Department of Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

January 12, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. David A. Buff, P.E.
KBN Engineering and Applied Sciences, Inc.
6241 N.W. 23rd Street
Gainesville, Florida 32653-1500

Dear Mr. Buff:

RE: Cargill Fertilizer, Inc.
Bartow Units Nos. 4, 5 and 6 Sulfuric Acid Plants
AC53-216288/PSD-FL-191
Request for Permit Amendment

The Department's Bureau of Air Regulation has reviewed the above referenced request from you for the above referenced company and emission units and determined that it will require a permit amendment and a $750 processing fee ($250 for each emission unit). As soon as the fee is received, we will be begin processing your request. In addition to the processing fee due, please provide the following information:

o The original permit was issued to Seminole Fertilizer Corporation. It appears that Cargill Fertilizer, Inc. is now the owner. Please provide the change of ownership request; and, provide the acknowledgement letter from the Department.

o As a condition of the permit, Specific Condition No. 4, there was a requirement that each plant be tested for NO_x to verify the emission factor that was used. Please provide the test results for this.

If you have any questions, please call Patty Adams (fee) or Willard Hanks (permit) at (904)488-1344 or write to me at the above address.

Sincerely,

John C. Brown, Jr., P.E.
Administrator
Air Permitting and Standards
Bureau of Air Regulation

CHF/pa

cc: B. Thomas, SWD

December 19, 1994

Mr. Bill Thomas
Air Permitting
Florida Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, FL 33619-8218

Re: Cargill Fertilizer, Inc.
AC53-216288; PSD-FL-191
AO53-243295
Bartow Nos. 4, 5 & 6 Sulfuric Acid Plants

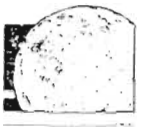
Dear Mr. Thomas:

In a recent phosphate industry meeting with FDEP Tallahassee (John Brown, Larry George Bruce Mitchell, Harry Kearns), there was discussion on the issue of permit conditions which are not necessary or are not based on regulatory requirements. It was Tallahassee's view that such permit conditions should be removed from the permit, at the permittee's request. A specific example discussed was that of NO_x and ammonia emissions in the phosphate industry permits. In regards to NO_x, no specific requirement was identified which would require NO_x emission limits to be specified in a permit (unless the applicant was trying to escape PSD review, or due to a BACT analysis). It was further indicated that any changes of this nature needed in construction or operating permits should be requested and received prior to the Title V application due date (April 2, 1995, for most phosphate facilities).

On behalf of Cargill Fertilizer, I am requesting a change to the above referenced permits issued by the Department. The air construction permit for the Cargill Riverview sulfuric acid plants contains a limit on NO_x emissions (Specific Condition 4). Specific Condition 4 of the draft permit places a limit upon NO_x emissions from the sulfuric acid plants, in terms of lb/ton 100 percent sulfuric acid produced, lb/hr and tons/year. It is requested that this condition be deleted since there is no regulatory basis for any limit for NO_x. The estimated NO_x emissions are low, i.e., less than 100 TPY from each plant. PSD review was not triggered for the modification, and no synthetic restrictions were placed on the operation to avoid PSD review for NO_x. There are no state or federal emission limiting standards for NO_x emissions from sulfuric acid plants.

KBN ENGINEERING AND APPLIED SCIENCES, INC.

6241 Northwest 23rd Street, Suite 500, Gainesville, Florida 32653-1500, 904-336-5600 FAX 904-336-6603
5405 West Cypress Street, Suite 215, Tampa, Florida 33607, 813-287-1717 FAX 813-287-1716
1801 Clint Moore Road, Suite 105, Boca Raton, Florida 33487, 407-994-9910, FAX 407-994-9393
7785 Baymeadows Way, Suite 105, Jacksonville, Florida 32256, 904-739-5600 FAX 904-739-7777
1616 'P' Street N.W., Suite 450, Washington, D.C. 20036, 202-462-1100, FAX 202-462-2270



To reiterate, Cargill requests that the NO_x emission limits contained in the above referenced permits be deleted. Please call if you have any questions concerning this information, and please advise if any permit application fee is required to process this request.

Sincerely,

David A. Buff

David A. Buff, P.E.
Principal Engineer

cc: David Jellerson, Cargill
John Brown, FDEP-TALL
File (2)

DB/mlb

KBN

D.E.P.

DEC 21 1994

DISTRICT
TAMPA

December 19, 1994

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 3

To B. MITCHELL	From J. KISSEL
Co.	Co.
Dept.	Phone #
Fax #	Fax #

Mr. Bill Thomas
Air Permitting
Florida Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, FL 33619-8218

Re: Cargill Fertilizer, Inc.
AC53-216288; PSD-FL-191
AO53-243295
Bartow Nos. 4, 5 & 6 Sulfuric Acid Plants

Dear Mr. Thomas:

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Department of Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

January 3, 1995

File Copy
AC 53-216 & 248
Cargill

Mr. William Thomas
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619-8218

Dear Mr. Thomas:

This letter is in response to your faxed note with a letter from KBN engineering dated December 1994. KBN is requesting that NO_x limits be removed from Cargill permits (Bartow Nos. 4, 5 and 6 sulfuric acid plants).

As indicated at the phosphate industry meeting last month, there are some important things to remember about eliminating any conditions from a permit. The applicant must make the case that there is no legal requirements for the condition and that the applicant was not given the condition to preclude public concern or for any other advantage during the preconstruction review. Limitations imposed to limit toxic pollutants under the permitting process (air toxics strategy) are valid permitting conditions that should not be eliminated. Chapter 403.021(3), F.S. is the legal authority for those limitations. The condition needs to be revisited by the source that issued the air construction permit and the AC permit needs to be revised first, followed by revision of the AO permit by the AO issuing office, if such revision is appropriate.

Please forward the request to this office for review since we issued the AC permit.

Sincerely,

John C. Brown, Jr., P.E.
Administrator
Air Permitting and Standards

JCB/bjb

cc: David Jellerson
KBN Engineering

Best Available Copy

KBN

D.E.P.

DEC 21 1994

DISTRICT
Tampa

December 19, 1994

TO: J. BROWN VIA FAX 2PGS

BOTH PERMITS CONTAIN NO_x LIMITS; TALL'E DID AC & WE DID AO. SHOULD TALL'E REVISE AC, THEN SWD AMEND AO? OR WE'LL ONLY AMEND AO SINCE WE'LL HAVE A TITLE V AO 'SOON', OR ??

Mr. Bill Thomas
Air Permitting
Florida Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, FL 33619-8218

Re: Cargill Fertilizer, Inc.
AC53-216288; PSD-FL-191
AO53-243295
Bartow Nos. 4, 5 & 6 Sulfuric Acid Plants

Dear Mr. Thomas:

In a recent phosphate industry meeting with FDEP Tallahassee (John Brown, Larry George Bruce Mitchell, Harry Kearns), there was discussion on the issue of permit conditions which are not necessary or are not based on regulatory requirements. It was Tallahassee's view that such permit conditions should be removed from the permit, at the permittee's request. A specific example discussed was that of NO_x and ammonia emissions in the phosphate industry permits. In regards to NO_x, no specific requirement was identified which would require NO_x emission limits to be specified in a permit (unless the applicant was trying to escape PSD review, or due to a BACT analysis). It was further indicated that any changes of this nature needed in construction or operating permits should be requested and received prior to the Title V application due date (April 2, 1995, for most phosphate facilities).

12/27/94

(WE'D BE HAPPY TO DO BOTH AC & AO)

On behalf of Cargill Fertilizer, I am requesting a change to the above referenced permits issued by the Department. The air construction permit for the Cargill Riverview sulfuric acid plants contains a limit on NO_x emissions (Specific Condition 4). Specific Condition 4 of the draft permit places a limit upon NO_x emissions from the sulfuric acid plants, in terms of lb/ton 100 percent sulfuric acid produced, lb/hr and tons/year. It is requested that this condition be deleted since there is no regulatory basis for any limit for NO_x. The estimated NO_x emissions are low, i.e., less than 100 TPY from each plant. PSD review was not triggered for the modification, and no synthetic restrictions were placed on the operation to avoid PSD review for NO_x. There are no state or federal emission limiting standards for NO_x emissions from sulfuric acid plants.

KBN ENGINEERING AND APPLIED SCIENCES, INC.

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To reiterate, Cargill requests that the NO_x emission limits contained in the above referenced permits be deleted. Please call if you have any questions concerning this information, and please advise if any permit application fee is required to process this request.

Sincerely,

David A. Buff

David A. Buff, P.E.
Principal Engineer

cc: David Jellerson, Cargill
John Brown, FDEP-TALL
File (2)

DB/mlb

14393A1/2

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMIT

In the matter of an
Application for Permit by:

Mr. Kenneth V. Ford
Seminole Fertilizer Corporation
P. O. Box 471
Bartow, Florida 33830
_____/

DER File No. AC53-216288
PSD-FL-191
Polk County

Enclosed is Permit Number AC53-216288 (PSD-FL-191) for the modifications to sulfuric acid plants Nos. 4, 5, and 6 at your phosphate fertilizer chemical plant located on Highway 60 West, Bartow, Polk County, Florida 33830. These permits are issued pursuant to Section 403, Florida Statutes.

Any party to this Order (permit) has the right to seek judicial review of the permit 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 this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 1-5-93 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to
§120.52(11), Florida Statutes,
with the designated Department
Clerk, receipt of which is hereby
acknowledged.

(Clerk) 1-5-93 (Date)

Copies furnished to:
Bill Thomas, SWD
Jewell Harper, EPA
John Koogler, P.E.
Brian Mitchell, NPS

Best Available Copy

...ce on the ...t this card from ... fee will provide ... and the date of ...ving services are ... and check box(es)

...v to whom, date and address of delivery.

2. ☐ Restricted Delivery.

3. Article Addressed to:
Kenneth V. Ford
Seminole Fertilizer Corp
PO BOX 471
Bartow, Fl 33830

4. Type of Service:
☐ Registered ☐ Insured
☐ Certified ☐ COD
☐ Express Mail

Article Number
P062 921 943

...ways obtain signature of addressee or agent and
DATE DELIVERED.

5. Signature – Addressee
J. M. Blackwell

6. Signature – Agent
X

7. Date of Delivery
1-7-93

8. ...ddressee's Address (ONLY if requested and fee paid)

RECEIPT

P 062 921 943

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to Kenneth Ford	
Street and No. Seminole Fert.	
P.O. State and 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, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date AC 53-216288 PSD-Fl-191 1-5-93	

PS Form 3800, June 1991

Final Determination

Seminole Fertilizer Corporation
Bartow, Polk County, Florida

Sulfuric Acid Plants Nos. 4, 5, and 6 Modification
Permit No. AC53-216288 (PSD-FL-191)

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

December 28, 1992

Final Determination

The Technical Evaluation and Preliminary Determination for the permit to construct (modify) sulfuric acid plants Nos. 4, 5, and 6 at Seminole Fertilizer Corporation's phosphate fertilizer chemical plant located on Highway 60 West, Bartow, Polk County, Florida 33830, was distributed on November 20, 1992. The Notice of Intent to Issue was published in the Polk County Democrat on November 26, 1992. Copies of the evaluation were available for public inspection at the Department's offices in Tampa and Tallahassee.

No comments were submitted on the Department's Intent to Issue the permit. The final action of the Department will be to issue construction permit **AC**53-216288 (PSD-FL-191) as proposed in the Technical Evaluation and Preliminary Determination.

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

PERMITTEE:

Seminole Fertilizer Corp.
Post Office Box 471
Bartow, Florida 33830

Permit Number: AC53-216288
PSD-FL-191
Expiration Date: Jan. 1, 1994
County: Polk
Latitude/Longitude: 27°54'22"N
81°54'59"W
Project: Sulfuric Acid Plants Nos. 4, 5, and 6 - Production Increases to 2280 TPD Per Plant (6840 TPD total)

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-210, 212, 272, 275, 296 and 297 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the modifications to the existing Nos. 4, 5, and 6 sulfuric acid plants that will increase each plant's production to 2280 TPD 100% sulfuric acid (6840 TPD total for the three plants). The modifications do not involve physical alteration to these plants. These sources are located at the permittee's phosphate fertilizer manufacturing facility on Hwy 60 West, Bartow, Polk County, Florida 33830. The UTM coordinates of this facility are Zone 17, 409.8 km E and 3087.0 km N.

The source shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:
1. Seminole's application received July 16, 1992.
2. Koogler & Associates' letter dated August 6, 1992.
3. DER's letter dated September 11, 1992.
4. Koogler & Associates' letters dated October 22, 1992.

GENERAL CONDITIONS:

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.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

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.

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

GENERAL CONDITIONS:

auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

a. Have access to and copy any records that must be kept under the conditions of the permit;

b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

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

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.

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

GENERAL CONDITIONS:

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.

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.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, 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.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

(x) Determination of Best Available Control Technology (BACT)
(x) Determination of Prevention of Significant Deterioration (PSD)
(x) Compliance with New Source Performance Standards (NSPS)

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

GENERAL CONDITIONS:

records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

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.

SPECIFIC CONDITIONS:

1. The maximum production rate of each of the sulfuric acid plants (Nos. 4, 5, and 6) shall not exceed 2280 tons per day based on 100% H_2SO_4 (6840 TPD for three plants).

2. Sulfur dioxide emissions from each plant shall not exceed 4 lbs/ton of 100% sulfuric acid produced, 380.0 lbs/hr, and 1664.4 tons/yr.

3. Sulfuric acid mist emissions from each plant shall not exceed 0.15 lb/ton of 100% sulfuric acid produced, 14.3 lbs/hr, and 62.4 tons/yr.

4. Nitrogen oxides emissions from each plant shall not exceed 0.12 lb/ton of 100% sulfuric acid produced, 11.4 lbs/hr, and 49.9 tons/yr.

The nitrogen oxides limits are subject to revision if sufficient test data indicate that the emission factor is improper.

SPECIFIC CONDITIONS:

5. Sulfuric Acid Plant No. 3 with its ammonia scrubber shall cease operation, be rendered inoperable, and its operation permit (AO53-176431) surrendered to the Department prior to the expiration of this construction permit.

6. Visible emissions from each plant shall not exceed 10% opacity.

7. A continuous emission monitor shall be used to monitor sulfur dioxide emissions from each plant in accordance with 40 CFR 60, Subpart H (July 1, 1992), Standards of Performance for Sulfuric Acid Plants. Initial and annual compliance tests shall be conducted using: EPA Method 7E for nitrogen oxides, EPA Method 8 for sulfur dioxide and acid mist, and EPA Method 9 for visible emissions as described in 40 CFR 60, Appendix A (July 1, 1992).

8. The compliance tests shall be conducted at 90 to 100% of the permitted capacity (2052 - 2280 TPD sulfuric acid production). The Department's Southwest District office shall be notified in writing 15 days prior to source testing. Written reports of the tests shall be submitted to that office within 45 days of test completion.

9. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

10. An application for an operation permit must be submitted to the Southwest District office at least 90 days prior to the expiration date of this construction permit or within 45 days after completion of compliance testing, whichever occurs first. The operation permit application shall include a set of conditions acceptable to the Department for sequential startup/shutdown of the permittee's sulfuric acid plants. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

Issued this 31st day
of December, 1992

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

for

Carol M. Browner, Secretary

Best Available Control Technology (BACT) Determination
Seminole Fertilizer Corporation
Polk County

The applicant proposes to increase sulfuric acid production to 2280 tons per day each for the Nos. 4, 5, and 6 sulfuric acid plants (6840 TPD total) that are located at the phosphate fertilizer manufacturing facility on Hwy. 60 West near Bartow, Polk County, Florida 33830.

The proposed project will result in a significant increase in emissions of sulfur dioxide (SO_2) and sulfuric acid mist. The project is therefore subject to Prevention of Significant Deterioration (PSD) review in accordance with F.A.C. Rule 17-212.400.

The BACT review is part of the PSD review requirements in accordance with F.A.C. Rule 17-212.400.

Date of Receipt of a BACT Application: July 16, 1992.

The BACT determination requested by the applicant is presented below:

Control Technology: Double Absorption/Fiber Mist Eliminators

Pollutant	Emission Limits
SO_2	4 lb/ton of 100% H_2SO_4 produced
Sulfuric Acid Mist	0.15 lb/ton of 100% H_2SO_4 produced
Visible Emissions	10% opacity

Basis of Review:

This determination was based upon input from the applicant, EPA Region IV, and the Bureau of Air Regulation.

BACT Determination Procedure:

In accordance with Florida Administrative Code Chapter 17-212.410, Best Available Control Technology Determination, Stationary Source-Preconstruction Review, this BACT determination is 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. In addition, the regulations state that in making the BACT determination the Department shall give consideration to:

(a) Any Environmental Protection Agency determination of Best Available Control Technology pursuant to 40 CFR 52.21, and any emission limitation contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources) or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants).

(b) All scientific, engineering, and technical material and other information available to the Department.

(c) The emission limiting standards or BACT determinations of any other state.

(d) The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine for the emission source in question the most stringent control available for a similar or identical source or source category. If it is shown that this level of control is technically or economically infeasible for the source 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.

BACT Determined by DER:

Control Technology	Double Absorption/Fiber Mist Eliminators
Pollutant	Emission Limits
SO_2	4.0 lb/ton of 100% H_2SO_4 produced
Sulfuric Acid Mist	0.15 lb/ton of 100% H_2SO_4 produced
Visible Emissions	10% opacity

BACT Determination Rationale

DER's BACT determination is the same as that proposed by the applicant, determinations completed by other states, and Standards of Performance for Sulfuric Acid Plants, 40 CFR 60 Subpart H, (double absorption process). The process in itself is the control technology for SO_2. The emission limits reflect conversion efficiency of around 99.4% of SO_2 to H_2SO_4. High efficiency mist eliminators are considered BACT for sulfuric acid mist. A review of BACT/LAER Clearinghouse indicates that the double absorption technology and the use of high efficiency mist eliminators is representative of BACT using the top-down approach.

Environmental Impact Analysis

The impact analysis for the BACT determination is based on 8,760 hours/year operation. Modeling results show that increases in ground-level concentrations are less than PSD significant impact levels for the applicable pollutants.

Conclusion

The incremental impact and the ambient air quality impact from SO_2 emissions due to the proposed modification is in compliance with all air pollution regulations. The impacts associated with the proposed increase in production support the Department's determination that the emission limits established herein represent BACT.

Details of the Analysis May be Obtained by Contacting:

Preston Lewis, P.E.
Department of Environmental Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended by:

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

December 28, 1992
Date

Approved by:

for
Carol M. Browner, Secretary
Dept. of Environmental Regulation

December 31, 1992
Date

Best Available Control Technology (BACT) Determination
Seminole Fertilizer Corporation
Polk County

The applicant proposes to increase sulfuric acid production to 2280 tons per day each for the Nos. 4, 5, and 6 sulfuric acid plants (6840 TPD total) that are located at the phosphate fertilizer manufacturing facility on Hwy. 60 West near Bartow, Polk County, Florida 33830.

The proposed project will result in a significant increase in emissions of sulfur dioxide (SO_2) and sulfuric acid mist. The project is therefore subject to Prevention of Significant Deterioration (PSD) review in accordance with F.A.C. Rule 17-212.400.

The BACT review is part of the PSD review requirements in accordance with F.A.C. Rule 17-212.400.

Date of Receipt of a BACT Application: July 16, 1992.

The BACT determination requested by the applicant is presented below:

Control Technology: Double Absorption/Fiber Mist Eliminators

Pollutant	Emission Limits
SO_2	4 lb/ton of 100% H_2SO_4 produced
Sulfuric Acid Mist	0.15 lb/ton of 100% H_2SO_4 produced
Visible Emissions	10% opacity

Basis of Review:

This determination was based upon input from the applicant, EPA Region IV, and the Bureau of Air Regulation.

BACT Determination Procedure:

In accordance with Florida Administrative Code Chapter 17-212.410, Best Available Control Technology Determination, Stationary Source-Preconstruction Review, this BACT determination is 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. In addition, the regulations state that in making the BACT determination the Department shall give consideration to:

(a) Any Environmental Protection Agency determination of Best Available Control Technology pursuant to 40 CFR 52.21, and any emission limitation contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources) or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants).

(b) All scientific, engineering, and technical material and other information available to the Department.

(c) The emission limiting standards or BACT determinations of any other state.

(d) The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine for the emission source in question the most stringent control available for a similar or identical source or source category. If it is shown that this level of control is technically or economically infeasible for the source 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.

BACT Determined by DER:

Control Technology	Double Absorption/Fiber Mist Eliminators
Pollutant	Emission Limits
SO_2	4.0 lb/ton of 100% H_2SO_4 produced
Sulfuric Acid Mist	0.15 lb/ton of 100% H_2SO_4 produced
Visible Emissions	10% opacity

BACT Determination Rationale

DER's BACT determination is the same as that proposed by the applicant, determinations completed by other states, and Standards of Performance for Sulfuric Acid Plants, 40 CFR 60 Subpart H, (double absorption process). The process in itself is the control technology for SO_2. The emission limits reflect conversion efficiency of around 99.4% of SO_2 to H_2SO_4. High efficiency mist eliminators are considered BACT for sulfuric acid mist. A review of BACT/LAER Clearinghouse indicates that the double absorption technology and the use of high efficiency mist eliminators is representative of BACT using the top-down approach.

Environmental Impact Analysis

The impact analysis for the BACT determination is based on 8,760 hours/year operation. Modeling results show that increases in ground-level concentrations are less than PSD significant impact levels for the applicable pollutants.

Conclusion

The incremental impact and the ambient air quality impact from SO_2 emissions due to the proposed modification is in compliance with all air pollution regulations. The impacts associated with the proposed increase in production support the Department's determination that the emission limits established herein represent BACT.

Details of the Analysis May be Obtained by Contacting:

Preston Lewis, P.E.
Department of Environmental Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended by:

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

December 28, 1992
Date

Approved by:

for
Carol M. Browner, Secretary
Dept. of Environmental Regulation

December 31, 1992
Date

For Routing To Other Than The Addressee

To: _____ Location: _____

To: _____ Location: _____

To: _____ Location: _____

From: _____ Date: _____

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

Interoffice Memorandum

TO: Carol M. Browner

FOR FROM: Howard L. Rhodes

DATE: December 28, 1992

SUBJ: Approval of Construction Permit **AC**53-216288 (PSD-FL-191)
Seminole Fertilizer Corporation

Attached for your approval and signature is a construction permit and Best Available Control Technology Determination that will allow Seminole Fertilizer Corporation to increase production of their sulfuric acid plants Nos. 4, 5, and 6. These plants are located at the phosphate fertilizer chemical facility on Highway 60 West, Bartow, Polk County, Florida. The increased production can be accomplished without any physical modifications to the plants.

I recommend your approval and signature.

HLR/WH/plm

Attachments

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

DEC 28 1992

RECEIVED
DEC 31 1992
Division of Air
Resources Management

4APT-AEB

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Seminole Fertilizer Corporation, Bartow, Florida (PSD-FL-191)

Dear Mr. Fancy:

This is to acknowledge receipt of your preliminary determination and draft Prevention of Significant Deterioration (PSD) permit for the above referenced facility by your letter dated November 20, 1992. The proposed major modification to the existing facility consists of increasing the production rate at each of three sulfuric acid plants. As discussed between Mr. Cleve Holladay of your staff and Mr. Lew Nagler of my staff on December 14, 1992, we have the following comment related to the revised air quality analysis:

> Our previous comment about the state needing to take some action to assure Class I increment protection is no longer required since sulfuric acid plant No. 3 may be omitted from the modeling analysis. Reductions in SO_2 and H_2SO_4 mist emissions will result from the shutdown of sulfuric acid plant No. 3. The revised analysis indicates a zero impact on the Class I Area. Increases in either SO_2 or H_2SO_4 mist emissions will not result in either a significant monitoring or air quality impact. No additional air quality analysis is required.

We also agree with your determination that double absorption process technology and high efficiency mist eliminators represent BACT for SO_2 and H_2SO_4 mist emissions, respectively.

Thank you for the opportunity to comment on this package. If you have any questions concerning modeling or monitoring, please contact Mr. Lew Nagler of my staff at (404) 347-5014. Any other questions may be directed to Mr. Stan Kukier of my staff also at (404) 347-5014.

Sincerely yours,

for Beverly A. Spagg

Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division

SEMINOLE

Seminole Fertilizer Corporation
P.O. Box 471 Highway 60 West
Bartow, Florida 33830
(813) 533-2171
Fax (813) 533-1319

November 30, 1992

CERTIFIED MAIL

Mr. Willard Hanks
Dept. of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Hanks:

RE: SO_2 PERMIT NO. AC53-216288/PSD-FL-191

Enclosed is the original Affidavit of Publication for the referenced permit.

Sincerely yours,

Kenneth V. Ford, Manager
Environmental Affairs

db

Enclosure

xc: W/O Enclosure
R. W. Sims
H. C. Smith
W. Hanks
C. Holladay, SWDist.
B. Thomas, EPA
G. Harper, EPA
B. Mitchell, NPS
J. Powell, FAC

RECEIVED

DEC 03 1992

Division of Air
Resources Management

SEMINOLE

Seminole Fertilizer Corporation
P.O. Box 471 Highway 60 West
Bartow, Florida 33830

CERTIFIED
P 125 913 015
MAIL

BARTOW FLA. DEC - 1 '92 6107131

U.S. POSTAGE 2.29 CERTIFIED MAIL

MR WILLARD HANKS
DEPT OF ENVIRONMENTAL REGULATION
2600 BLAIR STONE RD
TALLAHASSEE FL 32399-2400

AFFIDAVIT OF PUBLICATION

The Polk County Democrat

Published Semi-Weekly
Bartow, Polk County, Florida

Case No. _____

STATE OF FLORIDA
COUNTY OF POLK

Before the undersigned authority personally appeared _____
Loyal Frisbie, who on oath says that (s)he is
President of The Polk County Democrat, a newspaper published at Bartow, Polk County, Florida; that the attached copy of advertisement, being a Notice of Intent to Issue Permit in the matter of Seminole Fertilizer Corporation

in the _____ Court, was published in said newspaper in the issues of November 26, 1992.

Affiant further says that The Polk County Democrat is a newspaper published at Bartow, in said Polk County, Florida, and that said newspaper has heretofore been continuously published in said Polk County, Florida, each Monday and Thursday, and has been entered as second class matter at the post office in Bartow, in said Polk County, Florida, for a period of one year next preceeding 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 said newspaper.

Signed Loyal Frisbie

The foregoing instrument was acknowledged before me this 26th day of Nov., 19 92, by Loyal Frisbie,

who is personally known to me.

Teresa M. Pacetti
(Signature of Notary Public)

Teresa M. Pacetti
(Printed or typed name of Notary Public)

Notary Public

My Commission Expires:

NOTARY PUBLIC STATE OF FLORIDA

Notary Public, State of Florida
TERESA M. PACETTI
My Comm. Exp. Dec. 19, 1995
Comm. No. CC 169408

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION NOTICE OF INTENT TO ISSUE PERMIT

The Department of Environmental Regulation gives notice of its intent to issue a construction permit (AC53-216288/PSD-FL-191) to Seminole Fertilizer Corporation, Post Office Box 471, Bartow, Florida 33830. The permit will allow the applicant to modify (increase production) of the existing Nos. 4, 5, and 6 sulfuric acid plants at Seminole Fertilizer Corporation's phosphate fertilizer manufacturing plant on Highway 60 West, Bartow, Polk County, Florida 33830. The modification to the sulfuric acid plants requires a Best Available Control Technology (BACT) determination for sulfur dioxide and acid mist. The proposed project is subject to Prevention of Significant Deterioration (PSD) regulations. The allowable emissions from each sulfuric acid plant will be 4.0 pounds of sulfur dioxide per ton of acid produced (380 lbs/hr and 1664.4 TPY), and 0.15 pounds of acid mist per ton of acid produced (14.25 lbs/hr and 62.4 TPY). Modeling results show that increases in ground-level concentrations are less than PSD significant impact levels for the applicable pollutants. These emissions will not cause a violation of any ambient air quality standard or Prevention of Significant Deterioration (PSD) increment. The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

A person whose substantial interests are affected by the Department's proposed permitting decision 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 publication of this notice. 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 proposed action; (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.

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 Notice. 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 publication 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.

The application 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 Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, Department of Environmental Regulation Southwest District, 3804 Coconut Palm Drive, Tampa, Florida 33619-8218.

Any person may send written comments on the proposed action to Mr. Preston Lewis at the Department's Tallahassee address. All comments received within 30 days of the publication of this notice will be considered in the Department's final determination.

Further, a public hearing can be requested by any person. Such requests must be submitted within 30 days of this notice.

Nov. 26, 1992—3416

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

November 20, 1992

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Kenneth V. Ford
Manager, Environmental Affairs
Seminole Fertilizer Corporation
P. O. Box 471
Bartow, Florida 33830

Dear Mr. Ford:

Attached is one copy of the Technical Evaluation and Preliminary Determination and proposed permit for the modifications to sulfuric acid plants Nos. 4, 5, and 6 at your phosphate fertilizer plant located on Highway 60 West, Bartow, Polk County, Florida.

Please submit any written comments you wish to have considered concerning the Department's proposed action to Mr. Preston Lewis of the Bureau of Air Regulation.

Sincerely,

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

CHF/WH/plm

Attachments

cc: Bill Thomas, SWD
Jewell Harper, EPA
John Koogler, P.E.
Brian Mitchell, NPS
Linda Novak, Polk Co.

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- 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 Fee will provide you the signature of the person delivered to and the date of delivery.

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:

Mr. Kenneth V. Ford
Manager, Environmental Affairs
Seminole Fertilizer Corp.
P. O. Box 471
Bartow, FL 33830

4a. Article Number
P 062 922-010

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

7. Date of Delivery
NOV 2 3 1992

5. Signature (Addressee)

6. Signature (Agent)

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

PS Form 3811, November 1990 ☆U.S. GPO: 1991—287-066 **DOMESTIC RETURN RECEIPT**

P 062 922 010

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to: Mr. Kenneth V. Ford, Seminole Fertilizer	
Street and No.: P. O. Box 471	
P.O., State and ZIP Code: Bartow, FL 33830	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date Mailed: 11-20-92 Permit: AC 53-216288	

PS Form 3800, June 1991

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

CERTIFIED MAIL

In the Matter of an
Application for Permits by:

DER File No. AC 53-216288
PSD-FL-191

Mr. Kenneth V. Ford
Manager, Environmental Affairs
Seminole Fertilizer Corporation
P. O. Box 471
Bartow, Florida 33830

_____/

INTENT TO ISSUE

The Department of Environmental Regulation gives notice of its intent to issue a permit (copy attached) for the proposed project as detailed in the application specified above for the reasons stated in the attached Technical Evaluation and Preliminary Determination.

The applicant, Seminole Fertilizer Corporation, applied on July 16, 1992, to the Department of Environmental Regulation for a permit to modify the Nos. 4, 5, and 6 sulfuric acid plants at Seminole Fertilizer Corporation's phosphate fertilizer manufacturing plant on Highway 60 West, Bartow, Polk County, Florida.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes and Florida Administrative Code (F.A.C.) Chapters 17-2 and 17-4. The project is not exempt from permitting procedures. The Department has determined that a construction permit is required for the proposed work.

Pursuant to Section 403.815, Florida Statutes and Rule 17-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permits. The notice shall be published one time only within 30 days in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "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. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permits.

The Department will issue the permits with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

A person whose substantial interests are affected by the Department's proposed permitting decision 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. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. 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 proposed action;
(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.

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 intent. 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 intent 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.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this INTENT TO ISSUE and all copies were mailed by certified mail before the close of business on _____ to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant to §120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk

11-20-92
Date

Copies furnished to:
Bill Thomas, SWD
Jewell Harper, EPA
John Koogler, P.E.
Brian Mitchell, NPS

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF INTENT TO ISSUE PERMITS

The Department of Environmental Regulation gives notice of its intent to issue a construction permit (AC53-216288/PSD-FL-191) to Seminole Fertilizer Corporation, P. O. Box 471, Bartow, Florida 33830. The permit will allow the applicant to modify (increase production) of the existing Nos. 4, 5, and 6 sulfuric acid plants at Seminole Fertilizer Corporation's phosphate fertilizer manufacturing plant on Highway 60 West, Bartow, Polk County, Florida 33830. The modification to the sulfuric acid plants requires a Best Available Control Technology (BACT) determination for sulfur dioxide and acid mist. The proposed project is subject to Prevention of Significant Deterioration (PSD) regulations. The allowable emissions from each sulfuric acid plant will be 4.0 pounds of sulfur dioxide per ton of acid produced (380 lbs/hr and 1664.4 TPY), and 0.15 pounds of acid mist per ton of acid produced (14.25 lbs/hr and 62.4 TPY). Modeling results show that increases in ground-level concentrations are less than PSD significant impact levels for the applicable pollutants. These emissions will not cause a violation of any ambient air quality standard or Prevention of Significant Deterioration (PSD) increment. The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

A person whose substantial interests are affected by the Department's proposed permitting decision 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 publication of this notice. 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 proposed action; (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.

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 Notice. 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 publication 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.

The application 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 Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Department of Environmental Regulation
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619-8218

Any person may send written comments on the proposed action to Mr. Preston Lewis at the Department's Tallahassee address. All comments received within 30 days of the publication of this notice will be considered in the Department's final determination.

Further, a public hearing can be requested by any person. Such requests must be submitted within 30 days of this notice.

Technical Evaluation
and
Preliminary Determination

Seminole Fertilizer Corporation
Bartow, Polk County, Florida

Sulfuric Acid Plants Nos. 4, 5, and 6 Modification
File No.: AC53-216288 (PSD-FL-191)

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

November 20, 1992

I. General Information

A. Applicant

Seminole Fertilizer Corporation
P. O. Box 471
Bartow, Florida 33830

B. Request

On July 16, 1992, Seminole Fertilizer Corporation submitted an application for a permit to construct (modify) their existing Nos. 4, 5, and 6 sulfuric acid plants (SIC 2819). The application was considered complete on October 23, 1992, when the Department received Koogler & Associates' letter providing the remainder of the additional information on the project requested by the Department. All of these sources are located at the applicant's phosphate fertilizer manufacturing plant on Highway 60 West, Bartow, Polk County, Florida 33830. The UTM coordinates for this facility are Zone 17, 409.8 km E and 3087.0 km N.

C. Project

The applicant proposes to increase the production of the Nos. 4, 5, and 6 sulfuric acid plants from 80 to 95 TPH each (6840 TPD total). The basic sulfuric acid process is not being changed. No additional air pollution control equipment will be installed on the plants. No alterations to the plant are needed to operate at the higher production rates.

D. Emissions

Each sulfuric acid plant will increase its allowable production from 1920 to 2280 TPD of 100% acid. The following table summarizes the changes in emissions from sulfuric acid plants Nos. 4, 5, and 6, respectively.

Sulfuric Acid Plant No. 4

	Production (TPD)	Sulfur Dioxide			Acid Mist			NO_x
		lbs Ton Acid	lbs/hr	TPY	lbs Ton Acid	lbs/hr	TPY	TPY
Proposed	2280	4.0	380	1664.4	0.15	14.25	62.4	49.9
Present	1920	3.39*	282	1142.1	0.052*	4.30	17.4	38.9
Increase	360	0.61	98	522.3	0.098	9.95	45.0	11.0

* Actual

Sulfuric Acid Plant No. 5

	Production (TPD)	Sulfur Dioxide lbs Ton Acid	Sulfur Dioxide lbs/hr	Sulfur Dioxide TPY	Acid Mist lbs Ton Acid	Acid Mist lbs/hr	Acid Mist TPY	NO_x TPY
Proposed	2280	4.0	380	1664.4	0.15	14.25	62.4	49.9
Present	1920	3.35*	287	1240.6	0.069*	5.92	25.6	42.5
Increase	360	0.65	93	423.8	0.081	8.33	36.8	7.4

* Actual

Sulfuric Acid Plant No. 6

	Production (TPD)	Sulfur Dioxide lbs Ton Acid	Sulfur Dioxide lbs/hr	Sulfur Dioxide TPY	Acid Mist lbs Ton Acid	Acid Mist lbs/hr	Acid Mist TPY	NO_x TPY
Proposed	2280	4.0	380	1664.4	0.15	14.25	62.4	49.9
Present	1920	3.32	288	1208.2	0.107	9.3	39.0	41.6
Increase	360	0.68	92	456.2	0.043	4.95	23.4	8.3

* Actual

From the previous tables, it can be seen that the increase in emissions resulting for this project are: 1402.3 TPY SO_2; 105.2 TPY acid mist; and 26.7 TPY NO_x. The increase in emissions of sulfur dioxide and acid mist exceed the significant emission rates listed in Table 212.400-2 of F.A.C. Rule 17-212.

II. Rule Applicability

The proposed project, modification of three sulfuric acid plants at a phosphate fertilizer plant, is subject to preconstruction review requirements under the provisions of Chapter 403, Florida Statutes, and Chapters 17-210, 212, 272, 275, 296, and 297, Florida Administrative Code (F.A.C.).

The sources are in Polk County, an area designated attainment for all criteria pollutants (F.A.C. Rule 17-275.400).

The facility (SIC 2874) is a major source of particulate matter, sulfur dioxide, and fluorides because the potential emission of each of these pollutants exceeds 100 TPY. Chemical process plants are listed in Table 212.400-1, Major Facility Categories.

The proposed project is subject to the Prevention of Significant Deterioration Regulations, F.A.C. Rule 17-212.400, because the contemporaneous emissions increases of sulfur dioxide and acid mist from the sulfuric acid plants exceed the significant emission rates listed in Table 212.400-2 of F.A.C. Rule 17-212. The emission limits for these pollutants for the sulfuric acid plants will be established by a Best Available Control Technology (BACT) determination pursuant to F.A.C. Rule 17-212.410. The applicant is also subject to the other preconstruction review requirements listed in F.A.C. Rule 17-212.400.

In addition, the proposed modifications are subject to 40 CFR 60, Subpart H, Standards of Performance for Sulfuric Acid Plants, and F.A.C. Rule 17-296.411, Sulfur Storage and Handling Facilities.

III. Technical Evaluation

The emission limits proposed as BACT for the sulfuric acid plants and accepted by the Department are equivalent to the new source performance standards listed in 40 CFR 60, Subpart H. The attached BACT determination gives more information on the proposed emission standards.

IV. Air Quality Analysis

a. Introduction

The production rate increases due to the proposed project will result in emissions increases which are projected to be greater than the PSD significant rates for SO_2 and sulfuric acid mist. Therefore, the project is subject to the PSD review requirements contained in F.A.C. Rule 17-212.400. Part of these requirements is an air quality impact analysis for these pollutants, which includes:

- An analysis of existing air quality.
- A PSD increment analysis for SO_2.
- An Ambient Air Quality Standards (AAQS) analysis.
- An analysis of impacts on soils, vegetation, visibility, and growth-related air quality impacts.
- A Good Engineering Practice (GEP) stack height determination

The analysis of existing air quality generally relies on preconstruction monitoring data collected in accordance with EPA-approved methods. The PSD increment and AAQS analyses are based on air quality dispersion modeling completed in accordance with EPA guidelines. Based on these required analyses, the Department has reasonable assurance that the projected production rate increases, as described in this report and subject to the

conditions of approval proposed herein, will not cause or contribute to a violation of any PSD increment or AAQS. A brief description of the modeling method used and results of the required analyses follow. A more complete description is contained in the permit application on file.

b. Analysis of the Existing Air Quality

Preconstruction ambient air quality monitoring may be required for pollutants subject to PSD review. However, an exemption to the monitoring requirement can be obtained if the maximum air quality impact resulting from the projected emissions increase, as determined through air quality modeling, is less than a pollutant-specific de minimus concentration. The predicted maximum concentration increase for SO_2 is given below:

PSD de minimus concentration (ug/m^3)	13
Averaging Time	24-hr
Maximum Predicted Impact (ug/m^3)	4.9

There are no monitoring de minimus concentrations for H_2SO_4 mist. As shown above, the predicted impact is less than the corresponding de minimus concentration; therefore, no preconstruction monitoring is necessary for either pollutant subject to PSD review.

c. Modeling Method

The EPA-approved Industrial Source Complex Short-Term (ISCST2) dispersion model was used by the applicant to predict the impact of the proposed project on the surrounding ambient air. All recommended EPA default options were used. Downwash parameters were used because the stacks were less than the good engineering practice (GEP) stack height. Five years of sequential hourly surface and mixing depth data from the Tampa, Florida National Weather Service collected during 1985 through 1989 were used in this model. Since five years of data were used, the highest-second high short-term predicted concentrations were compared with the appropriate ambient air quality standards or PSD increments. For the annual averages, the highest predicted yearly average was compared with the standards while the highest short-term impacts were used for comparison with the PSD significant impact levels.

d. Modeling Results

The applicant first evaluated the potential increase in ambient ground-level concentrations associated with the project to determine if these predicted ambient concentration increases would

be greater than the specified PSD significant impact levels for SO_2. Dispersion modeling was performed with receptors placed along the 36 standard radial directions (10 degrees apart) surrounding the proposed source at the following downwind distances: 1360, 1500, 1750, 2000, 2500, 3000, 4000, and 5000m. The receptor ring at 1360m corresponds to the nearest property boundary. The results of this modeling presented below show that the increases in ambient ground-level concentrations for all averaging times are less than the PSD significant impact levels for SO_2. Therefore, further dispersion modeling for comparison with AAQS and PSD Class II increment consumption was not required.

Avg. Time	Annual	3-hr	24-hr
PSD Significance Level (ug/m^3)	1.0	25.0	5.0
Ambient Concentration Increase (ug/m^3)	0.29	23.0	4.9

The nearest PSD Class I area is the Chassahowitzka National Wilderness Area located 109 km northwest of the facility. The impact of the proposed project which includes shutting down sulfuric acid plant No. 3 on this Class I area was evaluated using ISCST2. ISCST2 modeling predicted impacts of zero or less on all of the Class I SO_2 increments.

Sulfuric acid mist is a non-criteria pollutant, which means that neither a national ambient air quality standard nor a PSD Significant Impact has been defined for this pollutant. However, the Department does have a draft Air Toxics Permitting Strategy which defines a no-threat level (NTL) of 2.4 ug/m^3, 24-hour average for sulfuric acid mist. The Department used the same modeling procedure described above to evaluate the maximum ground level concentration of sulfuric acid mist due to the project. The result was 0.17 ug/m^3. In addition, the added reduction in sulfuric acid emissions due to the shutting down of sulfuric acid plant No. 3 will further reduce this value, which is already well below the NTL.

e. Additional Impacts Analysis

The applicant did an air quality related values (AQRV) analysis for both the PSD Class II area near the plant and for the Chassahowitzka Class I area located 109 km to the northwest. The increased emissions from the project are not expected to impact the AQRVs of either area. The AQRV analysis includes impacts on vegetation, soils, wildlife and visibility. In addition, the proposed modification will not significantly change employment,

population, housing or commercial/industrial development in the area to the extent that a significant air quality impact will result.

V. Conclusion

Based on the information provided by Seminole Fertilizer Corporation, the Department has reasonable assurance that the proposed projects, as described in this evaluation, and subject to the conditions proposed herein, will not cause or contribute to a violation of any air quality standard, PSD increment, or any other technical provision of Chapter 17-210, 212, 272, 275, 296, and 297 of the Florida Administrative Code.

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

PERMITTEE:

Seminole Fertilizer Corp.
Post Office Box 471
Bartow, Florida 33830

Permit Number: AC53-216288
PSD-FL-191
Expiration Date: Jan. 1, 1994
County: Polk
Latitude/Longitude: 27°54'22"N
81°54'59"W
Project: Sulfuric Acid Plants Nos. 4, 5, and 6 - Production Increases to 2280 TPD Per Plant (6840 TPD total)

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-210, 212, 272, 275, 296 and 297 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the modifications to the existing Nos. 4, 5, and 6 sulfuric acid plants that will increase each plant's production to 2280 TPD 100% sulfuric acid (6840 TPD total for the three plants). The modifications do not involve physical alteration to these plants. These sources are located at the permittee's phosphate fertilizer manufacturing facility on Hwy 60 West, Bartow, Polk County, Florida 33830. The UTM coordinates of this facility are Zone 17, 409.8 km E and 3087.0 km N.

The source shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:
1. Seminole's application received July 16, 1992.
2. Koogler & Associates' letter dated August 6, 1992.
3. DER's letter dated September 11, 1992.
4. Koogler & Associates' letters dated October 22, 1992.

GENERAL CONDITIONS:

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.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

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.

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

GENERAL CONDITIONS:

auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

a. Have access to and copy any records that must be kept under the conditions of the permit;

b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

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

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.

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

GENERAL CONDITIONS:

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.

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.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, 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.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

(x) Determination of Best Available Control Technology (BACT)
(x) Determination of Prevention of Significant Deterioration (PSD)
(x) Compliance with New Source Performance Standards (NSPS)

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

GENERAL CONDITIONS:

records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

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.

SPECIFIC CONDITIONS:

1. The maximum production rate of each of the sulfuric acid plants (Nos. 4, 5, and 6) shall not exceed 2280 tons per day based on 100% H_2SO_4 (6840 TPD for three plants).

2. Sulfur dioxide emissions from each plant shall not exceed 4 lbs/ton of 100% sulfuric acid produced, 380.0 lbs/hr, and 1664.4 tons/yr.

3. Sulfuric acid mist emissions from each plant shall not exceed 0.15 lb/ton of 100% sulfuric acid produced, 14.3 lbs/hr, and 62.4 tons/yr.

4. Nitrogen oxides emissions from each plant shall not exceed 0.12 lb/ton of 100% sulfuric acid produced, 11.4 lbs/hr, and 49.9 tons/yr.

The nitrogen oxides limits are subject to revision if sufficient test data indicate that the emission factor is improper.

SPECIFIC CONDITIONS:

5. Sulfuric Acid Plant No. 3 with its ammonia scrubber shall cease operation, be rendered inoperable, and its operation permit (AO53-176431) surrendered to the Department prior to the expiration of this construction permit.

6. Visible emissions from each plant shall not exceed 10% opacity.

7. A continuous emission monitor shall be used to monitor sulfur dioxide emissions from each plant in accordance with 40 CFR 60, Subpart H (July 1, 1992), Standards of Performance for Sulfuric Acid Plants. Initial and annual compliance tests shall be conducted using: EPA Method 7E for nitrogen oxides, EPA Method 8 for sulfur dioxide and acid mist, and EPA Method 9 for visible emissions as described in 40 CFR 60, Appendix A (July 1, 1992).

8. The compliance tests shall be conducted at 90 to 100% of the permitted capacity (2052 - 2280 TPD sulfuric acid production). The Department's Southwest District office shall be notified in writing 15 days prior to source testing. Written reports of the tests shall be submitted to that office within 45 days of test completion.

9. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

10. An application for an operation permit must be submitted to the Southwest District office at least 90 days prior to the expiration date of this construction permit or within 45 days after completion of compliance testing, whichever occurs first. The operation permit application shall include a set of conditions acceptable to the Department for sequential startup/shutdown of the permittee's sulfuric acid plants. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

Issued this _____ day
of _____, 1992

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

_____
Carol M. Browner, Secretary

Best Available Control Technology (BACT) Determination
Seminole Fertilizer Corporation
Polk County

The applicant proposes to increase sulfuric acid production to 2280 tons per day each for the Nos. 4, 5, and 6 sulfuric acid plants (6840 TPD total) that are located at the phosphate fertilizer manufacturing facility on Hwy. 60 West near Bartow, Polk County, Florida 33830.

The proposed project will result in a significant increase in emissions of sulfur dioxide (SO_2) and sulfuric acid mist. The project is therefore subject to Prevention of Significant Deterioration (PSD) review in accordance with F.A.C. Rule 17-212.400.

The BACT review is part of the PSD review requirements in accordance with F.A.C. Rule 17-212.400.

Date of Receipt of a BACT Application: July 16, 1992.

The BACT determination requested by the applicant is presented below:

Control Technology: Double Absorption/Fiber Mist Eliminators

Pollutant	Emission Limits
SO_2	4 lb/ton of 100% H_2SO_4 produced
Sulfuric Acid Mist	0.15 lb/ton of 100% H_2SO_4 produced
Visible Emissions	10% opacity

Basis of Review:

This determination was based upon input from the applicant, EPA Region IV, and the Bureau of Air Regulation.

BACT Determination Procedure:

In accordance with Florida Administrative Code Chapter 17-212.410, Best Available Control Technology Determination, Stationary Source-Preconstruction Review, this BACT determination is 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. In addition, the regulations state that in making the BACT determination the Department shall give consideration to:

(a) Any Environmental Protection Agency determination of Best Available Control Technology pursuant to 40 CFR 52.21, and any emission limitation contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources) or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants).

(b) All scientific, engineering, and technical material and other information available to the Department.

(c) The emission limiting standards or BACT determinations of any other state.

(d) The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine for the emission source in question the most stringent control available for a similar or identical source or source category. If it is shown that this level of control is technically or economically infeasible for the source 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.

BACT Determined by DER:

Control Technology	Double Absorption/Fiber Mist Eliminators
Pollutant	Emission Limits
SO_2	4.0 lb/ton of 100% H_2SO_4 produced
Sulfuric Acid Mist	0.15 lb/ton of 100% H_2SO_4 produced
Visible Emissions	10% opacity

BACT Determination Rationale

DER's BACT determination is the same as that proposed by the applicant, determinations completed by other states, and Standards of Performance for Sulfuric Acid Plants, 40 CFR 60 Subpart H, (double absorption process). The process in itself is the control technology for SO_2. The emission limits reflect conversion efficiency of around 99.4% of SO_2 to H_2SO_4. High efficiency mist eliminators are considered BACT for sulfuric acid mist. A review of BACT/LAER Clearinghouse indicates that the double absorption technology and the use of high efficiency mist eliminators is representative of BACT using the top-down approach.

Environmental Impact Analysis

The impact analysis for the BACT determination is based on 8,760 hours/year operation. Modeling results show that increases in ground-level concentrations are less than PSD significant impact levels for the applicable pollutants.

Conclusion

The incremental impact and the ambient air quality impact from SO_2 emissions due to the proposed modification is in compliance with all air pollution regulations. The impacts associated with the proposed increase in production support the Department's determination that the emission limits established herein represent BACT.

Details of the Analysis May be Obtained by Contacting:

Preston Lewis, P.E.
Department of Environmental Regulation
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	Carol M. Browner, Secretary Dept. of Environmental Regulation
_____1992 Date	_____1992 Date

Attachments Available Upon Request

FAX Rec'd. 10-27-92

Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347 • 813-623-5561

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary
Dr. Richard Garrity, Deputy Assistant Secretary

PERMITTEE:
Seminole Fertilizer Corporation
P.O. Box 471
Bartow, FL 33830

PERMIT/CERTIFICATION
Permit No: AO53-176431
County: Polk
Expiration Date: 04/11/93
Project: Sulfuric Acid Plant #3

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 17-4. 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 Sulfuric Acid Plant #3, a Monsanto single absorption system with Brink Demistor. Emissions are controlled by an Ammsox Ammonia Scrubber which produces 20 TPD of ammonia sulfate as a by-product. This plant is rated at 46 TPH of 100% H_2SO_4.

Location: One mile north of S.R. 60, between Bartow and Mulberry, Polk County

UTM: 17-409.9 E 3086.8 N NEDS NO: 0046 Point ID: 08

Replaces Permit No.: AO53-83549

PERMITTEE:
Seminole Fertilizer Corporation
P.O. Box 471
Bartow, FL 33830

PERMIT/CERTIFICATION
Permit No: A053-176431
County: Polk
Expiration Date: 04/11/93
Project: Sulfuric Acid Plant #3

SPECIFIC CONDITIONS:

1. A part of this permit is the attached 15 General Conditions.

2. Visible Emissions shall not exceed 10% opacity. [Rule 17-2.600(2)(a)2.a., F.A.C.].

3. Sulfur Dioxide emissions shall not exceed the lesser of
A. 10 pounds per ton of 100% acid produced, or
B. 460 pounds per hour.
[Rule 17-2.600(2)(a)2.b., F.A.C.].

During any time that Sulfuric Acid Plant #4, #5, or #6 exceeds a production rate of 70 tons per hour of 100% H_2SO_4, the sulfur dioxide emissions from Sulfuric Acid Plant #3 shall not exceed the lesser of
C. 7.4 pounds per ton of 100% acid produced, or
D. 340 pounds per hour.
[Reference previous permit and 1985 correspondence].

4. Acid Mist emissions shall not exceed the lesser of
A. 0.3 pounds per ton of 100% acid produced, or
B. 13.8 pounds per hour.
[Rule 17-2.600(2)(a)2.c., F.A.C.].

5. The maximum permitted production rate is 46 tons per hour of 100% H_2SO_4.

6. Test the emissions for the following pollutant(s) within 30 days of startup, and annually thereafter, and submit a copy of the test data to the Air Section of the Southwest District Office of the Department within 45 days of such testing [Rule 17-2.700(2), F.A.C.]:

(X) Opacity
(X) Sulfur Dioxide
(X) Acid Mist

7. Testing of emissions must be accomplished within ±10% of the permitted maximum production rate of 46 tons per hour of 100% H_2SO_4. The actual production rate shall be specified in each test result. A compliance test submitted at a production rate less than 90% of the permitted maximum production rate will automatically constitute an amended permit at the lesser rate until another test showing compliance at a higher rate is submitted. Failure to submit the actual production rate and actual operating conditions may invalidate the test data and fail to provide reasonable assurance of compliance. [Rule 17-4.070(3), F.A.C.].

KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
904/377-5822 • FAX 377-7158

KA 203-92-01

October 22, 1992

RECEIVED
OCT 23 1992
Bureau of
Air Regulation

Mr. Cleve Holladay
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: Seminole Fertilizer Corporation
Proposed Sulfuric Acid Production Increase
Permit File No. AC53-216288, PSD-FL-191

Dear Mr. Holladay:

This is a follow up to our meeting on October 14, 1992, concerning the emission inventory used for evaluating the Class I PSD increment consumption for the above project. The attached source emission information will address the questions raised by you on September 9 and September 11, 1992. The source numbering corresponds to the inventory submitted to FDER on May 4, 1992, and discussed during our meeting (see Attachment 1).

The Class I area visibility analysis (VISCREEN - Level 1) results, previously submitted to FDER, are presented in Attachment 2.

If you have any questions, please do not hesitate to give me a call.

Very truly yours,

KOOGLER & ASSOCIATES

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

JBK:PAR:wa
Enc.

c: Mr. H. Kerns, FDER, Tampa
Mr. M. Martinasek, Seminole
H. Hamlo
C. Holladay
B. Thomas / SW Dist
J. Harper, EPA
B. Mitchell, NPS
L. Noval, Polk Co.

ATTACHMENT 1

SEMINOLE FERTILIZER CORPORATION
SO_2 PSD INCREMENT EXPANDING SOURCES
BACKGROUND INFORMATION

Background information is provided for sources identified by FDER included in the attached source inventory submitted to FDER on May 4, 1992.

SOURCES 400-450: CF BARTOW

Based on information from FDER's Tampa office files, the following emissions were reported by CF on July 29, 1975. An EPA Consent Order, dated November 14, 1975, required source compliance with emission limits which became effective on July 1, 1975 (after the SO_2 baseline date of January 6, 1975). It should be noted that prior to July 1, 1975, there were no emission limiting standards in Florida for sulfuric acid plants.

The appropriate baseline emissions for the CF Bartow Plant are estimated as follows:

Source No.	Acid Rate (TPD)	Reported Emission (lb/ton)	Emission in Inventory (lb/hr)	(g/s)
400	400	29	483.3	60.90
410	500	42	875.0	110.25
420	600	34	850.0	107.10
430	900	37	1387.5	174.83
440	900	48	1800.0	226.80
450	900	36	1350.0	170.10

Sample Calculation:

SO_2 = 400 tons/day x 29 lbs SO_2/ton acid x day/24 hrs

= 483.3 lbs/hr

x 0.126 g/s / lb/hr

= 60.9 g/s

SOURCE 640: USSAC FT. MEADE ROCK DRYER

This source has not been operated in several years. However, the company intends to keep the operation permit on the source current. As a result, the appropriate emission level in accordance with FDER protocol is zero, as the permit has not been surrendered.

SOURCE 650: USSAC FT. MEADE GTSP

Based on information from the FDER Tampa office files, the SO_2 emissions from the GTSP plant reported by USSAC on January 4, 1979, are as follows:

SO_2 = 72.5 lbs/hr x 2 trains

= 145 lbs/hr

x 0.126 g/s / lb/hr

= 18.27 g/s

SOURCE 730: W.R. GRACE/SEMINOLE DRYER

Based on information from the FDER Tampa office files, the SO_2 emissions reduction from the two rock dryers at Seminole Fertilizer Corporation are based on the source operation for the past five years (and proposed future use) on natural gas. The dryers were previously operated on No. 6 fuel oil with a sulfur content of 2.4 percent. The SO_2 absorption of 40 percent is based on testing on similar units.

Dryer No. 1 - 120 MMBTU/hr

SO_2 = 120 x 10^6 BTU/hr x lb/18,300 BTU x 0.024 lb S/lb oil
x 2 lb SO_2/lb S x (1-0.4) SO_2 sorption
= 188.85 lbs/hr
x 0.126 g/s / lb/hr
= 23.80 g/s

Dryer No. 2 - 80 MMBTU/hr

SO_2 = 80 x 10^6 BTU/hr x lb/18,3000 BTU x 0.024 lb S/lb oil
x 2 lb SO_2/lb S x (1-0.4) SO_2 sorption
= 125.90 lbs/hr
x 0.126 g/s / lb/hr
= 15.86 g/s

As SO_2 emissions from natural gas firing are negligible, total SO_2 reduction from the two dryers combined are:

SO_2 total = (23.80 + 15.86) g/s

= 39.66 g/s

OK

SOURCE 960: AGRICO PIERCE DRYERS 1 AND 2

Based on information from the FDER Tampa office files, the following are the emissions for Dryers 1 and 2. The SO_2 absorption factor of 40 percent is based on testing on similar units. These dryers are no longer in existence.

SO_2 = 64 x 10^6 BTU/hr x 2 units x lb/18,300 BTU

x 0.023 lb S/lb oil x 2 lb SO_2/lb S x (1-0.4) SO_2 sorption

= 193.05 lbs/hr

x 0.126 g/s / lb/hr

= 24.32 g/s

OK

SOURCE 970: AGRICO PIERCE DRYERS 3 AND 4

Based on information from the FDER Tampa office files, the following are the emissions for Dryers 3 and 4 (Permit No. A053-5031). The SO_2 absorption factor of 40 percent is based on testing on similar units. These dryers are no longer is existence.

SO_2 = 19,800 gals/day x day/24 hrs x 8 lb/gal x 0.023 lb S/lb oil
x 2 lb SO_2/lb S x (1-0.4) SO_2 sorption
= 182.16 lbs/hr (for two dryers combined)
x 0.126 g/s / lb/hr
= 22.95 g/s ~ 23.0 g/s OK

SOURCES 980 AND 990: BORDEN DRYERS

The SO_2 emission rates for Sources 980 and 999 are 5.29 and 6.48 g/s, respectively, based on the emission inventory compiled by Walk-Haydel (Sources 2a and 2b) in support of a permit application for Conserv (AC-53-42397, PSD-FL-076).

SOURCES 1000 AND 1010: DOLIME BOILER AND DRYER

The SO_2 emission rates for Sources 1000 and 1010 are 4.52 and 5.68 g/s, respectively, based on the emission inventory compiled by Walk-Haydel (Sources 4a and 4b) in support of a permit application for Conserv (AC-53-42397, PSD-FL-076).

SOURCE 1020: ESTECH/SWIFT SAP

Based on information from the FDER Tampa office files, the emission rate of this source is calculated from a sulfuric acid production rate of 610 tons/day (Permit No. A053-2103) and an emission rate of 29 lb/ton acid. This plant is no longer in existence.

SO_2 = 610 tons/day x 29 lbs/ton x day/24 hrs

= 737 lbs/hr

x 0.126 g/s / lb/hr

= 92.87 g/s

SOURCE 1030: ESTEC/SWIFT DRYER

Based on information from the FDER Tampa office files, the following is the emission rate of the dryer. The SO_2 absorption factor of 40 percent is based on testing on similar units. This dryer is no longer in existence.

SO_2 = 126 x 10^6 BTU/hr x lb/18,300 BTU x 0.023 lb S/lb oil

x 2 lb SO_2/lb S x (1-0.4) SO_2 sorption

= 190.03 lbs/hr

x 0.126 g/s / lb/hr

= 23.94 g/s

SOURCE 1040: ESTEC/SWIFT DRYER

Based on information from the FDER Tampa office files, the following is the emission rate of the dryer. The SO_2 absorption factor of 40 percent is based on testing on similar units. This dryer is no longer in existence.

SO_2 = 120 x 10^6 BTU/hr x 1b/18,300 BTU x 0.023 lb S/lb oil
x 2 lb SO_2/lb S x (1-0.4) SO_2 sorption
= 180.98 lbs/hr
x 0.126 g/s / lb/hr
= 22.8 g/s

SOURCE 1050: USSAC BARTOW SAP

Based on information from the FDER Tampa office files, the following is the SO_2 emission rate from the SAP based on a production rate of 800 tons per day (Permit No. A053-59987) and an emission rate of 10 lbs/ton acid. This plant is no longer in existence.

SO_2 = 800 tons/day x 10 lbs/ton x day/24 hrs
= 333.33 lbs/hr
x 0.126 g/s / lb/hr
= 42.0 g/s

SOURCE 1060: USSAC BARTOW DRYER

Based on the emission inventory compiled by Walk-Haydel (Source 14b, Conserv permit AC53-42397, PSD-FL-076), the emission rate of Source 1060 is 3.41 g/s. This dryer is no longer in existence.

SOURCES 1070 AND 1080: GENERAL PORTLAND CEMENT KILNS 4 AND 5

Based on the emission inventory compiled by Walk-Haydel (Source 24b and c, Conserv permit AC53-42397, PSD-FL-076), the emission rates of Sources 1070 and 1080 are 62.99 and 69.3 g/s, respectively. These kilns are no longer in existence.

SOURCE 1090: ELECTROPHOS 400 HP BOILER

(Note: All Electrophos sources (Sources 1090-1140) are no longer in existence.)

Based on information from the FDER Tampa office files, the following is the emission rate of the boiler.

SO_2 = 135 gals/hr x 8 lbs/gal x 0.024 lb S/lb oil
x 2 lb SO_2/lb S
= 51.84 lbs/hr
x 0.126 g/s / lb/hr
= 6.53 g/s

SOURCE 1100: ELECTROPHOS 600 HP BOILER

Based on information from the FDER Tampa office files, the following is the emission rate of the boiler.

SO_2 = 30.4 x 10^6 BTU/hr x lb/18,300 BTU x 0.024 lb S/lb oil
x 2 lb SO_2/lb S
= 79.7 lbs/hr
x 0.126 g/s / lb/hr
= 10.05 g/s

SOURCE 1110: ELECTROPHOS FEED PREPARATION DRYER

Based on information in the FDER Tampa office files, the following is the emission rate of the feed prep. dryer.

SO_2 = 66.0 x 10^6 BTU/hr x lb/18,300 BTU x 0.024 lb S/lb oil
x 2 lb SO_2/lb S
= 173.11 lbs/hr
x 0.126 g/s / lb/hr
= 21.81 g/s

SOURCE 1120: ELECTROPHOS COKE DRYER

Based on information in the FDER Tampa office files, the following is in the emission rate of the coke dryer.

SO_2 = 9.6 x 10^6 BTU/hr x lb/18,300 BTU x 0.024 lb S/lb oil
x 2 lb SO_2/lb S
= 25.18 lbs/hr
x 0.126 g/s / lb/hr
= 3.17 g/s

SOURCE 1130: ELECTROPHOS CALCINER

Based on information in the FDER Tampa office files, the following is the emission rate of the calciner.

SO_2 = 21.5 x 10^6 BTU/hr x lb/18,300 BTU x 0.024 lb S/lb oil
x 2 lb SO_2/lb S
= 56.39 lbs/hr
x 0.126 g/s / lb/hr
= 7.11 g/s

SOURCE 1140: ELECTROPHOS FURNACE

Based on information from the FDER Tampa office files, the following is the emission rate of the electric furnace which processes 62,500 pounds per hour of phosphate rock containing 0.3 percent sulfur.

SO_2 = 62,500 lbs/hr x 0.003 lb S/lb rock x 2 lb SO_2/lb S
= 375.0 lbs/hr
x 0.126 g/s / lb/hr
= 47.25 g/s

SOURCE 1150: BREWSTER/IMPERIAL DRYER

Based on information from the FDER Tampa office files, the following is the emission rate for the dryer. The SO_2 absorption factor of 40 percent is based on testing on similar units. This dryer is no longer in existence.

SO_2 = 134 x 10^6 BTU/hr x lb/18,300 BTU x 0.0174 lb S/lb oil
x 2 lb SO_2/lb S x (1-0.4) SO_2 sorption
= 152.89 lbs/hr
x 0.126 g/s / lb/hr
= 19.26 g/s

ADDITIONAL SO_2 PSD INCREMENTAL EXPANDING SOURCES

1. Mobil Nichols - Calciner

Based on information from the FDER Tampa office files, the following is the emission rate of the calciner (A053-136222). The permit was surrendered on May 4, 1992.

SO_2 = 110.2 lbs/hr (permit limit)
x 0.126 g/s / lb/hr
= 13.89 g/s

2. Mobil Nichols - 75 HP Boiler

Based on the information from the FDER Tampa office files, the following is the emission rate of the boiler (A053-117006). The permit was surrendered on May 4, 1992.

SO_2 = 75 HP x 3.352 x 10^4 BTU/HP x lb/18,300 BTU
x 0.025 lb S/lb oil x 2 lb SO_2/lb S
= 6.87 lbs/hr
x 0.126 g/s / lb/hr
= 0.87 g/s

3. CF Industries - SAP A and B

These plants have been listed in many past permit application emission inventories, including a 1987 permit application by Central Phosphates, Inc. (now CF). The emission rates of Plant A and B were 52.5 g/s each; or a total of 105.0 g/s for the two plants combined. Prior to May 1988, they operated at 10 lbs/ton, 416.7 lbs/hr and 78 feet stack height. The plants subsequently operated at 8 lbs/ton, 350 lbs/hr and 110 feet stack height (see FDER permits AC29-146176 and 177).

4. IMC New Wales - Rock Dryer

This source has been listed in many past permit applications emission inventories, including a 1987 permit application by Central Phosphates, Inc. (CF). The emission rate of the dryer is 34.27 g/s.

The permit for this dryer was surrendered during the Third Train expansion in about 1980 (see attached).

SO2 PSD SOURCE INVENTORY 5/1/92

SOURCE NO.	EMIS (g/s)	UTM COORDINATES (km) EAST	NORTH	HT (m)	TEMP (K)	VEL (m/s)	DIAM (m)	BUILDING (m) HT	L	W	SOURCE DESCRIPTION
10	466.40	467.500	3197.200	15.24	819.8	56.21	4.21	11.8	17.1	17.1	FPC/DEBARY PROP TURBINES AT 20 DEG F
20	310.90	446.300	3126.000	15.24	819.8	56.21	4.21	11.8	17.1	17.1	FPC/INT. CITY PROP TURBINES/7EA AT 20 DEG F
30	276.10	446.300	3126.000	15.24	880.8	32.07	7.04	11.8	17.1	17.1	FPC/INT. CITY PROP TURBINES/7FA AT 20 DEG F
40	98.40	360.008	3162.398	97.60	442.0	23.23	4.88				FLORIDA CRUSHED STONE KILN 1
50	-50.40	388.000	3116.000	60.35	353.0	16.40	2.44				CF IND. BASELINE C
60	54.60	388.000	3116.000	60.35	353.0	17.77	2.44				CF IND. PROPOSED C
70	-50.40	388.000	3116.000	60.35	353.0	16.40	2.44				CF IND. BASELINE D
80	54.60	388.000	3116.000	60.35	353.0	17.77	2.44				CF IND. PROPOSED D
90	1.45	356.200	3169.900	27.40	470.2	7.48	4.88				FLORIDA MINING & MATERIALS KILN 2
100	654.70	361.900	3075.000	149.40	342.2	19.81	7.32				TECO BIG BEND UNIT 4
110	-2436.00	361.900	3075.000	149.40	422.0	28.65	7.32				TECO BIG BEND UNITS 1&2 (24-HR)
120	-1218.00	361.900	3075.000	149.40	418.0	14.33	7.32				TECO BIG BEND UNIT 3 (24-HR)
130	14.10	347.100	3139.200	83.82	394.3	15.70	3.05				PASCO COUNTY RRF
140	1008.80	334.200	3204.500	182.90	398.0	21.00	6.90				CRYSTAL RIVER 4
150	1008.00	334.200	3204.500	182.90	398.0	21.00	6.90				CRYSTAL RIVER 5
160	-314.00	334.200	3204.500	152.00	422.0	42.10	4.57				CRYSTAL RIVER 1
170	-1859.00	334.200	3204.500	153.00	422.0	42.10	4.88				CRYSTAL RIVER 2
180	105.40	483.500	3150.600	167.60	325.7	21.60	5.80				ORLANDO UTIL STANTON 1
190	242.40	483.500	3150.600	167.60	324.2	23.50	5.80				ORLANDO UTIL STANTON 2 (24-HR)
200	32.10	460.100	3129.300	18.30	422.0	38.00	3.66				KISSIMMEE UTIL EXIST
210	277.60	404.800	3057.400	22.90	389.0	23.90	4.88				HARDEE
220	-4.86	325.600	3116.700	7.32	464.0	3.23	0.91				STAUFFER BOILER
230	-7.36	325.600	3116.700	25.61	306.0	6.97	2.13				STAUFFER KILN
240	-0.45	325.600	3116.700	25.61	322.0	6.97	0.91				STAUFFER ROASTER
250	-1.50	325.600	3116.700	18.29	322.0	22.87	0.70				STAUFFER DRYER
260	-50.93	325.600	3116.700	49.00	335.0	3.60	1.20				STAUFFER FURNACE
270	500.10	408.500	3105.800	76.20	350.0	19.70	4.88				LAKELAND MCINTOSH 3
280	21.40	368.200	3092.700	50.00	491.0	18.30	1.80				HILLS. CO. RESOURCE RECOVERY
290	62.24	335.300	3084.400	49.10	522.0	27.72	2.74				PINELLAS
300	0.20	383.300	3135.800	12.30	466.2	9.20	0.40				EVANS PACKING
310	2.25	361.400	3168.400	8.50	357.4	10.95	1.08				ASPHALT PAVERS 4 (0700-1800)
320	2.25	359.900	3162.400	12.20	377.0	10.58	1.37				ASPHALT PAVERS 3 (0700-1800)
330	29.11	409.185	3102.754	30.48	783.2	28.22	5.79				LAKELAND UTILITIES CT
340	-146.00	396.600	3078.900	61.00	350.0	14.28	2.60				IMC SAP #1,2,3 BASELINE
350	189.00	396.600	3078.900	61.00	350.0	15.31	2.60				IMC SAP #1,2,3 (3 AT 3000 TPD)
360	126.00	396.600	3078.900	60.70	350.0	15.31	2.60				IMC SAP #4,5 (2 AT 3000 TPD)
370	5.54	396.600	3078.900	36.60	319.1	20.15	1.83				IMC DAP
380	5.04	385.600	3139.000	30.48	384.3	17.13	3.35	15.5	39.9	39.9	PASCO CO. COGEN. FACLITY PROPOSED
390	5.04	434.000	3198.800	30.48	384.3	17.13	3.35	15.5	39.9	39.9	LAKE CO. COGEN. FACILITY PROPOSED
400	-60.90	408.500	3082.500	30.49	350.0	12.20	1.37				CF BARTOW H2SO4 1 (400 TPD)
410	-110.25	408.500	3082.500	30.49	350.0	10.37	1.68				CF BARTOW H2SO4 2 (500 TPD)
420	-107.10	408.500	3082.500	30.49	364.0	4.27	2.74				CF BARTOW H2SO4 3 (600 TPD)
430	-174.83	408.500	3082.500	30.49	358.0	7.93	2.13				CF BARTOW H2SO4 4 (900 TPD)
440	-226.80	408.500	3082.500	63.41	358.0	10.67	2.13				CF BARTOW H2SO4 5 (900 TPD)
450	-170.10	408.500	3082.500	63.41	359.0	10.37	2.13				CF BARTOW H2SO4 6 (900 TPD)
460	42.00	408.500	3082.500	67.10	351.0	9.80	2.40				CF BARTOW H2SO4 7 (2000 TPD)
470	50.40	408.500	3082.500	63.41	361.0	10.88	2.13				CF BARTOW H2SO4 5 (2400 TPD)
480	50.40	408.500	3082.500	63.41	370.0	7.28	2.13				CF BARTOW H2SO4 6 (2400 TPD)
490	4.30	408.500	3082.500	9.10	450.0	22.50	0.70				CF BARTOW DAP
500	21.02	361.800	3088.300	30.00	375.0	20.00	0.61				CLM CHL
510	-54.60	398.400	3084.200	30.50	308.0	18.90	1.80				CONSERVE (2 @ 1300 TPD & 4 LB/TON)
520	42.00	398.400	3084.200	45.70	352.0	10.30	2.30				CONSERVE (2000 TPD @ 4 LB/TON)
530	-3.88	398.400	3084.200	24.40	339.0	12.90	1.52				CONSERVE ROCK DRYER
540	-83.98	409.500	3079.500	30.48	311.0	20.18	1.37				FARMLAND 1,2 H2SO4
550	67.16	409.500	3079.500	30.48	355.0	9.27	2.29				FARMALND 3,4 H2SO4

560	41.96	409.500	3079.500	45.72	355.0	9.65	2.44	FARMLAND 5 H2SO4
570	0.00	389.550	3067.930	38.10	339.0	10.13	2.90	IMC LONESOME MINE DRY 1 (SHUTDOWN 5/26/88)
580	0.00	389.550	3067.930	38.10	346.0	18.40	2.44	IMC LONESOME MINE DRY 2 (SHUTDOWN 5/26/88)
590	-152.71	406.700	3085.200	51.00	356.0	9.90	2.13	ROYSTER (1003 TPD @ 29 LB/TON)
.00	35.70	406.700	3085.200	61.00	360.0	12.20	2.13	ROYSTER (1700 TPD @ 4 LB/TON)
610	63.00	416.120	3068.620	53.40	355.0	15.91	2.59	USSAC FT MEADE H2SO4 1
620	63.00	416.120	3068.620	53.40	355.0	15.91	2.59	USSAC FT MEADE H2SO4 2
630	-78.80	416.210	3068.740	29.00	314.0	6.77	3.02	USSAC FT MEADE H2SO4 (1500 TPD @ 10 LB/TON)
640	-15.79	416.000	3069.000	25.60	332.0	16.26	1.52	USSAC FT MEADE ROCK DRYER
650	-18.27	416.000	3069.000	28.35	330.0	17.60	1.52	USSAC FT MEADE GTSP
660	-108.00	409.770	3086.990	45.72	352.0	16.50	1.37	W.R. GRACE/SEMINOLE SAP #1
670	-108.00	409.770	3086.990	45.72	352.0	16.50	1.37	W.R. GRACE/SEMINOLE SAP #2
680	-52.50	409.770	3086.990	45.72	311.0	16.70	1.52	W.R. GRACE/SEMINOLE SAP #3
690	42.87	409.770	3086.990	45.72	311.0	16.70	1.52	W.R. GRACE/SEMINOLE SAP #3
700	40.32	409.770	3086.990	60.96	347.0	25.10	1.52	W.R. GRACE/SEMINOLE SAP #4
710	40.32	409.770	3086.990	60.96	347.0	25.10	1.52	W.R. GRACE/SEMINOLE SAP #5
720	40.32	409.770	3086.990	60.96	347.0	25.10	1.52	W.R. GRACE/SEMINOLE SAP #6
730	-39.41	409.770	3086.990	15.24	327.0	17.32	2.04	W.R. GRACE/SEMINOLE DRYER
740	52.50	363.400	3082.400	45.72	355.0	8.63	2.44	GARDINIER/CARGILL SAP #8
750	46.20	363.400	3082.400	45.72	355.0	9.20	2.29	GARDINIER/CARGILL SAP #7
760	-28.89	363.400	3082.400	20.73	310.0	13.12	1.07	GARDINIER/CARGILL DRYER
770	54.60	363.400	3082.400	45.72	344.0	12.50	2.74	GARDINIER/CARGILL SAP #9
780	-196.30	363.400	3082.400	22.60	322.0	19.51	1.52	GARDINIER/CARGILL SAP #4,5,6
790	-50.71	363.400	3082.400	45.72	355.0	9.20	2.29	GARDINIER/CARGILL SAP #7
800	0.60	394.800	3067.720	8.20	505.0	7.57	0.41	MOBIL BIG-4 BOILER
810	1.90	394.850	3069.770	30.50	334.0	7.26	1.82	MOBIL BIG-4 DRYER
820	2.44	398.290	3084.290	25.90	339.0	15.20	2.29	MOBIL NICHOLS #4 DRYER
830	2.99	382.200	3166.100	9.14	478.0	4.57	0.61	FDOC BOILER #3
840	0.82	386.700	3155.800	10.67	327.0	8.99	1.83	ER JAHNA (LIME DRYER)
850	2.09	359.800	3164.900	7.62	347.0	6.29	1.83	OMAN CONST (ASPHALT)
860	0.23	340.600	3119.200	12.20	339.0	6.47	3.05	DRIS PAVING (ASPHALT)
870	3.67	355.900	3143.700	9.14	408.0	16.00	1.30	OVERSTREET PAV. (ASPHALT)
880	0.06	331.200	3124.500	10.98	544.0	3.88	0.31	NEW PORT RICHEY HOSP BLR#1
890	0.03	331.200	3124.500	10.98	544.0	3.88	0.31	NEW PORT RICHEY HOSP BLR#2
900	0.08	333.400	3141.000	10.98	533.0	4.00	0.31	HOSP CORP OF AM BOILER #1
910	0.08	333.400	3141.000	10.98	533.0	4.00	0.31	HOSP CORP OF AM BOILER #2
920	7.25	340.700	3119.500	9.14	436.0	22.30	1.40	COUCH CONST-ODESSA (ASPHALT)
930	3.54	390.300	3129.400	6.10	422.0	21.00	1.38	COUCH CONST-ZEPHYRHILLS (ASPHALT)
940	-75.60	407.500	3071.300	45.73	350.0	26.40	1.60	AGRICO H2SO4 (2 @1800 TPD)
950	113.50	407.500	3071.300	45.73	350.0	39.06	1.60	AGRICO H2SO4 (2 @ 2700 TPD)
960	-24.32	404.100	3078.950	24.38	339.0	12.94	1.52	AGRICO PIERCE DRYERS 1,2
970	-23.00	404.100	3078.950	24.38	339.0	18.82	2.43	AGRICO PIERCE DRYERS 3,4
980	-5.29	414.500	3109.000	17.07	333.0	8.26	2.34	BORDEN DRYER
990	-6.48	394.800	3069.600	30.48	344.0	14.79	1.82	BORDEN DRYER
1000	-4.52	404.813	3069.548	27.43	494.1	7.25	0.61	DOLIME BOILER
1010	-5.68	404.813	3069.548	27.43	333.0	20.67	1.52	DOLIME DRYER
1020	-92.87	411.500	3074.200	30.79	358.0	3.90	2.13	ESTECH/SWIFT SAP (610 TPD & 29 LB/TON)
1030	-23.94	411.500	3074.200	18.29	339.0	8.47	2.95	ESTECH/SWIFT DRYER
1040	-22.80	411.500	3074.200	18.75	340.0	5.06	2.95	ESTECH/SWIFT DRYER
1050	-41.90	413.200	3086.300	28.96	305.0	7.50	2.12	USS AGRI-CHEM BARTOW SAP (800 TPD & 10 LB/TON)
1060	-4.99	413.200	3086.300	15.80	332.0	10.01	1.83	USS AGRI-CHEM BARTOW DRYER
1070	-62.99	358.000	3090.600	35.97	505.2	17.61	2.74	GEN. PORT. CEMENT KILN 4
1080	-69.30	358.000	3090.600	45.42	494.1	5.80	3.81	GEN. PORT. CEMENT KILN 5
1090	-6.53	405.600	3079.400	7.32	464.0	3.23	0.91	ELECTROPHOS 400HP BOILER
1100	-10.00	405.600	3079.400	6.10	464.0	7.71	0.91	ELECTROPHOS 600HP BOILER
1110	-20.90	405.600	3079.400	18.29	350.0	6.79	1.83	ELECTROPHOS ROCK DRYER
1120	-2.97	405.600	3079.400	18.29	322.0	22.87	0.70	ELECTROPHOS COKE DRYER
1130	-7.11	405.600	3079.400	25.61	306.0	6.97	2.13	ELECTROPHOS CALCINER
1140	-47.25	405.600	3079.400	29.27	314.0	8.52	2.13	ELECTROPHOS FURNACE (31.25 TPH ROCK @ 0.3% S)
1150	-19.60	404.800	3069.500	27.44	339.0	15.25	2.29	BREWSTER/IMPERIAL DRYER

PRADEEP:

SEMINOLE FERTILIZER PSD PERMIT

1. Please verify negative emission rates for Sources: 400 thru 430
   730
   960 thru 1150

   and the reduced emission rates for 440 and 450

2. Please verify that the permits have been surrendered or will be surrendered for the following sources:

   640, ~~650~~

   ~~960~~, ~~970~~

   730 — N Gas only used.

   ~~1030~~, ~~1040~~

- 400 -
- 410
- 420
- 430
- 440
- 450
- 640
- 650
- 730
- 960
- 970
- 980
- 990
- 1000
- 1010
- 1020
- 1030
- 1040 - 1100
- 1050 - 1110
- 1060 - 1120
- 1070 - 1130
- 1080 - 1140
- 1090 - 1150

These source numbers refer to letter to Tom Rogers / Cleve. Holladay from John B. Koogler dated May 4, 1992 with subject of PSD Sulfur Dioxide Increment Consuming / Expanding Sources in West Central Florida

3. Also I need a copy of the inventory developed by Walk, Haydel & Associates (WHA 1034)

PREVENTION OF SIGNIFICANT DETERIORATION REVIEW APPLICATION

AND

APPLICATION TO CONSTRUCT

PROPOSED SULFURIC ACID PLANT POLK COUNTY, FLORIDA

CONSERV
NICHOLS, FLORIDA

VOLUME I

W.H.&A. Job No. 2771
April 1981

WALK, HAYDEL & ASSOCIATES, INC.
ENGINEERS
NEW ORLEANS - MOBILE - BATON ROUGE

2) these angles were then used to obtain worst case days (high and second high) for major sectors in the desired directions for each year,

3) worst case days for each year for a particular case were then tabulated,

4) the critical direction (chosen by selecting the source complex closest to Conserv with the largest emissions output) in the interval of angles for a case was selected,

5) this critical angle was then used to compare the highest and second high concentrations for each of the five years of data - the higest concentration indicated the worst case meteorology for this direction out of the five years of data. This year of data and its high and second high days for all necessary angles was then selected for input to the ISC program.

8.3 Emissions Inventory

An inventory of emissions for all SO_2 sources (phosphate and non-phosphate) was compiled from records in the Tampa office of the Florida DER. Sources within 50 kilometers of Conserv were included in the inventory, and particularly large sources outside of 50 kilometers were included (e.g., Florida Power, Bartow plant).

The final inventory, Table 2 Appendix A, consists of sources whose emissions approached or exceeded a rate of 5.0 grams/second for sources greater than approximately 15 kilometers in distance from Conserv. For facilities that were close to Conserv (Mobil , Kaiser) all documented sources of SO_2 were included.

8.4 PSD Regulations

For the purpose of modeling (inclusion or exclusion of sources for a particular case), Federal PSD rules were followed per instructions of

TABLE 2
SOURCES AND PARAMETERS USED IN DISPERSION MODELING

	Name	I.D.	Emission Rate (g/s)	UTM Coordinates East	UTM Coordinates North	Height (m)	Temp. (°F)	Exit Velocity	Diameter (m)
1)	AGRICO CHEM.								
	a) Sulfuric Acid #10	01010	37.8	407.9	3071.0	45.72	360.	8.71	1.58
	b) SAP #11	01020	37.8	407.9	3071.0	45.72	57.	10.21	1.58
	c) R. Dryer 1	01030	11.09	407.9	3071.0	24.38	339.	12.94	1.52
	d) Dryers 3 & 4	01040	17.47	407.9	3071.0	24.38	339.	17.92	2.9
	e) SAP (New)	01050	42.0	407.6	3071.3	45.72	350.	9.54	2.9
	f) DAP (New)	01060	12.41	407.6	3071.3	38.1	327.	14.55	3.05
2)	BORDEN								
	a) Ph. Rock Dryer	02010	5.29	414.5	3109.0	17.07	333.	8.26	2.34
	b) Ph. Rock Dryer	02020	6.48	394.8	3069.6	30.48	344.	14.79	1.82
3)	C.F. CHEMICALS								
	a) SPA Plt. 1	03010	4.31	408.198	3082.678	9.14	355.	15.78	.433
	b) SAP No. 7	03020	41.99	408.198	3082.678	61.57	350.8	9.77	2.44
	c) SAP No. 2	03030	-110.6	408.198	3082.678	30.48	350.	4.6	1.68
	d) SAP No. 1	03040	114.66	408.198	3082.678	30.48	347.	7.27	1.68
	e) SAP No. 6	03050	25.19	408.198	3082.678	63.4	370.	7.28	2.13
	f) SAP No. 3	03060	42.0	408.198	3082.678	34.31	305.	18.9	1.24
	g) SAP No. 4	03070	55.18	408.198	3082.678	30.48	308.	20.2	1.22

TABLE 2
Continued

	h) SAP No. 5	03080	63.0	408.198	3082.678	63.4	361.	10.88	2.13
4)	DOLIME								
	a) Boiler	04010	4.52	404.813	3069.548	27.43	494.1	7.25	.61
	b) Dryer	04020	5.68	404.813	3069.548	27.43	333.	20.67	1.52
5)	ELECTROPHOS								
	a) Calciner	05010	6.24	405.6	3079.4	25.6	322.	8.01	2.13
6)	FARMLAND INDUSTRIES								
	a) SAP No. 4	06010	57.74	409.5	3079.5	30.48	305.	23.9	1.37
	b) SAP No. 2	06020	41.99	409.5	3079.5	30.48	311.	22.3	1.37
	c) SAP No. 1	06030	41.99	409.5	3079.5	30.48	311.	19.9	1.37
	d) SAP No. 3	06040	63.0	409.5	3079.5	30.48	301.	24.1	1.37
	e) Boiler	06050	4.58	409.5	3079.5	14.17	444.	12.66	1.22
7)	GARDINIER								
	a) R.Dryer	07010	17.6	415.3	3063.3	19.2	344.	8.96	2.89
	b) SAP No. 8	07020	91.87	363.4	3082.4	45.72	355.	8.63	2.44
	c) GTSP	07030	9.6	363.4	3082.4	38.4	328.	11.56	2.44
	d) SAP No. 7	07040	36.75	363.4	3082.4	45.72	355.	9.20	2.29
	e) Dryer	07050	28.89	363.4	3082.4	20.73	310.	13.12	1.07
	f) Boiler	07060	10.08	363.4	3082.4	18.29	589.	6.99	2.54
	g) Ph.A. Conc	07070	7.56	363.4	3082.4	23.77	345.	6.19	1.83
	h) No. 7 PAC	07080	6.56	363.4	3082.4	23.77	343.	6.8	1.83
	i) No. 8 PAC	07090	6.35	363.4	3082.4	23.77	343.	6.8	1.83
	j) SAP No.9	07100	54.6	363.4	3082.4	45.72	344.	12.5	2.74
	k) SAP 4,5,6	07110	-196.3	363.4	3082.4	22.6	322.	19.51	1.52
	l) SAP No. 7	07041	-50.71	363.4	3082.4	45.72	355.	9.2	2.29
	m) DAP P24	07120	4.29	363.4	3082.4	60.39	320	13.38	2.13

TABLE 2
Continued

10) KAISER								
a) Dryer	10010	1.23	401.5	3086.5	18.29	333.	11.9	.27
b) Dryer	10020	1.41	401.5	3086.5	21.34	311.	28.4	.46
11) MOBIL								
a) Calciner	11010	13.48	398.0	3085.3	30.48	366.	18.0	1.37
b) No. 3 Dryer	11020	7.35	398.0	3085.3	30.48	355.	7.74	1.46
c) No. 2 Dryer	11030	19.78	398.0	3085.3	25.9	346.	8.75	2.29
d) No. 1 Dryer	11040	15.9	398.0	3085.3	25.9	346.	12.86	2.29
e) No. 4 Dryer	11050	2.44	398.29	3084.29	25.9	339	16.05	2.29
12) ROYSTER								
a) SAP 1	12010	63.5	406.7	3085.2	60.96	366.	9.93	2.13
b) SAP 1	12011	-257.25	406.7	3085.2	60.96	366.	9.93	2.13
c) DAP Plt	12020	4.01	406.7	3085.2	31.09	316.	10.58	2.68
13) SWIFT-AGRI CHEM.								
a) SAP 1	13010	32.2	411.5	3074.2	30.79	358.	3.9	2.13
b) Dryer	13020	18.1	411.5	3074.2	18.29	339.	8.47	2.95
c) Dryer	13030	33.4	411.5	3074.2	18.75	340.	5.06	2.95
14) USS AGRI-CHEM.								
a) SAP 1	14010	41.9	413.2	3086.3	28.96	305.	7.5	2.12
b) R. Dryer	14020	3.41	413.2	3086.3	15.8	332.	10.01	1.83
c) DAP Plt	14030	3.93	413.2	3086.3	40.54	305.	12.69	2.13
d) R. Dryer	14040	9.20	416.0	3069.0	25.6	332.	16.26	1.52
e) R. Dryer	14050	9.20	416.0	3069.0	25.6	332.	16.26	1.52
f) GTSP	14060	28.35	416.0	3069.0	28.35	330.	17.6	1.52
g) SAP 2	14070	-73.5	416.0	3069.0	60.96	304	6.5	30.5
h) New SAP	14080	92.40	416.0	3069.0	53.34	355	9.4	2.59

TABLE 2
Continued

20) CAMDEN GRAIN								
a) Furnace	20010	29.8	360.2	3102.5	30.18	344.	18.62	.66
b) Furance	20020	10.48	360.2	3102.5	30.18	344.	18.1	.66
21) CHLORIDE METALS								
a) Furnace	21010	12.98	361.8	3088.3	30.17	397.4	22.86	.61
b) Furnace	21020	8.04	361.8	3088.3	29.87	354.	17.2	.61
22) CONCRETE PRODUCTS								
a) Boiler	22010	5.9	362.8	3097.9	9.14	455.	5.39	.406
23) DELMONTE	23010	4.22	359.6	3093.05	11.89	494.1	3.0	1.36
24) GEN. PORT. CEMENT								
a) Kiln No. 6	24010	100.8	358.0	3090.6	44.35	473.	6.6	4.72
b) Kiln No. 4	24020	62.99	358.0	3090.6	35.97	505.2	17.61	2.74
c) Kiln No. 5	24030	69.3	358.0	3090.6	45.42	494.1	5.8	3.81
25) GULF COAST LEAD								
a) Furance	25010	22.0	363.9	3093.85	30.48	350.	22.4	.61
26) MACASPHALT								
a) Heater	26010	17.83	363.5	3066.8	7.62	408.	15.06	1.52
b) Plant	26020	11.05	423.13	3101.53	12.19	327.	2.26	3.05
27) FLORIDA POWER & LIGHT								
a) Station 1	27010	732.9	367.1	3053.8	152.1	425.	20.67	7.925
b) Station 2	27020	732.9	367.1	3053.8	152.1	425.	20.67	7.925
28) ADAMS PACKING								
a) Dryer	28010	2.89	421.70	3104.2	28.04	347.	22.93	1.43

emission limitations on the basis of all similar units at a plant is recommended in order to avoid unequal application of this type of limitation to plants with the same total emission potential but different size units. Upon establishing the total mass limitation, individual source emissions will be determined by prorating the mass emission total on the basis of the percentage weight input to each source process.

(3) Fugitive Particulate – No person shall cause, let, permit, suffer or allow the emissions of 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, except particulate matter emitted in accordance with the weight process table (Table I), the visible emissions standards or specific source limiting standards specified in this chapter.

(4) Objectionable Odor Prohibited – No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor.

(5) Volatile organic compounds emissions or organic solvents emissions.

(a) No person shall 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 deemed necessary and ordered by the Department.

(b) All persons shall use reasonable care to avoid discharging, leaking, spilling, seeping, pouring, or dumping volatile organic compounds or organic solvents.

(6) Stationary sources – No person shall cause, let, permit, suffer, or allow to be discharged into the atmosphere emission from the following listed sources greater than any emission limiting standard given.

(a) Incinerators

1. The emission limiting standards for new incinerators with a charging rate of fifty or more tons per day are:

a. Particulate matter – 0.08 grains per standard cubic foot dry gas corrected to 50 percent excess air.

b. Odor – there shall be no objectionable odor.

2. The emission limiting standards for new incinerators with a charging rate of less than fifty tons per day are:

a. Visible emissions – no visible emissions except, visible emissions are allowable for up to three minutes in any hour at densities up to but not more than, a density of Ringelmann Number 1. (Opacity of 20 percent)

b. Odor – there shall be no objectionable odor.

3. As soon as possible, but not later than July 1, 1975, existing incinerators shall comply with the standards for new incinerators except that the particulate matter emission limiting standard for existing incinerators with a charging rate of fifty or more tons per day shall be 0.1 grains per standard cubic foot of dry gas corrected to 50 percent excess air.

(b) Sulfuric Acid Plants – the emission limiting standards for sulfuric acid plants are:

1. Existing Plants.

a. Sulfur dioxide (SO_2) – ten pounds of SO_2 per ton of 100 percent H_2SO_4 produced, as expeditiously as possible but not later than July 1, 1975; in the Florida portion of the Jacksonville, Florida – Brunswick, Georgia, Interstate Air Quality Control Region as defined in 40 C.F.R. Section 81.91, twenty-nine pounds of SO_2 per ton of 100 percent H_2SO_4 produced as expeditiously as possible but not later than July 1, 1975.

b. A plume with visibility of no greater than 10 percent opacity.

2. New Plants

a. Sulfur dioxide – four pounds of SO_2 per ton of 100 percent H_2SO_4 produced.

b. Acid Mist – 0.15 pounds per ton of 100 percent acid produced.

c. A plume with visibility of no greater than 10 percent opacity.

(c) Phosphate Processing – the emission limiting standards for phosphate processing are:

1. Fluorides (water soluble or gaseous-atomic weight 19) the following quantities expressed as pounds of fluoride per ton of phosphatic materials input to the system, expressed as tons of P_2O_5 for:

a. New plants or plant sections:

a 1. Wet process phosphoric acid production, and auxiliary equipment – 0.02 pounds of F per ton of P_2O_5.

a 2. Run of pile triple super phosphate mixing belt and den and auxiliary equipment – 0.05 pounds of F per ton of P_2O_5.

a 3. Run of pile triple super phosphate curing or storage process and auxiliary equipment – 0.12 pounds of F per ton of P_2O_5.

a 4. Granular triple super phosphate production and auxiliary equipment.

i. Granular triple super phosphate made by granulating run-of-pile triple super phosphate 0.06 pounds of F per ton of P_2O_5.

ii. Granular triple super phosphate made from phosphoric acid and phosphate rock slurry – 0.15 pounds of F per ton of P_2O_5.

a 5. Granular triple super phosphate storage and auxiliary equipment – 0.05 pounds of F per ton of P_2O_5.

a 6. Di ammonium phosphate production and auxiliary equipment – 0.06 pounds of F per ton of P_2O_5.

a 7. Calcining or other thermal phosphate rock processing and auxiliary equipment excepting phosphate rock drying and defluorinating – 0.05 pounds of F per ton of P_2O_5.

a 8. Defluorinating phosphate rock by thermal processing and auxiliary equipment – 0.37 pounds of F per ton of P_2O_5.

a 9. All plants, plant sections or unit operations and auxiliary equipment not listed in a.1 to a.8 will comply with best technology pursuant to Section 2.03(1) of this rule.

b. Existing plants or plant sections. Emissions shall comply with above section, 17-2.04(6)(c) 1.a., for existing plants as expeditiously as possible but not later than July 1, 1975 or

b 1. Where a plant complex exists with an operating wet process phosphoric acid section (including any items 17-2.04(6) 1., a., a.1. through a. 6. above) and other plant sections processing or handling phosphoric acid or products or phosphoric acid processing, the total emission of the entire complex may not exceed 0.4 pounds of F

FER file - 1987

TABLE 5-1

AIR POLLUTION SOURCES INCLUDED IN AIR QUALITY MODELING

CENTRAL PHOSPHATES, INC.
HILLSBOROUGH COUNTY, FLORIDA

Description			ID	SO2 (g/s)	X-Coord (km)	Y-Coord (km)	Ht. (m)	Temp. (°K)	Vel. (m/s)	Dia. (m)
CPI	C	H2SO4 (Exist)	623	37.80	388.155	3116.034	60.52	352.0	13.00	2.44
CPI	D	H2SO4 (Exist)	624	37.80	388.211	3116.047	60.52	352.0	13.00	2.44
CPI	A	H2SO4 (Exist)	611	-52.50	388.076	3116.011	18.75	316.0	18.75	1.52
CPI	B	H2SO4 (Exist)	612	-52.50	388.085	3115.976	18.75	316.0	18.75	1.52
CPI	A	H2SO4 (Prop)	621	35.83	388.076	3116.011	27.44	316.0	19.69	1.52
CPI	B	H2SO4 (Prop)	622	35.83	388.085	3115.976	27.44	316.0	19.69	1.52
CPI	C	H2SO4 (Exist)	633	-37.80	388.155	3116.034	60.52	352.0	13.00	2.44
CPI	D	H2SO4 (Exist)	634	-37.80	388.211	3116.047	60.52	352.0	13.00	2.44
CPI	C	H2SO4 (Prop)	643	50.40	388.155	3116.034	60.52	352.0	16.40	2.44
CPI	D	H2SO4 (Prop)	644	50.40	388.211	3116.047	60.52	352.0	16.40	2.44
AGRICO	DAP		301	7.36	407.380	3071.700	38.10	328.0	14.60	3.10
AGRICO	#12 H2SO4		302	42.00	407.580	3071.340	45.70	350.0	9.50	2.90
AMAX	Big 4 - Rock Dryer		402	16.35	394.850	3069.770	30.50	334.0	7.26	1.82
BPI	Brewster (Composite)		501	13.40	389.500	3068.000	38.10	339.0	15.20	2.44
CF.Bartow	Ret. H2SO4		601	-110.60	408.500	3083.000	30.50	350.0	4.60	1.68
CF.Bartow	DAP		602	4.30	408.500	3083.000	9.10	450.0	22.50	0.70
CF.Bartow	#7 H2SO4		603	52.90	408.500	3083.000	67.10	351.0	9.80	2.40
CLM	Chloride Metals		701	21.02	361.800	3088.300	30.00	375.0	20.00	0.61
CONSERVE	Conserve		801	-15.20	398.400	3084.200	30.50	308.0	18.90	1.80
CONSERVE	Conserve		802	42.00	398.400	3084.200	45.70	352.0	10.30	2.30
EVANS	Dryer		1101	9.37	383.300	3135.800	25.90	346.0	17.30	1.00
FARMLAND	2 53 26 Farmland		1201	2.30	409.500	3079.500	14.00	444.0	12.70	1.20
FCS	Kiln and Power Plant		1301	98.41	360.008	3162.392	91.50	389.0	14.66	4.88
FPC	Crystal River		1401	2017.60	334.400	3204.510	182.90	398.0	27.40	6.90
FPC	Crystal River		1402	-2173.00	334.400	3204.510	152.40	420.0	45.60	4.60
FPC	Higgins Peak		1414	-121.84	336.500	3098.300	16.80	727.0	61.00	4.60
FPL	FPL Manatee (Comp)		1501	824.82	367.100	3053.800	152.10	425.0	14.90	7.90
GARDINIE	7/8 H2SO4		1602	5.81	363.200	3082.300	45.60	339.0	12.20	2.35
IMC	IMC Noralyn		1901	30.64	414.700	3080.300	13.70	330.0	40.40	1.22
LAKELAND	Lakeland Utilities		2001	393.60	408.500	3105.800	76.20	354.0	19.70	4.90
LAKELAND	Lakeland Utilities		2002	21.20	408.500	3105.800	47.70	389.0	11.70	3.10
MOBIL	Mobil		2201	2.40	398.000	3085.300	25.90	339.0	16.00	2.30
NEWWALES	#4 H2SO4		2301	63.00	396.560	3078.640	60.70	349.7	15.55	2.60
NEWWALES	AFI		2302	3.78	396.750	3079.350	52.40	321.9	13.00	2.40
NEWWALES	MULTIPHOS		2303	5.36	396.830	3079.430	52.40	319.1	7.10	2.40
NEWWALES	#2 DAP		2304	5.54	396.450	3079.150	36.60	319.1	20.80	1.80
NEWWALES	#5 H2SO4		2305	63.00	396.490	3078.640	60.70	349.7	15.55	2.60
NEWWALES	Rock Dryer		2306	-34.27	396.680	3078.860	21.04	347.0	18.56	2.13
NEWWALES	#1-3 H2SO4 Exist		2316	-146.00	396.530	3078.750	61.00	350.2	11.14	2.50
NEWWALES	#1-3 H2SO4 Mod		2318	189.00	396.530	3078.750	61.00	350.2	16.71	2.50

Florida Department of Environmental Regulation
Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347 • 813-623-5561
Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary
Dr. Richard Garrity, Deputy Assistant Secretary

PERMITTEE:
Seminole Fertilizer Corporation
Bartow Plant
Post Office Box 471
Bartow, Florida 33830

PERMIT/CERTIFICATION
Permit No.: A053-176564
County: Polk
Expiration Date: 04-23-95
Project: Two Phosphate Rock Dryers

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 17-4. 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 two phosphate rock dryers, one rotary and one fluid bed. The dryers are fired on natural gas or fuel oil with a maximum of 2.4% sulfur. Particulate emissions are controlled by a series of dry cyclones for each dryer followed by one wet impingement scrubber for the fluid bed dryer and two wet impingement scrubbers for the rotary dryer. The exhaust from the wet scrubbers of each dryer is vented to a two unit MikroPul Division "Elekrofil" Wet Electrostatic Precipitator equipped with two stacks, R-1 (east), and R-2 (west).

Location: 3/4 mile north of State Road 60, 4 miles west of Bartow, Polk County

UTM: 17-409.8 E 3086.8 N Neds No.: 0046 Point ID:
R-1 - 31
R-2 - 39

Replaces Permit No.: A053-99819

PERMITTEE:
Seminole Fertilizer Corporation
P.O. Box 471
Bartow, FL 33830

PERMIT/CERTIFICATION
Permit No: AO53-176431
County: Polk
Expiration Date: 04/11/93
Project: Sulfuric Acid Plant #3

SPECIFIC CONDITIONS:

1. A part of this permit is the attached 15 General Conditions.

2. Visible Emissions shall not exceed 10% opacity.
[Rule 17-2.600(2)(a)2.a., F.A.C.].

3. Sulfur Dioxide emissions shall not exceed the lesser of
A. 10 pounds per ton of 100% acid produced, or
B. 460 pounds per hour.
[Rule 17-2.600(2)(a)2.b., F.A.C.].

During any time that Sulfuric Acid Plant #4, #5, or #6 exceeds a production rate of 70 tons per hour of 100% H_2SO_4, the sulfur dioxide emissions from Sulfuric Acid Plant #3 shall not exceed the lesser of
C. 7.4 pounds per ton of 100% acid produced, or
D. 340 pounds per hour.
[Reference previous permit and 1985 correspondence].

4. Acid Mist emissions shall not exceed the lesser of
A. 0.3 pounds per ton of 100% acid produced, or
B. 13.8 pounds per hour.
[Rule 17-2.600(2)(a)2.c., F.A.C.].

5. The maximum permitted production rate is 46 tons per hour of 100% H_2SO_4.

6. Test the emissions for the following pollutant(s) within 30 days of startup, and annually thereafter, and submit a copy of the test data to the Air Section of the Southwest District Office of the Department within 45 days of such testing [Rule 17-2.700(2), F.A.C.]:

(X) Opacity
(X) Sulfur Dioxide
(X) Acid Mist

7. Testing of emissions must be accomplished within ±10% of the permitted maximum production rate of 46 tons per hour of 100% H_2SO_4. The actual production rate shall be specified in each test result. A compliance test submitted at a production rate less than 90% of the permitted maximum production rate will automatically constitute an amended permit at the lesser rate until another test showing compliance at a higher rate is submitted. Failure to submit the actual production rate and actual operating conditions may invalidate the test data and fail to provide reasonable assurance of compliance. [Rule 17-4.070(3), F.A.C.].

Mobil Mining and Minerals Company

P.O. BOX 311
NICHOLS, FLORIDA 33863-0311
TELEPHONE (813) 425-6200

CERTIFIED MAIL #P-426-330-819
RETURN RECEIPT REQUESTED

May 4, 1992

Mr. Scott Sheplak
Florida Department of Environmental Regulation
4520 Oak Fair Blvd.
Tampa, FL 33610-7347

Re: Non-Renewal of Air Emission Sources for Mobil Nichols Preparation Complex

Dear Mr. Sheplak:

Below is a list of the sources which Mobil will no longer use at Mobil's Nichols complex. They are or will be dismantled.

The sources which will not be renewed are outlined below:

(1) Raymond Mills 1 and 2	AO-53-136223 ✓
(2) Raymond Mills 3 and 4	AO-53-136224 ✓
(3) Calciner Heat Recovery	AO-53-149844 ✓
(4) Bin 35-A Baghouse *	AO-53-162166
(5) Calciner	AO-53-136222 ✓
(6) 75 HP Titusville Boiler	AO-53-117006 ✓

-13.899/s
see attached

* The 35-A bin permit will be allowed to lapse as that bin is being incorporated into the Dry Rock Storage Building dust control system through a construction permit modification.

If you have any questions, please advise.

75 HP × (3.352 × 10⁴) BTU/HP
× 1/18300 BTU/lb
× (0.025 × 2) lb SO₂/lb
× 0.126
= 0.869 g/s

Sincerely,

T. L. Snyder

T. L. Snyder,
Environmental Engineer

mal/AIR-EMIS
encl.

A053-57099
PAID JUN 1 8 1982

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

D.E.R.

JUN 18 1982
SOUTHWEST DISTRICT
TAMPA

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Phosphate Rock Calciner [ ] New[1] [ ] Existing[1]

APPLICATION TYPE: [ ] Construction [X] Operation [ ] Modification

COMPANY NAME: Mobil Chemical Company COUNTY: Polk

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) No. 6 oil/natural gas fired, phosphate rock calciner with Venturi scrubber

SOURCE LOCATION: Street Highway 676 City Nichols, FL 33863

UTM: East 17-398.4 North 3085.3

Latitude ____ ° ____ ' ____ "N Longitude ____ ° ____ ' ____ "W

APPLICANT NAME AND TITLE: K. D. Fetrow, Manager of Manufacturing

APPLICANT ADDRESS: P. O. Box 311, Nichols, Florida 33863

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of MOBIL CHEMICAL COMPANY

I certify that the statements made in this application for a Operating - Renewal permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: R. E. Schultz for
K.D. Fetrow, Manager of Manufacturing
Name and Title (Please Type)

Date: 6/18/82 Telephone No. (813) 425-3011

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed: Robert W. McMaster
Robert W. McMaster
Name (Please Type)

(Affix Seal)

Mobil Chemical Company
Company Name (Please Type)

P. O. Box 311, Nichols, Florida 33863
Mailing Address (Please Type)

Florida Registration No. 17260 Date: 5/14/82 Telephone No. (813) 425-3011

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

MOBIL CHEMICAL COMPANY

PHOSPHATE ROCK CALCINER

PROCESS INPUT RATE:

Production from the Calciner is weighed by belt scales as it passes to storage. The output tons are approximately equal to input tons (Neglecting loss of weight in calcining and dusting).

EFFICIENCY ESTIMATION:

PARTICULATE: Past data shows what average particulate loading to the scrubber is 0.26 grains per ACFM.

$$\text{INLET} = \frac{0.26 \times 38.119 \times 60}{7000} = 85 \text{ lbs./hr.}$$

OUTLET = 10.68 lbs./hr.

$$\text{EFFICIENCY} = 100 \times \frac{85.0 - 10.63}{85.} = 87.5 \%$$

FLUORINE: Past data shows that average fluorine loading to the scrubber is 0.056 grains per ACFM

$$\text{INLET} = \frac{0.056 \times 38.119 \times 60}{7000} = 18.3 \text{ lbs./hr.}$$

OUTLET = 0.203 lbs./hr.

$$\text{EFFICIENCY} = 100 \times \frac{18.3 - 0.203}{18.3} = 98.9 \%$$

SO_2:

on oil

$$\text{INLET} = 0.025 \times 4000 \times \frac{64}{32} = 200 \text{ lbs./hr.}$$

OUTLET = 110.2 lbs./hr.

$$\text{EFFICIENCY} = 100 \times \frac{200 - 110.2}{200} = 44.9 \%$$

September 24, 1980

USS Agri-Chemicals
Post Office Box 150
Bartow, Florida 33830

Attention: Mr. Basil Powell

Re: Evaluation of Ambient
Sulfur Dioxide Concentrations
Attributable to All
USSAC Emission Sources
After Proposed Modifications
Are Completed

Gentlemen:

As requested by the Florida Department of Environmental Regulation, attached is a modeling evaluation of ambient sulufur dioxide concentrations resulting from simultaneous operation of the propoed new sulfuric acid plant and existing emission sources. Concentrations predicted are shown in comparison with applicable ambient air quality standards.

Please call if there are any questions regarding this report.

Yours very truly,

DAMES & MOORE

James W. Little

James W. Little
Senior Air Quality Analyst

JWL:ht

125.3 lb/h. Therefore, approximately 31 percent of the original sulfur present in the fuel was removed.

The rock drying rate during the test was 235 ton/h compared to the allowable rate of 250 ton/h. For modeling purposes, the measured SO_2 emission rate and the measured volumetric flow were scaled upward to reflect the amount of fuel oil which would be used at the allowable drying rate. Resulting emission characteristics are shown in Table 1. (It should be noted that 24-hour and annual modeling results based on allowable hourly drying rates are probably conservative because actual average drying rates are less than allowable and the dryer does not run 24 hours per day.)

Existing GTSP Plant

The existing GTSP plant includes dryers which use natural gas as a fuel when available and fuel oil otherwise. SO_2 emissions during fuel oil combustion can be calculated based on fuel sulfur content; but, as is the case with the rock dryer, this is not the most accurate method because sulfur removal is possible before combustion products are released to the atmosphere. Removal can occur through retention on the product being dryed and through absorption in the scrubber used for control of other emissions.

To determine sulfur removal efficiency, a recent test was run on one of the GTSP production trains. (The two trains are identical, so it is assumed that a test run on one train will be valid for both.) No. 6 fuel oil was burned at a rate of 3.1 gal/min during the test. This fuel contained 2.48 percent sulfur by weight and had a density of 8.155 lb/gal. If all the sulfur in the fuel had been emitted as SO_2, the resultant emission rate would have been 75.2 lb/h. The actual measured emission rate, however, was 72.5 lb/h, representing a sulfur removal efficiency of a little more than 3 percent. The large difference in sulfur removal efficiency between the GTSP plant and the rock dryer can be attributed primarily to differences in the pH of scrubber water. The GTSP plant scrubber uses recycled acid pond water with a pH of 4 or less, whereas the pH of rock dryer scrubber water is about 7.

GTSP x 2 plants

ATTACHMENT 2

FAXED TO CLEVE & JOHN WATSON on 9/11/92 PR

VISCREEN - LEVEL 1 OUTPUT

SUMMARY OF ALL EMISSIONS AND METEOROLOGICAL INPUT

Emissions for acid plants in G /S : Total emissions of 4, 5 & 6 H_2SO_4 Plants (not just the incremental)

Particulate	=	0.000000E+00
NOx	=	4.310000
Primary NO2	=	0.000000E+00
Soot	=	0.000000E+00
Primary SO4	=	5.390000 (Sulfuric Acid Mist)

Meteorological and Aabient Data for chass

Wind speed (m/s)	=	1.000000
Stability Index	=	6
Visual Range (km)	=	25.000000
Ozone Conc. (ppm)	=	4.000000E-02
Plume Offset Angle	=	11.250000 degrees

Distances Between acid plants and chass

Source-Observer	=	105.000000 km
Min. Source-Class I	=	105.000000 km
Max. Source-Class I	=	119.000000 km

Are these input values ready for execution (y/n)?

OVERALL RESULTS OF PLUME VISIBILITY SCREENING

SOURCE: acid plants
CLASS I AREA: chass

INSIDE class I area --
Plume delta E DOES NOT EXCEED screening criterion for SKY background
Plume delta E DOES NOT EXCEED screening criterion for TERRAIN background
Plume contrast DOES NOT EXCEED screening criterion for SKY background
Plume contrast DOES NOT EXCEED screening criterion for TERRAIN background

OUTSIDE class I area --
Plume delta E DOES NOT EXCEED screening criterion for SKY background
Plume delta E DOES NOT EXCEED screening criterion for TERRAIN background
Plume contrast DOES NOT EXCEED screening criterion for SKY background
Plume contrast DOES NOT EXCEED screening criterion for TERRAIN background

SCREENING CRITERIA: DELTA E = 2.0
GREEN CONTRAST = .050

Do you want to see calculated results for lines of sight with maxiaum delta E (y/n)?

KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
904/377-5822 ▪ FAX 377-7158

KA 203-92-01

October 22, 1992

Mr. Cleve Holladay
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: Seminole Fertilizer Corporation
Proposed Sulfuric Acid Production Increases
Permit File No. AC53-216288, PSD-FL-191

Dear Mr. Holladay:

This is a follow up to our conversation yesterday on the Class I area sulfur dioxide PSD increment consumption associated with the above project.

To determine the Class I area SO_2 PSD increment consumption resulting from the proposed project, the following Seminole sources (numbered in accordance with the emission inventory submitted to FDER on May 4, 1992) were modeled using ISC-ST2 dispersion model.

1. Sulfuric Acid Plants 1 and 2 (Source No. 660 and 670)

2. Sulfuric Acid Plant 3 (Source No. 680)

3. Sulfuric Acid Plants 4, 5, and 6 (Source Nos. 700, 710, 720)

4. Rock Dryer (Source No. 730)

Seminole proposes to surrender the existing permit for Sulfuric Acid Plant 3 (A052-176431) in order to expand the PSD increment available. In view of the substantial PSD increment expansion offered by this source, it was decided with FDER concurrence to evaluate the impacts of Seminole alone on the Class I area.

The dispersion modeling utilized the Seminole source inventory data supplied to FDER under separate cover. The 1986 Tampa meteorological data were used in the modeling to be consistent with the initial modeling submitted to FDER.

The ISC-ST2 modeling results indicate 24-hour SO_2 impacts at the 13 discrete Class I area receptors to be zero or less. The modeling output is attached.

It is our understanding that with this information all the issues raised by FDER and National Park Service concerning this project have been satisfied. Your prompt review of the project will be greatly appreciated as Seminole is under a restrictive time frame regarding this project.

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

Very truly yours,

KOOGLER & ASSOCIATES

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

JBK:PAR:wa
Enc.

c: Mr. M. Martinasek, Seminole
M. Hanks
C. Holladay
B. Thomas, SW Dist
J. Harper, EPA
B. Mitchell, NPS
L. Novak, Polk Co.

KOOGLER & ASSOCIATES

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** MODEL SETUP OPTIONS SUMMARY ***

**Model Is Setup For Calculation of Average CONCentration Values.

**Model Uses RURAL Dispersion.

**Model Uses Regulatory DEFAULT Options:
1. Final Plume Rise.
2. Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Use Calms Processing Routine.
5. Not Use Missing Data Processing Routine.
6. Default Wind Profile Exponents.
7. Default Vertical Potential Temperature Gradients.
8. "Upper Bound" Values for Supersquat Buildings.
9. No Exponential Decay for RURAL Mode

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates 1 Short Term Average(s) of: 24-HR
and Calculates PERIOD Averages

**This Run Includes: 4 Source(s); 1 Source Group(s); and 13 Receptor(s)

**The Model Assumes A Pollutant Type of: SO2

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
Model Outputs Tables of PERIOD Averages by Receptor
Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours
m for Missing Hours
b for Both Calm and Missing Hours

**Misc. Inputs: Anem. Hgt. (m) = 10.00 ; Decay Coef. = 0.0000 ; Rot. Angle = 0.0
Emission Units = (GRAMS/SEC) ; Emission Rate Unit Factor = 0.10000E+07
Output Units = (MICROGRAMS/CUBIC-METER)

**Input Runstream File: SEMF.INP ; **Output Print File: SEMF.OUT
**Detailed Error/Message File: ERRORS.OUT

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	1 , 2 , 3 , 4 ,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (USER UNITS)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
1	0	-.21600E+03	409770.0	3086990.0	0.0	45.72	352.00	16.50	1.37	NO	
2	0	-.52500E+02	409770.0	3086990.0	0.0	45.72	311.00	16.70	1.52	NO	
3	0	0.14377E+03	409770.0	3086990.0	0.0	61.00	347.00	14.20	2.06	NO	
4	0	-.39660E+02	409770.0	3086990.0	0.0	15.24	327.00	17.32	2.04	NO	

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZFLAG)
(METERS)

(340300.0,	3165700.0,	0.0,	0.0);	(340300.0,	3167700.0,	0.0,	0.0);
(340300.0,	3169800.0,	0.0,	0.0);	(340700.0,	3171900.0,	0.0,	0.0);
(342000.0,	3174000.0,	0.0,	0.0);	(343000.0,	3176200.0,	0.0,	0.0);
(343700.0,	3178300.0,	0.0,	0.0);	(342400.0,	3180600.0,	0.0,	0.0);
(341100.0,	3183400.0,	0.0,	0.0);	(339000.0,	3183400.0,	0.0,	0.0);
(336500.0,	3183400.0,	0.0,	0.0);	(334000.0,	3183400.0,	0.0,	0.0);
(331500.0,	3183400.0,	0.0,	0.0);				

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

```
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
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1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1
```

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
B	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
C	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00
D	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
E	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00
F	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: C:\MET\TPA\TPAPRE86.ASC FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1)
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA, NAME: TAMPA,
YEAR: 1986 YEAR: 1986

YEAR	MONTH	DAY	HOUR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	URBAN
86	1	1	1	351.0	4.12	291.5	4	416.0	416.0
86	1	1	2	348.0	3.60	292.6	4	416.0	416.0
86	1	1	3	174.0	4.63	291.5	4	416.0	416.0
86	1	1	4	293.0	3.09	289.8	4	416.0	416.0
86	1	1	5	3.0	1.54	289.8	4	416.0	416.0
86	1	1	6	322.0	2.57	289.8	4	416.0	416.0
86	1	1	7	345.0	3.60	289.8	4	416.0	416.0
86	1	1	8	343.0	2.57	290.4	4	416.0	416.0
86	1	1	9	337.0	3.09	290.9	4	416.0	416.0
86	1	1	10	341.0	3.09	292.6	3	416.0	416.0
86	1	1	11	4.0	2.57	294.3	3	416.0	416.0
86	1	1	12	356.0	3.09	294.8	2	416.0	416.0
86	1	1	13	23.0	2.57	295.9	2	416.0	416.0
86	1	1	14	59.0	2.57	294.8	3	416.0	416.0
86	1	1	15	42.0	3.09	293.2	4	416.0	416.0
86	1	1	16	54.0	1.54	293.7	4	416.0	416.0
86	1	1	17	51.0	2.06	293.2	4	416.0	416.0
86	1	1	18	47.0	0.00	293.2	5	419.0	418.0
86	1	1	19	134.0	2.06	291.5	6	428.0	424.0
86	1	1	20	127.0	0.00	290.9	6	437.0	430.0
86	1	1	21	130.0	0.00	290.9	6	447.0	435.0
86	1	1	22	132.0	0.00	289.8	6	456.0	441.0
86	1	1	23	270.0	1.54	290.9	6	465.0	447.0
86	1	1	24	290.0	2.06	290.4	6	474.0	453.0

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 1 , 2 , 3 , 4 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF SO2 IN (MICROGRAMS/CUBIC-METER) **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
340300.00	3165700.00	-0.25868	340300.00	3167700.00	-0.23643
340300.00	3169800.00	-0.21329	340700.00	3171900.00	-0.19613
342000.00	3174000.00	-0.18585	343000.00	3176200.00	-0.17513
343700.00	3178300.00	-0.17144	342400.00	3180600.00	-0.16776
341100.00	3183400.00	-0.16530	339000.00	3183400.00	-0.15920
336500.00	3183400.00	-0.16199	334000.00	3183400.00	-0.16597
331500.00	3183400.00	-0.16876			

United States Department of the Interior
FISH AND WILDLIFE SERVICE
75 SPRING STREET, S.W.
ATLANTA, GEORGIA
30303

October 8, 1992

Mr. C. H. Fancy
Chief, Bureau of Air Regulation
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Fancy:

We have completed our review of Seminole Fertilizer Corporation's permit application regarding their proposal to increase the production rates of sulfuric acid plants 4, 5, and 6 at their Polk County facility. The Seminole facility is located 120km southeast of the Chassahowitzka Wilderness Area (WA), a Class I air quality area administered by the Fish and Wildlife Service. Seminole performed a dispersion modeling analysis which shows that while there are numerous modeled violations of the 24-hour Class I SO_2 increment at Chassahowitzka, the proposed project does not significantly contribute to an increment violation at the wilderness area.

Regarding control technology, we agree that Seminole's proposal to use double absorption to control sulfur dioxide (SO_2) emissions and fiber mist eliminators to control sulfuric acid mist (H_2SO_4) emissions represents best available control technology. While in other cases we have recommended that applicants be required to meet SO_2 and H_2SO_4 emission limits lower than the New Source Performance Standards (NSPS) for these pollutants, the actual emissions data submitted by Seminole indicate that emission rates vary greatly at the Polk County facility. Therefore, we agree that Seminole's proposal to meet NSPS is appropriate in this instance.

Seminole sufficiently addressed potential impacts to vegetation, soils, terrestrial wildlife, and visibility in the wilderness area from the proposed emissions. However, Seminole failed to assess the potential effects on freshwater creeks and related wildlife in the Chassahowitzka WA from acid deposition.

Nevertheless, based on the dispersion modeling results, we do not anticipate that Class I area resources will be adversely affected by emissions from the proposed project.

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** Message Summary For ISC2 Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 816 Informational Message(s)

A Total of 816 Calm Hours Identified

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCST2 Finishes Successfully ***
****

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF SO2 IN (MICROGRAMS/CUBIC-METER) **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)				OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	0.00000	ON 0:	AT (0.00,	0.00,	0.00,	0.00)		
	HIGH 2ND HIGH VALUE IS	0.00000	ON 0:	AT (0.00,	0.00,	0.00,	0.00)		

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 1 , 2 , 3 , 4 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF SO2 IN (MICROGRAMS/CUBIC-METER) **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
340300.00	3165700.00	0.00000	(0)	340300.00	3167700.00	0.00000	(0)
340300.00	3169800.00	0.00000	(0)	340700.00	3171900.00	0.00000	(0)
342000.00	3174000.00	0.00000	(0)	343000.00	3176200.00	0.00000	(0)
343700.00	3178300.00	0.00000	(0)	342400.00	3180600.00	0.00000	(0)
341100.00	3183400.00	0.00000	(0)	339000.00	3183400.00	0.00000	(0)
336500.00	3183400.00	0.00000	(0)	334000.00	3183400.00	0.00000	(0)
331500.00	3183400.00	0.00000	(0)				

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 2ND HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 1 , 2 , 3 , 4 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF SO2 IN (MICROGRAMS/CUBIC-METER) **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
340300.00	3165700.00	0.00000	(0)	340300.00	3167700.00	0.00000	(0)
340300.00	3169800.00	0.00000	(0)	340700.00	3171900.00	0.00000	(0)
342000.00	3174000.00	0.00000	(0)	343000.00	3176200.00	0.00000	(0)
343700.00	3178300.00	0.00000	(0)	342400.00	3180600.00	0.00000	(0)
341100.00	3183400.00	0.00000	(0)	339000.00	3183400.00	0.00000	(0)
336500.00	3183400.00	0.00000	(0)	334000.00	3183400.00	0.00000	(0)
331500.00	3183400.00	0.00000	(0)				

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE MAXIMUM 50 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 1 , 2 , 3 , 4 ,

** CONC OF SO2 IN (MICROGRAMS/CUBIC-METER) **

RANK	CONC	(YYMMDDHH) AT	RECEPTOR (XR,YR) OF TYPE	RANK	CONC	(YYMMDDHH) AT	RECEPTOR (XR,YR) OF TYPE
1.	0.00000	(0) AT	(0.00, 0.00)	26.	0.00000	(0) AT	(0.00, 0.00)
2.	0.00000	(0) AT	(0.00, 0.00)	27.	0.00000	(0) AT	(0.00, 0.00)
3.	0.00000	(0) AT	(0.00, 0.00)	28.	0.00000	(0) AT	(0.00, 0.00)
4.	0.00000	(0) AT	(0.00, 0.00)	29.	0.00000	(0) AT	(0.00, 0.00)
5.	0.00000	(0) AT	(0.00, 0.00)	30.	0.00000	(0) AT	(0.00, 0.00)
6.	0.00000	(0) AT	(0.00, 0.00)	31.	0.00000	(0) AT	(0.00, 0.00)
7.	0.00000	(0) AT	(0.00, 0.00)	32.	0.00000	(0) AT	(0.00, 0.00)
8.	0.00000	(0) AT	(0.00, 0.00)	33.	0.00000	(0) AT	(0.00, 0.00)
9.	0.00000	(0) AT	(0.00, 0.00)	34.	0.00000	(0) AT	(0.00, 0.00)
10.	0.00000	(0) AT	(0.00, 0.00)	35.	0.00000	(0) AT	(0.00, 0.00)
11.	0.00000	(0) AT	(0.00, 0.00)	36.	0.00000	(0) AT	(0.00, 0.00)
12.	0.00000	(0) AT	(0.00, 0.00)	37.	0.00000	(0) AT	(0.00, 0.00)
13.	0.00000	(0) AT	(0.00, 0.00)	38.	0.00000	(0) AT	(0.00, 0.00)
14.	0.00000	(0) AT	(0.00, 0.00)	39.	0.00000	(0) AT	(0.00, 0.00)
15.	0.00000	(0) AT	(0.00, 0.00)	40.	0.00000	(0) AT	(0.00, 0.00)
16.	0.00000	(0) AT	(0.00, 0.00)	41.	0.00000	(0) AT	(0.00, 0.00)
17.	0.00000	(0) AT	(0.00, 0.00)	42.	0.00000	(0) AT	(0.00, 0.00)
18.	0.00000	(0) AT	(0.00, 0.00)	43.	0.00000	(0) AT	(0.00, 0.00)
19.	0.00000	(0) AT	(0.00, 0.00)	44.	0.00000	(0) AT	(0.00, 0.00)
20.	0.00000	(0) AT	(0.00, 0.00)	45.	0.00000	(0) AT	(0.00, 0.00)
21.	0.00000	(0) AT	(0.00, 0.00)	46.	0.00000	(0) AT	(0.00, 0.00)
22.	0.00000	(0) AT	(0.00, 0.00)	47.	0.00000	(0) AT	(0.00, 0.00)
23.	0.00000	(0) AT	(0.00, 0.00)	48.	0.00000	(0) AT	(0.00, 0.00)
24.	0.00000	(0) AT	(0.00, 0.00)	49.	0.00000	(0) AT	(0.00, 0.00)
25.	0.00000	(0) AT	(0.00, 0.00)	50.	0.00000	(0) AT	(0.00, 0.00)

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** CONC OF SO2 IN (MICROGRAMS/CUBIC-METER) **

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00)		
	2ND HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00)		
	3RD HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00)		
	4TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00)		
	5TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00)		
	6TH HIGHEST VALUE IS	0.00000 AT (0.00, 0.00, 0.00, 0.00)		

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

If you have any questions regarding this matter, please contact Ms. Tonnie Maniero of our Air Quality Branch in Denver at 303/969-2071.

Sincerely yours,

John R. Eadie

John R. Eadie
Acting Regional Director

cc:
Jewell Harper, Chief
Air Enforcement Branch
Air, Pesticides and Toxic Management Division
U.S. EPA, Region 4
345 Courtland Street, NE.
Atlanta, Georgia 30365

cc: M. Hanks
C. Holladay
B. Thomas / SW Dist
J. Kooyer, K&A
Y. Noval, Polk Co.
CHF/JB/PL

OPTIONAL FORM 99 (7-90)
FAX TRANSMITTAL # of pages ▶ 2

To CLEVE HOLLADAY From JOHN NOTAR

Dept./Agency FDER Phone #

Fax # 904-922-6979 Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

DRAFT

SEP 10 1992

Mr. C.H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Fancy:

We have reviewed for completeness the Seminole Fertilizer Corporation's permit application and related information regarding a proposed major modification to its facility in Polk County, Florida. The Seminole facility is located approximately 112 km southeast of the Chassahowitzka Wilderness Area (WA), a Class I air quality area administered by the U.S. Fish and Wildlife Service. In general, we consider the Seminole permit application complete with respect to the Class I air quality dispersion modeling analysis. However, we have the following comments regarding the absence of a visibility analysis in air quality related values analyses contained in the permit application.

The applicant incorrectly states that sulfuric acid mist should not be considered in a visibility analysis by quoting from page 23 of EPA's "Workbook for Plume Visual Impact Screening and Analysis" EPA-450/4-88-015, September, 1988. The applicant correctly states that sulfur dioxide (SO_2) emissions are not required input for a VISCREEN visibility analysis, unless the source is greater than 200 km from the Class I area. The sulfuric acid mist emissions should be included into the VISCREEN modeling input data as "Primary Sulfate" emissions. Research indicates that the sulfuric acid emissions will convert rapidly to sulfate particles, which have an impact on visibility. The visibility analysis should include all particulate, nitrogen oxide, and sulfuric acid emissions which are subject to Prevention of Significant Deterioration, this includes existing as well as the proposed increased emissions.

We appreciate the opportunity to be involved in the completeness review of the Seminole application, and we hope that you find the above comments useful. We also reserve the right to submit additional comments during the official public comment period for this project. If you have any questions regarding these comments, please contact Tonnie Maniero of our Air Quality Branch in Denver at (303) 969-2071.

Sincerely,

James W. Pulliam, Jr.
Regional Director

cc: Jellell Harper, Chief
Air Enforcement Branch
Air, Pesticides and Toxic Management Division
U.S. EPA, Region 4
345 Courtland Street, NE
Atlanta, Georgia 30365

bcc:
FWS-REG. 4: AQC
FWS-REG. 6: Ty Berry
CHAS: Refuge Manager
AQD-DEN: John Notar, Maniero, Bunyak, Mitchell, Morse, Porter, Rolofson

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

September 11, 1992

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Kenneth V. Ford, Manager
Seminole Fertilizer Corporation
Post Office Box 471
Bartow, Florida 33830

Re: Seminole Fertilizer Corporation
Proposed Sulfuric Acid Production Increase
Permit File No. AC53-216288, PSD-FL-191

The Department has received your application for an increase in the sulfuric acid production rates of the existing plants No. 4, 5, and 6 at your facility in Polk County. Based on our initial review of your 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 verify the negative emission rates for the following sources contained in your PSD Class I sulfur dioxide modeling inventory: 170, 180, 190, 210-240, 420, 430, 450-500, 520-540, 750, 760, 960, 970, 1160, 1170, and 1230. The source numbers refer to numbers in Table I of your application package. Also, please verify the reduced emission rates for sources 260 and 280.

2. Please perform a Class I visibility analysis for the Chassahowitzka Class I area. The visibility analysis should include all particulate, nitrogen oxide, and sulfuric acid emissions which are subject to Prevention of Significant Deterioration; this includes existing as well as proposed increased emissions.

If you have any questions, please call Cleve Holladay at (904) 488-1344.

Sincerely,

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

CHF/CH/plm

cc: J. Koogler, PhD, P.E., K&A

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- 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 Fee will provide you the signature of the person delivered to and the date of delivery.

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:
Mr. Kenneth V. Ford, Manager
Seminole Fertilizer Corp.
Post Office Box 471
Bartow, FL 33830

4a. Article Number
P 062 921 996

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

7. Date of Delivery
SEP 14 1992

5. Signature (Addressee)

6. Signature (Agent)

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

PS Form 3811, November 1990 ☆U.S. GPO: 1991—287-066 **DOMESTIC RETURN RECEIPT**

P 062 921 996

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to Mr. Kenneth V. Ford	
Street and No. Seminole Fertilizer P. O. Box 471	
P.O., State and ZIP Code Bartow, FL 33830	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date Mailed: 9-11-92 Permit: AC 53-216288 PSD-FL-191	

PS Form 3800, June 1991

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

SEP 02 1992

4APT-AEB

RECEIVED
SEP 8 1992
Division of Air
Resources Management

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Seminole Fertilizer Corporation, Bartow, Florida
(PSD-FL-191)

Dear Mr. Fancy:

This is to acknowledge receipt of an application for a Prevention of Significant Deterioration (PSD) permit for the above referenced facility by your letter dated July 20, 1992. The proposed major modification to the existing facility consists of increasing the production rate at each of three sulfuric acid plants. As discussed between Mr. Cleve Holladay of your staff and Mr. Lew Nagler of my staff on August 13, 1992, we have the following comment related to the air quality analysis:

> Our review indicates that the Class I and Class II area increments, and the NAAQS should not be threatened by the proposed modification. However, the cumulative modeled impact of other increment consuming sources indicates an exceedance of the 24-hour SO_2 Class I increment at a receptor in the Chassahowitzka National Wildlife Refuge. The Florida Department of Environmental Regulation should resolve the apparent Class I area increment modeling exceedance due to the cumulative impacts analysis.

Thank you for the opportunity to comment on this application. If you have any questions concerning modeling or monitoring, please contact Mr. Lew Nagler of my staff at (404) 347-5014. Any other questions may be directed to Mr. Stan Kukier of my staff also at (404) 347-5014.

Sincerely yours,

Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division

CHF/PL
Willard Hanks
Cleve Holladay
Bill Thomas, SWD
Linda Novak, Polk Co

9-9-92 RAM

KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
904/377-5822 ▪ FAX 377-7158

KA 203-92-01

August 6, 1992

Mr. Cleve Holladay
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Subject: Ambient Air Quality Modeling
Modification of Sulfuric Acid
Plants No. 4, 5 and 6
Seminole Fertilizer Corporation
Polk County, Florida

Dear Mr. Holladay:

This is a follow up to your meeting on July 23, 1992, with Pradeep Raval regarding the ambient air quality modeling issues related to the above projects.

The ISC-ST2 modeling submitted to FDER demonstrated that the increase in sulfur dioxide emissions from the proposed project will not result in significant impact, as defined in FAC Rule 17-2.100. As the highest second high impacts were considered in determining if the impacts were significant or not, the highest-high impacts were not addressed in the tables.

The EPA draft modeling guideline to FDER recommends the consideration of the highest-high impacts to determine if modeling of all significant sulfur dioxide emitting sources in the area is necessary. Based on this guideline, you had requested the remodeling of the proposed project to not only evaluate what the highest-high impacts would be, but also determine what the sulfur dioxide impacts would be along Highway 60 in the vicinity of the proposed project.

As a response to your request, the ISC-ST2 model, Version 92062, was re-run with the following refinements:

1) The three sources were modeled individually (based on actual plant location) and not as a single emission point used previously.

2) Downwind receptor rings were added to the polar grid at 4000 and 5000 meters. Discrete receptors were located along Highway 60 at points of intersection with the polar grid radials to a distance of 5000 meters per your request.

3) Tampa meteorological data from 1985 to 1989 were used for the modeling instead of the 1982 to 1986 data used previously.

The modeling results summarized in the attached table show that the predicted highest-high impacts beyond the Seminole property boundary are below the threshold which would require additional modeling with other significant sulfur dioxide sources in the area. A printout of the modeling output and a diskette are enclosed for your review.

A map showing the Seminole property boundary and the physical barriers which preclude public access is also enclosed for your file.

If you have any additional questions, please do not hesitate to give me a call.

Very truly yours,

KOOGLER & ASSOCIATES

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

JBK/bjm

Enclosure

cc: Mr. Ken Ford, Seminole
Mr. Mickey Martinasek, Seminole
Mr. Willard Hanks
B. Thomas, SW Dist
J. Harper, EPA
C. Shaw, NPS

KOOGLER & ASSOCIATES

SUMMARY OF SULFUR DIOXIDE IMPACT ANALYSIS

SEMINOLE FERTILIZER CORPORATION
POLK COUNTY, FLORIDA

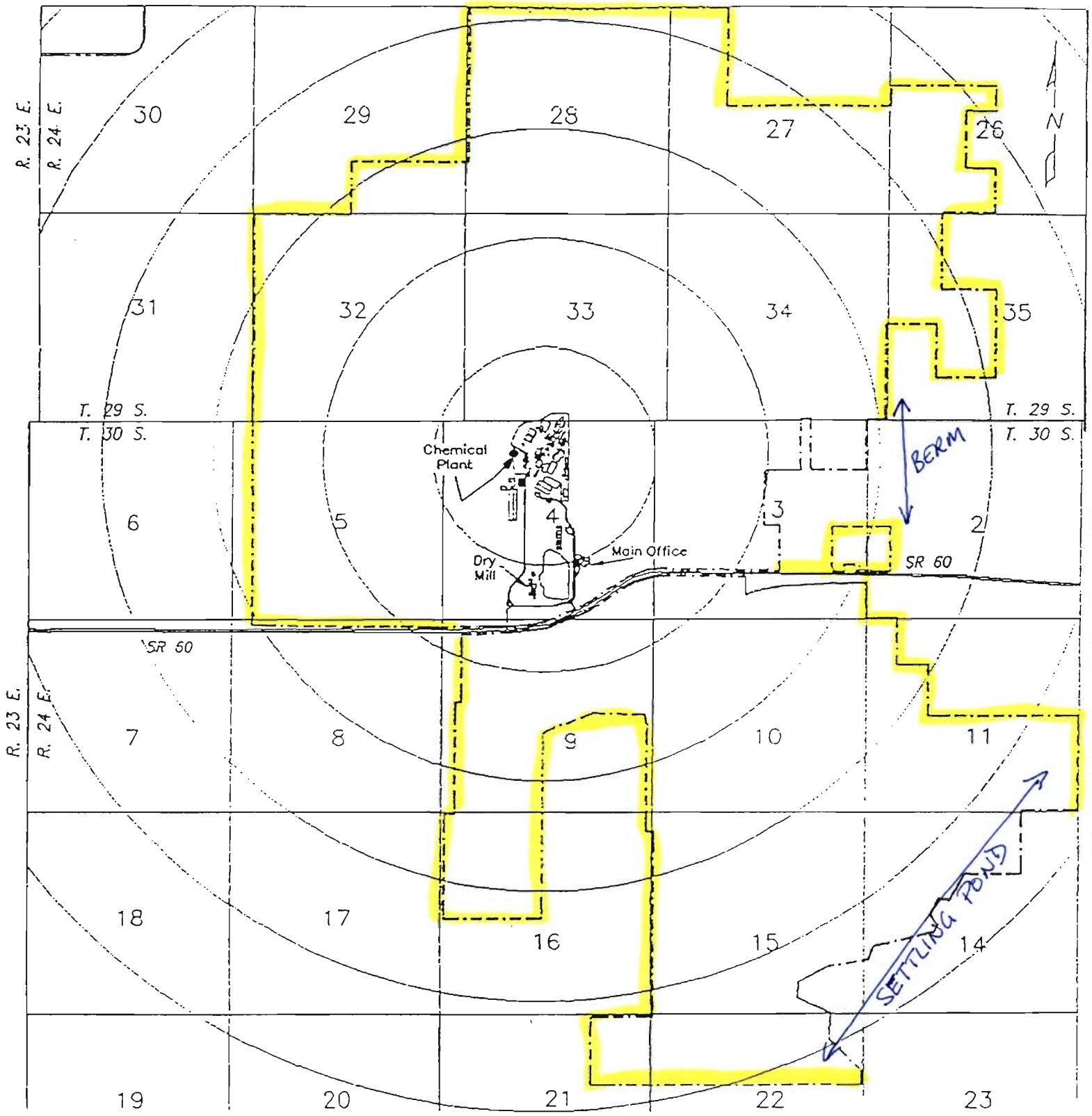
Year	Sulfur Dioxide Impact($\mu g/m^3$)*		
	3-hour	24-hour	Annual
1985	27.8 (2000m, 80°)** 27.1 (2500m, 80°)** 26.1 (1750m, 80°)**	4.6 (2000m, 90°)	0.24 (2500m, 80°)
1986	23.0 (1500m, 80°)	4.9 (1750m, 90°)	0.29 (2500m, 90°)
1987	27.0 (2000m, 50°)** 26.6 (1750m, 50°)**	4.5 (2000m, 50°)	0.21 (2500m, 90°)
1988	20.5 (1500m,200°)	3.8 (2500m, 10°)	0.14 (2500m, 50°)
1989	25.2 (1500m, 50°)**	5.3 (2500m,360°)** 5.2 (3000m,360°)**	0.18 (2500m, 50°)
Additional Modeling Criteria	25.0	5.0	1.0

* Highest-high impacts based on the increase in sulfur dioxide emissions from the proposed project of 180 lbs/hr, 22.7 g/s.

** Impacts above guideline levels but occurring on plant property.

PROPERTY BOUNDARY MAP

SEMINOLE FERTILIZER CORPORATION



NOTE: The property is patrolled by the Agriculture Dept. Patrol and also Seminole Fertilizer Guards.

SCALE – FEET

0 2000 4000

1000 meters

SEMINOLE

Bonny Lake Tract

Half Mile Radius

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

July 20, 1992

Ms. Linda Novak
Polk County Board County Commissioners
Environmental Services Department
P. O. Box 60
330 West Church Street
Bartow, FL 33830

Dear Ms. Novak:

RE: Seminole Fertilizer, Polk County
Sulfuric Acid Production Rate Increase
AC 53-216288, PSD-FL-191

Enclosed for your review is the above referenced permit application. Please forward your comments to the Bureau of Air Regulation by August 14, 1992. The Bureau's FAX number is (904)922-6979.

If you have any questions, please call Willard Hanks or Cleve Holladay at (904)488-1344 or write to me at the above address.

Sincerely,

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

CHF/pa

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

July 20, 1992

Mrs. Chris Shaver, Chief
Permit Review and Technical Support Branch
National Park Service-Air Quality Division
Post Office Box 25287
Denver, Colorado 80225

Dear Mrs. Shaver:

RE: Seminole Fertilizer, Polk County
Sulfuric Acid Production Rate Increase
AC 53-216288, PSD-FL-191

Enclosed for your review is the above referenced permit application. Please forward your comments to the Bureau of Air Regulation by August 14, 1992. The Bureau's FAX number is (904)922-6979.

If you have any questions, please call Willard Hanks or Cleve Holladay at (904)488-1344 or write to me at the above address.

Sincerely,

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

CHF/pa

Enclosures

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

July 20, 1992

Ms. Jewell A. Harper, Chief
Air Enforcement Branch
U.S. EPA, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30308

Dear Ms. Harper:

RE: Seminole Fertilizer Corp., Polk County
Sulfuric Acid Production Rate Increase
AC 53-216288, PSD-FL-191

Enclosed for your review is the above referenced permit application. Please forward your comments to the Department's Bureau of Air Regulation by August 14, 1992. The Bureau's FAX number is (904)922-6979.

If you have any questions, please contact Willard Hanks or Cleve Holladay at (904)488-1344 or write to me at the above address.

Sincerely,

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

CHF/pa

Enclosures

KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
904/377-5822 ▪ FAX 377-7158

KA 203-92-01

July 15, 1992

Mr. Clair Fancy
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: Application for a PSD Construction Permit
Seminole Fertilizer Corporation
Polk County, Florida

Dear Mr. Fancy:

Enclosed is the modeling output associated with the construction permit application for an increase in the sulfuric acid production rates of the existing plants No. 4, 5 and 6 at the Seminole Fertilizer Corporation facility in Polk County, Florida.

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

Very truly yours,

KOOGLER & ASSOCIATES

Pradeep A. Raval

PAR:wa
Enc.

c: Mr. M. Martinasek, Seminole

VENDOR: 000274

SEMINOLE FERTILIZER CORPORATION

CHECK NO. 064629

VOUCHER NO.	INVOICE NO.	INVOICE DATE	INVOICE AMOUNT	AMOUNT PAID	DISCOUNT TAKEN	NET CHECK AMOUNT
016447	7-1-92	07/10/92	7,500.00	7,500.00	.00	7,500.00
				CHECK TOTAL		7,500.00

CHECK NO.	CHECK DATE	VENDOR NO.
64629	07/14/92	000274

CHECK NO. 064629

52-2
112

Casco Northern Bank
an affiliate of
BANK OF BOSTON

SEMINOLE

Seminole Fertilizer Corporation
Hwy 60 West, P.O. Box 471
Bartow, Florida 33830

NOT VALID FOR PAYMENT AFTER
90 DAYS FROM DATE HEREON.

CHECK AMOUNT
$****7,500.00

SEVEN THOUSAND FIVE HUNDRED AND 00/100 DOLLARS

PAY
TO THE
ORDER OF DEPARTMENT OF ENVIRONMENTAL
REGULATION
TAMPA FL 33610

BY

BY

MUST BE COUNTERSIGNED IF $10,000 OR MORE.

[redacted]

Sent original check to F&A

Barbara

#7,500 pd. 2-16-93 Rcpt # 180777

DER Form #
Form Title
Effective Date
DER Application No.
Filled in by DER

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

AC 53-216288
PSD-FL-191

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Sulfuric Acid Plant [ ] New[1] [x] Existing[1]

APPLICATION TYPE: [x] Construction [ ] Operation [x] Modification

COMPANY NAME: Seminole Fertilizer Corporation COUNTY: Polk

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) Sulfuric Acid Plant Nos. 4, 5, and 6.

SOURCE LOCATION: Street Highway 60 West City Bartow

UTM: East (17) 409.8 km North 3087.0 km

Latitude 27 ° 54 ' 22 "N Longitude 81 ° 54 ' 59 "W

APPLICANT NAME AND TITLE: Kenneth V. Ford, Manager Environmental Affairs

APPLICANT ADDRESS: P.O. Box 471, Bartow, Florida 33830

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Seminole Fertilizer Corp.

I certify that the statements made in this application for a construction permit are true, correct and complete to the best of my knowledge and belief. Furthe I agree to maintain and operate the pollution control source and pollution contr facilities in such a manner as to comply with the provision of Chapter 403, Flori Statutes, and all the rules and regulations of the department and revisions thereof. also understand that a permit, if granted by the department, will be non-transferab and I will promptly notify the department upon sale or legal transfer of the permitt establishment.

*Attach letter of authorization

Signed: Kenneth V. Ford

Kenneth V. Ford, Manager Environmental Affairs
Name and Title (Please Type)

Date: 7/10/92 Telephone No. (813) 533-2171

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project ha been ~~designed~~/examined by me and found to be in conformity with modern engineeri principles applicable to the treatment and disposal of pollutants characterized in t permit application. There is reasonable assurance, in my professional judgment, th

[1] See Florida Administrative Code Rule 17-2.100(57) and (104)

Northwest District 160 Governmental Center Pensacola, Florida 32501-5794 904-436-8300
Northeast District 3426 Bills Rd. Jacksonville, Florida 32207 904-796-4200
Central District 3319 Maguire Blvd. Suite 232 Orlando, Florida 32803-3767 407-894-7555
Southwest District 4520 Oak Fair Blvd. Tampa, Florida 33610-7347 813-623-5561
South District 2269 Bay St. Fort Myers, Florida 33901-2896 813-332-6975
Southeast District 1900 S. Congress Ave., Suite A West Palm Beach, Florida 33406 407-964-9568

AFFIDAVIT OF AUTHORIZATION

I, Hudson C. Smith, Executive Vice President and General Manager, hereby authorize Kenneth V. Ford, as Manager Environmental Affairs, to sign permit applications on behalf of Seminole Fertilizer Corporation for the Hookers Prairie Mine and the Bartow chemical complex.

SEMINOLE FERTILIZER CORPORATION

By: _____

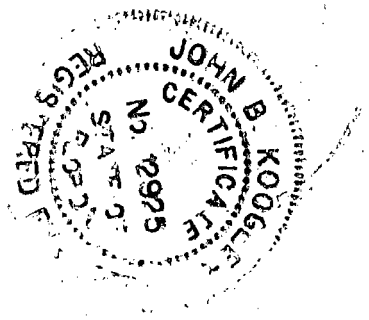
STATE OF FLORIDA
COUNTY OF POLK

SWORN to and subscribed before me this 26th day of November, 1991.

_____
Notary Public

My Commission Expires:
Notary Public, State of Florida at Large
My Commission Expires Sept. 29, 1993

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.



Signed _____

John B. Koogler, Ph.D., P.E.
Name (Please Type)

Koogler & Associates, Environmental Services
Company Name (Please Type)

4014 N.W. 13th Street, Gainesville, FL 32609
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 7/13/92 Telephone No. (904) 377-5822

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

For the increase in sulfuric acid production rates from 80 to 95 tons per hour for plant Nos. 4, 5, and 6. The three plants will operate in full compliance with the applicable air regulations. See attached report.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction October 1992 Completion of Construction October 1993

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Existing equipment.

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

See attached report.

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr_____; if seasonal, describe: 8760 hours/year

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant?	NO
a. If yes, has "offset" been applied?	NA
b. If yes, has "Lowest Achievable Emission Rate" been applied?	NA
c. If yes, list non-attainment pollutants.	NA
2. Does best available control technology (BACT) apply to this source? If yes, see Section VI.	YES[1]
3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII.	YES[1]
4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source?	YES[1]
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source?	NO

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? NO

a. If yes, for what pollutants? NA

b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted. NA

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

[1] See attached report.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Each Plant

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Sulfur	Ash	0.005	63,000	

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): 63,000

2. Product Weight (lbs/hr): 190,000 (95 tph)

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Each Plant

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
SO_2	380.0	1664.4	17-2.600(2)	380.0	380.0	1664.4	
Acid Mist	14.3	62.4	17-2.600(2)	14.3	14.3	62.4	
NOx	11.4	49.9	--	--	11.4	49.9	

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3]Calculated from operating rate and applicable standard.

[4]Emission, if source operated without control (See Section V, Item 3).

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
Dual Absorption Tower	SO_2	99.4%	--	Design
HV & HE Mist Eliminator	Acid Mist	90.0%	> 1	Design

E. Fuels NA

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

_____

F. If applicable, indicate the percent of fuel used for space heating. NA

Annual Average _____ Maximum _____

G. Indicate liquid or solid wastes generated and method of disposal. NA

_____

_____

_____

_____

Each Plant

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 200 ft. Stack Diameter: 6.75 ft.

Gas Flow Rate: 133,000 ACFM 110,000 DSCFM Gas Exit Temperature: 180 °F.

Water Vapor Content: -- % Velocity: 62 FPS

SECTION IV: INCINERATOR INFORMATION

NA

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr)_____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr._____

Manufacturer_____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diamter: _____ Stack Temp. _____

Gas Flow Rate: _____ACFM _____ DSCFM* Velocity: _____FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify)_____

Brief description of operating characteristics of control devices: _____

_____

_____

_____

_____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

_____

_____

_____

_____

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

See attached report.

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]

2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).

4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)

5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).

6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).

8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation. $7500

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

See attached report.

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

[ ] Yes [ ] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy)

[ ] Yes [ ] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration

D. Describe the existing control and treatment technology (if any).

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:

*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height: ft.

b. Diameter: ft.

c. Flow Rate: ACFM

d. Temperature: °F.

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device:

2. Efficiency:[1]

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:[2]

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

[1]Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

See attached report.

A. Company Monitored Data

1. _____no. sites _____ TSP _____( ) SO^2* _____ Wind spd/dir

Period of Monitoring _____/_____/_____ to _____/_____/_____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

*Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

a. Was instrumentation EPA referenced or its equivalent? [ ] Yes [ ] No

b. Was instrumentation calibrated in accordance with Department procedures?

[ ] Yes [ ] No [ ] Unknown

F. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from ____/____/____ to ____/____/____
month day year month day year

2. Surface data obtained from (location)_____

3. Upper air (mixing height) data obtained from (location)_____

4. Stability wind rose (STAR) data obtained from (location)_____

G. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

H. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate	
TSP	_____	grams/sec
SO^2	_____	grams/sec

I. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

J. Attach all other information supportive to the PSD review.

K. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

L. Attach scientific, engineering, and technical material, reports, publications, journals, snd other competent relevant information describing the theory and application of the requested best available control technology.

REPORT IN SUPPORT OF AN APPLICATION FOR A PSD CONSTRUCTION PERMIT REVIEW

PREPARED FOR:

SEMINOLE FERTILIZER CORPORATION
POLK COUNTY, FLORIDA

JULY 1992

PREPARED BY:

KOOGLER & ASSOCIATES
4014 N.W. 13TH STREET
GAINESVILLE, FLORIDA 32609
(904) 377-5822

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1.0 SYNOPSIS OF APPLICATION

1.1 APPLICANT

Seminole Fertilizer Corporation
Highway 60 West
P.O. Box 471
Bartow, Florida 33830

1.2 FACILITY LOCATION

Seminole Fertilizer Corporation (Seminole) consists of a phosphate chemical fertilizer manufacturing facility approximately four miles west of Bartow on Highway 60 in Polk County, Florida (See Figure 1-1). The UTM coordinates of the Seminole facility are Zone 17, 409.8 km east and 3087.0 km north.

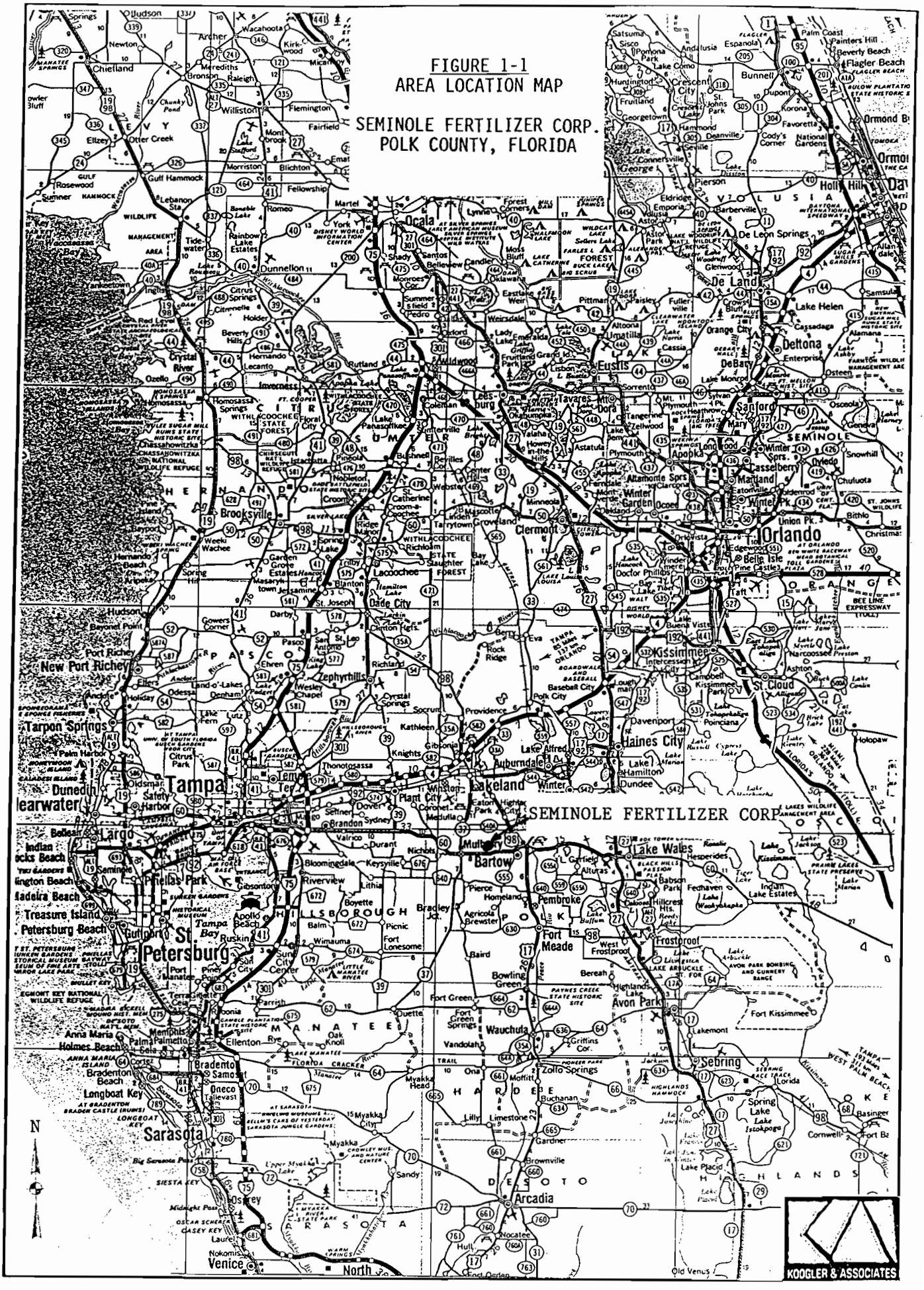
1.3 PROJECT DESCRIPTION

Seminole proposes to increase the sulfuric acid production rate of three existing double absorption sulfuric acid plants from 1920 to 2280 tons per day (TPD) of 100% H2SO4 each. This will result in an overall increase in the sulfuric acid production rate of Plants No. 4, 5 and 6 of 1080 TPD 100% H2SO4. This increase is less than the 1100 TPD potential production rate of Plant No. 3 which is currently inactive.

The additional sulfuric acid produced will be sold to sulfuric acid consumers and will not affect the operation of any other plant in the chemical complex.

The proposed project will result in a significant net increase (in accordance with Table 500-2 of Chapter 17-2, Florida Administrative Code, FAC) in the emission rates of sulfur dioxide and sulfuric acid mist, and a less than significant increase in the emission rate of nitrogen oxides.

Seminole is submitting this report in support of the application to the Florida Department of Environmental Regulation for increasing the sulfuric acid production rates of the three existing sulfuric acid plants. The report includes a description of the existing chemical complex and the sulfuric acid plants, a review of Best Available Control Technology, an ambient air quality analysis and an evaluation of the impact of the proposed project on soils, vegetation and visibility.



2.0 FACILITY DESCRIPTION

Seminole Fertilizer Corporation consists of a phosphate chemical fertilizer manufacturing facility located on Highway 60 in Polk County, Florida (See Figure 2-1). The UTM coordinates of the facility are Zone 17, 409.8 km east and 3087.0 km north.

2.1 EXISTING FACILITY

The existing fertilizer complex processes phosphate rock into several different fertilizer products. This is accomplished by reacting the phosphate rock with sulfuric acid to produce phosphoric acid and then converting the phosphoric acid to fertilizer products. Figure 2-3, Plot Plan, shows the location of the existing plants.

The additional sulfuric acid produced will be sold to sulfuric acid consumers and will not affect the operation of the other plants in the chemical complex.

2.2 SULFURIC ACID PLANTS

There are four existing sulfuric acid plants at Seminole. Plant No. 3 permitted at 1100 tons per day (TPD) of 100 percent H_2SO_4 is currently inactive. Identical double absorption Plants No. 4, 5, and 6 are subject to Federal New Source Performance Standards as set forth in 40CFR60, Subpart H. The emission limiting standards for these plants are:

Sulfur Dioxide	-	4 pounds per ton of 100 percent acid
Acid Mist	-	0.15 pound per ton of 100 percent acid
Visible Emissions	-	10 percent opacity.

The state of Florida has identical emission limiting standards for new sulfuric acid plants as set forth in Rule 17-2.600(2)(b), FAC. The current FDER air permit numbers for the four sulfuric acid plants at

Seminole are as follows:

Plant Number	Air Permit No.	Expiration Date
3	A053-176431	4-11-93
4	A053-167885	10-13-94
5	A053-185774	10-13-94
6	A053-166950	10-13-94

The actual emission rates of sulfur dioxide and acid mist from the sulfuric acid plants (presented in Table 2-1) are based on past compliance tests results. These results have been submitted to FDER's Southwest District Office. In 1990-1991, the maximum measured sulfur dioxide emission rate during a compliance test was 3.58 pounds per ton of 100 percent H_2SO_4 produced and the maximum measured acid mist emission rate was 0.12 pounds per ton of 100 percent H_2SO_4 produced. Higher emission rates do occur and are documented in the Appendix.

Nitrogen oxide emissions from the sulfuric acid plants were estimated by using an emission factor of 0.12 pound per ton of 100 percent H_2SO_4 produced, an emission rate used by FDER in recent permitting of similar plants.

TABLE 2-1

ACTUAL EMISSIONS SUMMARY(1)
SULFURIC ACID PLANTS NO. 4, 5 AND 6

SEMINOLE FERTILIZER CORPORATION
POLK COUNTY, FLORIDA

Plant No.	Date	Sulfur Dioxide		Sulfuric Acid Mist	
		lbs/hr	lbs/ton	lb/hr	lb/ton
4	6-15-90	292	3.58	4.20	0.052
	2-11-91	272	3.19	4.40	0.051
	Avg.	282	3.39	4.30	0.052
5	6-06-90	301	3.45	6.43	0.074
	5-01-91	273	3.24	5.41	0.064
	Avg.	287	3.35	5.92	0.069
6	6-02-90	299	3.37	10.5	0.119
	10-26-91	276	3.27	8.0	0.095
	Avg.	288	3.32	9.3	0.107
Permit Limits		320	4.0	12.0	0.15

(1) Emissions summary from the 1990 and 1991 compliance tests submitted to FDER.

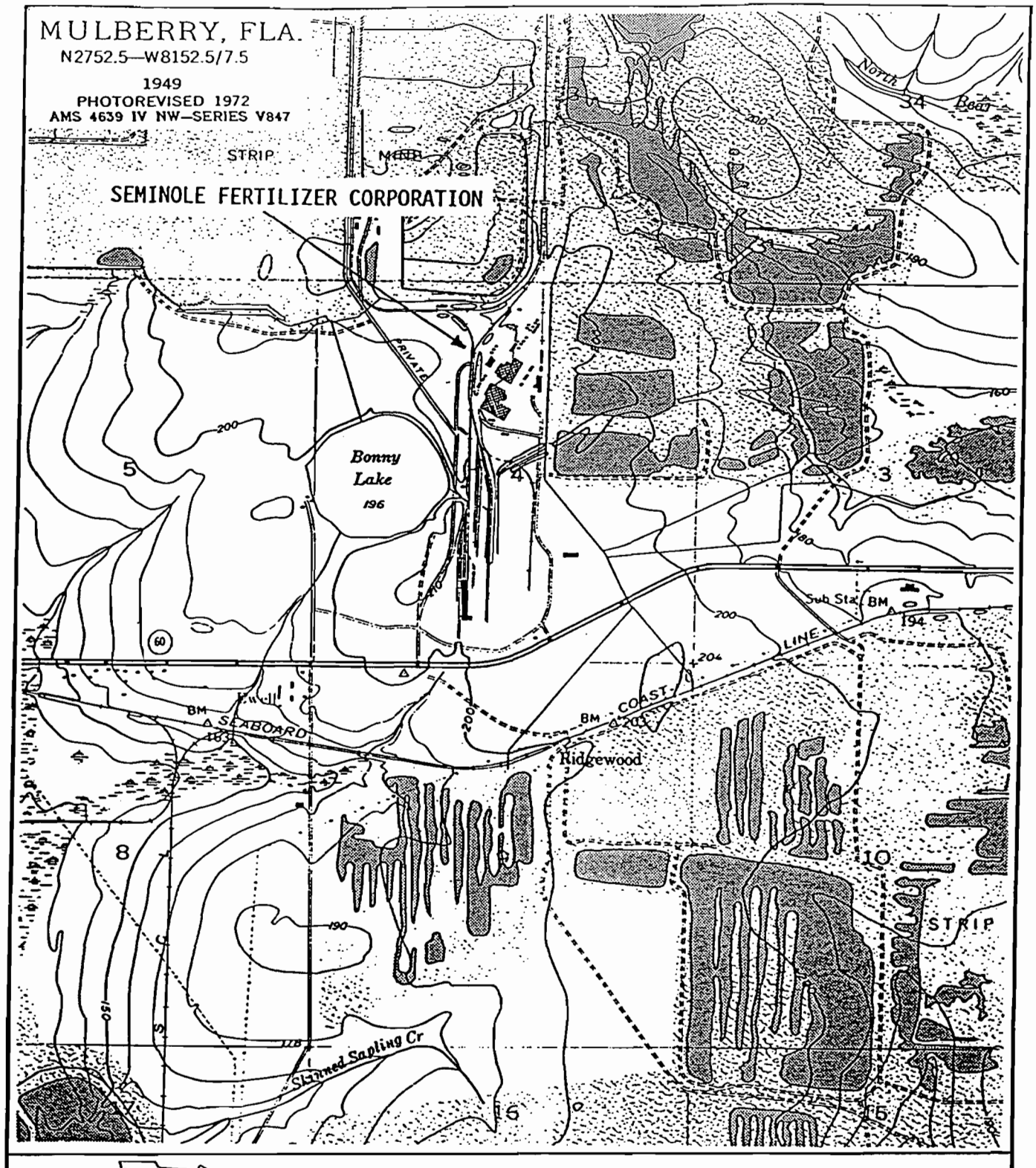


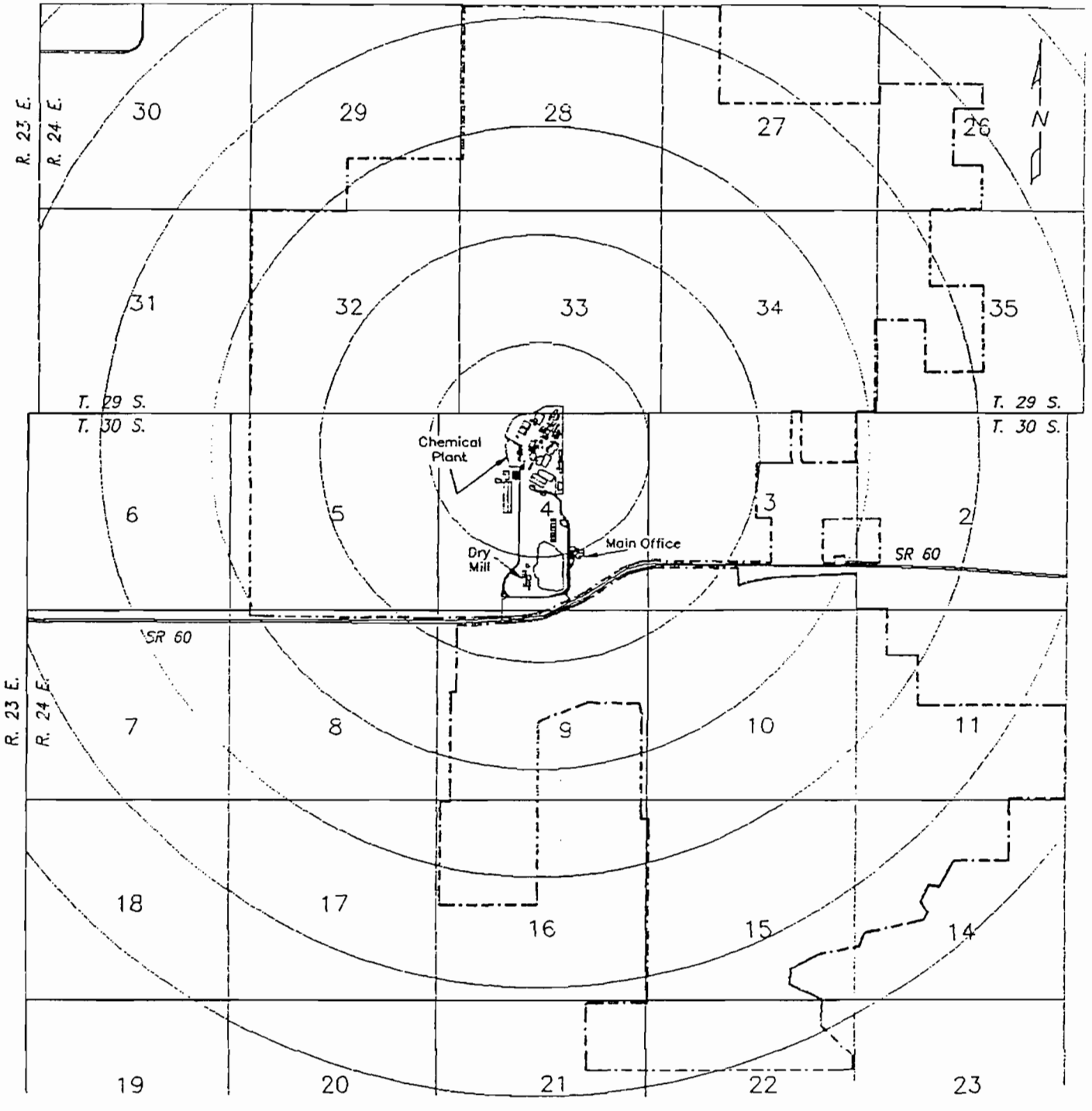
FIGURE 2-1
SITE LOCATION MAP

SEMINOLE FERTILIZER CORPORATION

SCALE 1:24000

FIGURE 2-2
PROPERTY BOUNDARY MAP

SEMINOLE FERTILIZER CORPORATION



SCALE - FEET

0 2000 4000

—·—·— Property Boundry

SEMINOLE

Bonny Lake Tract

Half Mile Radius of Chemical Plant

2-6-91	CRL	EAS-BL-45

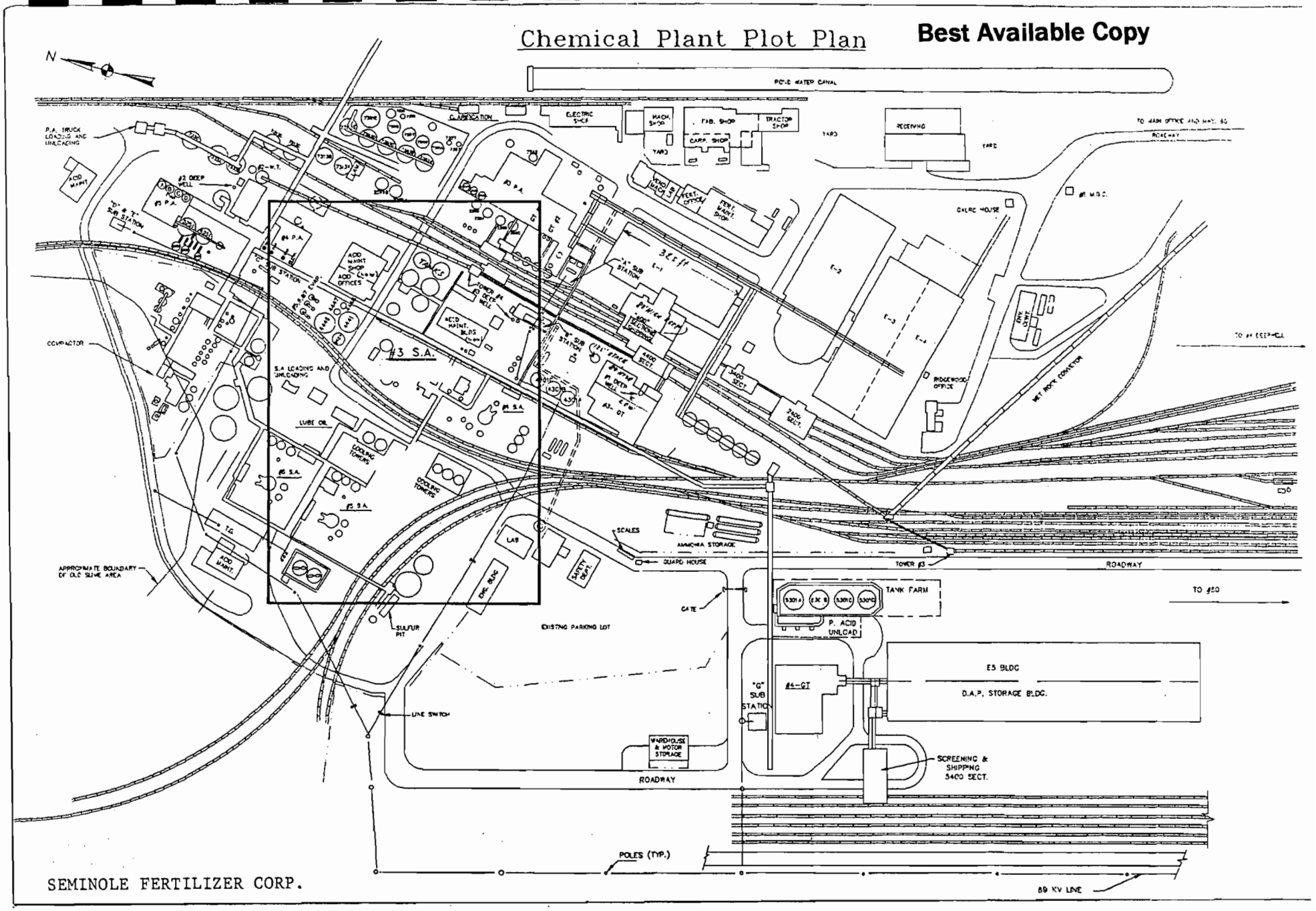


FIGURE 2-3
PLOT PLAN

SEMINOLE FERTILIZER CORPORATION

3.0 PROPOSED PROJECT

3.1 PROJECT DESCRIPTION

Seminole proposes to increase the sulfuric acid production rate of the existing No. 4, 5 and 6 plants from 80 TPH (1920 TPD) to 95 TPH (2280 TPD) 100% acid.

The sulfuric acid production increase proposed by Seminole will also result in an increase in the waste heat recovered and electrical power generated.

No changes to the existing equipment are proposed to accomplish the increase in production. Plant operation has indicated that the existing equipment is capable of producing more sulfuric acid. A process flow diagram for the three identical plants is presented in Figure 3-1.

The emission limits for the sulfuric acid plants will be in accordance with the Federal New Source Performance Standards and Rule 17-2.600(2)(b), FAC; i.e., the sulfur dioxide and acid mist emission limits will be 4.0 pounds per ton and 0.15 pounds per ton of 100 percent sulfuric acid, respectively.

Table 3-1 summarizes the permitted, actual and proposed operating characteristics of the three sulfuric acid plants. The net emission changes as a result of the proposed project are summarized in Table 3-2.

The information presented in Table 3-2 shows there will be a significant net increase in the annual emissions of sulfur dioxide and sulfuric acid mist and a less than significant increase in the annual emissions of nitrogen oxides (as defined by Table 500-2, Chapter 17-2, FAC).

The only other air pollution source affected by the requested change at Seminole is the molten sulfur system. An after-the-fact permit was issued in 1990 by FDER for the existing molten sulfur system. This system has a total estimated SO_2 emission rate of about 2.1 lbs/hr and 7.6 tpy. No increase in the permitted molten sulfur handing rates or emission rates are requested as the currently permitted levels satisfy the proposed molten sulfur requirement.

As the increased acid production of Plants No. 4, 5, and 6 is a little less than the production capability of the inactive No. 3 plant, there will be a negligible overall decrease in the estimated actual SO_2 emissions from the molten sulfur system.

A PSD permit was issued by FDER for a gas turbine in 1991. The PSD review requirements for that project were triggered for NOx only. The sulfur dioxide emissions increase from that project was 8.3 lbs/hr and 36.4 tpy. However, the inclusion of these contemporaneous emissions increases to the net sulfur dioxide emissions increase from the sulfuric plants will not affect the PSD applicability for the sulfuric acid plants.

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 Regulation (FDER) 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 17-2 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 CAA. 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 1977 CAA Amendments, Congress quantified concentration increases above an air quality baseline concentration levels for sulfur dioxide (SO_2) and particulate matter (PM/TSP) 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 (NOx) and PSD increments for nitrogen dioxide (NO_2) concentrations. FDER adopted the NO_2 increments in July 1990 (see Table 3-6 for PSD increments).

In the PSD regulations, as amended August 7, 1980, 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 SO_2 and PM (TSP) and February 8, 1988, for NO_2, 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 17-2, 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 recently 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 FDER 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."

FDER 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. 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 Chapter 17-2, 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:

   $Hg = H + 1.5\ L$

   where:

   Hg - 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 sulfuric acid production increase at Seminole is classified as a major modification to a major facility subject to both state and federal regulations as set forth in Chapter 17-2, FAC. The facility is located in an area classified as attainment for each of the regulated air pollutants. The proposed modification to the Nos. 4, 5 and 6 sulfuric acid plants will result in significant increases in sulfur dioxide and acid mist emissions as defined by Rule 17-2.500(2)(e)2, FAC, and will therefore be subject to PSD preconstruction review requirements in accordance with FAC Rule 17-2.500. This will include a determination of Best Available Control Technology, an air quality review, Good Engineering Practice stack height analysis and an evaluation of impacts on soils, vegetation and visibility.

As the estimated increase in the emissions of nitrogen oxides as a result of the proposed project will be less than significant, no PSD preconstruction review is required.

TABLE 3-1
CHANGES IN EMISSION RATES

SEMINOLE FERTILIZER CORPORATION
POLK COUNTY, FLORIDA

	Sulfuric Acid Plant		
	4	5	6
Permit Allowable Conditions			
SO2 (lb/ton)	4.0	4.0	4.0
(lb/hr)	320.0	320.0	320.0
(TPY)	1401.6	1401.6	1401.6
Mist (lb/ton)	0.15	0.15	0.15
(lb/hr)	12.0	12.0	12.0
(TPY)	52.6	52.6	52.6
Average Operating Hours	8760	8760	8760
Actual Conditions			
SO2 (lb/ton)	3.39	3.35	3.32
(lb/hr)	282	287	288
(TPY)	1142.1	1240.6	1208.2
Mist (lb/ton)	0.052	0.069	0.107
(lb/hr)	4.30	5.92	9.3
(TPY)	17.4	25.6	39.0
Average Operating Hours	8100	8645	8390
Proposed Conditions			
SO2 (lb/ton)	4.0	4.0	4.0
(lb/hr)	380.0	380.0	380.0
(TPY)	1164.4	1164.4	1164.4
Mist (lb/ton)	0.15	0.15	0.15
(lb/hr)	14.25	14.25	14.25
(TPY)	62.4	62.4	62.4
Annual Operating Hours	8760	8760	8760

* Existing permits allow operation above 80 tph as long as the emission limits are not exceeded.

NOTE:

See Appendix for calculations of emission rates.

TABLE 3-2

SULFURIC ACID PLANTS
NET EMISSION INCREASES(1)

SEMINOLE FERTILIZER CORPORATION
POLK COUNTY, FLORIDA

Pollutant	Emissions (tons/yr) Sulfuric Acid Plant 4	5	6
SO2			
Present (actual)	1142.1	1240.6	1208.2
Proposed	1664.4	1664.4	1664.4
Change	522.3	423.8	456.2
Total Increase		1402.3	
Significant Increase (3)		40	
ACID MIST			
Present (actual)	17.4	25.6	39.0
Proposed	62.4	62.4	62.4
Change	45.0	36.8	23.4
Total Increase		105.2	
Significant Increase (3)		7	
NOx			
Present (actual) (2)	38.9	42.5	41.6
Proposed (2)	49.9	49.9	49.9
Change	11.0	7.4	8.3
Total Increase		26.7	
Significant Increase (3)		40	

(1) See Appendix for emission calculations.
(2) NOx emissions based on recent permits issued by FDER for similar sources.
(3) Presented in Table 500.2, Chapter 17-2, FAC.

TABLE 3-3
MAJOR FACILITY CATEGORIES

SEMINOLE FERTILIZER CORPORATION
POLK COUNTY, FLORIDA

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

SEMINOLE FERTILIZER CORPORATION
POLK COUNTY, FLORIDA

Pollutant	Significant Emission Rate tons/yr	De Minimis Ambient Impacts $\mu g/m^3$
CO	100	575 (8-hour)
NOx	40	14 (NO_2, Annual)
SO_2	40	13 (24-hour)
Ozone	40 (VOC)	-
PM	25	10 (24-hour)
PM10	15	10 (24-hour)
TRS (including H2S)	10	0.2 (1-hour)
H_2SO_4 mist	7	-
Fluorides	3	0.25 (24-hour)
Vinyl Chloride	1	15 (24-hour)
	pounds/yr	
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

SEMINOLE FERTILIZER CORPORATION
POLK COUNTY, FLORIDA

Pollutant	FDER (State)		USEPA (National)			
			Primary		Secondary	
	$\mu g/m^3$	PPM	$\mu g/m^3$	PPM	$\mu g/m^3$	PPM
SO_2, 3-hour	1,300	0.5	-	-	1300	0.5
24-hour	260	0.1	365	0.14	-	-
Annual	60	0.02	80	0.03	-	-
PM10, 24-hour	150	-	150	-	150	-
Annual	50	-	50	-	50	-
CO, 1-hour	40,000	35	40,000	35	-	-
8-hour	10,000	9	10,000	9	-	-
Ozone, 1-hour	235	0.12	235	0.12	235	0.12
NO_2, Annual	100	0.053	100	-	100	-
Lead, Quarterly	1.5	-	1.5	-	1.5	-

TABLE 3-6
PSD INCREMENTS

SEMINOLE FERTILIZER CORPORATION
POLK COUNTY, FLORIDA

Pollutant	Allowable PSD Increments (State/National) Class I $\mu g/m^3$	Class II $\mu g/m^3$	Class III $\mu g/m^3$
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

Sulfuric Acid Manufacturing

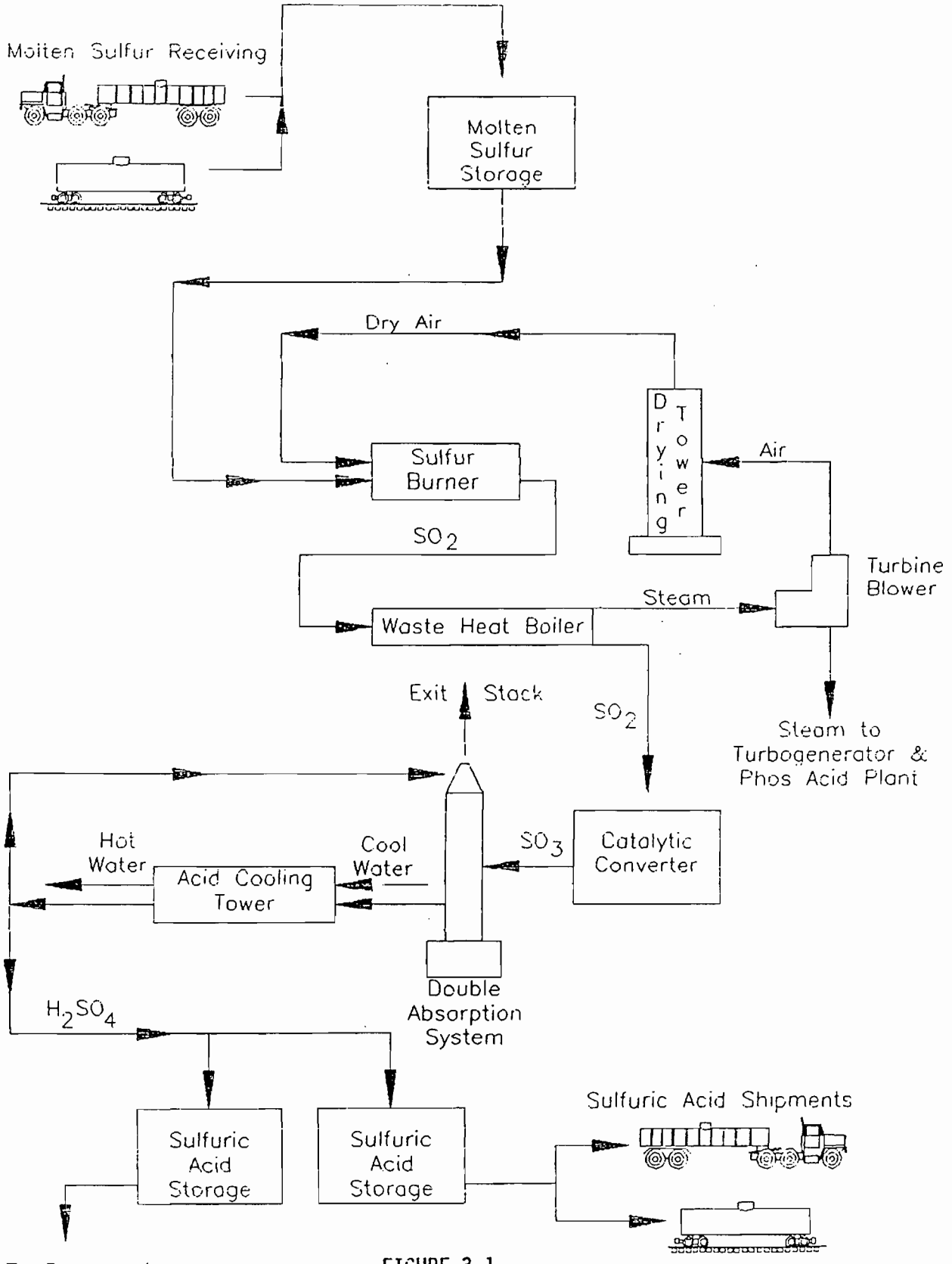


FIGURE 3-1
SULFURIC ACID MANUFACTURING PROCESS FLOW

SEMINOLE FERTILIZER CORPORATION

M-5 8-22-89 GRL

SEMINOLE

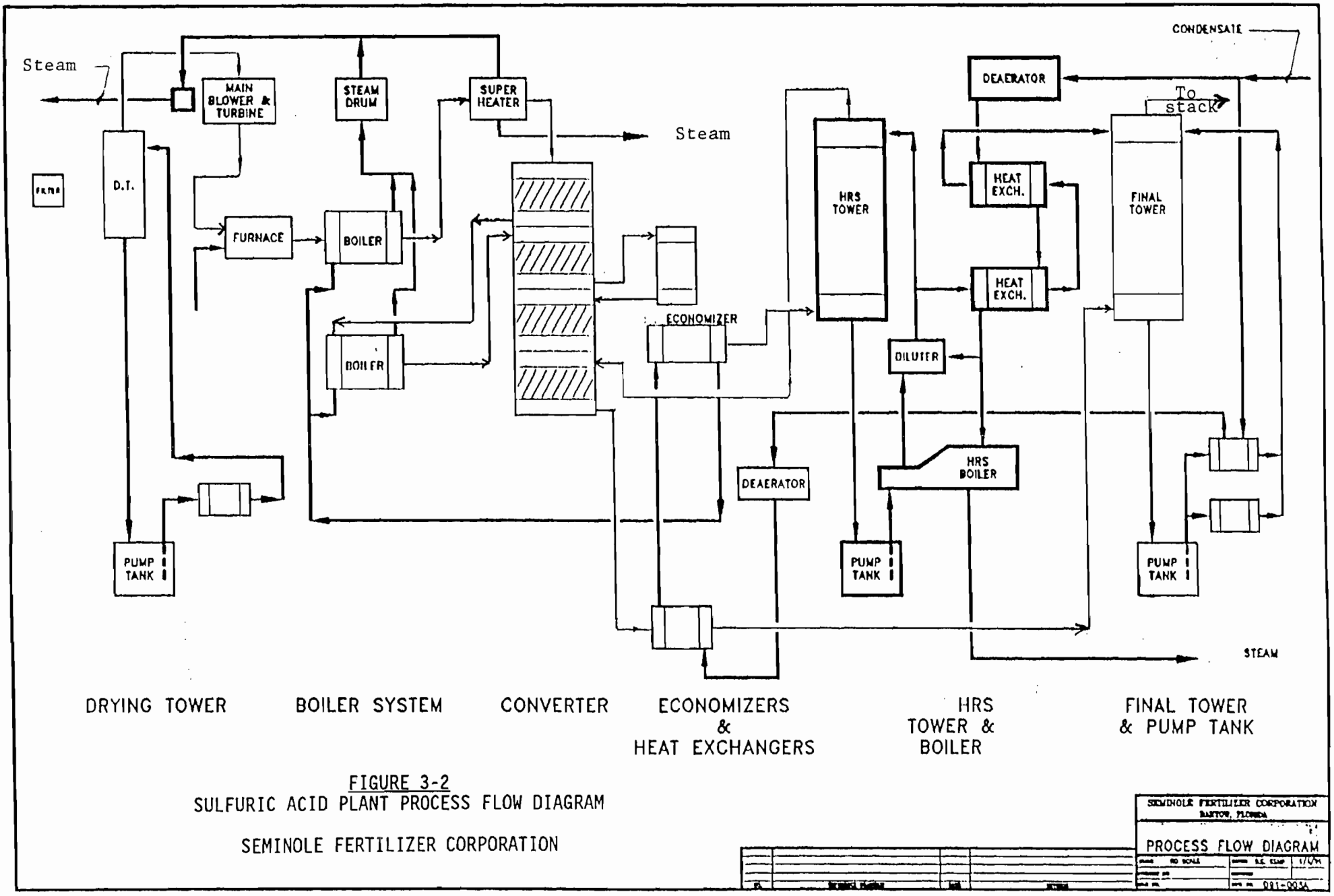


FIGURE 3-2
SULFURIC ACID PLANT PROCESS FLOW DIAGRAM

SEMINOLE FERTILIZER CORPORATION

SEMINOLE FERTILIZER CORPORATION
BARTOW, FLORIDA
PROCESS FLOW DIAGRAM
NO SCALE
D81-0036

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 Seminole have been summarized in Table 3-2. The sulfur dioxide and sulfuric acid mist emissions increase from the proposed project will represent a significant increase while nitrogen oxides emissions will be less than significant.

4.1 EMISSION STANDARDS FOR SULFURIC ACID PLANTS

Federal New Source Performance Standards (NSPS) for sulfuric acid plants became effective on August 17, 1971. These standards are codified in 40CFR60, Subpart H and require sulfur dioxide emissions to be limited to no more than 4.0 pounds per ton of 100 percent acid produced and require that sulfuric acid mist emissions be limited to no more than 0.15 pounds per ton of 100 percent acid produced. Additionally, the standards limit the opacity of the emissions from new sulfuric acid plants to less than 10 percent. There are no emission standards for nitrogen oxides from sulfuric acid plants.

EPA reviewed the New Source Performance Standards for sulfuric acid plants in 1985 (EPA-450/3-85-012). At that time, it was concluded that because of the expected variations in sulfur dioxide emissions "... the level of SO_2 emissions as specified in the current NSPS (should) not be changed at this time." Regarding the NSPS for sulfuric acid mist, EPA concluded, "Making the acid mist standard more stringent is not believed to be practical at this time because of the need to provide a margin of safety due to in-plant operating fluctuations, which introduce variable quantities of moisture into the sulfuric acid production line." It is our

understanding that there has been no change in EPA philosophy related to sulfuric acid plants since the 1985 review.

A review of BACT/LAER determinations published in the EPA Clearinghouse indicates that no new control alternatives have been applied to sulfuric acid plants that would result in a consistent reduction in sulfur dioxide emission below 4.0 pounds per ton of acid nor would result in a consistent reduction of sulfuric acid mist emissions below 0.15 pounds per ton of acid. No control technologies for nitrogen oxides are discussed in either the NSPS review or in BACT/LAER determinations.

4.2 CONTROL TECHNOLOGIES

The control of sulfur dioxide and sulfuric acid mist emissions from sulfuric acid plants can be achieved by various processes. The process of choice for sulfur dioxide control has been dual absorption and the process of choice for controlling sulfuric acid mist emission has been one of the various types of fiber mist eliminators. These processes have been selected based on cost, product recovery, the formation of no undesirable by-products and the fact that neither introduces operating processes that are foreign to plant personnel.

EPA published a review of NSPS for sulfuric acid plants in March 1985 (EPA-450/3-85-012). In that report, EPA reviewed 46 sulfuric acid plants built between 1971 and 1985. Of these 46 plants, 40 used the dual absorption process for sulfur dioxide control with the remaining six using some type of acid gas scrubbing. All 46 plants used the high efficiency mist eliminators for acid mist control. The control of nitrogen oxides in sulfuric acid plants has not been addressed to date because of the low concentration of nitrogen oxides in the tail gases of sulfuric acid plants. The nitrogen oxide concentration in the tail gas stream of a sulfuric acid plant has been measured in the range of 10 - 20 parts per million.

In the March 1985 review (EPA-450/3-85-012), EPA reviewed the control technologies that had been used to control sulfur dioxide and sulfuric

acid mist emissions from sulfuric acid plants. The alternatives included the dual absorption process, ammonia scrubbing, sodium sulfite-bisulfite scrubbing, and molecular sieves for sulfur dioxide control and filter type mist eliminators and electrostatic precipitators for sulfuric acid mist control. A review of the EPA BACT/LAER Clearinghouse information indicated that no other control alternatives have been considered for sulfuric acid plants. No control alternatives were addressed for nitrogen oxides control in either the 1985 EPA NSPS review or in the BACT/LAER Clearinghouse.

4.2.1 Sulfur Dioxide Control - Dual Absorption Process

The dual absorption process has become the SO_2 control system of choice within the sulfuric acid industry since the promulgation of NSPS in 1971. Of the 46 new sulfuric acid plants constructed between 1971 and 1985, 40 employed this process for sulfur dioxide control. The process offers the following advantages over other SO_2 control technologies:

1. 99.4 percent of the sulfur is converted to sulfuric acid compared with 97.7 percent conversion with a single absorption plant followed by scrubbing;

2. there are no by-products produced;

3. there are no new operating processes that plant personnel must become familiar with;

4. the process permits higher inlet sulfur dioxide concentrations resulting in a reduction in equipment size;

5. there is no reduction in overall plant operating time efficiency; and

6. there is no increase in manpower requirements.

The dual absorption process is capable of reducing sulfur dioxide emission rates to within 4.0 pounds per ton of acid as required by New Source Performance Standards. Recent BACT determinations (in 1992) also reflect a sulfur dioxide emission limit of 4.0 pounds per ton using the double absorption process.

4.2.2 Sulfuric Acid Mist Control - Fiber Mist Eliminators

The 46 new sulfuric acid plants constructed between 1971 and 1985, all used the fiber type mist eliminators for sulfuric acid mist control. Operations demonstrated that these types of mist eliminators can control sulfuric acid mist emissions to less than 0.15 pounds per ton of sulfuric acid.

The mist eliminators are the control of choice for sulfuric acid mist within the sulfuric acid industry because they require very little operation and maintenance attention and because of the small space requirement associated with these devices. The disadvantage of this type of mist eliminator is that the pressure drop across the elements varies from five to 15 inches of water; resulting in an increase in operating utility costs.

Recent BACT determinations (in 1992) also reflect a sulfuric acid mist emission rate of 0.15 lb/ton using fabric mist eliminators.

4.3 CONCLUSION

Based upon the discussion presented in the previous section, the dual absorption process is selected by Seminole as the control alternative limiting sulfur dioxide emissions to 4.0 pounds per ton of acid and the fiber type high efficiency mist eliminator for limiting sulfuric acid mist emissions to 0.15 pounds per ton of acid. There is no effective and demonstrated technology for controlling nitrogen oxides emissions from sulfuric acid plants.

Lower emission limits are not proposed in order to maintain an operation margin that will allow for the fluctuation in the emission rates (see attached graph of the continuous emissions monitoring data for sulfur dioxide).

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 17-2.500(3)(e)1, 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 increases and decreases in air pollutant emissions associated with the project, combined with all other applicable air pollutant emission rate increases and decreases associated with new sources affecting the project area, will not cause or contribute to an exceedance of the applicable PSD increments (defined by Rule 17-2.310, FAC). Additionally, 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 de minimis impact levels (see Table 3-4) for the air pollutants associated with the proposed project are:

Sulfur Dioxide	-	13.0 micrograms per cubic meter, 24-hour average
Sulfuric Acid Mist	-	NA

The air quality review for the proposed project included emission increases associated with the three sulfuric acid plants.

The modeling that has been conducted demonstrates that the net impact of the sulfur dioxide emissions increases addressed in this application are less than the de minimis impact levels defined by Rule 17-2.500, FAC and presented in Table 3-4. Therefore, air quality monitoring is not required.

The air quality modeling also demonstrates that the impact of the sulfur dioxide emission increases from the three sulfuric acid plants is less than significant for the 3-hour, 24-hour and annual periods. The modeling further shows the impact of sulfuric acid mist emissions associated with the proposed project is not expected to be of concern because of the low concentrations.

In the following sections, the air quality modeling for sulfur dioxide and sulfuric acid mist is described. Air quality modeling for nitrogen oxides is not required as the increase in nitrogen oxides emissions associated with the increased production in the sulfuric acid plants is less than 40 tons per year (less than significant emission rate increase).

5.1 AIR QUALITY MODELING FOR SULFUR DIOXIDE

As previously described, the emissions rate of sulfur dioxide used for air quality modeling purposes is the proposed increase in the emission rate associated with the increased sulfuric acid production rates of plant Nos. 4, 5 and 6. Table 5-1 contains modeling input parameters used in the ambient air quality impacts analysis.

5.1.1 Area of Significant Impact

The impact analysis of the net increase in sulfur dioxide emissions was conducted using the Industrial Source Complex-Short Term 2 (ISC-ST2) air quality model, Version 92062. The Area of Significant Impact (ASI) modeling was conducted in accordance with guidelines established by EPA and published in the document, Guideline for Air Quality Modeling, (Revised), July 1986. The meteorological data used with the model were for Tampa, Florida and represented the period 1982-1986.

The sulfur dioxide emissions modeled to determine the ASI were the net increase in emissions associated with the increases in the production rate of the three existing sulfuric acid plants. The currently permitted sulfur dioxide emissions were represented as negative inputs while the proposed sulfur dioxide emissions from the proposed project were represented as positive inputs to the model. It should be noted that the actual sulfur dioxide emissions are very close to the allowable emission limits as reflected by CEM data (attached) and therefore the allowable emissions were used in the modeling.

The ASI modeling included receptors established by the polar grid system extending to 3000 meters from the plant. Six sets of receptor rings were placed at distances ranging from 1360 to 3000 meters from the plant with receptors placed at 10 degree intervals from 10° to 360° on each receptor ring. The receptor ring at 1360 meters approximately corresponds to the nearest property boundary (see Figure 2-2).

The results of the ASI modeling, summarized in Table 5-2, demonstrate that the impacts of emission increases associated with the proposed project are less than significant for the three-hour, 24-hour and annual time periods. The ASI modeling also demonstrated that the impacts from the proposed project generally decrease beyond 2500 meters (see Table 5-2).

Also, since the predicted 24-hour sulfur dioxide impacts are less than the de minimis impact level of 13 μg/m3, ambient air monitoring is not required for the proposed project.

Since the predicted sulfur dioxide impacts from the proposed project are less than significant levels, no additional modeling was required for the Class II area analysis. However, a Class I area PSD increment analysis was performed to satisfy the National Park Service (NPS) concerns regarding the 24-hour period sulfur dioxide increment consumption.

5.1.2. Class I Area PSD Increment Analysis

The Class I area PSD increment analysis was performed for the 24-hour period to address the NPS concerns on increment violations. To evaluate the Class I area PSD increment consumption, the emission rates of all significant sources identified by FDER as being permitted after the applicable baseline date are input to the model along with emission rate reductions after the baseline date. The impacts of these emission rate increases and decreases are then compared with the allowable PSD increment for the applicable period of time. An extensive sulfur dioxide source inventory (previously submitted to FDER) was used for the modeling. The MESOPUFF II long range transport model (recommended by the NPS) was used to predict the PSD increment consumption at Chassahowitzka National Wildlife Refuge for sources beyond 50 kilometers from Chassahowitzka. The ISC-ST2 model was used to predict the PSD increment consumption for sources within 50 kilometers from Chassahowitzka.

The receptors chosen for the PSD increment modeling were suggested by FDER. The results of the PSD increment modeling are presented in Table 5-3. It is anticipated that the proposed project will not cause or significantly contribute to any violation of the allowable 24-hour PSD increment.

A detailed discussion of the modeling protocol is presented in the Appendix.

5.2 AIR QUALITY MODELING FOR SULFURIC ACID MIST

No ambient air quality standards, PSD increments or significant impact levels have been established for sulfuric acid mist. The FDER Air Toxics Policy (January 1991) does not include a No Threat Level (NTL) for sulfuric acid mist.

Ambient air quality impacts of acid mist for the proposed project corresponding to the increase in acid mist emissions for No. 4, 5, and 6 sulfuric acid plants can be estimated based on a ratio of the sulfur dioxide impacts. The predicted sulfuric acid mist impacts are summarized in Table 5-4. Considering the expected small magnitude of the sulfuric acid mist emissions from other sources and the distances of these sources from Seminole, it was assumed that, individually or collectively, the sources would not result in a significant contribution to ambient acid mist levels in the project area.

The maximum sulfuric acid mist impacts from the proposed project are predicted to occur at locations which are both remote and far from the population centers. Also, the sulfuric acid mist will be controlled by the Best Available Control Technology. As a result, the sulfuric acid mist emissions are not expected to be of concern.

TABLE 5-1

AIR QUALITY MODELING PARAMETERS

SEMINOLE FERTILIZER CORPORATION
POLK COUNTY, FLORIDA

No. 4, 5 and 6 H_2SO_4 Plants		Combined Emission Rates SO_2 (g/s)	Combined Emission Rates Acid Mist (g/s)	Ht (m)	Dia (m)	Vel (mps)	Temp (°K)
10	Existing	-121.07	-4.54	60.98	2.06	14.19	347
11	Proposed	143.77	5.39	60.98	2.06	19.02	355

TABLE 5-2

SUMMARY OF SULFUR DIOXIDE SIGNIFICANT IMPACT ANALYSIS

SEMINOLE FERTILIZER CORPORATION
POLK COUNTY, FLORIDA

METEOROLOGICAL DATA	SULFUR DIOXIDE IMPACT ($\mu g/m^3$)*		
	ANNUAL	3-HOUR	24-HOUR
1982	0.19 (2500m,70°)	16.20 (2000m, 110°)	3.79 (2000m, 360°)
1983	0.12 (3000m,80°)	17.29 (1500m, 70°)	3.60 (3000m, 250°)
1984	0.16 (3000m,90°)	18.89 (1750m, 90°)	4.56 (2000m, 90°)
1985	0.25 (2500m,70°)	21.22 (1500m, 80°)	3.35 (1750m, 80°)
1986	0.30 (2500m,90°)	19.30 (1360m, 80°)	4.62 (1750m, 90°)
Significant Impact (17-2.100(171)(a),FAC	1.0	25.0	5.0
De minimis Impact 17-2.500(3)(e)1,FAC	NA	NA	13.0

* Based on the increase in sulfur dioxide emissions from the proposed project of 180 lbs/hr, 22.7 g/s.

TABLE 5-3

CLASS I AREA SO2 PSD INCREMENT ANALYSIS

SUMMARY OF MESOPUFF/ISC-ST AIR QUALITY MODELING ANALYSES

SEMINOLE FERTILIZER CORPORATION
POLK COUNTY, FLORIDA

Option(1)	Impact of All Increment Consuming Sources(2)	Impact of Emissions from Proposed Seminole Project	
	Max 24-hour Impact > 5 μg/m3 When Seminole Impact >0.07 μg/m3 (Julian Day 1986) (μg/m3)	Max 24-hour Period (Julian Day 1986)	Max 24-hour Impact at any Class I Receptor (Julian Day 1986) (μg/m3)
Gaussian Vertical Dispersion Algorithm			
0	5.13	329	0.079

(1) Gaussian Dispersion Algorithm used for Vertical Dispersion

Option	Technical Model Options Employed
0	Gaussian Dispersion Only

(2) 24-Hour SO_2 Impact of all PSD increment consuming sources on Chassahowitzka Class I Area.

NOTE: The maximum 24-hour impact of all PSD increment consuming sources on Class I area is 6.20 micrograms per cubic meter (Day 135). The maximum 24-hour of the proposed project on the Class I area is 0.30 micrograms per cubic meter (Day 196).

TABLE 5-4

SUMMARY OF ACID MIST IMPACT ANALYSIS

SEMINOLE FERTILIZER CORPORATION
POLK COUNTY, FLORIDA

METEOROLOGICAL DATA	24-HR ACID MIST IMPACT ($\mu g/m^3$)
1982	0.14
1983	0.13
1984	0.10
1985	0.12
1986	0.17

NOTE: Predicted impacts are based on a ratio of acid mist to sulfur dioxide emissions and the magnitude of the maximum predicted sulfur dioxide impacts.

6.0 GOOD ENGINEERING PRACTICE STACK HEIGHT

The criteria for good engineering practice stack height in Rule 17-2.270 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.

Based on this policy, the limiting height for the two sulfuric acid plant stacks is 213 feet. Seminole's stacks are less than 213 feet in height above-grade. This will satisfy the good engineering practice (GEP) stack height criteria. It should be noted that the building wake effects were included in the modeling in accordance with the ISC-ST2 modeling guidelines.

7.0 IMPACTS ON SOILS, VEGETATION AND VISIBILITY

7.1 IMPACT ON SOILS AND VEGETATION

The U. S. Environmental Protection Agency was directed by Congress to develop primary and secondary ambient air quality standards. The primary standards were to protect human health and the secondary standards were to:

> "... protect the public welfare from any known or anticipated adverse effects of a pollutant."

The public welfare was to include soils, vegetation and visibility.

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 air quality modeling that has been conducted as a requirement for the PSD application demonstrates that the levels of sulfur dioxide expected from the proposed project is expected to have a less than significant impact at the project site. As a result, it is reasonable to conclude that there will be no adverse effect to the soils, vegetation or visibility of the area.

The Seminole property and the surrounding areas are comprised of mining lands (phosphate), flatwoods, marshes, and sloughs. The soils of the area are primarily sandy and are typically low in both clay and silt content. These characteristics and the semi-tropic climatic factors of high temperature and rainfall are the natural factors which determine the terrestrial communities of the region.

The land in the vicinity of Seminole supports various plant communities. Much of the natural vegetation on the site and the surrounding areas has been altered due to mining and industrial use; primarily the phosphate fertilizer industry. As a result of mining and industrial activity, there is very little undisturbed land in existence in the vicinity of the Seminole facility. As a result, no adverse impacts from the proposed project are expected on the soils and vegetation in the vicinity of the facility.

7.2 GROWTH RELATED IMPACTS

The proposed modification will require no increase in personnel to operate the sulfuric acid plants. Also, the increase in sulfuric acid production may cause a slight increase in delivery truck tanker 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

The proposed project will result in an increase in the sulfur dioxide emissions which has the potential for adverse impacts on visibility. However, EPA has noted in discussions on visibility models that the sulfates formation resulting from sulfur dioxide emissions becomes a factor beyond 200 kilometers. Since the air modeling predicts less than significant sulfur dioxide impacts in the vicinity of the facility, it can be concluded that the proposed project is not expected to have an adverse impact on visibility in the area.

7.4 IMPACTS ON AIR QUALITY RELATED VALUES FOR CLASS I AREA

In the previous sections, the impact of the sulfur dioxide emission increases on air quality related values within an area of significant impact of the emissions was addressed. The analysis addressed in this

section extends the review of the impact of increased emissions on air quality related values to the Chassahowitzka Class I PSD area; an area in excess of 100 kilometers northwest of the Seminole facility.

Air quality modeling with the MESOPUFF 2.0 air quality model indicates that the Class I area impact of sulfur dioxide emission increases expected at the Seminole facility will, at a maximum, be in the range of 0.3 micrograms per cubic meter, 24-hour average, depending upon the technical options incorporated in the MESOPUFF model.

7.4.1 Impact on Vegetation

The response of vegetation to air pollutants is influenced by the concentration of the pollutant, the duration of the exposure and the frequency of the exposure. The pattern of exposure expected from a single facility is that of a few episodes of relatively high concentrations interdispersed with long periods of no exposure or extremely low concentrations. This is the pattern of exposure that would be expected from sulfur dioxide and acid mist emissions from the proposed project at Chassahowitzka; with the estimated highest sulfur dioxide impact as estimated in the preceding paragraph.

Vegetation responds to a dose of an air pollutant with a dose being defined as the product of the concentration of the pollutant and the duration of the exposure. The impact of the sulfur dioxide emissions on Chassahowitzka regional vegetation was assessed by comparing pollutant doses that have been projected with air quality modeling to threshold doses reported in the literature.

Sulfur dioxide damage to vegetation can be grouped into two general categories: acute and chronic. Acute damage is caused by short-term exposure to relatively high concentrations of sulfur dioxide. This damage is usually characterized by a yellowing of leaf tips with a sharp, well defined separation between the damaged and healthy areas of a leaf. In

pine trees, injury usually first occurs at the base of the youngest needles (the newest tissue on the plant).

Damaged plants typically show decreased growth and yield. These effects vary widely between species but studies have shown a rough correlation between the loss and yield and the exposure dose. These studies showed approximately a 10 percent yield loss for each 10-fold increase in sulfur dioxide dose beyond 260 micrograms per cubic meter-hour.

Susceptibility to acute damage varies widely with plant species and also with the time of exposure. For example, alfalfa can tolerate 3250 micrograms per cubic meter for one hour (3250 micrograms per cubic meter-hour dose), but only 1850 micrograms per cubic meter for two hours (3700 micrograms per cubic meter-hour dose). Table 7-1 shows the sulfur dioxide concentration/time thresholds for several plant species common to Florida.

The vegetation in the Chassahowitzka area is characterized by flatwoods, brackish-water, marine and halothytic terrestrial species. Predominant tree species are slash pine, laurel oak, sweet gum and palm. Other plants in the area include needlegrass rush, seashore saltgrass, marsh hay and red mangrove.

A study of the tolerance of native Florida species to sulfur dioxide (Woltz and Howe, 1981) demonstrated that cypress, slash pine, live oak and mangrove exposed to 1300 micrograms per cubic meter of sulfur dioxide for 8-hours were not visibly damaged. This is consistent with the results reported in Table 7-1. Another study (McLaughlin and Lee, 1974) demonstrated that approximately 20 percent of a broad range of plants ranging from sensitive to tolerant were visibly injured when exposed to a sulfur dioxide concentration of 920 micrograms per cubic meter for a 3-hour period.

Acute injury results from a plants inability to quickly convert absorbed sulfur dioxide into the sulfate ion; an essential nutrient to plants. Chronic injury, on the other hand, results from a build-up of sulfate in tissue to the point where it becomes toxic. This sulfate build-up occurs over a relatively long period of time. Symptoms include a reduction in chlorophyll production resulting in decreased photosynthesis and yellow or reddish areas on leaves in a mottled pattern. In pines, sulfate injury is typically shown first at tips of older needles (the oldest tissue in the needle).

Chronic injury can result from sulfur dioxide exposures that are much lower than is required for acute injury. Unfortunately, there is a lack of quantitative experimental data for long term effects of sulfur dioxide exposure. The lowest average concentration for which chronic injury has been shown is 80 micrograms per cubic meter. The Environmental Protection Agency has therefore established an ambient air quality standard of 80 micrograms per cubic meter, annual average. The Florida Department of Environmental Regulation adopted a more conservative standard of 60 micrograms per cubic meter, annual average.

The maximum expected concentrations of acid mist in the Chassahowitzka area resulting from the increased emissions from Seminole will be less than four percent of the expected less than significant sulfur dioxide impacts. Furthermore, it would be expected that by the time acid mist droplets have traveled over 100 kilometers from Seminole to the Chassahowitzka area, the droplets would have reacted with particles in the atmosphere to produce a sulfate salt.

Salt deposition concentrations in coastal areas are in the range of 25-300 pounds per acre per year and may be as high as 4000 pounds per acre per year on exposed shorelines. Sulfates can account for 5 - 6 percent of the total salt; resulting in a deposition rate in the range of 1-200 pounds per acre per year.

One study (Mulchi Armbruster, 1975) demonstrated leaf damage in reduced yields in corn and soybeans with a salt deposition of 169 - 339 pounds per acre per year. Another study (Curtis, 1975) reported that broad leaf plants absorbed greater amounts of salt than do pines, probably due to leaf shape. It has been found that deciduous trees begin to exhibit adverse effects to salt exposure concentrations in the range of 100 micrograms per cubic meter (DeVine, 1975). The same study reported no observed injury to plants with long-term exposures to salt spray of 40 micrograms per cubic meter.

The sulfate concentrations resulting from acid mist emissions from Seminole are well below concentrations which have been reported to produce vegetation damage.

7.4.2 Impact on Soils

The major soil classification in the Chassahowitzka area is Weeki Wachee-Durbin muck. This is an euic, hyderthermic typic sufihemist that is characterized by high levels of sulfur and organic matter. This soil is flooded daily with the advent of high tide and the pH ranges between 6.1 and 7.8. The upper level of this soil may contain as much as four percent sulfur (USDA, 1991).

Based upon the maximum expected sulfur dioxide and sulfate concentrations in the Chassahowitzka area resulting from the increased emissions from Seminole, it is not expected that there will be a significant increase in the sulfur content of the native soils.

7.4.3 Impacts on Wildlife

As the predicted sulfur dioxide levels are below those known to cause affects to vegetation, the increased sulfur dioxide and acid mist emissions increases from Seminole are not expected to have any impact on the wildlife in the Chassahowitzka area.

7.4.4. Visibility Impairment Analysis

Visibility impairment analysis could be performed to determine potential visibility effects of the proposed Seminole project in the Chassahowitzka area. A screening approach suggested by EPA (Workbook for Plume Visual Impact Screening and Analysis, 1988) and computerized in a model referred to as VISCREEN could be used for the analysis.

In reviewing the applicability of the VISCREEN model, it was found that the sulfur dioxide and acid mist emission increases from Seminole are not required as model inputs because the distance from the proposed project to the Chassahowitzka area is less than 200 kilometers (Chapter 3 of the VISCREEN users manual). Also, the Class I visibility impairment analysis required by FDER and federal rules are limited to Class I areas within 100 kilometers of a source.

In view of the limitations of the VISCREEN model and the state and federal PSD regulations, no visibility impact analysis was deemed necessary for this project for the following reasons:

1. The distance from Seminole to the Chassahowitzka area is greater than 100 kilometers but less than 200 kilometers,

2. The VISCREEN model is not sensitive to sulfur dioxide emission for source-receptor distances less than 200 kilometers, and

3. The maximum sulfur dioxide impact of the proposed project in the Chassahowitzka area is expected to be in the 0.3 micrograms per cubic meter range, 24-hour average.

TABLE 7-1

SENSITIVITY OF VEGETATION TO SULFUR DIOXIDE

CONCENTRATION - TIME EXPOSURES TO
SULFUR DIOXIDE RESULTING IN DAMAGE TO
SEVERAL SPECIES COMMON TO FLORIDA

Sensitive Plants

Popular	Radish	Cabbage
Lombardy Popular	Cucumber	Broccoli
Black Willow	Squash	Spinach
Elm	Bean	Wheat
American Elm	Pea	Begonia
Southern pines	Soybean	Zinnia
Red Oak	Cotton	Rubber plant
Black Oak	Eggplant	Bluegrass
Sumac	Celery	Ryegrass

Intermediate Plants

Basswood	Yellow Popular	Virginia creeper
Red Oxier Dogwood	Sweetgum	Rose
Maples	Locust	Hibiscus
Red Maple	Eastern Cottonwood	Gladiolus
Elm	Saltgrass	Honeysuckle
Pine	Cucumber	Wisteria
White Oak	Tobacco	Chrysanthemum
Pin Oak	Potato	

Tolerant Plants

Juniper	Pine	Gardenia
Ginkgo	Sumac	Citrus
Dogwood	Cantaloupe	Celery
Oak	Corn	
Live Oak	Lily	

(Continued)

TABLE 7-1 (CONTINUED)

Exposure Time, Hours	Concentration Needed to Produce Injury ($\mu g/m^3$)		
	Sensitive	Intermediate	Tolerant
0.5	2,620 - 10,480	9,170 - 31,440	>26,200
1.0	1,310 - 7,860	6,550 - 26,200	>20,960
2.0	655 - 5,240	3,930 - 19,650	>15,720
4.0	262 - 2,620	1,310 - 13,100	>10,480
8.0	131 - 1,310	524 - 6,550	> 5,240

8.0 CONCLUSION

It can be concluded from the information in this report that the proposed increase in production rates of Seminole's sulfuric acid plants No. 4, 5 and 6 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 17-2, FAC.

REFERENCES

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APPENDIX

EMISSION RATE CALCULATIONS

PERMITTED EMISSION RATE CALCULATIONS (Each Plant)

SULFURIC ACID PLANTS NO. 4, 5, AND 6

SO_2: = 4.0 lbs/ton x 80 tons/hr
= 320.0 lbs/hr
x 8760 hrs/yr x ton/2000 lbs
= 1401.6 TPY

MIST: = 0.15 lb/ton x 80 tons/hr
= 12.0 lbs/hr
x 8760 hrs/yr x ton/2000 lbs
= 52.6 TPY

ACTUAL EMISSION RATE CALCULATIONS

(Emissions based on 1990-1991 compliance test results)

SULFURIC ACID PLANT NO. 4

SO_2: = 282 lbs/hr (average measured)
x 8100 hrs/yr x ton/2000 lbs
= 1142.1 TPY

MIST: = 4.30 lbs/hr (average measured)
x 8100 hrs/yr x ton/2000 lbs
= 17.4 TPY

NOx emissions based on the permitted production rate and a NOx emission factor used previously by FDER of 0.12 lb/ton:

NOx: = 80 tons/hr x 0.12 lb/ton
x 8100 hrs/yr x ton/2000 lbs
= 38.9 TPY

SULFURIC ACID PLANT NO. 5

SO_2: = 287 lbs/hr (average measured)
x 8645 hrs/yr x ton/2000 lbs
= 1240.6 TPY

MIST: = 5.92 lbs/hr (average measured)
x 8645 hrs/yr x ton/2000 lbs
= 25.6 TPY

NOx: = 80 tons/hr x 0.12 lb/ton
= 9.6 lbs/hr
x 8645 hrs/yr x ton/2000 lbs
= 41.5 TPY

SULFURIC ACID PLANT NO. 6

SO_2: = 288 lbs/hr (average measured)
x 8390 hrs/yr x ton/2000 lbs
= 1208.2 TPY

MIST: = 9.3 lbs/hr (average measured)
x 8390 hrs/yr x ton/2000 lbs
= 39.0 TPY

NOx: = 80 tons/hr x 0.12 lb/ton
= 9.6 lbs/hr
x 8390 hrs/yr x ton/2000 lbs
= 40.3 TPY

PROPOSED EMISSION RATE CALCULATIONS: (Each Plant)

SULFURIC ACID PLANTS NO. 4, 5 and 6

SO_2: = 95 tons/hr x 4.0 lbs/ton
= 380 lbs/hr
x 8760 hrs/yr x ton/2000 lbs
= 1664.4 TPY

MIST: = 95 tons/hr x 0.15 lb/ton
= 14.3 lbs/hr
x 8760 hrs/yr x ton/2000 lbs
= 62.4 TPY

NOx: = 95 tons/hr x 0.12 lb/ton
= 11.4 lbs/hr
x 8760 hrs/yr x ton/2000 lbs
= 49.9 TPY

NET ANNUAL EMISSION CHANGES

Total Actual SO_2 = (1142.1 + 1240.6 + 1208.2) TPY = 3590.9 TPY

Total Proposed SO_2 = 3 x 1664.4 TPY = 4993.2 TPY

Net Change SO_2 = (4993.2 - 3590.9) TPY = 1402.3 TPY

Total Actual Mist = (17.4 + 25.6 + 39.0) TPY = 82.0 TPY

Total Proposed Mist = 3 x 62.4 TPY = 187.2 TPY

Net Change Mist = (187.2 - 82.0) TPY = 105.2 TPY

Total Actual NOx = (38.9 + 41.5 + 40.3) TPY = 120.7 TPY

Total Proposed NOx = 3 x 49.9 TPY = 149.7 TPY

Net Change NOx = (149.7 - 120.7) TPY = 29.0 TPY

CONTEMPORANEOUS EMISSION CHANGES

Includes SO_2 emissions from gas turbine project permitted by FDER in 1991 (PSD for NOx).

SO_2 = (1402.3 + 36.4) TPY = 1438.7 TPY

Mist = (105.2 + 0) TPY = 105.2 TPY

NOx = (29.0 + 0) TPY = 29.0 TPY

JOB SO2 EMISSIONS : No. 4 S.A. PLANT

SHEET NO. CEM DATA OF

CALCULATED BY N.J. Martinez DATE 6-23-92

CHECKED BY -"- DATE Rev. 7-9-92

T.O: 10/24/92

No. 4 Sulfuric Acid Plant

lbs. SO_2/ton of H_2SO_4

4 #/t regs ppm

lbs. SO_2/t H_2SO_4 →

SCALE:

4.0 #
3.9
3.8
3.7
3.6
3.5 #
3.4
3.3 #
3.0 #

4.0
3.4
3.8
3.7

3/16 3/17 3/18 3/19 3/20 3/21 3/22 3/23 3/24 25

1992 DATES

PRODUCTION:										
TPD:	1877	1890	1831	1843	1925	1962	1937	1935	1925	190X
=TPH:	78.2	78.75	76.3	76.8	80.2	81.75	80.7	80.6	80.2	79.2

MODELING PROTOCOL
MESOPUFF-II MODEL

INTRODUCTION

As a greater number of air pollution sources are permitted under the PSD review process, an increasing concern has developed regarding the cumulative impacts of these sources on distance receptors. These concerns have been related to the consumption of Class I or Class II PSD increments and to the impacts of these sources on non-attainment areas. The conventional air quality models such as the ISC2 are not appropriate for assessing source impacts beyond approximately 50 kilometers because the models do not account for temporal or spacial variations in plume transport direction nor do they limit the downwind transport of a pollutant as a function of wind speed and travel time. To overcome these deficiencies in conventional air quality models, long range transport models such as the MESOPUFF-II have been developed.

The MESOPUFF-II is described in Appendix B (an "Appendix B" model) of the U.S. Environmental Protection Agency (EPA) *Guideline on Air Quality Models* (Revised), 1990. The "Appendix B" models can be used on a case-by-case basis only if they perform functions not available in "Appendix A" models. As previously discussed, the MESOPUFF-II is capable of accounting for several long-range transport and dispersion phenomena that are not addressed in "Appendix A" air quality models.

The version of MESOPUFF-II utilized by Koogler & Associates was obtained from the National Park Service (NPS) in early 1992. The model is currently recommended by EPA and NPS for estimating the impacts of sources that are 50 kilometers or more from a receptor. "Appendix A" models, such as the ISC2, are recommended for source-receptor distances less than 50 kilometers (EPA, 1990).

The MESOPUFF-II is a short-term plume transport model that mathematically simulates the transport and dispersion of pollutants from individual sources. A continuous plume from each source is modeled as a series of discrete puffs that are transported and dispersed independently until they leave the user-defined modeling grid. Pollutant concentrations are calculated at discrete receptors according to the proximity of a puff to a receptor and the concentration of a pollutant within a puff. The transport distance and direction are determined from hourly, gridded wind fields derived from one or more sets of meteorological data. Hourly pollutant concentrations are calculated at each receptor representing the cumulative impact of all sources input to the model. Longer term averages (3-hour, 24-hour and/or annual) are determined by block averaging hourly concentrations.

The MESOPUFF-II model consists of four individual programs; the READ62 and MESOPAC-II programs that pre-process meteorological data, the MESOPUFF-II dispersion model and the MESOFILE-II post-processing program. The READ62 program (an update of READ56) reads and processes the twice-daily upper wind and temperature sounding data. If data are missing, READ62 notes the

incomplete sounding and the user must complete the data set. The MESOPAC-II program is the meteorological pre-processor program that computes the time and space interpolated fields of meteorological variables. The MESOPAC-II reads the upper air data files created by READ62 and hourly surface meteorological data and precipitation data. These data are read for all meteorological stations in the MESOPUFF-II grid and a single output file, containing the derived meteorological fields, is produced as an input file to MESOPUFF-II.

Both MESOPAC-II and MESOPUFF-II employ a Cartesian coordinate reference grid consisting of three nested grids; a meteorological grid, a computational grid and a sampling grid. The meteorological grid defines the meteorological stations and the meteorological field which controls the transport and dispersion of pollutants, the computational grid defines that portion of the meteorological grid in which puffs are tracked and the sampling grid defines the receptor points at which pollutant concentrations are calculated.

The MESOPUFF-II utilizes the meteorological data file created by MESOPAC-II and source information to calculate hourly pollutant concentrations. In addition to accounting for plume meander, the model can also account for dry deposition, chemical transformation and wet removal of a pollutant.

The data generated by MESOPUFF-II is post-processed with MESOFILE-II. The format of this program was modified by Koogler & Associates to produce

concentration values for each receptor for each Julian day (24-hour period) of meteorological data utilized. Koogler & Associates also developed the program HIGH50 to produce tables of the highest and second-highest concentrations for each receptor and to produce maximum-50 or maximum-100 concentration tables for each model run.

The input to the MESOPUFF-II program included the data file generated by MESOPAC-II and an inventory of PSD increment consuming and expanding sulfur dioxide sources in west central Florida. The final inventory, included as Table 1, included 136 sources obtained from FDER permit files and from emission inventories in permit PSD applications on file with the FDER, Division of Air Resources Management, Tallahassee, Florida. The source data include source locations, sulfur dioxide emission rates (or emission reductions), stack heights and diameters, and stack gas temperatures and velocities. Source information associated with plume downwash was not included as MESOPUFF-II does not account for plume downwash.

As published, MESOPUFF-II limits the number of puffs in the computational grid to 500. Because a full year of meteorological data were utilized for each model run and because of the large number of sources (136), the model was expanded by Koogler & Associates to allow 2,000 puffs to be active at any one time. Even with this expansion of the model, only 20 sources could be run at a time.

SPATIAL SCALE

The meteorological grid used with MESOPUFF-II consisted of a 15 x 15 point grid with 20 kilometer spacing between grid points. This results in a grid that is 280 kilometers in both the east-west and a north-south dimensions. The southwest corner of the grid was located at UTM Zone 17, 270 km east and 2940 km north (latitude 26°33'49"N and longitude 83°18'32"W); or approximately 175 kilometers southwest of Tampa (Figure 1).

The computational grid is 10 grid points in the east-west dimension by 12 grid points in the north-south dimension. The southwest corner of the computational grid is located at point (3, 4) of the meteorological grid.

The sampling grid is defined by 13 discrete receptors defining the boundary of the Chassahowitzka National Wilderness Area. These receptors were selected by the Florida Department of Environmental Regulation, Division of Air Resources Management, Bureau of Air Regulation.

The computational grid was situated such that there was at least a two grid point buffer between sources and receptors and the boundary of the grid.

METEOROLOGICAL DATA BASE

The meteorological data for the full 1986 calendar year were selected for modeling. The use of these data was based upon ISC model runs which

indicated that these data would likely result in impacts that were more critical than impacts generated with any other meteorological data in the 1982 to 1986 data set.

Upper air rawinsonde data for Ruskin, Florida, West Palm Beach, Florida, and Waycross, Georgia, for calendar year 1986 were processed with the READ62 program. In the initial processing, it was observed that data from Waycross would require extensive editing to account for missing data. Also, initial modeling demonstrated that the upper air data from Waycross had no affect on the model because of the distance of the station from the edge of the meteorological grid and the closer proximity of other upper air stations. As a result, only upper air data from Ruskin and West Palm Beach, Florida, were processed through READ62 and incorporated into the input to MESOPAC-II.

Upper air measurements were processed by the program READ62. The top pressure level (model variable PSTOP) was set at 500 millibars. If READ62 indicated a reading for this pressure level or another required reading was missing, the value was estimated by interpolating between measurements from adjacent levels or by persisting the previous valid reading. Program options for READ62 are summarized in Table 2.

Surface observations for calendar year 1986 were obtained from the EPA SCRAM Bulletin Board for the three surface stations. These data were supplemental with data from the National Climatic Center to provide station pressure, relative humidity, a weather code designating

precipitation type and precipitation data. The precipitation data are no longer available in the required TD9657 format; thus data were obtained in the TD3280 format and converted to TD9657 format for use in MESOPAC-II. Missing surface data were estimated by assuming data persistence from the previous valid observation.

Land use information, required by MESOPAC-II to calculate surface roughness lengths, was obtained from the *Water Resource Atlas of Florida* (Florida State University, ISBN 0-9606708-1-5, 1984). The land use specified for each 20 by 20 kilometers cell of the meteorological grid was based upon the land use category representing the greatest fraction of the total area within each grid.

The program options selected for MESOPAC-II are summarized in Table 3.

APPLICATION OF MESOPUFF-II

The MESOPUFF-II was utilized to calculate 3-hour, 24-hour and annual sulfur dioxide concentrations at the 13 receptors used to define the Chassahowitzka National Wilderness Area. These averages were calculated by block averaging (as opposed to running averages) the hourly average concentrations generated by MESOPUFF-II. The sources of sulfur dioxide included in the MESOPUFF-II model were all significant PSD increment consuming and expanding sources beyond 50 kilometers of the Area. The sources included in the model are defined in Table 1. Sources within 50 kilometers of the Area were modeled with the ISC2 (Version 92062). Sulfur

dioxide impacts predicted by the two models were added, period by period.

The MESOPUFF-II is designed to simulate the meandering transport, dispersion, transformation and removal of pollutants. The transformation and removal mechanisms include dry deposition, chemical transformation and wet removal. The use of these options, if exercised, is defined in the presentation of model results.

The MESOPUFF-II simulates a continuously released pollutant plume with a series of discrete puffs. The greater the puff release rate, the more nearly the model simulates the continuous release of the pollutant. The disadvantage of increasing the puff release rate is the computational burden. Another factor influencing the selection of puff release rate is the source-receptor distance. The smaller this distance, the greater the puff release rate must be for the model to reasonably simulate plume behavior. Because all of the sources included in the MESOPUFF-II emission inventory were at distances of 50 kilometers or greater from the Chassahowitzka National Wilderness Area, and because of the large number of sources within the inventory, a puff release rate of one per hour (NPUF = 1) was selected. The puff sampling rate utilized by the model was a minimum of two per hour (NSAMAD = 2) and the reference wind speed used with the variable puff sampling option was two meters per second (WSAMP = 2).

To eliminate erratic results from sources close to the receptors, the minimum puff sampling age (AGEMIN) was set to 900 seconds. As only sources beyond 50 kilometers were modeled with MESOPUFF-II, a wind speed in excess of 55 meters per second (124 mph) would be required for AGEMIN to have an affect on the model.

The MESOPUFF-II option, utilizing a vertical Gaussian plume distribution in the mixed layer, was selected. The alternative was to assume an instantly dispersed plume throughout the mixed layer. The utilization of the Gaussian distribution more reasonably represents plume behavior for sources near the receptors but will not be of any great significance once plume travel time exceeds a few hours. Another model variable (TMDEP) was used to define the basis for establishing dispersion parameters. This variable was selected so that for distances up to 50 kilometers, the dispersion parameters would be distant dependent and for longer traveler distances, the parameters would be time dependent. All program options used with MESOPUFF-II are summarized in Table 4.

APPLICATION OF ISC2

In accordance with *Guideline on Air Quality Models* (Revised), EPA, 1990, all sources within 50 kilometers of the Chassahowitzka National Wilderness Area were modeled with the ISC2 (Version 92062) model. These sources are noted in Table 1. The modeling guidelines established by EPA were followed without exception. The meteorological data used with ISC2 were for Tampa, Florida, 1986; as used with MESOPUFF-II. The same 13 receptors

used with MESOPUFF-II were used to define the Chassahowitzka boundary. The model was run assuming flat terrain and plume downwash was not accounted for as all sources are 10 kilometers or more from the nearest receptor. The 24-hour average sulfur dioxide concentrations produced by ISC2 were added directly to the corresponding 24-hour average sulfur dioxide concentrations produced by MESOPUFF-II to obtain resulting 24-hour sulfur dioxide impacts for each of the 13 receptors.

TABLE 1

SO2 INVENTORIES

FGD

NO.	SO2	UTM-E	UTM-N	HT	TEMP	VEL	DIAM	SOURCE DESCRIPTION
100	-24.32	404.100	3078.950	24.38	339.0	12.94	1.52	AGRICO PIERCE DRYERS 1,2
110	-23.00	404.100	3078.950	24.38	339.0	18.82	2.43	AGRICO PIERCE DRYERS 3,4
130	-75.60	407.500	3071.300	45.73	350.0	26.40	1.60	AGRICO SO. PIERCE H2SO4 (2 @ 1800 TPD)
170	-6.48	394.800	3069.600	30.48	344.0	14.79	1.82	BORDEN DRYER
180	-5.29	414.500	3109.000	17.07	333.0	8.26	2.34	BORDEN DRYER
190	-19.60	404.800	3069.500	27.44	339.0	15.25	2.29	BREWSTER/IMPERIAL DRYER
210	-60.90	408.500	3082.500	30.49	350.0	12.20	1.37	CF BARTOW H2SO4 1 (400 TPD)
220	-110.25	408.500	3082.500	30.49	350.0	10.37	1.68	CF BARTOW H2SO4 2 (500 TPD)
230	-107.10	408.500	3082.500	30.49	364.0	4.27	2.74	CF BARTOW H2SO4 3 (600 TPD)
240	-174.83	408.500	3082.500	30.49	358.0	7.93	2.13	CF BARTOW H2SO4 4 (900 TPD)
260	-226.80	408.500	3082.500	63.41	358.0	10.67	2.13	CF BARTOW H2SO4 5 (900 TPD)
280	-170.10	408.500	3082.500	63.41	359.0	10.37	2.13	CF BARTOW H2SO4 6 (900 TPD)
300	-50.40	388.000	3116.000	60.35	353.0	16.40	2.44	CF PLANT CITY BASELINE C
310	-50.40	388.000	3116.000	60.35	353.0	16.40	2.44	CF PLANT CITY BASELINE D
330	-105.00	388.000	3116.000	18.80	316.0	18.80	1.52	CF PLANT CITY H2SO4 A&B
370	-3.88	398.400	3084.200	24.40	339.0	12.90	1.52	CONSERVE NICHOLS ROCK DRYER
380	-54.60	398.400	3084.200	30.50	308.0	18.90	1.80	CONSERVE NICHOLS (2 @ 1300 TPD & 4 LB/TON)
420	-5.68	404.813	3069.548	27.43	333.0	20.67	1.52	DOLIME DRYER
430	-4.52	404.813	3069.548	27.43	494.1	7.25	0.61	DOLINE BOILER
450	-6.53	405.600	3079.400	7.32	464.0	3.23	0.91	ELECTROPHOS 400 HP BOILER
460	-10.00	405.600	3079.400	6.10	464.0	7.71	0.91	ELECTROPHOS 600 HP BOILER
470	-7.11	405.600	3079.400	25.61	306.0	6.97	2.13	ELECTROPHOS CALCINER
480	-2.97	405.600	3079.400	18.29	322.0	22.87	0.70	ELECTROPHOS COKE DRYER
490	-47.25	405.600	3079.400	29.27	314.0	8.52	2.13	ELECTROPHOS FURNACE (31.25 TPH ROCK @ 3% S)
500	-20.90	405.600	3079.400	18.29	350.0	6.79	1.83	ELECTROPHOS ROCK DRYER
520	-23.94	411.500	3074.200	18.29	339.0	8.47	2.95	ESTECH/SWIFT DRYER
530	-22.80	411.500	3074.200	18.75	340.0	5.06	2.95	ESTECH/SWIFT DRYER
540	-92.87	411.500	3074.200	30.79	358.0	3.90	2.13	ESTECH/SWIFT SAP (610 TPD & 29 LB/TON)
560	-83.98	409.500	3079.500	30.48	311.0	20.18	1.37	FARMLAND 1,2 H2SO4
620	-314.00	334.200	3204.500	152.00	422.0	42.10	4.57	FPC CRYSTAL RIVER 1
630	-1859.00	334.200	3204.500	153.00	422.0	42.10	4.88	FPC CRYSTAL RIVER 2
690	-28.89	363.400	3082.400	20.73	310.0	13.12	1.07	GARDINIER/CARGILL DRYER
700	-196.30	363.400	3082.400	22.60	322.0	19.51	1.52	GARDINIER/CARGILL SAP 4,5,6
720	-50.71	363.400	3082.400	45.72	355.0	9.20	2.29	GARDINIER/CARGILL SAP 7
750	-62.99	358.000	3090.600	35.97	505.2	17.61	2.74	GEN. PORT. CEMENT KILN 4
760	-69.30	358.000	3090.600	45.42	494.1	5.80	3.81	GEN. PORT. CEMENT KILN 5
840	-34.27	396.600	3078.900	21.00	347.0	18.60	2.13	IMC NEW WALES ROCK DRYER
850	-146.00	396.600	3078.900	61.00	350.0	14.28	2.60	IMC NEW WALES SAP #1,2,3 BASELINE
940	-13.89	398.300	3084.300	28.40	340.0	19.24	1.09	MOBIL NICHOLS CALCINER
1050	-152.71	406.700	3085.200	51.00	356.0	9.90	2.13	ROYSTER MULBERRY (1003 TPD @ 29 LB/TON)
1080	-4.86	325.600	3116.700	7.32	464.0	3.23	0.91	STAUFFER BOILER
1090	-1.50	325.600	3116.700	18.29	322.0	22.87	0.70	STAUFFER DRYER
1100	-50.93	325.600	3116.700	49.00	335.0	3.60	1.20	STAUFFER FURNACE
1110	-7.36	325.600	3116.700	25.61	306.0	6.97	2.13	STAUFFER KILN
1120	-0.45	325.600	3116.700	25.61	322.0	6.97	0.91	STAUFFER ROASTER
1130	-1218.00	361.900	3075.000	149.40	418.0	14.33	7.32	TECO BIG BEND UNIT 3 (24-HR)
1150	-2436.00	361.900	3075.000	149.40	422.0	28.65	7.32	TECO BIG BEND UNITS 1&2 (24-HR)
1160	-4.99	413.200	3086.300	15.80	332.0	10.01	1.83	USS AGRI-CHEM BARTOW DRYER
1170	-41.90	413.200	3086.300	28.96	305.0	7.50	2.12	USS AGRI-CHEM BARTOW SAP (800 TPD & 10 LB/TON)
1180	-18.27	416.120	3068.620	28.35	330.0	17.60	1.52	USSAC FT MEADE GTSP
1210	-78.80	416.120	3068.620	29.00	314.0	6.77	3.02	USSAC FT MEADE H2SO4 (1500 TPD @ 10 LB/TON)
1220	-15.79	416.120	3068.620	25.60	332.0	16.26	1.52	USSAC FT MEADE ROCK DRYER
1230	-39.41	409.770	3086.990	15.24	327.0	17.32	2.04	W.R. GRACE/SEMINOLE DRYER
1240	-108.00	409.770	3086.990	45.72	352.0	16.50	1.37	W.R. GRACE/SEMINOLE SAP #1
1250	-108.00	409.770	3086.990	45.72	352.0	16.50	1.37	W.R. GRACE/SEMINOLE SAP #2
1270	-52.50	409.770	3086.990	45.72	311.0	16.70	1.52	W.R. GRACE/SEMINOLE SAP #3

TABLE 1...CONTINUED

120	4.41	407.500	3071.330	38.10	328.0	14.60	3.10	AGRICO SD. PIERCE DAP PLANT
140	113.50	407.500	3071.300	45.73	350.0	39.06	1.60	AGRICO SD. PIERCE H2SO4 (2 @ 2700 TPD)
150	2.25	359.900	3162.400	12.20	377.0	10.58	1.37	ASPHALT PAVERS 3 (0700-1800)
160	2.25	361.400	3168.400	8.50	357.4	10.95	1.08	ASPHALT PAVERS 4 (0700-1800)
200	3.97	408.500	3082.500	36.40	339.0	16.11	2.13	CF BARTOW DAP 1-3
250	50.40	408.500	3082.500	63.41	361.0	10.88	2.13	CF BARTOW H2SO4 5 (2400 TPD)
270	50.40	408.500	3082.500	63.41	370.0	7.28	2.13	CF BARTOW H2SO4 6 (2400 TPD)
290	42.00	408.500	3082.500	67.10	351.0	9.80	2.40	CF BARTOW H2SO4 7 (2000 TPD)
320	88.20	388.000	3116.000	33.50	316.0	19.50	1.50	CF PLANT CITY H2SO4 A&B
340	54.60	388.000	3116.000	60.35	353.0	17.77	2.44	CF PLANT CITY PROPOSED C
350	54.60	388.000	3116.000	60.35	353.0	17.77	2.44	CF PLANT CITY PROPOSED D
360	13.00	361.800	3088.300	30.00	375.0	20.10	0.61	CLM CHLORIDE METALS
390	42.00	398.400	3084.200	45.70	352.0	10.30	2.30	CONSERVE NICHOLS (2000 TPD @ 4 LB/TON)
400	7.25	340.700	3119.500	9.14	436.0	22.30	1.40	COUCH CONST-ODESSA (ASPHALT)
410	3.54	390.300	3129.400	6.10	422.0	21.00	1.38	COUCH CONST-ZEPHYRHILLS (ASPHALT)
440	0.23	340.600	3119.200	12.20	339.0	6.47	3.05	DRIS PAVING (ASPHALT)
510	0.82	386.700	3155.800	10.67	327.0	8.99	1.83	ER JAHNA (LIME DRYER)
550	0.20	383.300	3135.800	12.30	466.2	9.20	0.40	EVANS PACKING
570	67.16	409.500	3079.500	30.48	355.0	9.27	2.29	FARMLAND 3,4 H2SO4
580	41.96	409.500	3079.500	45.72	355.0	9.65	2.44	FARMLAND 5 H2SO4
590	2.99	382.200	3166.100	9.14	478.0	4.57	0.61	FDOC BOILER 3
600	1.45	356.200	3169.900	32.01	394.0	9.90	4.27	FLA MINING & MATERIALS KILN 2
610	98.40	360.008	3162.398	97.60	442.0	23.23	4.88	FLORIDA CRUSHED STONE KILN 1
640	1008.80	334.200	3204.500	182.90	398.0	21.00	6.90	FPC CRYSTAL RIVER 4
650	1008.00	334.200	3204.500	182.90	398.0	21.00	6.90	FPC CRYSTAL RIVER 5
660	466.40	467.500	3197.200	15.24	819.8	56.21	4.21	FPC DEBARY PROP TURBINES AT 20 DEG F
670	310.90	446.300	3126.000	15.24	819.8	56.21	4.21	FPC INT. CITY PROP TURBINES/7EA AT 20 DEG F
680	279.10	446.300	3126.000	15.24	880.8	32.07	7.04	FPC INT. CITY PROP TURBINES/7FA AT 20 DEG F
710	46.20	363.400	3082.400	45.72	355.0	9.20	2.29	GARDINIER/CARGILL SAP 7
730	52.50	363.400	3082.400	45.72	355.0	8.63	2.44	GARDINIER/CARGILL SAP 8
740	54.60	363.400	3082.400	45.72	344.0	12.50	2.74	GARDINIER/CARGILL SAP 9
770	277.60	404.800	3057.400	22.90	389.0	23.90	4.88	HARDEE
780	21.40	368.200	3092.700	50.00	491.0	18.30	1.80	HILLS CO RESOURCE RECOVERY
790	0.08	333.400	3141.000	10.98	533.0	4.00	0.31	HOSP CORP OF AM BLR 1
800	0.08	333.400	3141.000	10.98	533.0	4.00	0.31	HOSP CORP OF AM BLR 2
810	0.20	396.600	3078.900	52.40	322.0	13.10	2.40	IMC NEW WALES AFI PLANT
820	5.54	396.600	3078.900	36.60	319.1	20.15	1.83	IMC NEW WALES DAP
830	4.80	396.600	3078.900	52.40	314.0	15.80	1.40	IMC NEW WALES MULTIPHOS
860	189.00	396.600	3078.900	61.00	350.0	15.31	2.60	IMC NEW WALES SAP #1,2,3 (3 @ 3000 TPD)
870	126.00	396.600	3078.900	60.70	350.0	15.31	2.60	IMC NEW WALES SAP #4,5 (2 @ 3000 TPD)
880	32.10	460.100	3129.300	18.30	422.0	38.00	3.66	KISSIMMEE UTIL EXIST
890	5.04	434.000	3198.800	30.48	384.3	17.13	3.35	LAKE CO. COGEN. FACILITY PROPOSED
900	500.10	408.500	3105.800	76.20	350.0	19.70	4.88	LAKELAND MCINTOSH #3
910	29.11	409.185	3102.754	30.48	783.2	28.22	5.79	LAKELAND UTILITIES CT
920	0.60	394.800	3067.720	8.20	505.0	7.57	0.41	MOBIL BIG-4 BOILER
930	1.90	394.850	3069.770	30.50	334.0	7.26	1.82	MOBIL BIG-4 DRYER
950	2.44	398.300	3084.300	25.90	328.0	10.07	1.83	MOBIL NICHOLS DRYER 4
960	0.06	331.200	3124.500	10.98	544.0	3.88	0.31	NEW PORT RICHEY HOSP BLR 1
970	0.03	331.200	3124.500	10.98	544.0	3.88	0.31	NEW PORT RICHEY HOSP BLR 2
980	2.09	359.800	3164.900	7.62	347.0	6.29	1.83	OMAN CONST (ASPHALT)
990	105.40	483.500	3150.600	167.60	325.7	21.60	5.80	ORLANDO UTIL STANTON 1
1000	242.40	483.500	3150.600	167.60	324.2	23.50	5.80	ORLANDO UTIL STANTON 2 (24-HR)
1010	3.67	355.900	3143.700	9.14	408.0	16.00	1.30	OVERSTREET (PAVING)
1020	14.10	347.100	3139.200	83.82	394.3	15.70	3.05	PASCO COUNTY RRF
1030	5.04	385.600	3139.000	30.48	384.3	17.13	3.35	PASCO CO. COGEN. FACILITY PROPOSED
1040	62.24	335.300	3084.400	49.10	522.0	27.72	2.74	PINELLAS RRF
1060	35.70	406.700	3085.200	61.00	360.0	12.20	2.13	ROYSTER MULBERRY (1700 TPD @ 4 LB/TON)
1070	111.20	464.300	3035.400	45.70	446.0	24.10	1.80	SEBRING UTIL 1 & 2
1140	654.70	361.900	3075.000	149.40	342.2	19.81	7.32	TECO BIG BEND UNIT 4
1190	63.00	416.120	3068.620	53.40	355.0	15.91	2.59	USSAC FT MEADE H2SO4 1

TABLE 1...CONTINUED

1200	63.00	416.120	3068.620	53.40	355.0	15.91	2.59 USSAC FT MEADE H2SO4 2
1260	42.87	409.770	3086.990	45.72	311.0	16.70	1.52 W.R. GRACE/SEMINOLE SAP #3
1280	143.77	409.770	3086.990	61.00	347.0	14.20	2.06 W.R. GRACE/SEMINOLE SAP #4
1290	13.80	416.700	3100.400	99.10	350.0	14.54	3.05 RIDGE COGENERATION
1300	6.35	420.800	3103.300	48.80	411.0	14.30	5.49 AUBURNDALE 65% LOAD

TABLE 2

OPTIONS SELECTED FOR READ62

Variable	Description	Selected Value
1. CARD 1 - STARTING AND ENDING HOURS, UPPER PRESSURE LEVEL		
IBYR, IBDAY, IBHR, IEYR, IEDAY, IEHR	Starting and ending year, day, hour	As needed
PSTOP	Top pressure level for which data are extracted	500 mb
2. CARD 2 - MISSING DATA CONTROL VARIABLES		
LHT	Height field control variable	True
LTEMP	Height field control variable	True
LWD	Wind direction field control variable	True
LWS	Wind speed field control variable	True

TABLE 3

OPTIONS SELECTED FOR MESOPAC-II

Variable	Description	Selected Value
1. CARD GROUP 1 - TITLE		
TITLE	Title of run	As needed
2. CARD GROUP 2 - GENERAL RUN INFORMATION		
NYR, IDYSTR, IHRMAX	Year, start, day and number	As needed
NSSTA, NUSTA	Number of surface and rawinsonde stations	As needed
3. CARD GROUP 3 - GRID DATA		
IMAX, JMAX	Number of grid points in the X and Y direction	15, 15
DGRID	Grid spacing	20 km
4. CARD GROUP 4 - OUTPUT OPTIONS		
VARIOUS	Disk and printer control variables for writing data to disk	As needed
5. CARD GROUP 5 - LAND USE CATEGORIES AT EACH GRID POINT		
ILANDU	Land use categories at each grid point	15 by 15 array

(Continued)

TABLE 3 (CONTINUED)

Variable	Description	Selected Value
6. CARD GROUP 6 - DEFAULT OVERRIDE OPTIONS		
IOPTS(1)	Surface wind speed measurement heights control variable	0 (Default-10 m)
IOPTS(2)	von Karman constant control variable	0 (Default)
IOPTS(3)	Friction velocity constants control variable	0 (Default)
IOPTS(4)	Mixing height constants control variable	0 (Default)
IOPTS(5)	Wind speed control variable	0 (Default - RADIUS=99 km, ILWF = 2, IUWF = 4)
IOPTS(6)	Surface roughness lengths control variable	0 (Default)
IOPTS(7)	Option to adjust heat flux estimate	0 (Default)
IOPTS(8)	Radiation reduction factors control variable	0 (Default)
IOPTS(9)	Heat flux constant control variable	0 (Default)
IOPTS(10)	Option to begin run at date other than at start of meteorological data files	0 or 1, as needed
7 - 14. CARD GROUPS 7 TO 14		
VARIOUS	Options input to override default values	Not used

(Continued)

TABLE 3 (CONTINUED)

Variable	Description	Selected Value
15. CARD GROUP 15 - SURFACE STATION DATA		
VARIOUS	Surface meteorological station information	As needed
16. CARD GROUP 16 - RAWINSONDE STATION DATA		
VARIOUS	Rawinsonde meteorological station information	As needed

TABLE 4

OPTIONS SELECTED FOR MESOPAC-II

Variable	Description	Selected Value
1. CARD GROUP 1 - TITLE		
TITLE	Title of run	As needed
2. CARD GROUP 2 - GENERAL RUN INFORMATION		
NSYR, NSDAY, NSHR	Year, start day and hour	As needed
NADVIS	Number of hours in run	As needed
NPTS	Number of point sources	As needed
NAREAS	Number of area sources	Not used
NREC	Number of non-gridded receptors	13 (Class I Area)
NSPEC	Number of chemical species to model	1 (SO2)
3. CARD GROUP 3 - COMPUTATIONAL VARIABLES		
IAVG	Concentration averaging time	24 hours
NPUF	Puff release rate for each source	1 puff/hr
NSAMAD	Minimum sampling rate	2 samples/hr
LVSAMP	Variable sampling rate option	True (increase rate with higher wind speeds)
WSAMP	Reference wind speed height (used if LVSAMP is true)	10 m
LSGRID	Control variable for concentration computations at sampling grid points	False (sampling at non-gridded points only
AGEMIN	Minimum age of puffs to be sampled	900 seconds

(Continued)

TABLE 4 (CONTINUED)

Variable	Description	Selected Value
4. CARD GROUP 4 - GRID INFORMATION		
VARIOUS	Numbers that define the beginning and end of the meteorological and computational grids	1, 15
MESHDN	Sampling grid spacing factor	1
5. CARD GROUP 5 - TECHNICAL OPTIONS		
LGAUSS	Vertical concentration distribution option	True
LCHEM	Chemical transformation option	True/False(1)
LDRY	Dry deposition option	True/False(1)
LWET	Wet deposition option	True/False(1)
L3VL	Three vertical layer option	False(1)
6. CARD GROUP 6 - DEFAULT OVERRIDE OPTIONS		
VARIOUS	Disk and printer option to write data to disk	As needed
LPRINT	Printer output option (Print every IPRINT hours)	True
IPRINT	Printing interval	24 hours

(Continued)

TABLE 4 (CONTINUED)

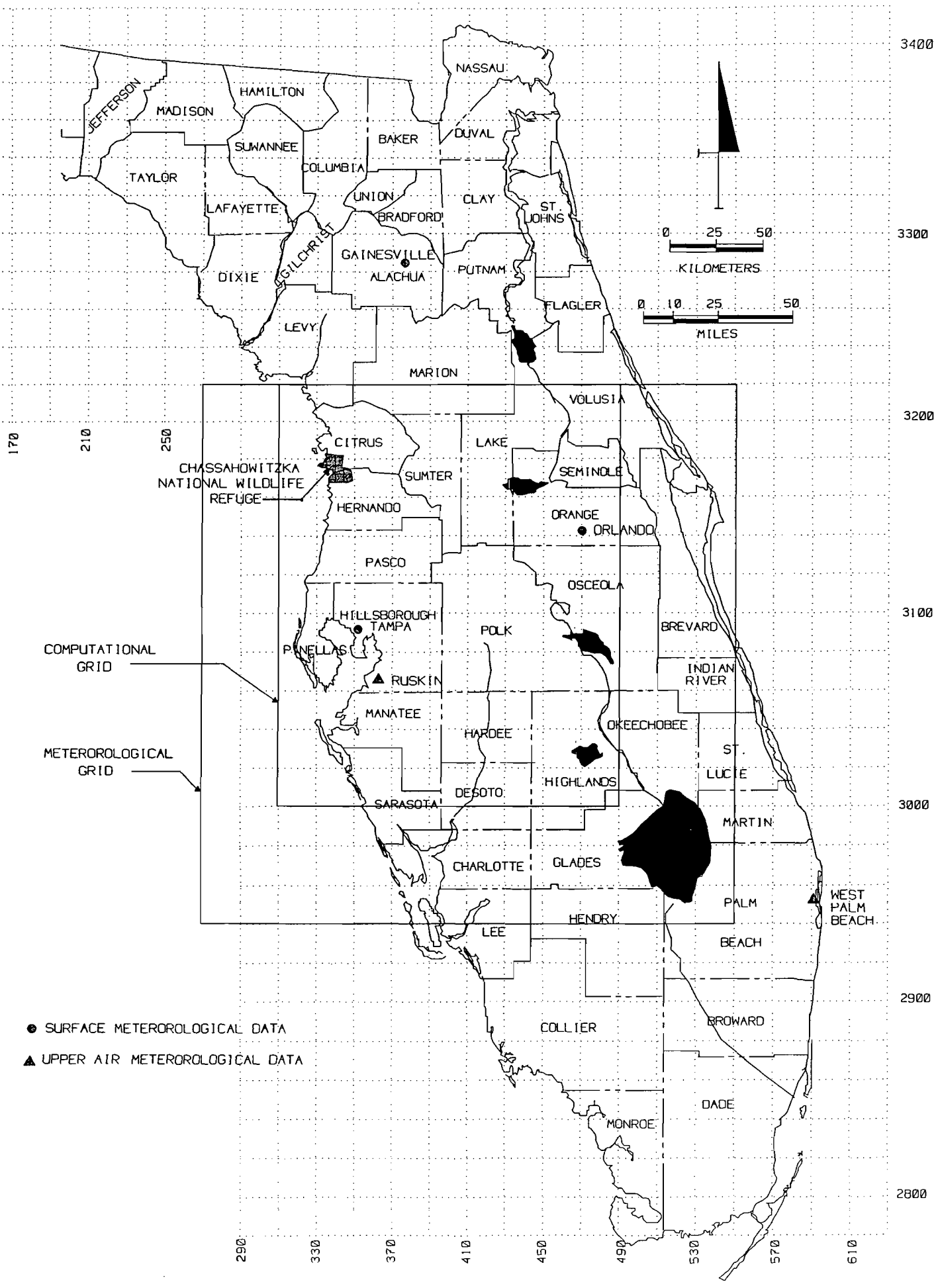
Variable	Description	Selected Value
7. CARD GROUP 7 - DEFAULT OVERRIDE OPTIONS		
IOPTS(1)	Control variable for input of dispersion parameters	1 (see Card Group 8)
IOPTS(2)	Control variable for input of diffusivity constants	0 (Default)
IOPTS(3)	Control variable for input of SO2 canopy resistance	0 (Default)
IOPTS(4)	Control variable for input of dry deposition parameters	0 (Default)
IOPTS(5)	Control variable for input of wet removal parameters	0 (Default)
IOPTS(6)	Control variable for input of chemical transformation method	0 (Default)
8. CARD GROUP 8 - DISPERSION PARAMETERS		
AY, BY, ZY BZ, AZT	Arrays of dispersion coefficients	Default
TMDEP	Distance beyond which the time-dependent equations are used for Sigma Y and Z	50,000 m
JSUP	Stability class used to determine growth rates for puffs above boundary layer	5 (Default)
9-13. CARD GROUPS 9 TO 13		
VARIOUS	Options input to override default values	Not used

(Continued)

TABLE 4 (CONTINUED)

Variable	Description	Selected Value
14. CARD GROUP 14 - POINT SOURCE DATA		
VARIOUS	Point source information-location, stack and emission data	As needed
15. CARD GROUP 15 - AREA SOURCE DATA		
VARIOUS	Area source information-location, initial dispersion and emission data	Not used
16. CARD GROUP 16 - NON-GRIDDED RECEPTOR COORDINATES		
XREC, YREC	X and Y coordinates of non-gridded receptors	Used

(1) Model runs use various combinations of these transformation and removal options. The use is identified in model output.


NASSAU
JEFFERSON
MADISON
HAMILTON
SUWANNEE
BAKER
DUVAL
TAYLOR
COLUMBIA
LAFAYETTE
UNION
CLAY
ST. JOHNS
BRADFORD
GILCHRIST
GAINESVILLE
ALACHUA
PUTNAM
DIXIE
FLAGLER
LEVY
MARION
VOLUSIA
CITRUS
LAKE
CHASSAHOWITZKA NATIONAL WILDLIFE REFUGE
SUMTER
SEMINOLE
HERNANDO
ORANGE
ORLANDO
PASCO
OSCEOLA
HILLSBOROUGH
TAMPA
POLK
BREVARD
PINELLAS
INDIAN RIVER
RUSKIN
MANATEE
HARDEE
OKEECHOBEE
ST. LUCIE
HIGHLANDS
DESOTO
SARASOTA
MARTIN
CHARLOTTE
GLADES
PALM BEACH
HENDRY
LEE
COLLIER
BROWARD
DADE
MONROE
COMPUTATIONAL GRID
METERROLOGICAL GRID
SURFACE METERROLOGICAL DATA
UPPER AIR METERROLOGICAL DATA
0 25 50
KILOMETERS
0 10 25 50
MILES
170
210
250
290
330
370
410
450
490
530
570
610
3400
3300
3200
3100
3000
2900
2800