at no additional cost. The cooling pond has been sized accordingly.
5. The pumping costs are estimated at \$22,400 per year, based on Farmland's costs for pumping water elsewhere in the plant.
6. The cost of a packed bed tailgas scrubber is estimated by Farmland at \$1,500,000 based on cost information from past projects.

The resulting cost of a tailgas scrubber with a dedicated scrubber water pond system to serve the North MAP/DAP Plant can be estimated as follows:

ITEM	COST
Packed Scrubber	\$1,500,000
Lined Pond	<u>\$4,500,000</u>
Total	<u>\$6,000,000</u>
Annual Costs:	
Capital Recovery (1) Total cost x 0.1175	\$ 705,000
Pumping & Maintenance	<u>\$ 52,400</u>
Total	<u>\$ 757,400</u>

The capital recovery is based on an amortization factor of 0.1175, for 10 percent interest rate over a 20 year period.

Based on FDEP's recently proposed BACT for fluorides from a fertilizer (prilled MAP) plant, of 0.019 lb/ton P205 feed, which has an option for a recirculated scrubber water treatment system with a dedicated pond to meet the BACT emissions limit, the potential emissions from the North MAP/DAP Plant can be projected as follows:

$$\begin{aligned} \text{Total F} &= 106.1 \text{ tph P205} \times 0.019 \text{ lb/ton P205} \times 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\ &= 8.8 \text{ tpy} \end{aligned}$$

The cost of additional control:

$$\begin{aligned} \text{Total cost} &= \$757,400 / (27.9 \text{ tpy} - 8.8 \text{ tpy}) \\ &= \$39,654/\text{ton F removed} \end{aligned}$$

Based on this incremental cost, the tailgas scrubber using recirculated neutralized scrubber water treatment system, with a dedicated cooling pond, is rejected as BACT.

4.3 BACT CONCLUSION

Based upon the discussion presented in previous sections, the current North MAP/DAP Plant scrubbing system configuration represents BACT for F and PM. Based on the past plant performance, the 1992 BACT determination can be updated for this review. Farmland proposes a F limitation of 0.06 lb/ton P205 feed, corresponding to the proposed MACT for existing plants, as BACT for the proposed project. A lower F limit is not proposed in order to allow for normal variability in F emissions, as measured by EPA reference methods. A PM emission limit of 0.3 lb/ton P205 feed is proposed as BACT based on past plant performance, compared with the current (BACT) limitation of 0.36 lb/ton P205 feed.

5.0 AIR QUALITY REVIEW

The air quality review required of a PSD construction permit application potentially requires both air quality modeling and air quality monitoring. The air quality monitoring is required when the impact of air pollutant emission increases and decreases associated with a proposed project exceed the de minimis impact levels defined by Rule 62-212, FAC or in cases where an applicant wishes to define existing ambient air quality by monitoring rather than by air quality modeling.

The air quality modeling is required to provide assurance that the emissions from the proposed project, together with the emissions of all other air pollutants in the project area, will not cause or contribute to a violation of any ambient air quality standard.

The air quality review for the proposed project evaluated the ambient air impacts resulting from the proposed increase in emissions and stack gas velocity. Table 5-1 contains modeling input parameters used in the ambient air quality impacts analysis. Modeling analysis for fluorides was not required by FDEP as there are no corresponding ambient air standards for comparison; and, the changes in hourly emissions are relatively minor.

The air dispersion modeling for PM was conducted using the EPA approved ISC-ST model, Version 96113 (ISC3). The PM emissions modeled to determine the ambient air impacts reflect the allowable emissions associated with the proposed project (see Table 5-1).

The modeling utilized a discrete receptor grid representing the property boundary and polar grid based receptor locations extending to about 3 kilometers, representing the furthest property boundary. An additional polar receptor ring was located at 5 kilometers downwind of the plant, with receptors located at 10 degree intervals from 10 to 360 degrees. The Class I area receptor locations previously identified by the Department were included in the modeling.

Five years of Tampa meteorological data were used in the modeling for the period 1987 to 1991.

Building wake effects were considered in the modeling using the EPA approved BPIP program.

The modeling results, presented in Table 5-2, indicate that the maximum predicted PM impacts from the proposed project will be less than significant at the Class I and II areas. Consequently, additional refined modeling is not required.

TABLE 5-1
 AIR QUALITY MODELING PARAMETERS
 FARMLAND HYDRO, L.P.
 POLK COUNTY, FLORIDA

Stack	Pollutant	Emissions (g/s)	Ht (m)	Dia (m)	Vel (mps)	Temp (°K)
R/G (Current)	F PM/PM10	0.24 0.83	39.3	1.68	10.64	354
R/G (Proposed)	F PM/PM10	0.31 1.16	39.3	1.68	13.90	372
Dryer/Cooler (Current)	F PM/PM10	0.24 2.00	39.3	2.29	13.11	315
Dryer/Cooler (Proposed)	F PM/PM10	0.49 2.85	39.3	2.29	19.55	316

NOTES:

- (1) Information on fluorides from MAP production mode (maximum emissions), although not modeled, is presented above for reference purposes only.

TABLE 5-2
SUMMARY OF SIGNIFICANT IMPACT ANALYSES
FOR PM/PM10

FARMLAND HYDRO, L.P.
POLK COUNTY, FLORIDA

MET YEAR	MAX. PREDICTED PM10 AMBIENT AIR IMPACTS (ug/m3) (1)			
	Class I Area		Class II Area	
	24-hr	Annual	24-hr	Annual
1987	0.03	0.001	4.44	0.12
1988	0.02	0.002	5.40 (2)	0.10
1989	0.03	0.002	3.99	0.10
1990	0.03	0.001	3.84	0.11
1991	0.03	0.001	4.66	0.10
EPA SIG. (3)	0.3	0.2	5	1
NPS SIG. (4)	0.27	0.08	NA	NA
Is Impact Significant ?	NO	NO	NO	NO

NOTES:

- (1) The above predicted impacts represent the highest-high impacts.
- (2) The highest-second high impact was 3.67 ug/m3 (insignificant impact).
- (3) Significant impact levels proposed by EPA.
- (4) Significant impact levels suggested by National Park Service.

6.0 GOOD ENGINEERING PRACTICE STACK HEIGHT

The criteria for good engineering practice stack height states that the height of a stack should not exceed the greater of 65 meters (213) feet or the height of nearby structures plus the lesser of 1.5 times the height or cross-wind width of the nearby structure. This stack height policy is designed to prevent achieving ambient air quality goals solely through the use of excessive stack heights and air dispersion.

The two North MAP/DAP Plant stacks are both less than 213 feet in height above-grade. This satisfies the good engineering practice (GEP) stack height criteria.

7.0 IMPACTS ON SOILS, VEGETATION AND VISIBILITY

7.1 IMPACT ON SOILS AND VEGETATION

As a basis for promulgating the air quality standards, EPA undertook studies related to the effects of all major air pollutants and published criteria documents summarizing the results of the studies. The studies included in the criteria documents were related to both acute and chronic effects of air pollutants. Based on the results of these studies, the criteria documents recommended air pollutant concentration limits for various periods of time that would protect against both chronic and acute effects of air pollutants with a reasonable margin of safety.

The results of the air quality modeling indicate that the maximum predicted PM₁₀ Class I and Class II area impacts from the proposed project will be less than significant. Therefore, it is reasonable to conclude that there will be no adverse effects on the soils, vegetation or visibility of the area.

No adverse effects are expected on the soils, vegetation or visibility from the fluorides emissions associated with the proposed project based on past FDEP assessment of fluoride levels in the vicinity of the fertilizer complex.

7.2 GROWTH RELATED IMPACTS

The proposed modification will require no increase in personnel to operate the plant. Also, the increase in fertilizer production may cause a slight increase in truck traffic but will have a negligible impact on traffic in the area as compared with traffic levels that presently exist. Therefore, no additional growth impacts are expected as a result of the proposed project.

7.3 VISIBILITY IMPACTS

A screening approach suggested by EPA (Workbook for Plume Visual Impact Screening and Analysis, 1988) and computerized in a model referred to as VISCREEN was used for the analysis. The VISCREEN - Level 1 modeling results, presented in Table 7-1, indicate that there will be no adverse visibility impacts from the proposed project.

7.4 AIR QUALITY RELATED VALUES ANALYSIS FOR CLASS I AREA

Based on the predicted ambient air impacts from the proposed project, no adverse impacts are expected on the air quality related values in the nearest Class I area, Chassahowitzka National Wildlife Refuge.

TABLE 7-1

Visual Effects Screening Analysis for
 Source: FARMLAND
 Class I Area: CHASSAHOWITZKA

User-selected Screening Scenario Results Input Emissions for

Particulates	3.96	G	/S
NOx (as NO2)	.89	G	/S
Primary NO2	.00	G	/S
Soot	.00	G	/S
Primary SO4	.00	G	/S

Default Particle Characteristics Assumed.
 Transport Scenario Specifications:

Background Ozone:	.04	ppm
Background Visual Range:	65.00	km
Source-Observer Distance:	105.00	km
Min. Source-Class I Distance:	105.00	km
Max. Source-Class I Distance:	125.00	km
Plume-Source-Observer Angle:	11.25	degrees
Stability:	6	
Wind Speed:	1.00	m/s

R E S U L T S

Asterisks (*) indicate plume impacts that exceed screening criteria

Maximum Visual Impacts INSIDE Class I Area
 Screening Criteria ARE NOT Exceeded

Backgrnd	Theta	Azi	Distance	Alpha	Delta E		Contrast	
					Crit	Plume	Crit	Plume
SKY	10.	84.	105.0	84.	2.00	.152	.05	.002
SKY	140.	84.	105.0	84.	2.00	.027	.05	-.001
TERRAIN	10.	84.	105.0	84.	2.00	.077	.05	.001
TERRAIN	140.	84.	105.0	84.	2.00	.016	.05	.000

Maximum Visual Impacts OUTSIDE Class I Area
 Screening Criteria ARE NOT Exceeded

Backgrnd	Theta	Azi	Distance	Alpha	Delta E		Contrast	
					Crit	Plume	Crit	Plume
SKY	10.	25.	75.0	144.	2.00	.191	.05	.002
SKY	140.	25.	75.0	144.	2.00	.033	.05	-.001
TERRAIN	10.	50.	91.7	119.	2.00	.098	.05	.001
TERRAIN	140.	50.	91.7	119.	2.00	.021	.05	.001

8.0 CONCLUSION

It can be concluded from the information in this report that the proposed increase in the production rate of the North MAP/DAP Plant, as described in this report, will not cause or contribute to a violation of any air quality standard, PSD increment, or any other provision of Chapter 62, FAC.

APPENDIX A
EMISSIONS CALCULATIONS

NORTH MAP/DAP PLANT
FARMLAND HYDRO, L.P.

CURRENT MAXIMUM ALLOWABLE EMISSION RATES

The maximum F and PM emissions are expected during MAP Production:

F = 3.74 lb/hr; 16.4 tpy
PM/PM10 = 22.5 lb/hr; 98.6 tpy

CURRENT ACTUAL EMISSION RATES

Based on 1995 and 1996 compliance tests conducted during MAP production (primary product):

Year	Hours Operated	Compliance Test Emission Rate (lb/hr)	
		F	PM
1995	7413	1.57	12.73
<u>1996</u>	<u>7738</u>	<u>0.82</u>	<u>10.51</u>
AVERAGE	7576	1.20	11.62

SUMMARY OF FUEL USE:

Year	Natural Gas (MMCF, or MF)	No. 6 Oil (1000 gal, or TG)
1995	141.6	Negligible
<u>1996</u>	<u>133.9</u>	<u>10.5</u>
AVERAGE	137.8	Negligible

Actual F and PM/PM10 emissions can be estimated from the annual hours of operation and the compliance test data, while the emissions of SO2, NOx, CO and VOCs can be estimated based on fuel use and AP-42 factors for natural gas combustion.

F	=	1.20 lb/hr x 7576 hrs/yr x ton/2000 lbs
	=	4.5 tpy
PM/PM10	=	11.62 lb/hr x 7576 hrs/yr x ton/2000 lbs
	=	44.0 tpy
SO2	=	137.8 MMCF/yr x 0.6 lb/MMCF x ton/2000 lbs
	=	0.04 tpy
NOx	=	137.8 MMCF/yr x 140 lb/MMCF x ton/2000 lbs
	=	9.6 tpy
CO	=	137.8 MMCF/yr x 35 lb/MMCF x ton/2000 lbs
	=	2.4 tpy
VOCs	=	137.8 MMCF/yr x 2.8 lb/MMCF x ton/2000 lbs
	=	0.2 tpy

PROPOSED ALLOWABLE EMISSION RATES

MAXIMUM PROCESS RATE: Based on maximum (MAP) production capacity and 98% conversion efficiency,

P205 INPUT	=	200 tph MAP x 0.52 x 1/0.98 conversion
	=	106.1 tph P205
F	=	106.1 tph P205 x 0.06 lb F/ton P205
	=	6.37 lb/hr
	x	8760 hrs/yr x ton/2000 lbs
	=	27.9 tpy
PM/PM10	=	106.1 tph P205 x 0.3 lb PM/ton P205
	=	31.8 lb/hr
	x	8760 hrs/yr x ton/2000 lbs
	=	139.3 tpy

Natural gas will be fired in the unit. No. 2 fuel oil (0.05% sulfur) will continue to be used as a back up fuel (in case of natural gas curtailment).

Natural Gas Mode:

Natural gas usage	=	50 MMBtu/hr / 1000 Btu/CF
	=	0.05 MMCF/hr
SO2	=	0.6 lb/MMCF x 0.05 MMCF/hr
	=	0.03 lb/hr
	x	8760 hrs/yr x ton/2000 lbs
	=	0.13 tpy

$$\begin{aligned}
 \text{NOx} &= 140 \text{ lb/MMCF} \times 0.05 \text{ MMCF/hr} \\
 &= 7.0 \text{ lb/hr} \\
 &\times 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\
 &= 30.7 \text{ tpy}
 \end{aligned}$$

$$\begin{aligned}
 \text{CO} &= 35 \text{ lb/MMCF} \times 0.05 \text{ MMCF/hr} \\
 &= 1.8 \text{ lb/hr} \\
 &\times 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\
 &= 7.7 \text{ tpy}
 \end{aligned}$$

$$\begin{aligned}
 \text{VOCs} &= 2.8 \text{ lb/MMCF} \times 0.05 \text{ MMCF/hr} \\
 &= 0.14 \text{ lb/hr} \\
 &\times 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\
 &= 0.61 \text{ tpy}
 \end{aligned}$$

Fuel Oil Mode:

$$\begin{aligned}
 \text{Fuel oil usage} &= 50 \text{ MMBtu/hr} / 140,000 \text{ Btu/gal} \\
 &= 357 \text{ gal/hr, or } 0.357 \text{ TGB/hr}
 \end{aligned}$$

$$\begin{aligned}
 \text{SO}_2 &= 142 (0.05) \text{ lb/TGB} \times 0.357 \text{ TGB/hr} \\
 &= 2.5 \text{ lb/hr} \\
 &\times 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\
 &= 11.1 \text{ tpy}
 \end{aligned}$$

$$\begin{aligned}
 \text{NOx} &= 20 \text{ lb/TGB} \times 0.357 \text{ TGB/hr} \\
 &= 7.1 \text{ lb/hr} \\
 &\times 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\
 &= 31.3 \text{ tpy}
 \end{aligned}$$

$$\begin{aligned}
 \text{CO} &= 5 \text{ lb/TGB} \times 0.357 \text{ TGB/hr} \\
 &= 1.8 \text{ lb/hr} \\
 &\times 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\
 &= 7.8 \text{ tpy}
 \end{aligned}$$

$$\begin{aligned}
 \text{VOCs} &= 0.2 \text{ lb/TGB} \times 0.357 \text{ TGB/hr} \\
 &= 0.07 \text{ lb/hr} \\
 &\times 8760 \text{ hrs/yr} \times \text{ton}/2000 \text{ lbs} \\
 &= 0.31 \text{ tpy}
 \end{aligned}$$

Only PM and F are significant from the proposed project (Rule 62-212, FAC).

NET EMISSIONS INCREASES

As the proposed PM and F emissions are significant, a net emissions increase for those pollutants can be evaluated as follows:

Net emissions = Proposed + Contemporaneous - Actual

Based on site permitting history, the following contemporaneous emissions would need to be included in the calculations.

F = 0 tpy

PM/PM10 = 2.0 tpy

The net emissions increases associated with the proposed project can be estimated as follows:

F = (27.9 + 0 - 4.5) tpy
= 23.4 tpy

PM/PM10 = (139.3 + 2.0 - 44) tpy
= 97.3 tpy

APPENDIX B - CURRENT AIR PERMITS



Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

PERMITTEE:

Farmland Hydro, L.P.
P. O. Box 960
Bartow, Florida 33830

PERMIT/PROJECT:

Permit No: AO53-250142
County: Polk
Expiration Date: 08/24/99
Project: North MAP/DAP
Fertilizer Plant

06 22/95

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-200 through 297, and Chapter 62-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans and other documents, attached hereto or on file with the department and made a part hereof and specifically described as follows:

For the operation of the North MAP/DAP granulation plant with maximum permitted productions rates of 120 tons per hour of monammonium phosphate (MAP) or 100 tons per hour of diammonium phosphate (DAP). The North MAP/DAP Plant consists of the following components and particulate/ammonia/fluoride emission control devices:

- a reactor-granulator (R-G) system with emissions controlled by a "double mole" (high-mole and low-mole) three stage acid scrubber followed by a BFL scrubber which uses recirculated condensate and process water as the final scrubbing liquid;
- a 50 MMBtu/hour natural gas/No. 2 fuel oil fired dryer with emissions controlled by a cyclone and a downflow phosphoric acid scrubber followed by a cyclonic separator;
- a screens/mills (S/M) system with emissions controlled by a cyclone and a downflow phosphoric acid scrubber;
- a product cooler with emissions controlled by a dry cyclone and a venturi-cyclonic phosphoric acid scrubber.

The exhausts from the dryer scrubber and S/M scrubber are further controlled by a common recycled process water cross-flow scrubber. The gas flow from the dryer & S/M cross-flow scrubber and the product cooler scrubber are discharged to the atmosphere through the main plant stack (129 feet tall, 7.5 feet diameter). The gas flow from the R-G BFL scrubber is discharged to the atmosphere through the new R-G stack (129 feet tall, 5.5 feet diameter).

PERMITTEE:

Farmland Hydro, L.P.

PERMIT/PROJECT:

Permit No.: AO53-250142

Project: North MAP/DAP Plant

Description (continued):

Location: State Road 640 West, South of Bartow

UTM: 17-409.5 E 3079.5 N

NEDS No: 0053 Point ID No: 29

Replaces Permit Nos.: AC53-210886 and AO53-171758

Specific Conditions:

1. A part of this permit is the attached 15 General Conditions. [Rule 62-4.160, F.A.C.]
2. Issuance of this permit does not relieve the permittee from complying with applicable emission limiting standards or other requirements of Chapters 62-200 through 62-297, or any other requirements under federal, state or local law. [Rule 62-210.300, F.A.C.]
3. This plant is subject to and shall meet the requirements of Federal New Source Performance Standards (NSPS) Subpart V - Standards of Performance for the Phosphate Fertilizer Industry: Diammonium Phosphate Plants, 40 CFR 60.220 through 60.224. [Rule 62-296.800, F.A.C. and 40 CFR 60 Subpart V]

Operation Limitations

4. This plant is permitted for continuous operation (i.e 8,760 hours/year). [Construction permit AC53-210886]
5. The maximum production rate for this plant shall not exceed 120 tons per hour of monammonium phosphate (MAP) nor 100 tons per hour of diammonium phosphate (DAP). GTSP shall not be manufactured in this plant. [Construction permit AC53-210886]
6. The phosphoric acid feed rate shall not exceed 62.4 tons per hour P_2O_5 during MAP production nor 46.0 tons per hour P_2O_5 during DAP production. [Construction permit AC53-210886]
7. The ammonia feed rate shall not exceed 16.1 tons per hour during MAP production nor 21.9 tons per hour during DAP production. [Construction permit AC53-210886]

PERMITTEE:
Farmland Hydro, L.P.

PERMIT/PROJECT:
Permit No.: AO53-250142
Project: North MAP/DAP Plant

Specific Conditions

8. The maximum heat input rate to the dryer shall not exceed 50 MMBtu/hour. Natural gas shall be used as the primary fuel with No. 2 fuel oil, with a maximum sulfur content of 0.5% by weight, used as a backup fuel when the natural gas supply to the plant is curtailed. Operation of the dryer with No. 2 fuel oil shall not exceed 400 hours during any 12 consecutive month period.
[Construction permit AC53-210886]

9. The permittee shall not circumvent any pollution control device or allow emissions of air pollutants without the applicable air pollution control device(s) operating properly. Based upon the scrubber operating parameters during the February 1994 compliance tests, the scrubbers associated with the North MAP/DAP plant shall be operated at no less than 90% of the following values:

	<u>ΔP</u> (" H ₂ O)	<u>Flow Rate</u> (GPM)
R/G High Mol Acid Scrubber	5.2	a
R/G Low Mol Acid Scrubber	15.0	a
R/G BFL Scrubber	11.0	285
S/M Acid Scrubber	4.0	400
Dryer Acid Scrubber	19.2	a
S/M & Dryer Cross Flow Scrubber	a	1000
Product Cooler Acid Scrubber	16.0	a

a - baseline level to be established during 1995 annual compliance tests

In order to be permitted to operate at less than 90% of the above values additional compliance tests shall be conducted at the lower rates. The test results shall be submitted to the Air Compliance Section of the Southwest District Office of the Department within 45 days of the test. Acceptance of the test(s) by the Department will automatically constitute an amended permit at the lower tested rate. [Rule 62-210.650, F.A.C., construction permit AC53-210886, and Farmland Hydro L.P. response letter dated June 24, 1994]

10. Any process equipment, vessel, seal tank, duct, etc., having the potential to emit air pollutants shall be sealed or covered during plant operation to minimize fugitive emissions.
[Construction permit AC53-210886]

PERMITTEE:
Farmland Hydro, L.P.

PERMIT/PROJECT:
Permit No.: AO53-250142
Project: North MAP/DAP Plant

Specific Conditions

Emission Limitations

11. Visible emissions from any part of this plant shall not be equal to or greater than 20% opacity.
[Rule 62-296.310(2)(a), F.A.C.]

12. Fluoride emissions from this plant shall not exceed the following:

A. MAP Production

Allowable Fluoride Emissions

Rate	Main Stack	R/G Stack	Plant Total
lbs/ton P ₂ O ₅	--	--	0.06
lbs/hr	1.87	1.87	3.74
tons/year	8.2	8.2	16.4

B. DAP Production

Allowable Fluoride Emissions

Rate	Main Stack	R/G Stack	Plant Total
lbs/ton P ₂ O ₅	--	--	0.06
lbs/hr	1.60	1.16	2.76
tons/year	7.0	5.1	12.1

[Rules 62-296.403(1)(f), and 62-296.800, F.A.C; construction permit AC53-210886 as amended April 19, 1994; PSD BACT Determination dated July 27, 1992; and 40 CFR 60.222 (NSPS Subpart V)]

13. Particulate matter emissions from this plant shall not exceed the following:

A. MAP Production

Allowable Particulate Emissions

Rate	Main Stack	R/G Stack	Plant Total
lbs/hr	15.9	6.6	22.5
tons/year	69.6	29.0	98.6

PERMITTEE:
Farmland Hydro, L.P.

PERMIT/PROJECT:
Permit No.: AO53-250142
Project: North MAP/DAP Plant

Specific Conditions

13. (continued)

B. DAP Production

Allowable Particulate Emissions

Rate	Main Stack	R/G Stack	Plant Total
lbs/hr	10.6	5.5	16.1
tons/year	46.5	24.2	70.7

[Construction permit AC53-210886 as amended April 19, 1994]

14. The permittee shall not cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to an objectionable odor. [Rule 62-296.320(2), F.A.C.]

15. All reasonable precautions shall be taken to prevent and control generation of unconfined emissions of particulate matter in accordance with the provisions in Rule 62-296.310(3)(c), F.A.C. These provisions are applicable to any source, including but not limited to, vehicular movement, transportation of materials, construction, alteration, demolition or wrecking, or industrial related activities such as loading, unloading, storing and handling. Lignosulfates (lignin) shall be used when needed to control unconfined dust emissions when handling MAP and DAP product. Defoamers may be added to the 28% P₂O₅ scrubbing liquid. [Rule 62-296.310(3)(b), F.A.C.]

16. Reasonable precautions for minimizing fugitive emissions of ammonia shall be taken and shall include the following:

- A. routine inspections of vessels, piping and hoses:
- B. placing scrubbers in operation prior to feeding ammonia to the process; and
- C. the prompt repair of any leaks.

[Rule 62-4.070(3), F.A.C. and construction permit AC53-210886]

Monitoring Requirements

17. The permittee shall calibrate, maintain and operate a flow monitoring device to continuously measure and record the mass flow of phosphorus bearing feed material to the process. The monitoring device shall have an accuracy of ±5 percent over its operating range. [Rule 62-296.800, F.A.C. and 40 CFR 60.223(a) (NSPS Subpart V)]

PERMITTEE:

Farmland Hydro, L.P.

PERMIT/PROJECT:

Permit No.: AO53-250142

Project: North MAP/DAP Plant

Specific Conditions

18. The permittee shall calibrate, maintain, and operate monitoring devices which continuously measure and permanently record the total pressure drop across each of the process scrubbing systems. The monitoring devices shall have an accuracy of ± 5 percent over their operating range.

[Rule 62-296.800, F.A.C. and 40 CFR 60.223(c) (NSPS Subpart V)]

Compliance Testing Requirements

19. Test the emissions from each stack (main stack and Reactor-Granulator stack) during MAP production and during DAP production for the following pollutants annually on or during the 60 day period prior to the date of February 27 of each year. The annual testing for DAP or MAP production shall be waived if that product has not been manufactured during the 12 month period prior to the annual compliance testing deadline. A report of the test data shall be submitted to the Air Compliance Section of the Southwest District Office of the Department within 45 days of each test.

- (X) Particulate matter (PM)
- (X) Visible emissions (VE)
- (X) Fluoride (F)

[Rules 62-297.340 and 62-297.570, F.A.C. and construction permit AC53-210886]

20. The permittee shall test the emissions from each stack (main stack and Reactor-Granulator Stack), during MAP production and during DAP production, for ammonia during the 6 month period prior to submittal of an application for renewal of this permit (corresponds to approximately a five year test frequency). Ammonia emissions shall be determined using a variation of the EPA Draft Method, using large impingers with 100 mls of 1.0 normal sulfuric acid in the first three impingers, the last impinger dry, and a probe with an external design similar to that used in EPA Method 16; or any other test method agreed to by the Department. A report of the test data shall be submitted to the Air Compliance Section of the Southwest District Office of the Department within 45 days of testing. [Rules 62-297.340(1)(c) and 62-297.570, F.A.C. and construction permit AC53-210886]

21. Compliance with the emission limitations of Specific Condition Nos. 11, 12, and 13 shall be determined using EPA Methods 1, 2, 4, 5 (PM), 9 (VE), and 13A or 13B (fluorides) contained in 40 CFR 60, Appendix A and adopted by reference in Rule 62-297, F.A.C. The minimum requirements for stationary point source emissions test procedures and reporting shall be in accordance with Rule 62-297, F.A.C. and 40 CFR 60, Appendix A.

[Rule 62-297.330, F.A.C. and construction permit AC53-210886]

PERMITTEE:
Farmland Hydro, L.P.

PERMIT/PROJECT:
Permit No.: AO53-250142
Project: North MAP/DAP Plant

Specific Conditions

22. The visible emissions tests shall be conducted by a certified observer and be a minimum of sixty (60) minutes in duration. The test observation period shall include the period during which the highest opacity can reasonably be expected to occur.
[Rule 62-297.330(1)(b), F.A.C.]

23. The permittee shall notify the Air Compliance Section of the Southwest District Office of the Department at least 15 days prior to the date on which each formal compliance test is to begin of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted.
[Rule 62-297.340(1)(i), F.A.C.]

24. The permittee shall determine compliance with the total pound/ton of equivalent P₂O₅ feed fluoride emission standard as follows:

- A. The emission rate (E) of total fluorides shall be computed or each run using the following equation:

$$E = \frac{\sum_{i=1}^N C_{si} Q_{sdi}}{P K}$$

where:

- E = emission rate of total fluorides lb/ton of equivalent P₂O₅ feed.
C_{si} = concentration of total fluorides from emission point "i", mg/dscf.
Q_{sdi} = volumetric flow rate of effluent gas from emission point "i", dscf/hr.
N = number of emission points associated with the affected facility.
P = equivalent P₂O₅ feed rate, metric ton/hr (ton/hr).
K = conversion factor, 453,600 mg/lb.

B. Method 13A or 13B shall be used to determine the total fluorides concentration (C_{si}) and volumetric flow rate (Q_{sdi}) of the effluent gas from each of the emission points. The sampling time and sample volume for each run shall be at least 60 minutes and 0.85 dscm (30 dscf).

[Rule 62-296.800, F.A.C. and 40 CFR 60.224(b)(1) (NSPS Subpart V)]

PERMITTEE:

Farmland Hydro, L.P.

PERMIT/PROJECT:

Permit No.: AO53-250142

Project: North MAP/DAP Plant

Specific Conditions

25. Testing of emissions shall be conducted during operation of this plant at a production rate within 90-100% of the maximum permitted MAP/DAP production rates shown in Specific condition No. 5. A compliance test submitted at a rate less than 90% of the maximum permitted rate will automatically constitute an amended permitted input rate at that lesser rate plus 10%. Within 30 days of that lower amended permitted rate being exceeded, a new compliance test shall be conducted at the higher rate. The test results shall be submitted to the Air Compliance Section of the Southwest District Office of the Department within 45 days of testing. Acceptance of the test by the Department will automatically constitute an amended permit at the higher tested rate plus 10%, but in no case shall the maximum permitted MAP/DAP production rates specified in Specific Condition No. 5 be exceeded. The process rate during the test shall be included with each test report. Operating under conditions that are not representative of normal operating conditions may fail to provide reasonable assurance of compliance. [Rule 62-4.070(3), F.A.C.]

26. The following information shall be submitted with each compliance test report:

- A. Production Data - identification of product being produced (MAP or DAP) and production rate during test period in tons/hour and tons P₂O₅/hour;
- B. Scrubber Data - pressure drops across scrubbers (inches water) and scrubber liquid flow rates (gpm) during the test period for the scrubbers shown in Specific Condition No. 9.

[Rule 62-4.070(3), F.A.C.]

Recordkeeping Requirements

27. The permittee shall maintain a daily record of equivalent P₂O₅ feed rate by first determining the total mass rate in tons/hour of phosphorus bearing feed using the flow monitoring device (Specific Condition No. 17) and then calculating the P₂O₅ feed rate in accordance with 40 CFR 60.224(b)(3) based upon the P₂O₅ content of the phosphorus bearing material.

[Rule 62-296.800, F.A.C. and 40 CFR 60.223(b) (NSPS Subpart V)]

PERMITTEE:
Farmland Hydro, L.P.

PERMIT/PROJECT:
Permit No.: A053-250142
Project: North MAP/DAP Plant

Specific Conditions

28. The permittee shall maintain daily records of the following for the North MAP/DAP Plant:

- A. plant operating time and product being produced (MAP or DAP);
- B. phosphoric acid and P_2O_5 consumption;
- C. ammonia consumption;
- D. MAP and DAP production;
- E. pressure drops (inches water) and liquid flow rates (gpm) (if measured) for each of the scrubbers;

These records shall be recorded in a permanent form suitable for inspection by the Department upon request, and shall be retained for at least a two year period.

[Rule 62-4.070(3), F.A.C. and construction permit AC53-210886]

29. In order to document compliance with the No. 2 fuel oil limitations of Specific Condition No. 8, the permittee shall maintain a record of the following:

- A. Date and duration (hours) of each occurrence when No. 2 fuel oil is fired in the dryer.
- B. Quantity of No. 2 fuel oil burned (gallons) and total hours of operation firing No. 2 fuel oil in the dryer for each calendar month.
- C. Records of the sulfur content of the No. 2 fuel oil delivered/received for use in the dryer. This may be based on vendor supplied information or results of analysis of samples taken at the facility.

These records shall be recorded in a permanent form suitable for inspection by the Department upon request, and shall be retained for at least a two year period. [Rule 62-4.070(3), F.A.C.]

Additional Requirements

30. Ammonia emission estimates listed below are for inventory purposes only. Should the actual ammonia emissions (pounds/ hour as determined by stack test) exceed the listed estimates, the permittee shall model the maximum ammonia emission rates to show that the Acceptable Ambient Concentration for ammonia of 100 ug/m^3 (annual average) is not being exceeded and submit a report on these
(continued)

PERMITTEE:
Farmland Hydro, L.P.

PERMIT/PROJECT:
Permit No.: AO53-250142
Project: North MAP/DAP Plant

Specific Conditions

30. (continued)
results to the Air Compliance Section of the Southwest District Office of the Department within 90 days of becoming aware of the higher ammonia emission rates.

A. MAP Production

Estimated Maximum Ammonia Emissions

Rate	Main Stack	R/G Stack	Plant Total
lbs/hr *	7.0	30.9	37.9
tons/year	30.7	135.5	166.2

(* 24 hour average)

B. DAP Production

Estimated Maximum Ammonia Emissions

Rate	Main Stack	R/G Stack	Plant Total
lbs/hr *	5.2	128.7	133.9
tons/year	22.7	563.7	586.4

(* 24 hour average)

[Construction permit AC53-210886 as amended April 19, 1994]

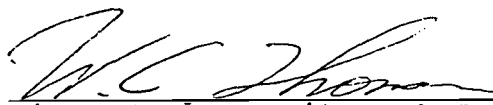
Reporting Requirements

31. The permittee shall submit to the Air Compliance Section of the Southwest District Office of the Department each calendar year on or before March 1, a completed DER Form 62-213.900(4), "Annual Operating Report for Air Pollutant Emitting Facility" for the preceding calendar year. [Rule 62-210.370(2), F.A.C.]

Permits

32. At least two applications to renew this operating permit shall be submitted to the Southwest District Office of the Department no later than June 25, 1999 (60 days prior to the expiration date of this permit). A Title V permit application submitted prior to this date shall negate this requirement. [Rule 62-4.090(1), F.A.C.]

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION


For Richard D. Garrity, Ph.D.
Director of District Management
Southwest District Office



Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

PERMITTEE:

Farmland Hydro, L.P.
P.O. Box 960
Bartow, Florida 33830-0960

PERMIT/PROJECT:

Permit: A053-239602
County: Polk
Amended: 3/15/95
Expiration Date: 01/15/99
Project: DAP, MAP, TSP Storage
and Shipping
Buildings

This permit is issued under the provisions of Chapter 403, Florida Statutes, Chapter 17-4, and Chapters 17-200 through 17-297, Florida Administrative Code. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans and other documents, attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the operation of the Storage and Shipping Buildings processing DAP, MAP, or TSP. Process operations in the shipping building include: product screening, product transfer by conveyor belts, and a product shipping bin. The maximum process rate for the storage building is 98.0 tons per hour (as P_2O_5), and the maximum process rate for the shipping building is 90.0 tons per hour (as P_2O_5).

Particulate matter emissions from both the storage and shipping buildings and all operations in the buildings are controlled by an ARCO cyclonic wet scrubber utilizing pond water.

Location: Green Bay Plant, S.R. 640, Bartow, Florida

UTM: 17-409.5 E 3079.5 N NEDS No: 0053 Point ID: 20

APIS ID: 40-TPA-53-0053-20

Replaces Permit: A053-201632

farm02am.pmt

PERMITTEE:
Farmland Hydro, L.P.

PERMIT/PROJECT:
Permit No.: A053-239602
Project: DAP,MAP,GTSP Shipping
Buildings

SPECIFIC CONDITIONS:

A part of this permit is the attached 15 General Conditions.
[Rule 62-4.160, F.A.C.]

Issuance of this permit does not relieve the permittee from complying with applicable emission limiting standards or other requirements of Chapters 62-200 through 62-299, Florida Administrative Code, or any other requirements under federal, state or local law.
[Rule 62-210.300, F.A.C.]

Emission Limitations:

The combined total fluoride emission rate from the ARCO scrubber stack, for both buildings and all operations, shall not exceed 2.75 pounds per hour, and 12.05 TPY, and is based on the maximum allowable fluoride emission rates from each building allocated as follows:

	<u>lbs./hr.</u>	<u>TPY</u>
Shipping Building	0.13	0.57
Storage Building	2.62	11.48
Total:	<u>2.75</u>	<u>12.05</u>

[Permit A053-201632]

The maximum allowable particulate matter emissions rate from the ARCO scrubber stack, for both buildings and all operations, shall not exceed 30.3 pounds per hour, or as calculated by the Process Weight Allowable Formula contained in Rule 62-296.310, F.A.C., based on the storage building process rate, whichever is less.
[Permit A053-201632, and Rules 62-296.310 and 62-296.700(2), F.A.C.]

Visible emissions from any emission point associated with the storage and shipping buildings shall not be equal to or greater than 5% opacity.
[Rule 62-296.310(2)(a), F.A.C.]

Operational Limitations:

The storage building and the shipping building are permitted for continuous operation (8760 hours per year). [Permit application]

The maximum permitted process rate for the storage building is 8.00 tons per hour (as P₂O₅). [Permit A053-201632]

PERMITTEE:

Farmland Hydro, L.P.

PERMIT/PROJECT:

Permit No.: A053-239602

Project: DAP,MAP,GTSP Shipping
Buildings**SPECIFIC CONDITIONS:**

8. The maximum permitted process rate for the shipping building is 90.00 tons per hour (as P_2O_5). [Permit A053-201632]

9. Based on the compliance test conducted September 8, 1994, the permitted process rate for the storage building is 91.74 tons per hour (as P_2O_5). [Rule 62-4.070(3), F.A.C.]

10. All reasonable precautions shall be taken to prevent and control generation of unconfined emissions of particulate matter. These provisions are applicable to any source, including but not limited to, vehicular movement, transportation of materials, construction, alteration, demolition or wrecking, or industrial related activities such as loading, unloading, storing and handling. [Rule 62-296.310(3), F.A.C.]

Testing/Compliance Requirements:

11. Test for fluoride emissions, and particulate matter emissions, per Specific Condition Nos. 3, and 4, within thirty (30) days of placing all the following equipment in normal commercial operation: the two single deck screens on side "A" processing line; the two ribbon blenders on side "A" processing line; and the single ribbon blender on side "B" processing line. Should the above test fall on or within sixty (60) days prior to the normal annual compliance test date of July 26, than the test will also suffice for annual compliance demonstration. Otherwise, test as per Specific Conditions Nos. 3 and 4 annually, within sixty(60) days prior to the due date of July 26. A copy of the test data shall be submitted to the Southwest District Office of the Department of Environmental Protection within forty-five(45) days of testing. (See Specific Conditions 16, 17, 18) [Rules 62-297.340 and 62-297.570, F.A.C.]

12. Test for visible emissions per Specific Condition No. 5 within thirty (30) days of placing all the following equipment in normal commercial operation: the two single deck screens on side "A" processing line; the two ribbon blenders on side "A" processing line; and the single ribbon blender on side "B" processing line. Should the above test fall on or within sixty (60) days prior to the normal compliance test date of July 26, than the test will also suffice for compliance demonstration. Otherwise, test sixty(60) days prior to the due date of July 26, and within sixty(60) days prior to the due date of January 25. The visible emissions test scheduled for the July 26 due date shall be concurrent with the fluoride emissions

PERMITTEE:

Farmland Hydro, L.P.

PERMIT/PROJECT:

Permit No.: A053-239602

Project: DAP,MAP,GTSP Shipping
Buildings

SPECIFIC CONDITIONS:

and particulate matter emissions tests required as per Specific Condition No. 11. A copy of the test data shall be submitted to the Southwest District Office of the Department of Environmental Protection within forty-five(45) days of testing. [Rules 62-297.340 and 62-297.570, F.A.C.]

13. Compliance with the emission limitations of Specific Condition Nos. 3, 4 and 5 shall be determined using EPA Methods 1, 2, 3, 4, 5, 9, 13A or 13B contained in 40 CFR 60, Appendix A and adopted by reference in Chapter 62-297, F.A.C. The minimum requirements for stack sampling facilities, source sampling and reporting, shall be in accordance with Chapter 62-297, F.A.C. and 40 CFR 60, Appendix A.

14. The visible emissions test shall be conducted by a certified observer and be a minimum of sixty(60) minutes in duration. The visible emissions test period shall be concurrent with one of the particulate matter stack test runs and include the period during which the highest opacity reading can reasonably be expected to occur. [Rule 62-297.330(1)(b), F.A.C.]

15. Testing of fluoride emissions, particulate matter emissions, and visible emissions per Specific Condition Nos. 3, 4, 5, 11, and 12 should be conducted within 90-100% of the maximum permitted process rates of 98.00 tons per hour (as P_2O_5) for the storage building and 90.00 tons per hour (as P_2O_5) for the shipping building. All product screens and ribbon blenders should be in normal operation during the test period. A compliance test submitted at process rates less than 90% of the permitted process rates will automatically amend this permit to reflect the reduced rate(s), plus 10%. To increase the process rate(s), another compliance test shall be performed within fifteen(15) days of commencement of the higher rate(s) and the results submitted to the Department for approval within forty-five(45) days. Acceptance of the test by the Department will automatically amend this permit to the new rate(s), plus 10%, but in no case shall the maximum permitted rates of Specific Condition Nos. 7 or 8 be exceeded. All emission test reports submitted to the Department shall include a statement of the process rates. Failure to submit the actual process rates during the test, or operating at conditions which do not reflect normal operating conditions may invalidate the test.

[Rule 62-4.070(3), F.A.C.]

PERMITTEE:

Farmland Hydro, L.P.

PERMIT/PROJECT:

Permit No.: AO53-239602

Project: DAP,MAP,GTSP Shipping
Buildings**SPECIFIC CONDITIONS:****TSP (Triple Superphosphate) Testing Requirements:**

16. Testing of fluoride emissions per Specific Condition No. 3 is required only when producing TSP (Triple Superphosphate). The Fluoride emissions test shall be conducted only after the fertilizer plant has been producing TSP normally for at least two(2) days immediately prior to the test. The emission test report submitted to the Department shall include a statement of the actual process rates during the test, and a statement of the time period that TSP was being produced prior to the test.

[Rule 62-4.070(3), F.A.C.]

17. Testing of fluoride emissions, particulate matter emissions, and visible emissions per Specific Condition Nos. 3, 4 and 5 shall be conducted any time TSP is produced and stored within the storage building. The emission test reports submitted to the Department shall include a statement of the actual process rates during the test.

[Rule 62-4.070(3), F.A.C.]

18. Testing of fluoride emissions, particulate matter emissions, and visible emissions per Specific Condition Nos. 3, 4 and 5 shall be conducted any time TSP is produced and shipped from the shipping building. The emission test reports submitted to the Department shall include a statement of the actual process rates during the test.

[Rule 62-4.070(3), F.A.C.]

Notification Requirements:

19. The permittee shall notify the Air Program of the Southwest District Office of the Department of Environmental Protection at least fifteen(15) days prior to the date on which each formal compliance test is to begin of the date, time, and place of each test, and the contact person who will be responsible for coordinating the test. [Rule 62-297.340(1)(i), F.A.C.]

Reporting Requirements:

20. Submit to the Air Program of the Southwest District Office of the Department of Environmental Protection, each calendar year, on or before March 1, an emission report (DER Form 62-210.900(4) - Annual Operating Report for Air Pollutant Emitting Facility), for this source, for the preceding calendar year. [Rule 62-210.370(2), F.A.C.]

PERMITTEE:
Farmland Hydro, L.P.

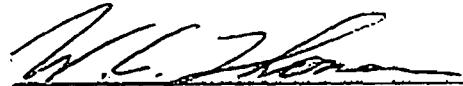
PERMIT/PROJECT:
Permit No.: AO53-239602
Project: DAP,MAP,GTSP Shipping
Buildings

SPECIFIC CONDITIONS:

Permit Renewal:

21. Four applications for a Title V operating permit shall be submitted to the Southwest District Office of the Department as specified in Rule 62-213, F.A.C., at least 60 days prior to the expiration date of this permit. To properly apply for an operation permit, the applicant shall submit the appropriate application form, and compliance test reports as required by this permit. [Rules 62-4.220 and 62-297.340(1)(a), F.A.C.]

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION


For Richard D. Garrity, Ph.D.
Director of District Management
Southwest District

coop602.amd



Department of Environmental Protection

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

JUL 05 1995

NOTICE OF PERMIT AMENDMENT

CERTIFIED MAIL

Mr. C. M. Farris
Vice President, Operations
Farmland Hydro L.P.
Post Office Box 960
Bartow, FL 33831

Dear Mr. Farris:

RE: Polk County Air Permit
A053-239602 (As Amended 3/15/95)
DEP File No. 268882

On March 27, 1995, the Department received your application for amendment of the above Permit for the Storage/Shipping operation in Polk County. The Department, pursuant to Florida Administrative Code Rule 62-4.070, hereby issues the attached permit amendment.

CHANGE PROJECT DESCRIPTION FROM:

The maximum process rate for the storage building is 98.0 tons per hour (as P_2O_5), and the maximum process rate for the shipping building is 90.0 tons per hour (as P_2O_5).

CHANGE PROJECT DESCRIPTION TO:

The maximum process rate for the storage building is 98.0 tons per hour (as P_2O_5), and the maximum process rate for the shipping building is 98.0 tons per hour (as P_2O_5) based upon a rolling 30-day average.

CHANGE SPECIFIC CONDITION NO. 8 FROM:

8. The maximum permitted process rate for the shipping building is 90.00 tons per hour (as P_2O_5). [Permit A053-201632]

Farmland Hydro, L.P.
AO53-239602 (As Amended 3/15/95)

CHANGE SPECIFIC CONDITION NO. 8 TO:

8. The maximum permitted process rate for the shipping building is 98.0 tons per hour (as P_2O_5) based upon a rolling 30-day average. Pursuant to Rule 62-4.070(3) and 62-4.160 (14)(b), F.A.C., records of loading rates shall be maintained on a daily and rolling 30-day average basis. These records shall be retained for a minimum of 3 years and shall be made available to the Department upon request. [Permit AO53-201632 and amendment request of March 27, 1995]

CHANGE SPECIFIC CONDITION NO. 15 FROM:

15. Testing of fluoride emissions, particulate matter emissions, and visible emissions per Specific Condition Nos. 3, 4 and 5 should be conducted within 90-100% of the maximum permitted process rates of 98.00 tons per hour (as P_2O_5) for the storage building and 90.00 tons per hour (as P_2O_5) for the shipping building. A compliance test submitted at process rates less than 90% of the permitted process rates will automatically amend this permit to reflect the reduced rate(s), plus 10%. To increase the process rate(s), another compliance test shall be performed within fifteen(15) days of commencement of the higher rate(s) and the results submitted to the Department for approval within forth-five(45) days. Acceptance of the test by the Department will automatically amend this permit to the new rate(s), plus 10%, but in no case shall the maximum permitted rates of Specific Condition Nos. 7 or 8 be exceeded. All emission test reports submitted to the Department shall include a statement of the process rates. Failure to submit the actual process rates during the test, or operating at conditions which do not reflect normal operating conditions may invalidate the test.
[Rule 17-4.070(3), F.A.C.]

CHANGE SPECIFIC CONDITION NO. 15 TO:

15. Testing of fluoride emissions, particulate matter emissions, and visible emissions per Specific Condition Nos. 3, 4 and 5 should be conducted within 90-100% of the maximum permitted process rates of 98.00 tons per hour (as P_2O_5) for the storage building and 98.00 tons per hour (as P_2O_5) for the shipping building. A compliance test submitted at process rates less than 90% of the permitted process rates will automatically amend this permit to reflect the reduced rate(s), plus 10%. To increase the process

Farmland Hydro, L.P.
AO53-239602 (As Amended 3/15/95)

rate(s), another compliance test shall be performed within fifteen(15) days of commencement of the higher rate(s) and the results submitted to the Department for approval within forth-five(45) days. Acceptance of the test by the Department will automatically amend this permit to the new rate(s), plus 10%, but in no case shall the maximum permitted rates of Specific Condition Nos. 7 or 8 be exceeded. All emission test reports submitted to the Department shall include a statement of the process rates. Failure to submit the actual process rates during the test, or operating at conditions which do not reflect normal operating conditions may invalidate the test.
[Rule 62-4.070(3), F.A.C.]

A person whose substantial interests are affected by this permit amendment may petition for an administrative proceeding (hearing) in accordance with Section 120.57, 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 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of receipt of this Permit. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information;

- (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- (d) A statement of the material facts disputed by Petitioner, if any;
- (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or
- (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
- (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

Farmland Hydro, L.P.
AO53-239602 (As Amended 3/15/95)

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this permit. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

This permit amendment is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 17-103.070, F.A.C. Upon timely filing of a petition or a request for an extension of time this permit amendment will not be effective until further Order of the Department.

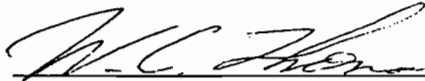
When the Order (Permit Amendment) is final, any party to the Order has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate procedure, with the Clerk of the Department in the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

This letter must be attached to and becomes a part of permit AO53-239602, as amended March 15, 1995. If you have any questions, please call Bill Schroeder, of my staff, at (813)744-6100 extension 104.

Farmland Hydro, L.P.
A053-239602 (As Amended 3/15/95)

Executed in Tampa, Florida,

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION


For Richard D. Garrity, Ph.D.
Director of District
Management

RDG/WES/ws

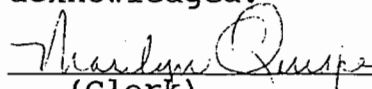
cc: Dr. John Koogler, P.E., Koogler & Associates

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT AMENDMENT and all copies were mailed before the close of business on JUL 05 1995 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGEMENT FILED,
on this date, pursuant to Section
120.52(11), Florida Statutes, with
the designated Department Clerk,
receipt of which is hereby
acknowledged.


(Clerk)

JUL 05 1995
(Date)

APPENDIX C - MODELING OUTPUT DISK FILE INDEX

THIS DISK CONTAINS PARTICULATE MATTER (PM) MODELING FILES FOR THE FARMLAND HYDRO, L.P. FACILITY IN GREEN BAY, FLORIDA. THE FOLLOWING ARE OUTPUT FILES ARE IN ASCII FORMAT.

THE FOLLOWING FILES CONTAIN ISCST3 MODELING OF:
SIA FOR CLASS 1 AREA CHASSAHOWITZKA NWR, AND CLASS 2 AREAS
BUILDING DOWNWASH PROFILE INPUT PROGRAM (BPIP) FILES.

CLASS 1 MODELING OF SIGNIFICANT IMPACT ANALYSIS (SIA) FOR CHASSAHOWITZKA NWR CLASS 1 AREAS ARE PROVIDED IN THE FOLLOWING FILES:

FARP1-87 OUT	51,270	11-18-97	PM CLASS 1 SIA FOR 1987
FARP1-88 OUT	51,270	11-18-97	PM CLASS 1 SIA FOR 1988
FARP1-89 OUT	51,270	11-18-97	PM CLASS 1 SIA FOR 1989
FARP1-90 OUT	51,270	11-18-97	PM CLASS 1 SIA FOR 1990
FARP1-91 OUT	51,270	11-18-97	PM CLASS 1 SIA FOR 1991

SIGNIFICANT IMPACT ANALYSIS (SIA) FOR CLASS 2 AREAS ARE PROVIDED IN THE FOLLOWING FILES:

FARP2-87 OUT	169,214	11-18-97	PM CLASS 2 AND FAAQS SIA FOR 1987
FARP2-88 OUT	169,214	11-18-97	PM CLASS 2 AND FAAQS SIA FOR 1988
FARP2-89 OUT	169,214	11-18-97	PM CLASS 2 AND FAAQS SIA FOR 1989
FARP2-90 OUT	169,214	11-18-97	PM CLASS 2 AND FAAQS SIA FOR 1990
FARP2-91 OUT	169,214	11-18-97	PM CLASS 2 AND FAAQS SIA FOR 1991

BUILDING INPUT PROFILE PROGRAM (BPIP) FILES ARE PROVIDED IN BPIP-DW.EXE. BUILDING DOWNWASH CALCULATIONS ARE USED IN ALL MODELING. THE FOLLOWING BPIP FILES ARE PROVIDED:

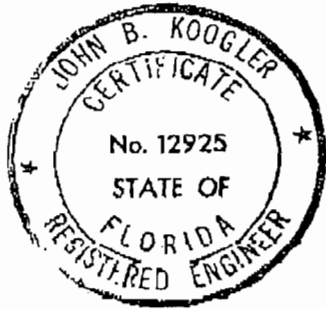
FRM1	INP	2,124	10-28-97	INPUT FOR PM SOURCES
FRM1	OUT	5,836	10-28-97	OUTPUT FOR PM SOURCES
FRM1	SUM	91,659	10-28-97	SUMMARY FOR PM SOURCES

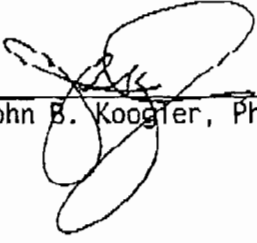
IF THERE ARE ANY QUESTIONS OR IF I MAY PROVIDE ADDITIONAL FILES, OR CLARIFICATION PLEASE CALL.

DECEMBER 17, 1997
KOOGLER AND ASSOCIATES
(352) 377-5822
KOOGLER@WORLDNET.ATT.NET

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing has been furnished to Mr. Perry Odom (OGC) and Mr. Syed Arif (BAR), DEP, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400 and Mr. Charles Jenkins, Manager Environmental & Safety Services, Farmland Hydro, L.P., P.O. Box 960, Bartow, FL 33831, by FAX and by U.S. Mail, this 21st day of July 1998.





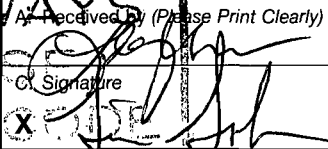
John B. Koogler, Ph.D., P.E.

Z 031 391 957

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail (See reverse)

Sent to	C.M. Farris
Street & Number	Fairland Hwy
Post Office, State, & ZIP Code	Bartow FL
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	4-24-00
	1050053-020-AC PSD-FI-246

PS Form 3800, April 1995

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY	
<ul style="list-style-type: none"> 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. 	A. Received by (Please Print Clearly)	B. Date of Delivery 4-28-00
1. Article Addressed to: Mr. C.M. Farris Fairland Hwy, LP PO Box 960 Bartow, FL 33831	C. Signature 	<input type="checkbox"/> Agent <input type="checkbox"/> Addressee
2. Article Number (Copy from service label) 2031 391 957	D. Is delivery address different from item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No 3. Service Type <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D. 4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes	

Z 333 612 501

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail (See reverse)

Sent to	
C.M. Farris	
Street & Number	
Farmland Hydro	
Post Office, State, & ZIP Code	
Bartow, FL	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	
9-11-98	
1050053-020-AC	
P30-F1-246	

PS Form 3800, April 1995

Is your RETURN ADDRESS completed on the reverse side?

- Complete section 2 for additional services.
- Complete sections 4a, 4b, and 4c.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- 1. Addressee's Address
- 2. Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
C.M. Farris
Farmland Hydro, LP
P O BOX 960
Bartow, FL 33831

4a. Article Number
Z 333 612 501

4b. Service Type
 Registered Certified
 Express Mail Insured
 Return Receipt for Merchandise COD

7. Date of Delivery
9-15-98

5. Received By: (Print Name)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)
Jean Hicks

X 960

Thank you for using Return Receipt Service.

AFFIDAVIT OF PUBLICATION

THE LEDGER Lakeland, Polk County, Florida

Case No

STATE OF FLORIDA)
COUNTY OF POLK)

Before the undersigned authority personally appeared Nelson Kirkland, who on oath says that he is Classified Advertising Manager of The Ledger, a daily newspaper published at Lakeland in Polk County, Florida; that the attached copy of advertisement, being a

Public Notice Of Intent

in the matter of

DEP File No. 1050053-020-AC (PSD-F1-246)


in the

Court, was published in said newspaper in the issues of

July 27;

1998

Affiant further says that said The Ledger is a newspaper published at Lakeland, in said Polk County, Florida, and that the said newspaper has heretofore been continuously published in said Polk County, Florida, daily, and has been entered as second class matter at the post office in Lakeland, in said Polk County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

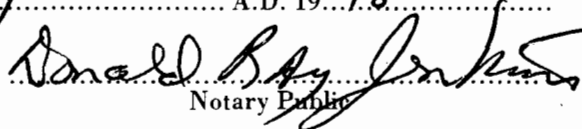
Signed 
Nelson Kirkland
Classified Advertising Manager

By Nelson Kirkland who is
personally known to me

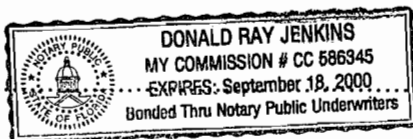
Sworn to and subscribed before me this 29th

day of July A.D. 19 98

(Seal)


Notary Public

My Commission Expires



Order#706854
Farmland Hydro

B742

Attach Notice Here

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP File No. 1050053-020-AC (PSD-F1-246)
North Monoammonium/Diammonium Phosphate (MAP/DAP) Plant
Farmland Hydro, L.P. - Green Bay Facility
Polk County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Farmland Hydro, L.P. to increase the production rates as well as storage and shipping rates of the North monoammonium phosphate (MAP) and diammonium phosphate (DAP) plant of its Green Bay facility. The plant is located at 4390 County Road 640 West, Bartow Polk County, A Best Available Control Technology (BACT) determination was required for fluorides and particulate matter, pursuant to Rule 62-212.400, F.A.C. and 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The applicant's name and address are: Farmland Hydro, L.P., P.O. Box 960, Bartow, Florida 33831.

The MAP production rate will be increased from 120 to 200 tons per hour and the DAP production rate will be increased from 100 to 150 tons per hour. The shipping and storage process rate will be increased to 120 tons of P₂O₅ per hour. Controls for fluoride emissions consist of scrubbers using process pond water. Particulate emissions are also controlled by scrubbers.

An air quality impact analysis was conducted. The project is predicted to have no significant impact in the PSD Class II area in the vicinity of the facility or on the Chassahowitzka National Wilderness Area PSD Class I area located approximately 100 kilometers northwest of the plant.

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

The Department will accept written comments 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.

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

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

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

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

Mediation is not available in this proceeding.

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:

Polk County Public Works Department - Air Division 4189 Ben Durrance Road Bartow, Florida 33830 Telephone: 941/534-7377 Fax: 941/534-7374	Dept. of Environmental Protection Bureau of Air Regulation 111 S. Magnolia Drive, Suite 4 Tallahassee, Florida 32301 Telephone: 850/488-0114 Fax: 850/922-6979	Dept. of Environmental Protection Southwest District 3804 Coconut Palm Drive Tampa, Florida 33619-8218 Telephone: 813/744-6100 Fax: 813/744-6084
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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. B-742 - 7-27; 1998

Memorandum

P 265 659 380

US Postal Service
Receipt for Certified Mail

No Insurance Coverage Provided.
 Do not use for International Mail (See reverse)

PS Form 3800, April 1995

Sent to	C M Farris	
Street & Number	Farmland	
Post Office, State, & ZIP Code	Bartow, FL	
Postage	\$	
Certified Fee		
Special Delivery Fee		
Restricted Delivery Fee		
Return Receipt Showing to Whom, & Date Delivered		
Return Receipt Showing to Whom, Date, & Addressee's Address		
TOTAL Postage & Fees	\$	
Postmark or Date	7-2-98	
	1050053-020-AC	
	P.S.N. C.M. Farris	

Is your RETURN ADDRESS completed on the reverse side?

SENDER: ■ Complete items 1 and/or 2 for additional services. ■ Complete items 3, 4a, and 4b. ■ Print your name and address on the reverse of this form so that we can return this card to you. ■ Attach this form to the front of the mailpiece, or on the back if space does not permit. ■ Write "Return Receipt Requested" on the mailpiece below the article number. ■ The Return Receipt will show to whom the article was delivered and the date delivered.		I also wish to receive the following services (for an extra fee): 1. <input type="checkbox"/> Addressee's Address 2. <input type="checkbox"/> Restricted Delivery Consult postmaster for fee.	
3. Article Addressed to: Mr. C. M. Farris, VP Farmland Hydro, LP P O Box 960 Bartow, FL 33831		4a. Article Number P 265 659 380	
5. Received By: (Print Name) Dean Hicks		4b. Service Type <input type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified <input type="checkbox"/> Express Mail <input type="checkbox"/> Insured <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> COD	
6. Signature: (Addressee or Agent) X <i>[Signature]</i>		7. Date of Delivery 7/13/98	
		8. Addressee's Address (Only if requested and fee is paid)	

Thank you for using Return Receipt Service.

P 265 659 326

US Postal Service
Receipt for Certified Mail

No Insurance Coverage Provided.
Do not use for International Mail (See reverse)

Sent to <i>Mr CM Farris</i>	
Street & Number <i>Farmland Hydro</i>	
Post Office, State, & ZIP Code <i>P.O. Box 960; Bartow, FL</i>	
Postage -	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date <i>1050053-020-AC 4-3-98</i> <i>PSD-FI-246</i>	

PS Form 3800, April 1995

Is your RETURN ADDRESS completed on the reverse side?

SENDER: ■ Complete items 1 and/or 2 for additional services. ■ Complete items 3, 4a, and 4b. ■ Print your name and address on the reverse of this form so that we can return this card to you. ■ Attach this form to the front of the mailpiece, or on the back if space does not permit. ■ Write "Return Receipt Requested" on the mailpiece below the article number. ■ The Return Receipt will show to whom the article was delivered and the date delivered.		I also wish to receive the following services (for an extra fee): 1. <input type="checkbox"/> Addressee's Address 2. <input type="checkbox"/> Restricted Delivery Consult postmaster for fee.	
3. Article Addressed to: <i>Mr. M. Farris, VP</i> <i>Farmland Hydro</i> <i>P.O. Box 960</i> <i>Bartow, FL 33831</i>		4a. Article Number <i>P 265 659 326</i>	
5. Received By: (Print Name) 		4b. Service Type <input type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified <input type="checkbox"/> Express Mail <input type="checkbox"/> Insured <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> COD	
6. Signature: (Addressee or Agent) <i>X Jean Hicks</i>		7. Date of Delivery <i>APR - 7 1998</i>	
PS Form 3811, December 1994		8. Addressee's Address (Only if requested and fee is paid) <i>X 960</i>	

Thank you for using Return Receipt Service.

Domestic Return Receipt

P 265 659 285

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent to	
C.M. Farris	
Street & Number	
Farmland	
Post Office, State & ZIP Code	
Barlow FI	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	
1-23-98	
1050053-020-AC	
PSD-FI-246	

PS Form 3800, April 1995

IRN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

C.M. Farris, VP
 Operations
 Farmland Psycho, LP
 P.O. Box 960
 Barlow, FI 335

4a. Article Number

P 265 659 285

4b. Service Type

- | | |
|---|---|
| <input type="checkbox"/> Registered | <input checked="" type="checkbox"/> Certified |
| <input type="checkbox"/> Express Mail | <input type="checkbox"/> Insured |
| <input type="checkbox"/> Return Receipt for Merchandise | <input type="checkbox"/> COD |

7. Date of Delivery

1-27-98

Address (Only if requested)

Jean Dick

Thank you for using Return Receipt Service.

Receipt

PSD PERMIT APPLICATION
FOR
NORTH MAP / DAP PLANT

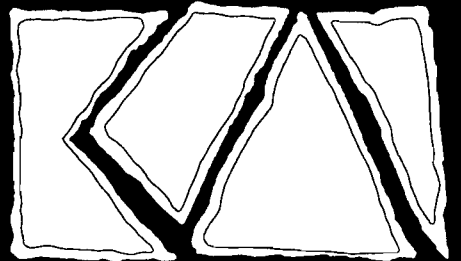
PREPARED FOR:

FARMLAND HYDRO, L.P.
GREEN BAY COMPLEX
POLK COUNTY, FLORIDA

DECEMBER 1997

PREPARED BY:

KOGLER & ASSOCIATES
4014 N.W. 13TH STREET
GAINESVILLE, FLORIDA 32609
(352) 377-5822



KOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES

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