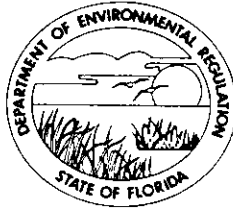


STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241



BOB GRAHAM
GOVERNOR
VICTORIA J. TSCHINKEL
SECRETARY

May 30, 1985

Mr. James Duane
Central Florida Regional
Planning Council
Post Office Drawer 208
Bartow, Florida 33830

Dear Mr. James:

RE: Preliminary Determination - Royster Company
Sulfuric Acid Plant Modification

I wish to bring to your attention that Royster Company proposes to modify its existing facilities in Polk County, Florida, and that emissions of air pollutants will thereby be increased. The Florida Department of Environmental Regulation, under the authority delegated by the U.S. Environmental Protection Agency, has reviewed the proposed construction under Federal Prevention of Significant Deterioration Regulations (40 CFR 52.21) and reached a preliminary determination of approval, with conditions, for this construction.

Please also be aware that the attached Public Notice announcing the preliminary determination, the availability of pertinent information for public scrutiny and the opportunity for public comment will be published in the near future in a newspaper of general circulation in Hillsborough County. This notice has been mailed to you for your information and in accordance with regulatory requirements. You need take no action unless you wish to comment on the proposed construction. If you have any questions, please feel free to call Mr. Bill Thomas or myself at (904)488-1344.

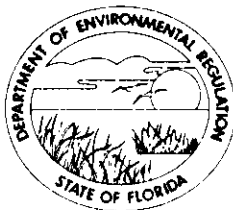
Sincerely,

C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

CHF/pa
Enclosure

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241



BOB GRAHAM
GOVERNOR
VICTORIA J. TSCHINKEL
SECRETARY

May 23, 1985

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. T. R. Schmalz, Manager
Engineering and Environmental Services
Royster Company
P. O. Drawer 797
Mulberry, Florida 33860

Dear Mr. Schmalz:

Attached is one copy of the Technical Evaluation and Preliminary Determination, and proposed permit to modify your existing sulfuric acid plant that is located in Polk County, Florida.

Before final action can be taken on your draft permit, you are required by Florida Administrative Code Rule 17-103.150 to publish the attached Notice of Proposed Agency Action in the legal advertising section of a newspaper of general circulation in Polk County no later than fourteen days after receipt of this letter. The department must be provided with proof of publication within seven days of the date the notice is published. Failure to publish the notice may be grounds for denial of the permit.

Please submit, in writing, any comments which you wish to have considered concerning the department's proposed action to Mr. Bill Thomas of the Bureau of Air Quality Management.

Sincerely,

J. H. Fancy
J. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

CHF/pa

Attachments

cc: Bill Thomas

State of Florida
Department of Environmental Regulation
Notice of Proposed Agency Action
on Permit Application

The Department of Environmental Regulation gives notice of its intent to issue a permit to Royster Company to modify their existing sulfuric acid plant located in Polk County on State Road 60, one mile east of Mulberry, Florida. A determination of best available control technology (BACT) was required.

The increased sulfur dioxide emissions from the modified plant will not result in a significant impact on the ambient air quality.

Persons 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 conform to the requirements of Chapters 17-103 and 28-5, Florida Administrative Code, and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Twin Towers Office Building, Tallahassee, Florida 32301, within fourteen (14) days of publication of this notice. Failure to file a request for hearing within this time period constitutes a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

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 proposed agency action. Therefore, persons who may not wish to file a petition may wish to intervene in the proceeding. A petition for intervention must be filed pursuant to Model Rule 28-5.207, Florida Administrative Code, at least five (5) days before the final hearing and be filed with the hearing officer if one has been assigned at the Division of Administrative Hearings, Department of Administration, 2009, Apalachee Parkway, Tallahassee, Florida 32301. If no hearing officer has been assigned, the petition is to be filed with the department's Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32301. Failure to petition to intervene within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, Florida Statutes.

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:

Dept. of Environmental Regulation
Southwest District
7601 Highway 301 North
Tampa, Florida 33610

Bartow Public Library
315 Parker Street
Bartow, Florida 33830

Dept. of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

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

No. 0155562

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL

(See Reverse)

SENT TO		
Mr. T. R. Schmalz		
STREET AND NO.		
P.O., STATE AND ZIP CODE		
POSTAGE	\$	
CERTIFIED FEE	¢	
SPECIAL DELIVERY	¢	
RESTRICTED DELIVERY	¢	
OPTIONAL SERVICES	RETURN RECEIPT SERVICE	
	SHOW TO WHOM AND DATE DELIVERED	¢
	SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
	SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢	
TOTAL POSTAGE AND FEES	\$	
POSTMARK OR DATE		
5/24/85		

PS Form 3800, Apr. 1976

PS Form 3811, July 1983

SENDER: Complete items 1, 2, 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

- Show to whom, date and address of delivery.
- Restricted Delivery.

3. Article Addressed to:
Mr. T. R. Schmalz
Royster Company
P. O. Drawer 797
Mulberry, FL 33860

4. Type of Service:	Article Number
<input type="checkbox"/> Registered	0155562
<input checked="" type="checkbox"/> Certified	
<input type="checkbox"/> Express Mail	
<input type="checkbox"/> Insured	
<input type="checkbox"/> COD	

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature - Addressee

X

6. Signature - Agent

X

7. Date of Delivery

5-28-85

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

DOMESTIC RETURN RECEIPT

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the Matter of an)
Application for Permit by:)
)
Royster Company)
Post Office Box 797) DER File No. AC 53-85261
Mulberry, Florida 33860)
)
)

INTENT TO ISSUE

The Department of Environmental Regulation hereby gives notice of its Intent to Issue, and proposed order of issuance for, a permit pursuant to Chapter 403, Florida Statutes, for the proposed project as detailed in the application specified above. The Department is issuing this Intent to Issue for the reasons stated in the attached Technical Evaluation and Preliminary Determination.

The applicant, Royster Company, applied on March 29, 1984, to the Department of Environmental Regulation for a permit to modify their existing sulfuric acid plant located in Polk County on State Road 60, one mile east of Mulberry, Florida.

The Department has permitting jurisdiction under Chapter 403, Florida Statutes and Florida Administrative Code Rules 17-2 and 17-4. The project is not exempt from permitting procedures. The applicant was officially notified by the Department that an air construction permit was required for the proposed work.

This intent to issue shall be placed before the Secretary for final action unless an appropriate petition for a hearing pursuant to the provisions of Section 120.57, Florida Statutes, is filed within fourteen (14) days from receipt of this letter or

publication of the public notice (copy attached) required pursuant to Rule 17-103.150, Florida Administrative Code, whichever occurs first. The petition must comply with the requirements of Section 17-103.155 and Rule 28-5.201, Florida Administrative Code (copy attached) and be filed pursuant to Rule 17-103.155(1) in the Office of General Counsel of the Department of Environmental Regulation at 2600 Blair Stone Road, Tallahassee, Florida 32301.

Petitions which are not filed in accordance with the above provisions are subject to dismissal by the Department. In the event a formal hearing is conducted pursuant to Section 120.57(1), all parties shall have an opportunity to respond, to present evidence and argument on all issues involved, to conduct cross-examination of witnesses and submit rebuttal evidence, to submit proposed findings of facts and orders, to file exceptions to any order or hearing officer's recommended order, and to be represented by counsel. If an informal hearing is requested, the agency, in accordance with its rules of procedure, will provide affected persons or parties or their counsel an opportunity, at a convenient time and place, to present to the agency or hearing officer, written or oral evidence in opposition to the agency's action or refusal to act, or a written statement challenging the grounds upon which the agency has chosen to justify its action or inaction, pursuant to Section 120.57(2), Florida Statutes.

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 proposed agency action. Therefore, persons who may not wish to file a petition, may wish to intervene in the proceeding. A petition for intervention must be filed pursuant to Model Rule 28-5.207 at least five (5) days before the final hearing and be filed with the hearing officer if one has been assigned at the Division of

Administrative Hearings, 2009 Apalachee Parkway, Tallahassee, Florida 32301. If no hearing officer has been assigned, the petition is to be filed with the Department's Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32301. Failure to petition to intervene within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, Florida Statutes.

Executed the 24 day of May, 1985, in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Willard Hanks for
C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

Copies furnished to:

Mr. T. R. Schmalz
Royster Company
P. O. Drawer 797
Mulberry, Florida 33860

Bill Thomas
Department of Environmental Regulation
Southwest District
7601 Highway 301 North
Tampa, Florida 33610

CERTIFICATION

This is to certify that the foregoing Intent to Issue and all copies were mailed before the close of business on May 24, 1985.

Willard Hanks for
C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management
2600 Blair Stone Road
Tallahassee, Florida 32301

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to
§120.52(9), Florida Statutes, with
the designated Department Clerk,
receipt of which is hereby acknow-
ledged.

Patricia G. Adams 5/24/85
Clerk Date

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION,

Complainant,

vs.

ROYSTER COMPANY,

Respondent.

IN THE OFFICE OF THE
SOUTHWEST DISTRICT

OGC CASE NO. 86-1336

DER

NOV 3 1986

BAQM

CONSENT ORDER

This Consent Order is entered into between the State of Florida Department of Environmental Regulation ("Department") and Royster Company ("Respondent").

The Department finds and the Respondent neither admits nor denies the following:

1. The Department is the administrative agency of the State of Florida charged with the responsibility to protect Florida's air and water resources and to administer and enforce the Florida Air and Water Pollution Control Act, Chapter 403, Florida Statutes, and the rules and regulations promulgated thereunder in Florida Administrative Code Chapter 17.

2. Respondent is a corporation registered to conduct business in the State of Florida. Respondent owns and operates a phosphate chemical fertilizer plant on property ("property") located 1/2 mile east of Mulberry, Polk County, in the southwest 1/4 of the northeast 1/4 of Section 7, Township 20 South, Range 24 East.

3. Respondent operates an 850 TPD diammonium phosphate plant ("plant") at the property under Department permit #A053-63743. On July 18, 1986 the Department received notification from Respondent that the plant had failed a compliance stack test on July 7, 1986. On that date particulate emissions from the plant were measured at 16.0 lb/hr. Specific Condition #4 of permit #A053-63743 limits the plant's particulate emissions to 13.5 lb/hr. at 50 TPH. Failure to comply with a permit issued by the

Technical Evaluation
and
Preliminary Determination

Royster Company
Mulberry, Florida
Polk County

Sulfuric Acid Plant Modification
Proposed Permit Number
AC 53-85261

Florida Department of Environmental Regulation
Bureau of Air Quality Management
Central Air Permitting

May 21, 1985

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:

Dept. of Environmental Regulation
Southwest District
7601 Highway 301 North
Tampa, Florida 33610

Bartow Public Library
315 Parker Street
Bartow, Florida 33830

Dept. of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

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

RULES OF THE ADMINISTRATIVE COMMISSION
MODEL RULES OF PROCEDURE
CHAPTER 28-5
DECISIONS DETERMINING SUBSTANTIAL INTERESTS

28-5.15 Requests for Formal and Informal Proceedings

- (1) Requests for proceedings shall be made by petition to the agency involved. Each petition shall be printed typewritten or otherwise duplicated in legible form on white paper of standard legal size. Unless printed, the impression shall be on one side of the paper only and lines shall be double spaced and indented.
- (2) All petitions filed under these rules should contain:
 - (a) The name and address of each agency affected and each agency's file or identification number, if known;
 - (b) The name and address of the petitioner or petitioners;
 - (c) All disputed issues of material fact. If there are none, the petition must so indicate;
 - (d) A concise statement of the ultimate facts alleged, and the rules, regulations and constitutional provisions which entitle the petitioner to relief;
 - (e) A statement summarizing any informal action taken to resolve the issues, and the results of that action;
 - (f) A demand for the relief to which the petitioner deems himself entitled; and
 - (g) Such other information which the petitioner contends is material.

I. Application

A. Applicant

Royster Company
P. O. Drawer 797
Mulberry, Florida 33860

B. Request

Mr. T. R. Schmalz, Manager of Engineering and Environmental Services, submitted an application for permit to modify an existing sulfuric acid plant (SCC Major Group 20, Chemical and Allied Products, Industry No. 2819, Sulfuric Acid, Contact Process) that was dated March 29, 1984, to the department on April 3, 1984. The additional information requested by the department in letters dated May 2, 1984, and May 24, 1984, was furnished by Royster Company in a letter dated May 9, 1984, and by Sholtes & Koogler in a letter dated April 3, 1985. The application was updated on April 9, 1985. The application was considered complete on April 11, 1985 when the updated application was received.

C. Project and Location

Royster Company proposes to modify an existing sulfuric acid plant by installing: a 900 PSIG waste heat boiler, steam superheater, economizers, and boiler feedwater treatment equipment; a new electric motor drive for the air blower; shell and tube heat exchanger for the acid; a new cooling tower to replace two existing ones; a turbo-generator; and additional catalyst in the converter towers to increase permitted production from 1,400 to 1,700 TPD 100% sulfuric acid. The increased production will increase emissions of air pollutants. The modifications will also allow the sulfuric acid plant to cogenerate electrical power.

The plant site is on State Road 60 in Polk County, approximately 1.5 miles east of Mulberry, Florida. The UTM coordinates of this site are zone 17, 406.8 km E and 3085.1 km N.

D. Air Pollutant Emission

The following table summarizes the emissions from this plant.

	Production (TPD)	Emission Std. (lb/T)			Emissions (TPY)		
		SO ₂	MIST	NOx	SO ₂	MIST	NOx
Proposed	1,700	4.0	0.15	None	1,190	44.6	48.9
Actual*	1,400	8.64	0.3	None	803.9	13.7	37.5
Change	300	(4.64)	(0.15)	N/C	386.1	30.9	11.4

* Average of 1982 - 1984 operation

II. Rule Applicability

The proposed project, modifications to an existing sulfuric acid plant, is subject to preconstruction review under the provisions of Chapter 403, FS, and Chapters 17-2 and 17-4, FAC.

The proposed facility is located in an area designated "Unclassifiable" for the criteria pollutant particulate matter (17-2.430), but in the area of influence of the Hillsborough County particulate matter nonattainment area (17-2.410). The area is designated attainment for the other criteria pollutants (17-2.420).

The modifications are not subject to New Source Review for Nonattainment Areas because sulfuric acid plants are not a source of particulate matter emissions.

Sulfuric acid plants are listed in Table 500-1, Major Facility Categories. This plant is a major facility because sulfur dioxide emissions exceed 100 TPY. The increase in sulfur dioxide and acid mist emissions will exceed the significant emission rates listed in Table 500-2.

The modifications are subject to Prevention of Significant Deterioration regulations, 17-2.500, because of the increase in sulfur dioxide and acid mist emissions. Allowable emissions of these pollutants shall be established by a best available control technology (BACT) determination as required by 17-2.500(5)(c), FAC.

The modified plant will also be subject to 40 CFR 60.80, Subpart H, new source performance standards (NSPS) for sulfuric acid plants.

III. Technical Evaluation

New source performance standards of 4.0 lb SO₂ and 0.15 lb mist per ton 100 percent sulfuric acid produced, and 10 percent opacity, have been determined to be BACT for the modified plant. The double-absorption process used by Royster Company can meet NSPS for sulfur dioxide. The high efficiency mist eliminators used by Royster can meet NSPS for acid mist.

Test data furnished by the company in the application for permit to construct shows the measured sulfur dioxide and acid mist emissions are below NSPS. The additional catalyst the company will install in the converter will improve conversion of SO₂ to SO₃. The new heat exchanger will improve the recovery of SO₃. The electric motor drive for the blower, waste heat boiler,

waste heat recovery equipment, and turbo-generator will have little effect on the emissions from the modified plant. They will allow the plant to cogenerate electrical power.

Therefore, the department has reasonable assurance that the modified plant will be able to meet the emission standards established as BACT.

IV. Air Quality Impact

A. Introduction

The Royster Company is proposing to increase sulfuric acid production at their Polk County facility. This facility is classified as major according to Rule 17-2.100(99). Four pollutants have been identified by the department as having increasing emissions associated with the production increase: sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO), and sulfuric acid mist. Of these four pollutants the criteria pollutant SO₂ and the non-criteria pollutant sulfuric acid mist are the only two which will result in a significant emission increase. As such, an air quality impact analysis is required to satisfy the prevention of significant deterioration (PSD) regulations. This analysis 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, and;
- 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 depend on air quality dispersion modeling carried out in accordance with EPA guidelines.

Based on these required analyses, the department has reasonable assurance that the proposed sulfuric acid production increase at the Royster facility, 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 ambient air quality standard. A discussion of the modeling methodology and required analyses follows.

B. Modeling Methodology

Two EPA-approved dispersion models, the Single-Source (CRSTER) model and the Industrial Source Complex Short-Term (ISCST) model, were used in the air quality impact analysis.

These models both predict maximum ground-level concentration of inert gases and small particles emitted into the atmosphere by point sources. The CRSTER model is limited to using only collocated sources and was used initially to model Royster's sulfuric acid plant. The results of these runs were used to predict sulfuric acid mist concentrations for existing and proposed conditions. The ISCST model was used to predict ambient concentrations of SO₂. The maximum increase in concentration associated with the net emission increase was first calculated and the total impact of the Royster facility along with all other significant sources within 50 kilometers was finally calculated. In all ISCST model runs, calm winds were deleted from the meteorological data set in accordance with EPA policy.

The modeling analyses for both CRSTER and ISCST used five years of sequential hourly meteorological data. Orlando surface data and Tampa upper air data collected by the National Weather Service during the period 1974-1978 were used in the analyses. Since five years of data were used, the highest, second-high short-term predicted concentrations were compared with the appropriate ambient standards.

The stack parameters and emission rates used in evaluating the ambient impact are contained in Table IV-1 and Table IV-2 respectively.

C. Analysis of Existing Air Quality

Preconstruction ambient air quality monitoring data is generally required for PSD review. One year of quality assured data using an EPA reference, or the equivalent, monitor must be submitted. Sometimes less than one year of data, but no less than four months, may be accepted when department approval is given.

An exemption to the monitoring requirement can be obtained if the maximum air quality impact, as determined through air quality modeling, is less than a pollutant-specific de minimus concentration. In addition, if current monitoring data already exist and these data are representative of the proposed source area, then at the discretion of the department these data may be used.

The predicted ambient impact of the net emission increase of SO₂ is less than the monitoring de minimus level for this pollutant. As such no additional monitoring was required. There is no de minimus level specified for sulfuric acid mist. However, given the small predicted impacts no monitoring was requested by the department.

D. PSD Increment Analysis

The Royster facility is located in an area designated as a Class II attainment area for the pollutant SO₂. A maximum allowable increase (increment) analysis is required for this pollutant. The net emissions increase associated with the production increase was modeled and the results predict that ambient concentrations will increase by less than the significant impact levels. That is, the annual, 24-hour, and 3-hour average increased impacts are predicted to be less than 1.0, 5.0, and 25.0 ug/m³, respectively. No other sources at the Royster facility consume PSD increment. Therefore, no further analysis was required.

E. AAQS Analysis

Given existing air quality in the area of the Royster facility, emissions from the proposed production increase are not expected to cause or contribute to a violation of an AAQS. The results of the AAQS analysis are contained in Table IV-3.

Of the two pollutants subject to PSD review only SO₂ has an AAQS. The total impact on ambient air is generally obtained by adding a "background" concentration to the maximum modeled concentration. In the current modeling analysis, however, the applicant has included all major SO₂ sources having a significant impact in the area of the Royster facility. As such, a zero background is assumed. Predicted maximum ambient concentrations are less than the AAQS.

Although sulfuric acid mist does not have an AAQS to compare with, a suggested de minimus impact level has been published by EPA: Health Impacts, Emissions, and Emission Factors for Noncriteria Pollutants Subject to De Minimus Guidelines and Emitted from Stationary Conventional Combustion Processes, U.S. EPA, June 1980. The modeling analysis completed by the applicant predicts that the ambient impact of both the production increase and the full production level are less than this suggested de minimus level of 1.0 ug/m³.

F. Additional Impacts Analysis

1. Impacts on Soils, Vegetation, and Visibility

The maximum ground-level SO₂ concentrations predicted to occur are less than the secondary AAQS which are designed to protect public welfare-related values. In addition, the increased ambient concentrations are less than significant. As such these pollutants are not expected to have a harmful impact on soils and vegetation.

The nearest Class I area is located more than 100 kilometers from the Royster facility. No impact on visibility or any other feature of these areas is expected.

2. Growth-Related Air Quality Impacts

There will be no additional manpower requirements needed as a result of the production increase. Therefore, no growth-related impact is expected.

3. GEP Stack Height Determination

Good Engineering Practice (GEP) stack height means the greater of: (1) 65 meters; or (2) the maximum nearby building height plus 1.5 times the building height or width, whichever is less. In the Royster facility the closest nearby structure to the modified sulfuric acid plant is an 80 foot high ROP storage building. The calculated GEP stack height is thus 200 feet. The stack height is 200 feet. Excessive concentration due to aerodynamic downwash is not expected.

V. Conclusion

Based on the information submitted by Royster Company in their application dated March 29, 1984, and the letters dated May 9, 1984, and April 3, 1985, the department has concluded that the existing sulfuric acid plant can be modified to increase production from 1,400 to 1,700 TPD and cogenerate electric power without violating any state or federal air pollution control regulation. The department proposes to issue a construction permit that will authorize the plant modifications and increase in sulfur dioxide and acid mist emissions. The General and Specific Conditions listed in the proposed permit (attached) will assure compliance of the modified source with the air pollution control regulations.

Table IV-1

Royster Company -- Stack Parameters

Source	UTM-E (km)	UTM-N (km)	Stack Height	Exit Gas Temp. (K)	Exit Gas Velocity (m/s)	Stack Diameter (m)
H ₂ SO ₄ Plant	406.8	3085.1	61.0	360.	12.20	2.13
DAP/GTSP	406.8	3085.2	31.1	322.	8.26	2.67

Table IV-2

Royster Company -- Emission Rates

Source	Pollutant	Existing Maximum Emission Rate (g/s)	Proposed Maximum Emission Rate (g/s)
H ₂ SO ₄	SO ₂	25.87 (1)	35.70 (2)
	H ₂ SO ₄ Mist	0.44 (3)	1.34 (4)
DAP/GTSP	SO ₂	1.88	1.88

(1) 3.52 lb/ton (based on stack test)

(2) 4.0 lb/ton NSPS

(3) 0.06 lb/ton (based on stack test)

(4) 0.15 lb/ton NSPS

Table IV-3

Royster Company -- Ambient Air Quality Impact

Pollutant and Averaging Time	Maximum Impact of Modification (ug/m ³)	Maximum Impact Royster Facility (ug/m ³)	Maximum Impact All Source (ug/m ³)	Florida AAQS (ug/m ³)
SO ₂				
3-hour	17.6 (1)	123	757	1300
24-hour	3.9 (2)	20	221	260
Annual	0.3 (3)	1.9	42	60
H ₂ SO ₄				
24-hour	0.48 (4)	0.75	--	--

- (1) less than significant impact 25.0 ug/m³
- (2) less than significant impact 5.0 ug/m³
- (3) less than significant impact 1.0 ug/m³
- (4) less than suggested de minimus value 1.0 ug/m³

Best Available Control Technology (BACT) Determination
Royster Company
Polk County

The applicant plans to increase the output capacity of an existing sulfuric acid plant located at their facility in Mulberry, Florida. The production of 100 percent sulfuric acid will be increased from 1400 to 1700 tons per day. The higher sulfuric acid plant throughput will result in the increase of sulfur dioxide and sulfuric acid mist air emissions by 386 and 31 tons per year respectively.

The increase of sulfur dioxide and sulfuric acid mist emission are greater than the significant emission rates listed in Table 500-2 Regulated Air Pollutants. The emission limits for these two air pollutants will be subject to a best available control technology determination as set forth in Florida Administrative Code Rule 17-2.630.

BACT Determination Requested by the Applicant:

Sulfur dioxide emissions will not exceed 4.0 pounds per ton of 100% sulfuric acid produced. The air emission control system will be double absorption with catalyst screening and make-up every 3-5 years.

Sulfuric acid mist emissions will not exceed 0.15 pounds per ton of 100% sulfuric acid produced. The air emission control system will be high efficiency mist eliminators.

Date of Receipt of a BACT Application:

April 4, 1985

Date of Publication in the Florida Administrative Weekly:

April 19, 1985

Review Group Members:

The determination was based upon comments received from the Stationary Source Control Section and the Southwest District.

BACT Determined by DER:

The emissions of sulfur dioxide and sulfuric acid mist, including visible emissions, shall not exceed the standards as contained in 40 CFR 60.80, Subpart H, of the new source performance standards (NSPS).

The test methods and procedures as set forth in Subsection 60.85 of NSPS Subpart H shall be used to determine compliance with the emission limits determined as BACT.

BACT Determination Rationale:

Sulfur dioxide emissions from a sulfuric acid plant are an inverse function of the sulfur conversion efficiency. This conversion is always incomplete, and is affected by the number of stages in the catalytic converter, the amount of catalyst used, temperature and pressure, and the concentrations of the reactants. The dual absorption scrubbing process is one of the two processes that will increase acid production without yielding unwanted byproducts.

Sulfuric acid mist is created when sulfur trioxide combines with water vapor at a temperature below the dew point of sulfur trioxide. Fiber mist eliminators effectively reduce the acid mist emissions.

New source performance standards (NSPS) for sulfuric acid plants, Subpart H, was promulgated in 1971, and addressed sulfur dioxide, acid mist, and visible emissions. EPA reviewed these standards in 1979 and did not recommend that the standards be made more stringent.

The department agrees that the NSPS, Subpart H, is BACT for the applicant's proposed increase in the production of sulfuric acid.

Details of the Analysis May be Obtained by Contacting:

Edward Palagyi, BACT Coordinator
Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

Recommended by:

C. H. Fancy, Deputy Bureau Chief

Date: _____

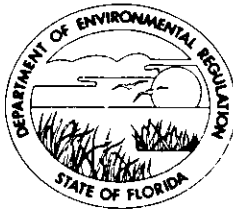
Approved by:

Victoria J. Tschinkel, Secretary

Date: _____

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

PERMITTEE:
Royster Company
P. O. Drawer 797
Mulberry, Florida 33860

Permit Number: AC 53-85261
Expiration Date: April 1, 1986
County: Polk
Latitude/Longitude: 27° 53' 15"N/
82° 56' 50"W
Project: Sulfuric Acid Plant
Modifications

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule(s) 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:

Modifications to an existing sulfuric acid plant to increase production from 1,400 to 1,700 TPD 100% H₂SO₄ and to cogenerate electrical power. Modifications include installing a waste heat boiler, steam superheater, economizers, boiler feedwater treatment equipment, a new electric motor drive for the air blower, a shell and tube heat exchanger for the acid, a new cooling tower to replace two existing ones, a turbo-generator, and additional catalyst in the converter.

The sulfuric acid plant is located in Polk County at Royster Company's existing phosphate fertilizer facility on State Road 60, about 1.5 miles east of Mulberry, Florida. The UTM coordinates of this site are 17, 406.8 km E and 3085.1 km N.

The modifications shall be in accordance with the applications for permit to construct that were signed by R. W. Heinz on March 29, 1984, and April 9, 1985, and the additional information supplied in Royster Company's letter dated May 9, 1984, and Sholtes & Koogler's letter dated April 3, 1985 except for any changes listed as Specific Conditions in this permit.

Attachments: 1. Application (March 29, 1984)
2. DER's letter dated May 2, 1984
3. Royster Company's letter dated May 9, 1984
4. DER's letter dated May 24, 1984
5. Sholtes & Koogler's letter dated April 3, 1985
6. Application (April 9, 1985)

PERMITTEE:
Royster Company

Permit Number: AC 53-85261
Expiration Date: April 1, 1986

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

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. Nor 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 does not constitute 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, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, 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.

PERMITTEE:
Royster Company

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Expiration Date: April 1, 1986

GENERAL CONDITIONS:

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by department rules.

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, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

- a. Having access to and copying any records that must be kept under the conditions of the permit;
- b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sampling or monitoring 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 notify and provide the department with the following information:

- a. a description of and cause of non-compliance; and
- b. the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

PERMITTEE:
Royster Company

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GENERAL CONDITIONS:

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 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 arising under the Florida Statutes or department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

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 17-4.12 and 17-30.30, 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 is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

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.

14. The permittee shall comply with the following monitoring and record keeping requirements:

- a. Upon request, the permittee shall furnish all records and plans required under department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the department, during the course of any unresolved enforcement action.

PERMITTEE:
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GENERAL CONDITIONS:

b. The permittee shall retain 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), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be 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 date(s) 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 submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. The modified sulfuric acid plant shall comply with all requirements of 40 CFR 60.80, Subpart H - Standards of Performance for Sulfuric Acid Plants.
2. Sulfuric acid production, measured as 100 percent H₂SO₄, shall not exceed 1,700 TPD.
3. Sulfur dioxide emissions shall not exceed 4.0 lb/ton acid and 6,800 lb/day.

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SPECIFIC CONDITIONS:

4. Acid mist emissions shall not exceed 0.15 lb/ton acid and 255 lb/day.
5. Visible emissions shall not exceed 10 percent opacity, average for any consecutive 6 minute period.
6. The test methods and procedures described in 40 CFR 60.85 shall be used to determine the compliance status of the source with the sulfur dioxide and acid mist standards. Method 9, as described in 40 CFR 60, Appendix A, shall be used to determine the compliance status of the source with the visible emissions standard. Compliance tests shall be conducted while the plant is operating at its maximum permitted capacity ($\pm 10\%$).
7. A continuous monitoring system for the measurement of sulfur dioxide shall be installed, calibrated, maintained, and operated on this plant as specified in 40 CFR 60.84. Excess emissions shall be reported to the Southwest District and the Bureau of Air Quality Management.
8. This plant shall not be operated more than 8,400 hours per year without prior approval of the Southwest District.
9. This construction permit replaces the current operation permit (AO 53-78016) for this sulfuric acid plant. While the plant is being modified, the emissions shall not exceed 8.64 lb SO₂ and 0.15 lb acid mist per ton of acid produced when the plant is being operated commercially.
10. Construction shall reasonably conform to the plan and schedule in the application. Any changes in the plan or schedule shall be reported to the Southwest District.
11. Royster Company shall take precautionary measures to prevent gas leaks and promptly repair any gas leaks that occur at this plant. A portable industrial vacuum unit equipped with classification and air filtering equipment shall be used to rejuvenate the existing catalyst. Spent catalyst shall be disposed of in an environmentally sound manner.
12. Royster Company shall submit a complete application for permit to operate the sulfuric acid plant, which must include an emissions test report, to the Southwest District at least 90 days prior to the expiration date of this construction permit. If the compliance tests are conducted at a plant operating rate of less than 90

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Royster Company

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SPECIFIC CONDITIONS:

percent of the permitted capacity (1,700 TPD), then any permit to operate issued for the plant shall restrict maximum production to not more than 10 percent above the production rate that existed during the compliance tests. Royster Company may continue to operate this sulfuric acid plant, if it is in compliance with all conditions of this construction permit, until its expiration date or until the expiration date of any permit to operate that is issued for this source.

13. Upon obtaining a permit to operate, Royster Company will be required to submit quarterly excess emissions reports (40 CFR 60.7) and annual operation reports which shall include, as a minimum, the annual production and a recent emissions test report, to the Southwest District. A copy of the excess emissions report shall be sent to the Bureau of Air Quality Management.

Issued this ____ day of _____, 1985

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION

VICTORIA J. TSCHINKEL, Secretary