

Florida Department of Environmental Regulation

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

Lawton Chiles, Governor

Carol M. Browner, Secretary

March 10, 1992

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Selwyn Presnell, Environmental Manager
Agrico Chemical Company
P. O. Box 1110
Mulberry, Florida 33860

Dear Mr. Presnell:

Attached is one copy of the Technical Evaluation and Preliminary Determination and proposed permits for the modifications to the molten sulfur storage and handling facility and the Nos. 10 and 11 sulfuric acid plants at Agrico's phosphate fertilizer plant located on State Road 630 near Fort Meade, 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

c: Bill Thomas, SWD
Jewell Harper, EPA
John Koogler, P.E.
Chris Shaver, NPS

*Sent Fed.
Express to
Agrico & SW Dist.
3/11/92*

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

CERTIFIED MAIL

In the Matter of an
Application for Permits by:

DER File No. AC 53-201152
AC 53-199112
PSD-FL-179

Mr. Selwyn Presnell
Agrico Chemical Company
P. O. Box 1110
Mulberry, Florida 33860

INTENT TO ISSUE

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

The applicant, Agrico Chemical Company, applied on August 12, 1991, to the Department of Environmental Regulation for permits to modify the molten sulfur storage and handling facility and on June 28, 1991, for permits to modify the Nos. 10 and 11 sulfuric acid plants at Agrico's South Pierce phosphate fertilizer manufacturing plant on State Road 630 near Fort Meade, 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

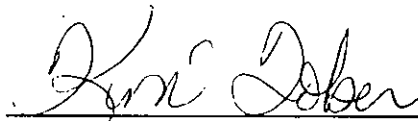
CERTIFICATE OF SERVICE

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 3-11-92 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

3-11-92

Date

Copies furnished to:

Bill Thomas, SWD
Jewell Harper, EPA
John Koogler, P.E.
Chris Shaver, 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 construction permits to Agrico Chemical Company, P. O. Box 1110, Mulberry, Florida 33860. The permits will allow the applicant to modify (increase production) the existing molten sulfur storage and handling facility (AC 53-201152) and the Nos. 10 and 11 sulfuric acid plants (AC 53-199112 and PSD-FL-179) at Agrico's South Pierce phosphate fertilizer manufacturing plant on State Road 630 near Fort Meade, Polk County, Florida 33841. The modification to the sulfuric acid plants require a Best Available Control Technology (BACT) determination for sulfur dioxide and acid mist. The ambient air impact of the emissions for sulfur dioxide from this facility are estimated to be 38.9 ug/m³ (annual), 255.8 ug/m³ (24 hr), and 544.1 ug/m³ (3 hr). The PSD increments for sulfur dioxide consumed by this facility in the Class II area are estimated to be 6.8 ug/m³ (annual) or 34% of the available increment, 80.2 ug/m³ (24 hr) or 88% of the available increment, and 266.6 ug/m³ (3 hr) or 52% of the available increment. The sulfur dioxide emissions from this modification will have no significant impact in the Class I Chassahowitzka National Wilderness Area. 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
4520 Oak Fair Blvd.
Tampa, Florida 33610-7347

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

Agrico Chemical Company
South Pierce, Polk County, Florida

SULFURIC ACID PRODUCTION MODIFICATION

Molten Sulfur Storage and Handling Facility
File No.: AC 53-201152

Sulfuric Acid Plants Nos. 10 and 11 Modification
File No.: AC 53-199112 (PSD-FL-179)

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

March 10, 1992

I. General Information

A. Applicant

Agrico Chemical Company
P. O. Box 1110
Mulberry, Florida 33860

B. Request

On August 12, 1991, Agrico Chemical Company submitted an application for permit to construct (modify) their existing molten sulfur storage and handling facility (SIC 2819). On June 28, 1991, the applicant submitted an application for permit to construct (modify) the existing Nos. 10 and 11 sulfuric acid plants (SIC 2819). These applications were considered complete on March 2, 1992, when the Department received Koogler & Associates' letter providing the additional information on the project requested by the Department. All of these sources are located at the applicant's South Pierce phosphate fertilizer manufacturing plant on State Road 630 near Fort Meade, Polk County, Florida 33841. The UTM coordinates for this facility are Zone 17, 407.5 km E and 3071.3 km N.

C. Project

The applicant proposes to increase the production of the Nos. 10 and 11 sulfuric acid plants from 2000 TPD to 2700 TPD each (5400 TPD total). The basic sulfuric acid process is not being changed. No additional air pollution control equipment will be installed on the plants. The plant modifications include installing a new turbogenerator, using more efficient economizer units, replacing the tower and acid coolers with heat recovery systems, and adding more catalyst to the converters. Waste heat will be recovered to produce a total of 47.8 MW of electricity from the existing No. 1 and a new No. 2 turbine generator. The additional sulfuric acid produced will be sold to the Sulfuric Acid Trading Company (SATCO) in Tampa and not used to increase fertilizer production at the South Pierce plant.

The molten sulfur storage and handling facility consists of a railcar receiving pit, a truck receiving pit, a west storage tank, an east storage tank, and associated piping, pumps, etc. Additional sulfur will be required to increase the production of the sulfuric acid plants. The sulfur throughput rate to the existing molten sulfur storage and handling facility will increase from 550,000 tons per year to 650,000 tons per year. Up to 75 TPH will be handled by the system. Approximately 90% of this sulfur will be brought to the plant in trucks. The remaining sulfur will be delivered by rail. No physical modifications to the system are needed to handle the additional sulfur.

D. Emissions

The molten sulfur storage and handling facility will increase its throughput from 550,000 to 650,000 TPY. Table I summarizes the estimated emissions from the sulfur storage and handling facility. Table II summarizes the net emission increase from the sulfur facility.

Table I
Molten Sulfur Storage and Handling Facility

Pollutant/Emission Factor	Source Emissions							
	Rail Pit		Truck Pit		West Tank		East Tank	
	Max.		Max.		Max.		Max.	
	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY	lbs/hr	TPY
PM/PM ₁₀ 0.4 gr/cu. ft.	0.22	0.08	0.92	4.06	0.50	1.40	0.50	1.40
Sulfur Particulate (SP) 0.2 gr/cu. ft.	0.11	0.04	0.46	2.03	0.25	0.70	0.25	0.70
Sulfur Dioxide 0.515 gr/cu. ft.	0.28	0.10	1.19	5.22	0.65	1.79	0.65	1.79
TRS as H ₂ S 0.303 gr/cu. ft.	0.16	0.06	0.70	3.07	0.38	1.06	0.38	1.06
VOC 5.224E-5 lbs/cu. ft.	0.20	0.07	0.85	3.71	0.46	1.28	0.46	1.28

Table II
Molten Sulfur Storage and Handling Facility

Pollutant	PM/PM ₁₀	SP	SO ₂	TRS/H ₂ S	VOC
Proposed Emission (TPY)	6.9	3.5	8.9	5.3	6.3
Present Emission (TPY)	5.8	2.9	7.1	4.2	5.2
Net Increase (TPY)	1.1	0.6	1.8	1.1	1.1

SP = Sulfur Particulate

Each sulfuric acid plant will increase its allowable production from 2000 to 2700 TPD of 100% acid. Tables III and IV summarizes the changes in emissions from sulfuric acid plants Nos. 10 and 11, respectively.

Table III
Sulfuric Acid Plant No. 10 Emissions

	Production (TPD)	Sulfur Dioxide			Acid Mist			NO _x
		lbs			lbs			TPY
		Ton Acid	lbs/hr	TPY	Ton Acid	lbs/hr	TPY	
Proposed	2700	4	450.0	1971.0	0.15	16.9	73.9	59.1
Present	2000	3.21*	306.8	1097.2	0.104*	11.0	35.5	41.0
Increase	700	0.79	143.2	873.8	0.046	5.9	38.4	18.1

* Actual

Table IV
Sulfuric Acid Plant No. 11 Emissions

	Production (TPD)	Sulfur Dioxide			Acid Mist			NO _x
		lbs			lbs			TPY
		Ton Acid	lbs/hr	TPY	Ton Acid	lbs/hr	TPY	
Proposed	2700	4	450.0	1971.0	0.15	16.9	73.9	59.1
Present	2000	3.5*	297.7	1205.1	0.127*	10.3	43.4	41.0
Increase	700	0.5	152.3	765.9	0.023	6.6	30.5	18.1

* Actual

From the previous four tables, it can be seen that the increase in emissions resulting for this project are: 1.1 TPY PM/PM₁₀; 0.6 TPY sulfur particulate; 1641.5 TPY SO₂; 1.1 TPY TRS; 1.1 TPY VOC; 68.9 TPY acid mist; and 36.2 TPY NO_x. The increase in emissions of sulfur dioxide and acid mist exceed the significant emissions rates listed in Table 2 of F.A.C. Rule 17-2.

II. Rule Applicability

The proposed projects, modification of the molten sulfur storage and handling facility and the Nos. 10 and 11 sulfuric acid plants at a phosphate fertilizer plant, are subject to preconstruction review requirements under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2, Florida Administrative Code (F.A.C.).

The sources are in Polk County, an area designated attainment for all criteria pollutants (F.A.C. Rule 17-2.420).

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 500-1, Major Facility Categories.

The proposed project is subject to the Prevention of Significant Deterioration Regulations, F.A.C. Rule 17-2.500, because the contemporaneous emissions increases of sulfur dioxide and acid mist from the sulfuric acid plants exceed the significant emission rates listed in Table 500-2 of F.A.C. Rule 17-2. 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 17-2.500(5). The applicant is also subject to the other preconstruction review requirements listed in F.A.C. Rule 17-2.500.

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 17-2.600(11), Sulfur Storage and Handling Facilities.

III. Technical Evaluation

The applicant assumes that the increased throughput for the molten sulfur storage and handling facility will cause a proportional increase in air emissions. These emissions will comply with the applicable regulations.

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. Emission test results on a similar modified plant showed that it had met these emission limits.

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 SO₂ and sulfuric acid mist. Therefore, the project is subject to the PSD review requirements contained in F.A.C. Rule 17-2.500. Part of these requirements is an air quality impact analysis for these pollutants, which includes:

- o An analysis of existing air quality.
- o A PSD increment analysis for SO₂.
- o An Ambient Air Quality Standards (AAQS) analysis.
- o An analysis of impacts on soils, vegetation, visibility, and growth-related air quality impacts.
- o 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)	10

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 (ISCST) 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. No downwash analysis was performed for the sulfuric acid plant stacks since both of the stacks are less than 65 meters in height, but are high enough (2.5 times the building heights) to be above the influence of nearby structures. Direction-specific downwash parameters were used for the sulfur storage and handling system. Five years of sequential hourly surface and mixing depth data from the Tampa, Florida National Weather Service collected during 1982 through 1986 were used in this model. Since five years of data were used, the highest-second high short-term predicted concentrations are 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.

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 SO₂. 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: 0.5, 0.75, 1.0, 1.5, 2.0, 2.5, 3.0, 5.0, 7.5, 10.0 and 12.5 km. The receptor ring at 0.5 km corresponds to the nearest property boundary. The results of this modeling showed that the increases in ambient ground-level concentrations for all averaging times are greater than the PSD significant impact levels for SO₂, thus requiring the applicant to do a full impact analysis for comparison with the AAQS and the PSD Class II SO₂ increments. The significant impact area extended to 12.5 km. The results of these analyses for SO₂ are shown below:

AAQS Analysis (ug/m³)

<u>Avg. Time</u>	<u>Annual</u>	<u>3-hr</u>	<u>24-hr</u>
Maximum Predicted Concentration	39	544	256
AAQS	60	1300	260

PSD Class II Increment Analysis (ug/m³)

<u>Avg. Time</u>	<u>Annual</u>	<u>3-hr</u>	<u>24-hr</u>
Maximum Predicted Consumption Concentration	7	267	80
Increment	20	512	91

The maximum predicted SO₂ concentrations are all less than the appropriate AAQS and PSD Class II increments.

The nearest PSD Class I area is the Chassahowitzka National Wilderness Area located 104 km northwest of the facility. The impact of all of the increment consuming sources on this Class I area was evaluated using ISCST. ISCST modeling predicted exceedances of the 24-hour Class I SO₂ increment. The National Park Service (NPS) and the Department directed the applicant to further evaluate the SO₂ impacts on the Class I area by using the long range transport model, Mesopuff, which is a more applicable model for distances greater than 100 km. The results from this model showed that the impact of increased SO₂ emissions from the project on days of predicted exceedances of the SO₂ increment is less than the NPS proposed significant impact level of 0.07 ug/m³.

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 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 facility. The result was 3.5 ug/m^3 . Even though the maximum predicted acid mist ground-level concentration due to the facility is greater than the no-threat level, the sulfuric acid plants are subject to federal New Source Performance Standards and stringent "top-down" BACT emission limits for controlling the emissions of sulfuric acid mist. The use of double absorption technology and high efficiency mist eliminators is representative of the best sulfuric acid mist control available.

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 104 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 Agrico Chemical Company 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 17-2 of the Florida Administrative Code.

Handwritten: 3/10/92



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:

Agrico Chemical Company
Post Office Box 1110
Mulberry, Florida 33860

Permit Number: AC 53-201152

Expiration Date: Jan. 1, 1994

County: Polk

Latitude/Longitude: 27°45'52"N
81°56'19"W

Project: Molten Sulfur Storage
and Handling System

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 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 modification to increase the sulfur throughput rate to a maximum of 2050 TPD and 650,000 TPY for the molten sulfur storage and handling facility. The facility consists of a rail and truck unloading system; two 1050 short ton (ST) molten sulfur storage tanks; one 100 ST rail pit; one 600 ST truck pit; and the associated transfer pumps and piping. The molten sulfur system is located at the Agrico's South Pierce facility on SR 630 near Fort Meade, Polk County, Florida 33841. The UTM coordinates of this facility are Zone 17, 407.5 km E and 3071.3 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. Agrico's application received August 12, 1991.
2. DER's letter dated August 26, 1991.
3. Koogler & Associates' letter dated October 22, 1991.
4. Koogler & Associates' letter dated February 27, 1992.

PERMITTEE:
Agrico Chemical Company

Permit Number: AC 53-201152
Expiration Date: January 1, 1994

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

PERMITTEE:
Agrico Chemical Company

Permit Number: AC 53-201152
Expiration Date: January 1, 1994

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

PERMITTEE:
Agrico Chemical Company

Permit Number: AC 53-201152
Expiration Date: January 1, 1994

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. The permittee shall comply with the following:

- a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
- b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

PERMITTEE:
Agrico Chemical Company

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GENERAL CONDITIONS:

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.

14. 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. Agrico's molten sulfur storage and handling facility shall be allowed to operate continuously (i.e., 8760 hours/year).

2. The maximum molten sulfur throughput rate shall neither exceed 2050 tons per day (TPD), nor 650,000 tons per year (TPY), based on the combined acid production capacity of 5400 TPD 100% sulfuric acid for the Nos. 10 and 11 plants.

3. Visible emissions (VE) shall not exceed 20% opacity from any source in the molten sulfur system.

4. The permittee shall employ procedures to minimize emissions from the molten sulfur system pursuant to the applicable requirements of F.A.C. Rule 17-2.600(11)(a) [Molten Sulfur Storage and Handling Facilities]. The permittee shall also comply with other applicable provisions of F.A.C. Chapters 17-2 and 17-4.

5. No objectionable odors shall be allowed, in accordance with F.A.C. Rule 17-2.620(2) [Objectionable Odor Prohibited].

6. The permittee shall employ proper operation and maintenance procedures to control emissions from the molten sulfur storage and handling facility as specified in F.A.C. Rule 17-2.600(11).

PERMITTEE:
Agrico Chemical Company

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SPECIFIC CONDITIONS:

7. Initial compliance tests shall be conducted in accordance with the July 1, 1991, version of 40 CFR 60, Appendix A, using EPA Method 9, for visible emissions. Test run duration shall not be less than 30 minutes. The tests for the vents of the storage tanks and sulfur pits shall be conducted while the tanks and pits are being filled (filling does not have to be continuous during the entire test). Routine VE tests shall be at the frequency specified in any permit to operate this facility issued by the Southwest District.

8. Any change in the method of operation, equipment or operating hours shall be submitted to DER's Southwest District office for approval.

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

Source			Estimated Emissions			
			PM/PM ₁₀	SP	SO ₂	TRS/H ₂ S
East Tank	lb/hr (max)	0.50	0.25	0.65	0.38	0.46
	lb/hr (avg)	0.32	0.16	0.41	0.24	0.29
	TPY	1.40	0.70	1.79	1.06	1.28
West Tank	lb/hr (max)	0.50	0.25	0.65	0.38	0.46
	lb/hr (avg)	0.32	0.16	0.41	0.24	0.29
	TPY	1.40	0.70	1.79	1.06	1.28
Truck Pit	lb/hr (max)	0.92	0.46	1.19	0.70	0.85
	TPY	4.06	2.03	5.22	3.07	3.71
Rail Pit	lb/hr (max)	0.22	0.11	0.28	0.16	0.20
	lb/hr (avg)	0.02	0.01	0.02	0.01	0.02
	TPY	0.08	0.04	0.10	0.06	0.07

10. A minimum of 15 days prior written notification of the compliance tests shall be given to DER's Southwest District office. The compliance test results shall be submitted to the district office within 45 days of test completion.

11. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted

PERMITTEE:
Agrico Chemical Company

Permit Number: AC 53-201152
Expiration Date: January 1, 1994

SPECIFIC CONDITIONS:

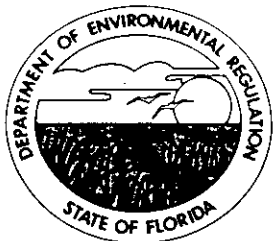
to the Bureau of Air Regulation prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

12. 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. 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

STEVE SMALLWOOD, P.E., Director
Division of Air Resources
Management



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:

Agrico Chemical Company
Post Office Box 1110
Mulberry, Florida 33860

Permit Number: AC 53-199112
PSD-FL-179

Expiration Date: Jan. 1, 1994

County: Polk

Latitude/Longitude: 27°45'52"N
81°56'19"W

Project: Sulfuric Acid Plants
Nos. 10 & 11 - Production Increases
to 2700 TPD Per Plant (5400 TPD
total)

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 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. 10 and 11 sulfuric acid plants that will increase each plant's production to 2700 TPD 100% sulfuric acid (5400 TPD total for both plants). The plant modifications include installing a new turbogenerator, using more efficient economizer units, replacing the tower and acid coolers with heat recovery systems, and adding more catalyst to the converters. These sources are located at the permittee's South Pierce phosphate fertilizer manufacturing facility on SR 630 near Fort Meade, Polk County, Florida 33841. The UTM coordinates of this facility are Zone 17, 407.5 km E and 3071.3 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. Agrico's application received June 28, 1991.
2. DER's letter dated June 26, 1991.
3. Koogler & Associates' letter dated October 22, 1991.
4. Koogler & Associates' letter dated February 27, 1992.

PERMITTEE:
Agrico Chemical Company

Permit Number: AC 53-199112
Expiration Date: January 1, 1994

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

PERMITTEE:
Agrico Chemical Company

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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

PERMITTEE:
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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

PERMITTEE:
Agrico Chemical Company

Permit Number: AC 53-199112
Expiration Date: January 1, 1994

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. 10 & 11) shall not exceed 2700 tons per day based on 100% H₂SO₄ (5400 TPD for both plants).

2. Sulfur dioxide emissions from each plant shall not exceed 4 lbs/ton of 100% sulfuric acid produced, 450.0 lbs/hr, and 1971.0 tons/yr.

3. Sulfuric acid mist emissions from each plant shall not exceed 0.15 lb/ton of 100% sulfuric acid produced, 16.9 lbs/hr, and 73.9 tons/yr.

4. Nitrogen oxides emissions from each plant shall not exceed 0.12 lb/ton of 100% sulfuric acid produced, 13.5 lbs/hr, and 59.1 tons/yr.

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

PERMITTEE:
Agrico Chemical Company

Permit Number: AC 53-199112
Expiration Date: January 1, 1994

SPECIFIC CONDITIONS:

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

6. 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, 1991), 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, 1991).

7. The compliance tests shall be conducted at 90 to 100% of the permitted capacity (2430 - 2700 TPH sulfuric acid production) and within 30 days after operating the plant at a rate above 2000 TPH. 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.

8. 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).

9. 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
Agrico Chemical Company
Polk County

The applicant proposes to increase sulfuric acid production to 2700 tons per day each for the Nos. 10 and 11 sulfuric acid plants (5400 TPD total) that are located at the South Pierce phosphate fertilizer manufacturing facility on SR 630 near Fort Meade, Polk County, Florida 33841.

The proposed project will result in a significant increase in emissions of sulfur dioxide (SO₂) and sulfuric acid mist. The project is therefore subject to Prevention of Significant Deterioration (PSD) review in accordance with F.A.C. Rule 17-2.500(5).

The BACT review is part of the PSD review requirements in accordance with F.A.C. Rule 17-2.500(5)(c).

Date of Receipt of a BACT Application: June 28, 1991.

The BACT determination requested by the applicant is presented below:

Control Technology Double Absorption/Fiber Mist Eliminators

<u>Pollutant</u>	<u>Emission Limits</u>
SO ₂	4 lb/ton of 100% H ₂ SO ₄ produced
Sulfuric Acid Mist	0.15 lb/ton of 100% H ₂ SO 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 17-2, Air Pollution, 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 Section 169, and any emission limitation contained in 40 CFR Part 60 (Standards of

Agrico Chemical Co.
BACT

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:

<u>Control Technology</u>	Double Absorption/Fiber Mist Eliminators
<u>Pollutant</u>	<u>Emission Limits</u>
SO ₂	4.0 lb/ton of 100% H ₂ SO ₄ produced
Sulfuric Acid Mist	0.15 lb/ton of 100% H ₂ SO 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 SO₂. The emission limits reflect conversion efficiency of around 99.7% of SO₂ to H₂SO₄. 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.

Agrico Chemical Co.
BACT

Environmental Impact Analysis

The impact analysis for the BACT determination is based on 8,760 hours/year operation. The increment impact analysis and the ambient air quality analysis resulted in the following for SO₂ emissions:

Avg Time	Increment Impact (ug/m ³)	Deminimus (ug/m ³)	Predicted Ambient Air Quality Impact (ug/m ³)	Fla. AAQS (ug/m ³)
Annual	6.8	N/A	38.9	60
24-hr	80.2	13.0	255.8	260
3-hr	266.6	N/A	544.1	1300

Conclusion

The incremental impact and the ambient air quality impact from SO₂ 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

Date 1991

Date 1991